Smoky Canyon Mine
Panels F & G Final EIS

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Chapter 7
Comments and Response

7.0 Public Comments

7.0.1 Introduction

The Notice of Availability for the Smoky Canyon Mine Panels F & G DEIS was published in the Federal Register on December 30, 2005. The 60-day comment period was scheduled to end March 3, 2006. A 15-day extension to the comment period was granted by the Forest Service; therefore extending the comment period to March 18, 2006.

Three public meetings were held January 17, 18, and 19, 2006 in Pocatello and Soda Springs, Idaho and Afton, Wyoming, respectively.

Agencies, organizations, and interested parties provided comments on the DEIS via mail, email, and comment forms at public meetings. A total of 38,616 letters, email, and comment forms were received.

7.0.2 Comment Analysis

The Content Analysis Team at the Shipley Group processed all of the DEIS comments received by the close of the comment period. Public input on the Smoky Canyon Mine DEIS was documented and analyzed using a process called content analysis, which is a systematic method of compiling and categorizing the full range of public viewpoints and concerns regarding a plan or project. This process has been used in a number of other federal NEPA projects. Content analysis is intended to facilitate good decision-making by helping the planning team clarify, adjust, or incorporate information into preparation of the Final EIS for a project. All responses (i.e., letters, emails, faxes, and other types of input) are included in this analysis.

In the content analysis process used for the Panels F and G project, each response is given a unique identifying number, which allows analysts to link specific comments to original letters. Respondents' names and addresses are then entered into a project-specific database program, enabling creation of a complete mailing list of all respondents. The database is also used to track pertinent demographic information such as responses from groups of commenters or federal, state, tribal, county, and local governments. Letters from groups of persons are given unique identifying numbers even if they are form letters; although the associated comments from form letters are processed only once under the master letter (first of that form letter processed).

All input is considered and reviewed by two analysts. Each response is first read by one analyst and sorted into comments addressing various concerns and themes. A second analyst reviews the sorted comments to ensure accuracy and consistency. Comments are then entered verbatim into the database. In preparing the final summary analysis, public comments are reviewed again using database printouts. These reports track all coded input and allow analysts to identify a wide range of public concerns and analyze the relationships between them. The

final product includes a list of public concerns addressing the DEIS and all comments relating to the public concern.

It is important for the public to understand that this process makes no attempt to treat comments as votes. In no way does content analysis attempt to sway decision makers toward the will of any majority. Content analysis provides the means to ensure that every original comment is considered at some point in the decision process.

The content analysis method employs both qualitative and quantitative approaches. It is a systematic process designed to provide specific demographic information, a mailing list of respondents, identification of individual comments by topic in each response, evaluation of similar comments from different responses, and to summarize like comments as specific public concern statements. The breadth, depth, and rationale of each comment are especially important. In addition to capturing relevant factual input, analysts try to capture the relative emotion and strength of public sentiment behind particular viewpoints in order to represent the public's values and concerns as fairly as possible. Analysts then organize the concern statements to facilitate systematic review and response by decision makers.

Each statement of public concern is an analyst's succinct rephrasing of one or more comments expressing similar views of what management action the agency should take. Each public concern statement is assigned a unique number. Organized by topic, chapter or resource, the public concern statements and responses appear in **Section 7.3**. Under each public concern statement, like comments were paraphrased and a response is given. Letter number and comment number are provided and can be cross referenced to identify the comment author in **Table 7.3-1 and Table 7.3-2**. **Table 7.3-1** is a list (alphabetical by author) of all the comment letters that generated original comments that were captured in the content analysis process. This list of 1,055 comment letters does not include the thousands of form letters that were essentially duplicates of master comment letters, but these are still represented because all the comments provided by these duplicate comments are at least considered once. **Table 7.3-2** is the same list organized numerically by letter number.

To help the reader of this FEIS understand how their comments were considered, they should find their comment letter number from the list in **Table 7.3-1** and then observe the comment letter numbers in **Section 7.3** where the specific comments and responses are shown. For readers having specific interest in how all their comments were coded into the data base, copies of the comment database are available on CD by requesting same from the BLM EIS project manager.

7.1 Original Response Demographic Summary

Demographic coding allows managers to form an overall picture of who is submitting comments, where they live, their general affiliation with various organizations or government agencies, and the manner in which they respond. The database can be used to isolate specific combinations of information about public comment. For example, a report can include public comments only from people in a certain state or a report can identify specific types of land users such as recreational groups, agricultural organizations, or businesses. Demographic coding allows managers to identify specific areas of concern linked to respondent categories, geographic areas, and response types.

Although demographic information is captured and tracked, it is important to note that the consideration of public comment is not swayed by demographics. Every comment and suggestion has value, whether expressed by one or a thousand respondents, and whether or not the comment originates from an address local to the project. All input is considered, and the analysis team attempts to capture all relevant public concerns in the analysis process.

In the tables displayed below, demographic figures are given for original responses, including number of responses, respondents, and signatures. For the purposes of this analysis, the following definitions apply: “response” refers to a discrete piece of correspondence; “respondent” refers to each individual or organization to whom a mail identification number is assigned (e.g., a single response may represent several organizations without one primary author); and “signature” simply refers to each individual who adds his or her name to a response, endorsing the view of the primary respondent(s).

In addition to the 1,055 original responses, 37,561 responses were received from organized response (form letter) campaigns. A form letter was identified as multiple correspondences with identical text. When a new form letter was identified, it was considered to be a comment letter and a "form", and was entered into the content analysis process to extract the various comments from the letter. Thereafter, all other identical copies of this same exact form that were received were logged as being received but were not considered to be additional "comment letters". In this manner, thousands of pieces of individual, form correspondence, all being identical to each other, were considered to be one form letter. This was repeated a number of times as a number of different form letters each with many exact duplicates were received. This is how tens of thousands of individual pieces of public comment correspondence became 1,055 original comment letters. See **Section 7.2.1** for additional description of how forms were processed.

7.1.1 Geographic Representation

Geographic representation is tracked for each original response during the course of content analysis. Letters and emails were received from 48 States and the District of Columbia of the United States. The response format did not reveal geographic origin for 79 responses. States of residence for each individual signature were not tracked for multi-signature responses. Signatures on multi-signature responses were all assigned to the state of the person or organization originating the response.

TABLE 7.1-1 GEOGRAPHIC REPRESENTATION OF RESPONSE BY STATE

STATE	NUMBER OF RESPONSES	NUMBER OF SIGNATURES
Alabama	3	3
Alaska	5	5
Arizona	9	10
California	75	86
Colorado	46	50
Connecticut	9	12
Delaware	1	1
District of Columbia	3	3
Florida	13	13
Georgia	10	11
Hawaii	3	3
Idaho	276	323
Illinois	30	33
Indiana	8	9
Iowa	5	5
Kansas	2	2
Kentucky	1	1
Maine	5	5
Maryland	10	12
Massachusetts	12	13
Michigan	20	22
Minnesota	18	18
Mississippi	2	2
Missouri	7	7
Montana	57	66
Nebraska	2	2
Nevada	2	2
New Hampshire	4	4
New Jersey	13	14
New Mexico	10	11
New York	35	37
North Carolina	6	6
North Dakota	1	1
Ohio	26	28
Oklahoma	3	3
Oregon	17	17
Pennsylvania	22	24
Rhode Island	2	3
South Carolina	2	2
South Dakota	2	2

STATE	NUMBER OF RESPONSES	NUMBER OF SIGNATURES
Tennessee	10	13
Texas	12	13
Utah	17	18
Vermont	2	2
Virginia	13	13
Washington	32	34
West Virginia	2	2
Wisconsin	9	9
Wyoming	102	226
Unknown Location	79	84
Total	**1,055**	**1,285**

7.1.2 Organizational Affiliation

Responses were received from various organizations and unaffiliated individuals. Respondents include businesses, state and local governments, mining industries, as well as unaffiliated individuals and others. Organization types were tracked for each letter, email, or fax received.

TABLE 7.1-2 NUMBER OF RESPONSES/SIGNATURES BY ORGANIZATIONAL AFFILIATION

ORGANIZATION TYPE	NUMBER OF RESPONSES	NUMBER OF SIGNATURES
Agriculture Industry or Associations (Farm Bureau)	4	4
American Indian Government Agency/Elected Official	1	1
Business	31	33
County Government Agency/Elected Official	5	10
Federal Agency/Elected Official	4	4
Individual	989	1208
International Government Agency or Official	1	1
Mining Industry/Association	4	4
Place Based Group	2	2
Preservation/Conservation	3	4
Private Land Inholding Owner	3	6
State Government Agency/Elected official	3	3

ORGANIZATION TYPE	NUMBER OF RESPONSES	NUMBER OF SIGNATURES
Timber or Wood Products Industry	1	1
Town/City Government Agency/Elected Official	4	4
Total	**1,055**	**1,285**

7.1.3 Response Type

Response types were tracked for each response received on the project. Responses were received in the form of letters, forms plus or letter generators plus, public meeting comment forms, and public meeting transcripts.

TABLE 7.1-3 NUMBER OF RESPONSES/SIGNATURES BY RESPONSE TYPE

RESPONSE TYPE #	RESPONSE TYPE	NUMBER OF RESPONSES	NUMBER OF SIGNATURES
1	Letter	510	539
2	Form Plus or Letter Generator Plus	537	581
6	Public Meeting Comment Form	5	5
7	Public Meeting Transcript (hearing/oral Testimony)	3	160
Total		**1,055**	**1,285**

7.1.4 Delivery Type

Delivery types were tracked for each response received on the project. Responses were received in the form of email, fax, and US mail or commercial carrier.

TABLE 7.1-4 NUMBER OF RESPONSES/SIGNATURES BY DELIVERY TYPE

DELIVERY TYPE CODE	DELIVERY TYPE	NUMBER OF RESPONSES	NUMBER OF SIGNATURES
E	Email	457	631
F	Fax	3	3
S	US Mail or Commercial Carrier	595	651
Total		**1,055**	**1,285**

7.2 Organized Response Summary

Organized response campaigns represented 97 percent of the total responses received during the public comment period for the proposal (37,561 out of 38,616). These response campaigns generally fall into one of two categories: form letters and multi-signature responses (numerous signatures on one response).

7.2.1 Form Responses

Forms are defined as five or more responses, received separately, but containing identical text. Once a form is identified, a “form master” is entered into the database with all of the content information. All responses with matching text are then linked to this master form within the database with a designated “form number.” If a response does not contain all of the text presented in a given form, it is entered as an individual letter. Duplicate responses from four or fewer respondents are also entered as individual letters.

Forms are designated with a number for the purpose of tracking subsequent submissions. Form numbers are assigned as each “form master” is identified. The following table presents the number of signatures associated with each form as well as brief content summaries.

TABLE 7.2-1 FORMS

NUMBER OF FORM/ LETTER GENERATOR	TOTAL RECEIVED (WITHOUT EXTRA COMMENTS)	DESCRIPTION OF FORM
1	34,672	The Smoky Canyon Mine threatens the federal wild lands in the Caribou-Targhee National Forest’s clean water, untrammeled roadless areas, blue-ribbon trout streams, abundant wildlife, Sage Creek roadless area, and exceptional recreational opportunities. I urge you to reject a proposal to expand the mine, and instead choose the "no-action" alternative. An effective plan to address selenium contamination should be developed and made public before an expansion of the mine is approved. (Master Form Letter #183)
2	58	I believe the draft environmental impact statement (DEIS) to be a very well written and researched document. Smoky Canyon Mine provides hundreds of Wyoming and Idaho residents with stable high paying employment. Denying the mine expansion permit will cause a direct economic impact to communities. The BLM and Forest Service should swiftly complete the permitting process granting Smoky Canyon Mine approval for the F & G panel mine expansion as well as the lease modifications; following mining alternative D and transportation alternative 2. (Master Form Letter #184)
3	5	I feel that the Simplot Company and their employees are good environmental stewards, and manage the environmental issues very well. Please don't let outside environmental interests or groups be allowed to influence your decision concerning the mining of Idaho's natural resources. I urge the agencies to select mining alternative B or D, because requiring both of these alternatives would be too expensive and is not supported by the predicted environmental impacts. I also support the selection of transportation alternative 2 because it represents the least amount of environmental impact of any of the analyzed haul/access road alternatives. (Master Form Letter #229)

NUMBER OF FORM/ LETTER GENERATOR	TOTAL RECEIVED (WITHOUT EXTRA COMMENTS)	DESCRIPTION OF FORM
4	1,916	I oppose expansion of the Smoky Canyon Mine in Southeast Idaho for the following reasons: -Current selenium contamination is not being cleaned up. Until a cleanup plan is in place and proven to be effective, no expansion of the mine should be permitted. -The plan poses an unacceptable risk of selenium contamination in streams, groundwater, and drinking water supplies. -The proposed mine expansion will further jeopardize the survival of YCT. -Until a decision on roadless areas has been made, the Forest Service should not allow new road building and mining in the Sage Creek and Meade Peak roadless areas. -The proposal drastically harms recreational opportunities, particularly non-motorized recreation including hunting, hiking, wildlife viewing, and photography. (Master Form Letter #243)
5	759	The wild and pristine lands of southeast Idaho make up some of the most important and biologically diverse areas in the Greater Yellowstone Ecosystem. The BLM and USFS cannot allow the phosphate industry to expand the Smoky Canyon open-pit phosphate mine into the Sage Creek and Meade Peak Roadless Areas of the Caribou-Targhee National Forest because: -Current selenium contamination is not being cleaned up; we need a plan in place. -Risk of selenium contamination in our water is not acceptable, to people or YCT. -We need a decision on roadless areas first, and our recreational opportunities are at risk. (Master Form Letter #244)
6	Early Attention Form (these letters were processed individually since they originated from local governments)	Any actions relative to the Smoky Canyon Mine have a direct impact upon Pocatello and her citizens. The Don Plant employs over 375 people. The average wages paid at the Don Plant are among the highest average wages of any other employer category in both Power and Bannock counties. In addition to wages, the company provides a benefit package to employees, amounting to an additional 40% of wages used in our community to support health care institutions. I support the proposed action. Mining alternatives B and C are not cost effective measures and will create undue costs without any measurable environmental protection. I support the agency preferred transportation alternatives, including the proposed action for Panel F and alternative 2. I support the inclusion of both the north and south lease modifications to the Manning Creek lease to extract optimum mineral resources while the lands are under disturbance. The DEIS fails to identify the direct, induced, and secondary economic impacts of Smoky Canyon Mine and the Don Plant. The Simplot Company makes important contributions to civic organizations in the community. (Master Form Letter #603)

NUMBER OF FORM/ LETTER GENERATOR	TOTAL RECEIVED (WITHOUT EXTRA COMMENTS)	DESCRIPTION OF FORM
7	8	This industry has provided good paying jobs with good benefits and has had a good economic effect on the whole area. Without the good paying mining jobs J.R. Simplot provides at the Smoky Canyon Mine and the numerous indirect jobs supported by the mine, the area would lose its economic base, forcing families to move from an area that has an outstanding quality of life. The Forest Service should issue a Final EIS and Record of Decision that grants all lease modifications, chooses Transportation Alternative 2 and Mining Alternative D. The Deer Creek lease modification is necessary to ensure that the Company recovers all economical resources and that overburden is not placed in the southwest corner of the Company's existing lease over existing springs. Simplot's mine expansion proposal is consistent with and furthers the national policy found in the Organic Act, the Multiple-Use and Sustained Yield Act, the National Forest Management Act, and the Mining and Minerals Policy Act of 1970. Timing is critical to a continued supply of ore to Simplot's Don Plant in Pocatello, Idaho. It is important that the current schedule be maintained and that a Record of Decision be issued in August 2006. (Master Form Letter #991)
LG 1	143	-A decision that grants all the lease modifications, transportation 2, and mining alternative D. -The lease modifications are particularly important because they represent approximately 20 percent of potential ore available for mining. -I strongly disagree that both mining alternatives B and D are necessary. There is little environmental benefit to doing alternative B. Alternative B increases the cost to mine the leases by over 9 million dollars due to re-handling. -The Deer Creek lease modification issue must be resolved in an environmentally reasonable way. -Without the continuation of this project southeastern Idaho and western Wyoming would suffer economic hardship. -Timing is critical to continue the supply of ore to Simplot's Don Plant in Pocatello, Idaho. -If the Don Plant were to shut down, the supply would be taken up by foreign countries, resulting in further foreign dependence. -Without Simplot operating in the northwest United States, the supplier of phosphate fertilizer would be the Canadian based company Agrium. Agrium's monopoly would result in higher cost food production. -Simplot has demonstrated sound environmental stewardship. -Selenium concerns can be mitigated. -Phosphates help prevent starvation and help protect the environment. -Phosphate mining is a valid multiple use of Forest Service lands. (Master Form Letter #242)
Total	37,561	

7.3 Comments and Responses

7.3.1 General Comments

Public Concern ID 2
The BLM/FS should allow the proposed lease expansion of the Smoky Canyon Mine

1. Comment: Numerous commenters expressed support of granting the lease modifications in order to maximize phosphate ore recovery. [Ltr2 Cmt3, Ltr3 Cmt3, Ltr4 Cmt2, Ltr6 Cmt3, Ltr9 Cmt3, Ltr10 Cmt3, Ltr13 Cmt3, Ltr14 Cmt3, Ltr15 Cmt3, Ltr16 Cmt3, Ltr19 Cmt3, Ltr20 Cmt3, Ltr21 Cmt3, Ltr22 Cmt3, Ltr23 Cmt3, Ltr24 Cmt3, Ltr25 Cmt3, Ltr26 Cmt3, Ltr27 Cmt2, Ltr28 Cmt2, Ltr29 Cmt3, Ltr30 Cmt3, Ltr31 Cmt3, Ltr32 Cmt3, Ltr33 Cmt3, Ltr34 Cmt3, Ltr35 Cmt3, Ltr36 Cmt3, Ltr37 Cmt3, Ltr38 Cmt3, Ltr39 Cmt3, Ltr40 Cmt3, Ltr41 Cmt2, Ltr42 Cmt2, Ltr43 Cmt3, Ltr44 Cmt3, Ltr47 Cmt3, Ltr55 Cmt3, Ltr57 Cmt3, Ltr63 Cmt2, Ltr70 Cmt2, Ltr76 Cmt2, Ltr77 Cmt3, Ltr78 Cmt4, Ltr79 Cmt6, Ltr85 Cmt6, Ltr86 Cmt3, Ltr87 Cmt3, Ltr89 Cmt3, Ltr90 Cmt3, Ltr91 Cmt3, Ltr92 Cmt3, Ltr93 Cmt3, Ltr94 Cmt3, Ltr95 Cmt3, Ltr96 Cmt3, Ltr97 Cmt3, Ltr98 Cmt5, Ltr99 Cmt3, Ltr100 Cmt3, Ltr101 Cmt3, Ltr103 Cmt3, Ltr104 Cmt3, Ltr105 Cmt2, Ltr106 Cmt3, Ltr107 Cmt3, Ltr108 Cmt3, Ltr109 Cmt3, Ltr110 Cmt3, Ltr111 Cmt3, Ltr112 Cmt3, Ltr113 Cmt3, Ltr115 Cmt4, Ltr116 Cmt3, Ltr117 Cmt3, Ltr118 Cmt3, Ltr120 Cmt3, Ltr123 Cmt3, Ltr129 Cmt3, Ltr134 Cmt2, Ltr135 Cmt3, Ltr136 Cmt3, Ltr137 Cmt3, Ltr141 Cmt3, Ltr144 Cmt3, Ltr145 Cmt3, Ltr146 Cmt3, Ltr147 Cmt3, Ltr148 Cmt3, Ltr230 Cmt3, Ltr235 Cmt4, Ltr233 Cmt3, Ltr234 Cmt4, Ltr238 Cmt4, Ltr245 Cmt4, Ltr267 Cmt2, Ltr484 Cmt3, Ltr485 Cmt3, Ltr492 Cmt3, Ltr503 Cmt3, Ltr556 Cmt4, Ltr557 Cmt4, Ltr986 Cmt4, Ltr987 Cmt4, Ltr988 Cmt4, Ltr993 Cmt3, Ltr994 Cmt4, Ltr995 Cmt4, Ltr996 Cmt4, Ltr1013 Cmt5, Ltr1014 Cmt5, Ltr1015 Cmt5, Ltr262 Cmt3, Ltr1 Cmt4, Ltr149 Cmt3, Ltr161 Cmt4, Ltr162 Cmt1, Ltr168 Cmt3, Ltr172 Cmt2, Ltr173 Cmt4, Ltr177 Cmt3, Ltr178 Cmt3, Ltr179 Cmt3, Ltr182 Cmt3, Ltr247 Cmt4, Ltr250 Cmt3, Ltr251 Cmt4, Ltr256 Cmt6, Ltr259 Cmt3, Ltr272 Cmt3, Ltr378 Cmt2, Ltr383 Cmt3, Ltr384 Cmt3, Ltr540 Cmt3, Ltr546 Cmt3, Ltr547 Cmt12, Ltr573 Cmt8, Ltr602 Cmt3, Ltr1001 Cmt3, Ltr1002 Cmt3, Ltr1003 Cmt3, Ltr1004 Cmt3, Ltr1005 Cmt3, Ltr1016 Cmt3, Ltr1017 Cmt3, Ltr1038 Cmt2, Ltr1052 Cmt5, Ltr114 Cmt4]

   Response: Each of the alternatives represents a course of action that addresses issues and concerns to varying degree. The Agencies will select alternatives based on an overall analysis of environmental impacts, other relevant factors (i.e. economic and technical considerations), and agency statutory missions. The basis for selection of alternatives will be specified in the Record of Decision. In the DEIS, the Agencies disclosed the Agency Preferred Alternative which includes the Proposed Action Mining of both Panels F & G including the Panel F north and south lease modifications, Mining Alternatives B, D, and E, the Proposed Action Panel F Haul/Access Road, and the Transportation Alternative 2 (Panel G East Haul/Access Road) as their Preferred Alternative. Subsequently the Agencies have withdrawn Alternative B from the Preferred Alternative and selected the Proposed Action Panel G West Haul/Access Road as the Preferred Transportation Alternative.

   The Agencies have considered additional logistical and economic information provided in comments to the DEIS and have decided that application of the cover design developed for Alternative D would accomplish the environmental objectives of

Alternative B. The Panel G transportation alternative was changed because Simplot had not negotiated the necessary right-of-way through private property. The Agencies have determined that the components included in the Agency Preferred Alternative would balance socioeconomic benefits with potential environmental consequences. Mitigation, monitoring, and Best Management Practices will be implemented to help minimize and/or eliminate adverse impacts.

2. Comment: Numerous commenters expressed support for the mine expansion due to socioeconomic reasons including: personal employment, local/regional employment/economy, the Idaho economy, Southeastern Idaho and western Wyoming economies, community benefits, financial benefits, good pay and benefits, high salaries, possible displacement of families and businesses, the fertilizer industry, the Don Plant, vendors of the mine, local farmers, cost effective agriculture, U.S. competition in global marketplace, U.S. jobs, foreign dependency, property values, and Simplot's support of events, projects, organizations, and local communities, local farmers. [Ltr6 Cmt1, Ltr7 Cmt1, Ltr8 Cmt1, Ltr9 Cmt1, Ltr10 Cmt1, Ltr11 Cmt1, Ltr14 Cmt1, Ltr15 Cmt1, Ltr16 Cmt1, Ltr17 Cmt3, Ltr18 Cmt1, Ltr20 Cmt1, Ltr21 Cmt1, Ltr22 Cmt1, Ltr23 Cmt1, Ltr24 Cmt1, Ltr25 Cmt1, Ltr26 Cmt1, Ltr30 Cmt1, Ltr31 Cmt1, Ltr44 Cmt1, Ltr45 Cmt1, Ltr48 Cmt1, Ltr51 Cmt1, Ltr55 Cmt1, Ltr57 Cmt1, Ltr66 Cmt1, Ltr68 Cmt1, Ltr70 Cmt4, Ltr71 Cmt1, Ltr71 Cmt2, Ltr74 Cmt1, Ltr75 Cmt1, Ltr77 Cmt1, Ltr78 Cmt1, Ltr78 Cmt2, Ltr88 Cmt1, Ltr89 Cmt1, Ltr90 Cmt1, Ltr91 Cmt1, Ltr92 Cmt1, Ltr93 Cmt1, Ltr94 Cmt1, Ltr95 Cmt1, Ltr97 Cmt1, Ltr98 Cmt1, Ltr99 Cmt1, Ltr100 Cmt1, Ltr101 Cmt1, Ltr107 Cmt1, Ltr112 Cmt1, Ltr113 Cmt1, Ltr114 Cmt6, Ltr117 Cmt1, Ltr118 Cmt1, Ltr126 Cmt1, Ltr127 Cmt1, Ltr129 Cmt1, Ltr131 Cmt1, Ltr133 Cmt1, Ltr140 Cmt1, Ltr141 Cmt1, Ltr144 Cmt1, Ltr230 Cmt1, Ltr232 Cmt1, Ltr234 Cmt3, Ltr974 Cmt13, Ltr1016 Cmt1, Ltr1017 Cmt1, Ltr149 Cmt1, Ltr3 Cmt1, Ltr277 Cmt1, Ltr286 Cmt1, Ltr323 Cmt1, Ltr583 Cmt2, Ltr587 Cmt1, Ltr994 Cmt1, Ltr995 Cmt1, Ltr177 Cmt1, Ltr249 Cmt1, Ltr311 Cmt1, Ltr330 Cmt1, Ltr370 Cmt1, Ltr386 Cmt13, Ltr484 Cmt1, Ltr485 Cmt1, Ltr492 Cmt1, Ltr502 Cmt1, Ltr545 Cmt2, Ltr1001 Cmt1, Ltr1002 Cmt1, Ltr543 Cmt1, Ltr2 Cmt1, Ltr157 Cmt3, Ltr171 Cmt1, Ltr314 Cmt1, Ltr166 Cmt1, Ltr5 Cmt1, Ltr262 Cmt1, Ltr318 Cmt1, Ltr319 Cmt1, Ltr320 Cmt1, Ltr335 Cmt1, Ltr602 Cmt1, Ltr168 Cmt1, Ltr351 Cmt1, Ltr184 Cmt2, Ltr181 Cmt2, Ltr569 Cmt1, Ltr1003 Cmt1, Ltr1004 Cmt1, Ltr1005 Cmt1, Ltr1010 Cmt3, Ltr13 Cmt1, Ltr180 Cmt1, Ltr273 Cmt1, Ltr274 Cmt1, Ltr356 Cmt1, Ltr573 Cmt7, Ltr79 Cmt4, Ltr1006 Cmt1, Ltr1007 Cmt1, Ltr1008 Cmt1, Ltr150 Cmt2 Ltr153 Cmt1, Ltr389 Cmt1, Ltr389 Cmt13, Ltr503 Cmt1, Ltr563 Cmt1, Ltr573 Cmt1, Ltr988 Cmt1, Ltr1011 Cmt2, Ltr1012 Cmt2, Ltr1013 Cmt1, Ltr1014 Cmt1, Ltr1015 Cmt1, Ltr1052 Cmt1, Ltr152 Cmt1, Ltr698 Cmt13, Ltr159 Cmt1, Ltr530 Cmt1, Ltr478 Cmt1, Ltr556 Cmt1, Ltr165 Cmt1, Ltr234 Cmt2, Ltr547 Cmt14]

   Response: See PC2 Comment 1 response. As discussed in the Purpose and Need (**Section 1.1**), the Agencies are required to review the submitted mine plans and analyze the environmental impacts. The goal is to design and approve a mine with predicted environmental impacts in compliance with all state and federal laws and regulations. The socioeconomic information is provided in **Sections 3.16, 4.16**, and **5.17** of the EIS.

3. Comment: Numerous commenters noted Simplot's dedication to the environment and willingness to protect and improve the environment as evidenced in past projects and reclamation. Simplot is responsible, follows regulations and requirements, and goes

above and beyond what is expected and required. Simplot utilizes progressive and environmentally responsible technologies in their operations. Simplot is proactive on environmental issues and a good steward of the land. The mine expansion will have little if any environmental effect. [Ltr29 Cmt1, Ltr34 Cmt1, Ltr40 Cmt1, Ltr43 Cmt1, Ltr49 Cmt1, Ltr58 Cmt1, Ltr60 Cmt1, Ltr77 Cmt1, Ltr78 Cmt2, Ltr79 Cmt1, Ltr84 Cmt1, Ltr96 Cmt1, Ltr101 Cmt1, Ltr106 Cmt1, Ltr108 Cmt1, Ltr115 Cmt2, Ltr119 Cmt1, Ltr121 Cmt1, Ltr133 Cmt1, Ltr144 Cmt1, Ltr229 Cmt1, Ltr235 Cmt1, Ltr272 Cmt1, Ltr275 Cmt1, Ltr313 Cmt1, Ltr318 Cmt2, Ltr568 Cmt1, Ltr314 Cmt1, Ltr73 Cmt1, Ltr157 Cmt2, Ltr351 Cmt3, Ltr502 Cmt1, Ltr178 Cmt1, Ltr523 Cmt1, Ltr316 Cmt4, Ltr388 Cmt13, Ltr315 Cmt1, Ltr13 Cmt1, Ltr176 Cmt1, Ltr337 Cmt1, Ltr158 Cmt1, Ltr250 Cmt4, Ltr334 Cmt1, Ltr156 Cmt2, Ltr162 Cmt5, Ltr247 Cmt1, Ltr251 Cmt2, Ltr255 Cmt2, Ltr316 Cmt5, Ltr336 Cmt1, LTr359 Cmt1, Ltr387 Cmt13, Ltr486 Cmt1, Ltr533 Cmt1, Ltr539 Cmt1, Ltr543 Cmt5, Ltr545 Cmt3, Ltr546 Cmt1, Ltr564 Cmt1, Ltr565 Cmt1, Ltr566 Cmt1, Ltr571 Cmt1, Ltr583 Cmt1, LTr587 Cmt2, Ltr992 Cmt5, Ltr994 Cmt2, Ltr995 Cmt2, Ltr1013 Cmt3, Ltr1014 Cmt3, Ltr1015 Cmt3, Ltr1032 Cmt7, Ltr1032 Cmt8, Ltr1052 Cmt3, Ltr182 Cmt1, Ltr276 Cmt1, Ltr367 Cmt1, Ltr975 Cmt15, Ltr368 Cmt4, Ltr552 Cmt4, Ltr328 Cmt1, Ltr527 Cmt1, Ltr317 Cmt1, Ltr1034 Cmt1, Ltr1032 Cmt4, Ltr19 Cmt1, Ltr567 Cmt1, Ltr291 Cmt2, Ltr358 Cmt1, Ltr162 Cmt8, Ltr1032 Cmt1, Ltr170 Cmt1, Ltr601 Cmt1, Ltr169 Cmt1, Ltr17 Cmt2, Ltr261 Cmt2, Ltr575 Cmt3, Ltr575 Cmt4, Ltr1032 Cmt14, Ltr543 Cmt4]

Response: See PC2 Comment 1 response.

4. Comment: Several commenters expressed support of the mine expansion because phosphate is needed to produce fertilizer. Fertilizer is needed to grow crops in order to feed people. [Ltr33 Cmt1, Ltr35 Cmt1, Ltr36 Cmt1, Ltr37 Cmt1, Ltr38 Cmt1, Ltr231 Cmt1]

   Response: See PC2 Comment 1 response. The socioeconomic information is provided in **Sections 3.16**, **4.16**, and **5.17** of the EIS.

5. Comment: Two commenters simply expressed support of the agency preferred alternative because it represents the best interest of Simplot and the agencies while allowing maximum recovery of the phosphate resource. [Ltr50 Cmt1, Ltr82 Cmt1]

   Response: See PC2 Comment 1 response.

6. Comment: Commenters noted that mining is important since our country was built on utilizing natural resources. We need these natural resources to survive. All commodities and development come with some impact to people and the environment. There are ways to mine that are safe and clean. Common sense and stewardship are imperative. [Ltr52 Cmt1, Ltr62 Cmt1, Ltr85 Cmt4, Ltr87 Cmt1, Ltr134 Cmt1, Ltr329 Cmt1, Ltr263 Cmt2, Ltr157 Cmt7, Ltr495 Cmt1]

   Response: See PC2 Comment 1 response.

7. Comment: Several commenters expressed support for the mine expansion because both the FS and the BLM utilize multiple-use sustained yield management principles. Public lands should be used and managed rather than locked up. Responsible mining is

an acceptable and important use of public land. [Ltr53 Cmt1, Ltr72 Cmt1, Ltr973 Cmt9, Ltr986 Cmt1, Ltr242 Cmt10, Ltr532 Cmt2, Ltr532 Cmt3, Ltr991 Cmt7, Ltr543 Cmt7, Ltr552 Cmt6, Ltr162 Cmt7, Ltr237 Cmt5, Ltr291 Cmt4, Ltr316 Cmt6, Ltr557 Cmt5, Ltr575 Cmt5, Ltr601 Cmt2, Ltr973 Cmt1, Ltr987 Cmt1, Ltr1032 Cmt17, Ltr556 Cmt5, Ltr154 Cmt1]

Response: The BLM and FS both utilize multiple-use sustained yield management principles. They will make a decision based on the understanding of environmental consequences and potential benefits of the project. Environmental consequences, including potential benefits, are disclosed in Chapter 4 of the EIS for each of the resources. The Agency Preferred Alternative would consist of Proposed Action mining of both Panels F and G, including the Panel F north and south lease modifications, Alternative D – Store and Release Cover over Seleniferous Overburden Fills, Alternative E – Power line along Haul/Access Roads, Proposed Action Panel F Haul/Access Road, and the Proposed Action Panel G West Haul/Access Road. If Simplot and the private land holder were to come to a mutual agreement that would provide Simplot an easement for Transportation Alternative 2 – East Haul/Access Road, then the Agencies would prefer to implement this Transportation Alternative. See **Section 2.10.2**. The Agencies have determined that these components would balance socioeconomic benefits with potential environmental consequences.

Section 101 (b) of the National Environmental Policy Act outlines the six substantive elements of NEPA which include attaining "the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences" (Section 101 (b) (3)) and "…approach the maximum attainable recycling of depletable resources" (Section 101 (b) (6)). Thus, the Agencies must evaluate which alternatives best meet the needs of the public, the environment, and the recovery of the depletable phosphate resource as directed in the RFP (USFS 2003a). Land management for various areas is decided in the Forest planning process.

8. Comment: Commenters expressed support for the mine expansion, noting that it is the role of the Agencies to find a healthy balance between the environmental concerns, the socioeconomic concerns, and the practicality of implementation of the project. [Ltr130 Cmt1, Ltr475 Cmt2, Ltr992 Cmt1, Ltr171 Cmt1, Ltr552 Cmt2, Ltr260 Cmt2, Ltr475 Cmt5]

   Response: See PC2 Comment 7 response.

9. Comment: Commenters expressed support for the mine expansion, while also stating that information from environmental groups needs to be disregarded as do the opinions of individuals from outside the area. The environmental groups do not represent the public. Individuals that live outside the area do not know the area or understand the project but have been fed lies. [Ltr155 Cmt1, Ltr155 Cmt2, Ltr155 Cmt3, Ltr155 Cmt4, Ltr356 Cmt1, Ltr390 Cmt13, Ltr536 Cmt2, Ltr583 Cmt3, Ltr1032 Cmt5, Ltr486 Cmt2]

   Response: NEPA and CEQ regulations state that an agency shall "request comments from the public, affirmatively soliciting comments from those persons or organizations who may be interested or affected" (§ 1503.1 (a)(4)). There is no restriction on who can comment. Further, NEPA requires that all comments be assessed and considered (§ 1503.4).

10. Comment: One commenter expressed support for the mine expansion, noting that selenium is beneficial to the historically selenium-deficient ecosystem in Southeast Idaho. The increase in selenium will not have an adverse effect on fish or other aquatic biota. [Ltr176 Cmt2]

    Response: The local environment of the Project Area is arguably not selenium deficient. **Section 4.8** of the FEIS identifies certain potential impacts could occur to fish and other aquatic biota from the proposed mining operations.

11. Comment: Several commenters simply stated support for the mine expansion. [Ltr181 Cmt1, Ltr338 Cmt1, Ltr509 Cmt1, Ltr531 Cmt1, Ltr545 Cmt4, Ltr556 Ctm6, Ltr557 Cmt6, Ltr558 Cmt6, Ltr1009 Cmt1, Ltr1010 Cmt1, Ltr562 Cmt1, Ltr570 Cmt1, Ltr324 Cmt1, Ltr167 Cmt1]

    Response: See PC2 Comment 1 response.

12. Comment: One commenter expressed support for the mine expansion while voicing concern that rules and regulations are being systematically incorporated that will eventually end all mining in this country. The DEIS is an example of the agencies requiring unnecessary "extra protection" resulting in an economic burden that will hasten the end of mining. [Ltr234 Cmt1]

    Response: NEPA and CEQ regulations require that all federal actions and decision-making take into consideration affects on the human environment (NEPA Section 102(2) and §1500.2). The impact analyses in the EIS are a necessary step to comply with applicable statutes and provide the necessary hard look at the potential environmental effects of the proposed mining activities.

13. Comment: One commenter expressed support for the mine expansion because it is important for the U.S.A. to become self-sufficient. [Ltr476 Cmt1]

    Response: See PC2 Comment 1 response.

14. Comment: Several commenters expressed support for the mine noting that good planning and utilization of best management practices will allow safe mining. [Ltr986 Cmt2, Ltr987 Cmt2, Ltr996 Cmt2]

    Response: See PC2 Comment 1 and PC2 Comment 7 responses.

15. Comment: One commenter expressed support of the mine expansion, specifically Transportation Alternative 2 because it represents the least amount of environmental impact of any of the analyzed haul/access road alternatives. [Ltr256 Cmt7]

    Response: See PC2 Comment 1 and PC2 Comment 7 responses.

16. Comment: Several commenters expressed support of the mine expansion, noting that only Mining Alternative B or D should be selected, requiring both would be too expensive and not have additional environmental benefits. [Ltr272 Cmt2, Ltr181 Cmt2, Ltr172 Cmt1, Ltr81 Cmt1]

Response: See PC2 Comment 1 response.

17. Comment: Two commenters expressed support of the mine expansion specifically noting that Mining Alternative D provides an additional factor of safety regarding potential surface water and groundwater impacts. By limiting infiltration to half of the predicted value, the ultimate effect on selenium concentrations at these groundwater discharge locations would be acceptably reduced. [Ltr475 Cmt3, Ltr552 Cmt3]

    Response: Alternative D has been revised to reduce water quality impacts to a greater degree than the DEIS indicates due to the conservative nature of the impact analysis and the additional reduction in net percolation provided by the revised design.

18. Comment: One commenter expressed support for the mine expansion but stated that Mining Alternatives B and C are not cost effective measures and will create undue costs without any measurable environmental protection. [Ltr603 Cmt2]

    Response: Alternative B and C are not part of the Agency Preferred Alternative. The Agencies consider all reasonable alternatives and the effects of those alternatives in the decision-making process. See PC2 Comment 1 response.

19. Comment: One commenter expressed support for the mine expansion while questioning why an agency would collect payments on mineral leases for years without taking proper consideration of the permit. [Ltr163 Cmt1]

    Response: Development of a phosphate lease cannot occur until a Mine and Reclamation Plan can be approved. Annual rental fees for phosphate leases are paid to MMS by the leaseholder, according to 40 CFR 3504. An application was not submitted to BLM to mine the Manning and Deer Creek leases until 2003, at which point the adjudication of that application began. Through the NEPA process, the Agencies are fully considering the effects of the proposed action and alternatives. The Agency Preferred Alternative includes mining of both leases. It is the mining company that determines when leases are purchased, which leases in their portfolio are developed, and when.

20. Comment: One commenter expressed support for the mine expansion noting that mining technology has vastly improved. It makes sense to keep the mining in the same area rather than mine elsewhere. The access/haul road should be the shortest route to minimize disturbance; don't build roads around Sage Creek. Further, the outsiders are the ones opposing the project, not the locals. [Ltr67 Cmt1]

    Response: See PC2 Comment 1 response.

21. Comment: One commenter expressed support for the mine expansion specifically noting that the lease rights granted by the United States included additional lands "which may be necessary and convenient in the exercise of these rights and privileges granted." The lease modifications fall into this category and therefore should be granted. To not grant the lease modifications would restrict recovery of the phosphate resource which would be contrary to the terms and conditions of the lease. [Ltr554 Cmt1]

Response: The lease modifications are included in the Agency Preferred Alternative. See PC2 Comment 1 response.

22. Comment: Several commenters expressed support for the mine expansion specifically identifying the lease modifications, Transportation Alternative 2, and/or Mining Alternative D as maximizing phosphate recovery with the least amount of environmental impact. [Ltr1032 Cmt21, Ltr316 Cmt1, Ltr255 Cmt1, Ltr260 Cmt1Ltr551 Cmt1, Ltr560 Cmt3, Ltr575 Cmt1, Ltr271 Cmt2, Ltr368 Cmt1, Ltr991 Cmt2, Ltr258 Cmt1, Ltr368 Cmt3, Ltr291 Cmt1, Ltr368 Cmt2, Ltr271 Cmt1, Ltr275 Cmt2, Ltr495 Cmt2]

    Response: These are all part of the identified Agency Preferred Alternative, with the exception of Transportation Alternative 2 that has now been replaced with the Proposed Action Panel G West Haul/Access Road. However, if Simplot and the private land holder were to come to a mutual agreement that would provide Simplot an easement for Transportation Alternative 2 – East Haul/Access Road, then the Agencies would prefer to implement this Transportation Alternative. See **Section 2.10.2** and PC2 Comment 1 response.

23. Comment: Two commenters expressed support for the mine expansion noting that businesses in the United States are subject to the most stringent environmental laws compared to other countries. We are much better off when the U.S. leads and companies like Simplot produce fertilizer here. Simplot has always been a leader in technology that assures future mining will not harm the environment. [Ltr157 Cmt4, Ltr162 Cmt7]

    Response: These concerns go beyond the scope of this EIS.

24. Comment: Two commenters expressed support for the mine expansion noting the importance of utilizing an engineered cap over any external overburden pile. [Ltr973 Cmt2, Ltr114 Cmt1]

    Response: Alternative D includes an engineered cover and is included in the Agency Preferred Alternative. See PC2 Comment 1 response.

25. Comment: One commenter expressed support for the mine expansion stating that the alternatives proposed for analysis meet the definitions of reasonable alternatives. [Ltr498 Cmt1]

    Response: See PC2 Comment 1 response.

Public Concern ID 6

The BLM/FS should reject the proposed expansion of the Smoky Canyon Mine

1. Comment: Several commenters expressed opposition to the project citing existing selenium contamination and future selenium contamination as a result of mining. Selenium contamination adversely affects the land, water (surface, ground, drinking), wildlife (livestock, big game, Yellowstone cutthroat trout, etc), vegetation, and human health. Clean up of existing selenium contamination and research of enhanced anoxic attenuation in pit backfills has not been adequately tested. The mine is under a

Superfund cleanup order. The high risks of selenium should preclude permitting the project. [Ltr125 Cmt1, Ltr978 Cmt2, Ltr625 Cmt3, Ltr507 Cmt1, Ltr308 Cmt1, Ltr301 Cmt1, Ltr1033 Cmt5, Ltr517 Cmt1, Ltr312 Cmt1, Ltr440 Cmt3, Ltr482 Cmt1, Ltr264 Cmt1, Ltr534 Cmt1, Ltr548 Cmt1, Ltr550 Cmt3, Ltr288 Cmt1, Ltr459 Cmt3, Ltr579 Cmt2, Ltr961 Cmt3, Ltr997 Cmt2, Ltr980 Cmt3, Ltr430 Cmt3, Ltr487 Cmt1, Ltr577 Cmt1]

Response: The Agencies have carefully considered the potential impacts from selenium in their analyses of all the alternatives and believe these impacts have been sufficiently mitigated in the Agency Preferred Alternative. The DEIS addresses the selenium issue in multiple sections of the DEIS. The Agency Preferred Alternative includes environmental protection measures proposed by Simplot and mitigation measures developed by the Agencies that would reduce selenium as a potential contaminant in the surface environment. The mining practices including BMPs such as pit backfilling, selective handling of overburden, use of low selenium chert for road construction, runoff and sediment controls and many others described in the DEIS would reduce selenium impacts during mining. Covering all seleniferous overburden with a cover designed to limit infiltration of water would provide long-term protection of groundwater and downgradient surface water resources including aquatic habitats and biota in the downgradient streams. The cover and topsoil would isolate seleniferous overburden from the surface environment and limit exposure of this material to vegetation, wildlife, and humans at the surface of the reclaimed mine areas.

The existing Simplot mine is under a Superfund order voluntarily as part of a multi-year process that has been ongoing between the Agencies and mining industry in Southeast Idaho since the discovery of problematic selenium releases from phosphate mines in the late 1990's.

The Agencies, industry, and outside groups have made significant progress through the completion of many studies throughout the phosphate production area in understanding the sources, pathways, fate, and risks associated with selenium releases from phosphate mines. Through the CERCLA process, Simplot and the Agencies have also completed site-specific investigations and evaluations of removal measures related to the selenium issues at the Smoky Canyon Mine. As is described in a new appendix (**Appendix 2A**) to the FEIS, actions are planned to occur at the mine that would reduce selenium concentrations in surface waters downstream of the mine.

The Agencies believe this knowledge, when applied to the proposed Panels F and G mining, will adequately mitigate selenium releases to ensure compliance with applicable environmental requirements.

2. Comment: Four commenters expressed opposition to the mine expansion stating that it would be better to close the mine and clean up the mess rather than expand it. [Ltr207 Cmt3, Ltr219 Cmt3, Ltr559 Cmt1, Ltr1020 Cmt3]

   Response: The Agencies are working with Simplot and other mine operators to remediate selenium issues at the ongoing mining operations and apply these lessons to future mine expansions so the current problems are not expanded. The CERCLA process is not necessarily a fast process, but it is thorough and has a history of success. Analysis of the Panels F and G mine plan, which includes measures taken from lessons

learned, indicates that mining can continue in an environmentally sound manner. Also see response to PC6 Comment 1 above.

3. Comment: One commenter expressed opposition to the mine expansion until 0% pollution protocols are put in place. [Ltr209 Cmt3]

   Response: See responses to PC6 Comments 1 and 2 above.

4. Comment: Numerous commenters expressed opposition to the mine expansion stating that mining in general is bad for the environment and harms the ecosystem. Mines pollute groundwater and leave the cleanup for someone else. [Ltr211 Cmt3, Ltr223 Cmt3, Ltr406 Cmt3, Ltr752 Cmt4, Ltr799 Cmt3, Ltr970 Cmt2, Ltr1035 Cmt1, Ltr54 Cmt1, Ltr295 Cmt1, Ltr783 Cmt3, Ltr873 Cmt3, Ltr624 Cmt3, Ltr340 Cmt1, Ltr346 Cmt1, Ltr978 Cmt1, Ltr685 Cmt5, Ltr500 Cmt1, Ltr643 Cmt5, Ltr548 Cmt1, Ltr1030 Cmt3, Ltr663 Cmt5]

   Response: All developments in undisturbed portions of the National Forest have some environmental impacts and the Agencies' decision-making process requires objective analysis and balancing of these impacts before deciding on the development. Neither NEPA nor the multiple-use land management regulations followed by the Agencies require complete elimination of environmental impacts when considering a new development. The analysis indicates the environmental protection and mitigation measures included in the Preferred Alternative would comply with applicable plans and regulations and afford enough protection of the environment and ecosystems for the project to go forward. Also see the applicable concepts expressed in responses to PC2 Comments 1 and 2 and PC6 Comments 1 and 2 above.

5. Comment: Several commenters expressed opposition to the mine expansion stating that health and environmental concerns should take precedence over socioeconomic concerns. Phosphate needs cannot possibly warrant the proposed level of environmental impacts. [Ltr224 Cmt3, Ltr696 Cmt7, Ltr758 Cmt3, Ltr695 Cmt6, Ltr342 Cmt1, Ltr578 Cmt1, Ltr696 Cmt6, Ltr331 Cmt1]

   Response: See the response to PC6 Comment 4 above.

6. Comment: Numerous commenters expressed opposition to the mine expansion citing proximity to Yellowstone National Park and/or the Greater Yellowstone Area/Ecosystem. The ecosystem is already compromised by development pressure, loss of habitat, existing pollutants, motorized travel, recreation, an increasing population, and corporate intrusion. Any development in or near a park and its surrounding environment is viewed negatively. It will endanger wildlife, fisheries, water, and air quality. Degradation of these public lands is unacceptable. These national treasures cannot be replaced. [Ltr227 Cmt3, Ltr298 Cmt1, Ltr443 Cmt3, Ltr457 Cmt3, Ltr471 Cmt3, Ltr966 Cmt3, Ltr1028 Cmt5, Ltr1035 Cmt2, Ltr584 Cmt1, Ltr596 Cmt1, LTr559 Cmt1, Ltr666 Cmt5, Ltr282 Cmt1, Ltr470 Cmt3, Ltr549 Cmt10, Ltr444 Cmt3, Ltr598 Cmt1, Ltr733 Cmt3, Ltr285 Cmt1, Ltr379 Cmt1, Ltr513 Cmt1, Ltr708 Cmt3, Ltr759 Cmt3, Ltr221 Cmt3, Ltr678 Cmt5, Ltr766 Cmt3, Ltr780 Cmt3, Ltr785 Cmt3, Ltr971 Cmt3]

Response: The proposed project is far enough away that it would not impact the resources of Yellowstone National Park in any measurable way. The GYE is a huge area encompassing other types of Federal, state and private lands in addition to the National Park lands. There is no area-wide land use plan or environmental protection status for the GYE outside of the park. The local land use plans applicable to these non-park lands control the future developments within the GYE outside of the park. In the case of the CNF, the RFP does recognize the GYE and the RFP includes numerous standards and guidelines intended to protect various environmental resources. Environmental effects of proposed developments on Federal lands in the GYE are evaluated through the NEPA and other permitting processes. As compliance with local land use plans and applicable state and federal regulations is indicated by analysis, the regulatory agencies can approve development of the mitigated mine plan.

7. Comment: Several commenters simply expressed opposition to the proposed mine expansion. [Ltr243 Cmt4, Ltr290 Cmt1, Ltr341 Cmt1, Ltr506 Cmt1, Ltr510 Cmt1, Ltr511 Cmt1, Ltr514 Cmt1, Ltr542 Cmt1, Ltr599 Ctm1, Ltr600 Cmt1, Ltr972 Cmt1, Ltr980 Cmt1, Ltr989 Cmt1, Ltr516 Cmt1, Ltr627 Cmt3, Ltr638 Cmt5, Ltr654 Cmt5, Ltr593 Cmt5, Ltr535 Cmt1, Ltr727 Cmt3, Ltr191 Ctm3, Ltr309 Cmt1, Ltr353 Cmt1]

   Response: See responses to PC6 Comments 1 and 2 above.

8. Comment: Numerous commenters expressed opposition to the proposed mine expansion stating concern over expansion into roadless areas. How can the agencies consider granting additional development rights in a pristine area and the life and resources it supports? No final decisions have been made regarding how to protect Idaho's roadless areas; therefore the agencies should not allow expansion into these sensitive areas at this time. [Ltr299 Cmt1, Ltr307 Cmt1, Ltr326 Cmt1, Ltr481 Cmt4, Ltr529 Cmt1, Ltr972 Cmt2, Ltr978 Cmt3, Ltr345 Cmt1, Ltr325 Cmt1, Ltr541 Cmt1, Ltr590 Cmt1, Ltr281 Cmt1, Ltr949 Cmt3, Ltr750 Cmt3]

   Response: The Agencies have considered impacts of the proposed project on IRAs (DEIS **Section 4.11**). See **Section 7.3.14** for further responses to similar comments.

9. Comment: Several commenters expressed opposition to the proposed mine expansion citing impacts to recreation, such as hiking, backpacking, hunting, wildlife viewing, photography, and solitude seekers. [Ltr445 Cmt3, Ltr976 Cmt6, Ltr437 Cmt3, Ltr875 Cmt3, Ltr989 Cmt2, Ltr1053 Cmt1, Ltr468 Cmt3, Ltr776 Cmt3]

   Response: The Agencies have considered impacts of the proposed operations on recreation opportunities (DEIS **Sections 4.10** and **4.12**.) These impacts have been determined to be localized, minor to moderate, and lasting for the duration of the mining and reclamation activities.

10. Comment: Commenters expressed opposition to the proposed mine expansion citing impacts to wilderness, wildlife (i.e. moose, elk, gray wolf, deer, lynx, wolverine, and trout), and wildlife habitat. The area has an abundance of wildlife and wide open spaces that make it unique in character. Don't put these at risk by expanding the mine. [Ltr419 Cmt3, Ltr595 Cmt1, Ltr352 Cmt1, Ltr784 Cmt3, Ltr405 Cmt3, Ltr591 Cmt2, Ltr610 Cmt3, Ltr734 Cmt3, Ltr888 Cmt3,

Response: The Agencies have considered impacts to wilderness (DEIS **Section 4.11**) and determined that there will be no impacts to recommended wilderness areas or research natural areas. Impacts to terrestrial wildlife were evaluated in **Section 4.7** of the DEIS and these were found to be site-specific, short-term, and minor to moderate for most species. Fisheries impacts were evaluated in **Section 4.8** of the DEIS and impacts to trout were determined to be site-specific, short- to long-term, and minor to moderate depending on the effects of selenium bioaccumulation (See **Appendix 3C** and **Section 4.8** of this FEIS for more detail). See response to PC 6 Comment 9 for the impacts to open spaces. The analysis indicates that the impacts to these resources caused by the Preferred Alternative are acceptable. See response to PC 26 Comment 1 for agency policy regarding multiple use.

11. Comment: Commenters expressed opposition to the proposed mine expansion stating that the agencies are guardians/custodians of public lands and should not allow the destruction of these lands and resources therein. These areas must be protected and preserved by the agencies. Agency actions have provided easy access/use of public lands by extractive companies that is causing irreparable damage. Strong governmental oversight is imperative. [Ltr296 Cmt1, Ltr512 Cmt1, Ltr535 Cmt1, Ltr947 Cmt3, Ltr793 Cmt3, Ltr1021 Cmt3, Ltr321 Cmt1, Ltr423 Cmt3, Ltr591 Cmt3, Ltr479 Cmt1, Ltr653 Cmt5, Ltr673 Cmt5, Ltr755 Cmt1, Ltr768 Cmt3, Ltr771 Cmt3, Ltr779 Cmt3,

    Response: The proposed mining would occur on lands designated years ago as KPLAs and included in the RFP as lands designated for future mineral development. The Agencies have evaluated the environmental impacts to the lands and resources from the proposed activities and have determined the impacts caused by the Agency Preferred Alternative would comply with current environmental protection regulations and plans. Also see the applicable concepts expressed in responses to PC2 Comments 1 and 2 and PC6 Comments 1 and 2 above. See response to PC 26 Comment 1 for agency policy regarding multiple use.

12. Comment: Commenters expressed opposition to the proposed mine expansion stating that the Smoky Canyon Mine is already a threat to the environment therefore it should not be expanded. The area should not be degraded further. [Ltr515 Cmt1, Ltr982 Cmt1, Ltr997 Cmt1, Ltr1023 Cmt8, Ltr183 Cmt1, Ltr983 CMt1, Ltr377 Cmt1, Ltr596 Cmt1, Ltr354 Cmt1, Ltr970 Cmt1, Ltr657 Cmt5, Ltr719 Cmt3, Ltr647 Cmt5, Ltr426 Cmt3, Ltr371 Cmt1, Ltr493 Cmt1, Ltr617 Cmt3, Ltr1021 Cmt4, Ltr662 Cmt6]

    Response: See responses to PC6 Comments 1 and 2 above.

13. Comment: Numerous commenters expressed opposition to the proposed mine expansion stating that the Agencies need to think of the long-term and preserve the land for future generations. [Ltr548 Cmt5, Ltr958 Cmt3, Ltr635 Cmt5, Ltr661 Cmt5, Ltr700 Cmt3, Ltr701 Cmt3, Ltr702 Cmt3, Ltr716 Cmt3, Ltr728 Cmt3, Ltr729 Cmt3, Ltr732 Cmt3, Ltr737 Cmt3, Ltr738 Cmt3, Ltr740 Cmt3, Ltr752 Cmt3, Ltr781 CMt3, Ltr787 Cmt3, Ltr792 Cmt3, Ltr794 Cmt3, Ltr800 Cmt3, Ltr804 Cmt3, Ltr806 Cmt3, Ltr844 Cmt3, Ltr871 Cmt3, Ltr984 Cmt2, Ltr1042 Cmt3, Ltr901 Cmt3, Ltr327 Cmt1, Ltr668 Cmt5, Ltr874 Cmt3, Ltr742 Cmt3, Ltr667 Cmt5, Ltr741 Cmt3, Ltr753 Cmt3, Ltr777 Cmt3]

Response: See responses to PC6 Comment 11 above. See response to PC 26 Comment 1 for agency policy regarding multiple use.

14. Comment: One commenter expressed opposition to the proposed project stating that 600 million dollar road should not be built through the Great Smokey's. [Ltr615 Cmt3]

    Response: The Great Smokey's are not within the project area. It appears the commenter was expressing opposition to a different project.

15. Comment: Commenters expressed opposition to the proposed mine expansion stating that the area is in pristine condition, are a national treasure, and should not be sacrificed to mining. [Ltr691 Cmt5, Ltr981 Cmt1, Ltr339 Cmt1, Ltr460 Cmt3, Ltr257 Cmt1, Ltr322 Cmt1, Ltr270 Cmt2, Ltr413 Cmt3, Ltr505 Cmt1, Ltr513 Cmt3, Ltr693 Cmt5,

    Response: The lands that would be affected by the proposed operations are not pristine national park lands. See the response to PC 6 Comment 11 above. See response to PC 26 Comment 1 for agency policy regarding multiple use. Also, see **Section 4.11** of the EIS regarding affects to Inventoried Roadless Areas/Recommended Wilderness and Research Natural Areas.

16. Comment: Commenters expressed opposition to the proposed mine expansion stating that it is time to stop using up the land. These projects lead to global impacts such as global warming. [Ltr722 Cmt3, Ltr739 Cmt3, Ltr743 Cmt3, Ltr656 Cmt4]

    Response: There is no evidence that phosphate mining of the affected lands would have noticeable impacts outside of the Cumulative Effects Area (see DEIS **Chapter 5**). See response to PC 26 Comment 1 for agency policy regarding multiple use.

17. Comment: Commenters expressed opposition to the proposed mine expansion stating that the project has not been properly vetted [evaluated]. [Ltr859 Cmt3]

    Response: Comments received on the DEIS have been evaluated and certain parts of the EIS have been revised in response to comments.

18. Comment: Commenters expressed opposition to the proposed mine expansion stating that short-term profit is not worth the long-term impacts. [Ltr955 Cmt3, Ltr549 Cmt12, Ltr611 Cmt3, Ltr655 Cmt5, Ltr757 Cmt3, Ltr790 Cmt3, Ltr805 Cmt3, Ltr730 Cmt3]

    Response: Socio-economic impacts, both negative and positive are evaluated in **Section 4.16** of the EIS. Responses to comments on this section in the DEIS are included in **Section 7.3.19** of this chapter. See response to PC 26 Comment 1 for agency policy regarding multiple use.

19. Comment: Commenters expressed opposition to the proposed mine expansion citing negative impacts to wildlife, fisheries, wilderness/backcountry, recreation, air, visual qualities, property values, human health, roadless areas, and water quality. Numerous issues remain unaddressed or ignored including a clean-up plan for the mine site, the risk of selenium contamination to water resources, and the lack of decision regarding local roadless areas. [Ltr279 Cmt1, Ltr1051 Cmt1, Ltr900 Cmt3, Ltr710 Cmt3, Ltr711

Cmt3, Ltr1027 Cmt5, Ltr651 Cmt4, Ltr705 Cmt3, LTr762 Cmt3, Ltr908 Cmt3, Ltr770 Cmt3, Ltr782 Cmt3, Ltr818 Cmt3, Ltr964 Cmt3, Ltr1024 Cmt5, Ltr1031 Cmt3, Ltr749 Cmt3, Ltr747 Cmt3, Ltr124 Cmt1, Ltr959 Cmt3, Ltr403 Cmt3, Ltr449 Cmt3, LTr400 Cmt3, Ltr432 Cmt3, Ltr858 Cmt3, Ltr435 Cmt3, Ltr414 Cmt3, Ltr778 Cmt3, Lt447 Cmt3, Ltr300 Cmt1, Ltr745 Cmt3, Ltr488 Cmt2, Ltr477 Cmt1, Ltr951 Cmt3]

Response: All these concerns are addressed in responses to PC 6 Comments 1, 2, 4, 10, 11, 18, and 20.

20. Comment: One commenter expressed opposition to the proposed mine expansion stating that Crow Creek residents will suffer economic loss through decrease in land value, loss of grazing rights, contamination of land and water, and potential livestock losses. There will be no respite from noise and dust, and weeds will proliferate. There will also be local revenue lost from reduced tourism. [Ltr240 Cmt14]

    Response: Impacts to grazing are evaluated in **Section 4.9** of the EIS and indicated some impacts to grazing on the specific allotments physically disturbed by the proposed operations. Grazing rights off the Federal lands along Crow Creek would not be affected by the proposed mining. **Sections 4.3**, **4.4**, and **4.5** in the EIS evaluate potential contamination of water, soil and vegetation by COPCs involved in the mine overburden. The contamination of the land surface and vegetation is described as being negligible thus impacts to livestock grazing in these areas would also be minimal. The groundwater and surface water quality impacts under the Preferred Alternative were shown in the DEIS to be within applicable State water quality standards. The revised water resources impact analysis in this FEIS indicates the groundwater quality impacts would be less than predicted in the DEIS. The impacts from noise and dust are evaluated in **Section 4.2** of the EIS. This shows that impacts from air quality off site would comply with applicable air quality standards. Noise impacts for most Crow Creek residents would be minor with more significant impacts to one landowner at the mouth of Deer Creek Canyon. Socio-economic impacts of the proposed operations are evaluated in **Section 4.16** of the EIS. **Section 7.3.19** of this chapter addresses similar comments related to Socio-economic impacts of the proposed mining on local land values, tourism and the local economy.

21. Comment: One commenter expressed opposition to the proposed mine expansion stating that coal mine pollution is one of the most damaging to land, water, and air. [Ltr619 Cmt3]

    Response: This project involves mining phosphate and environmental impacts are disclosed in **Chapters 4** and **5**.

22. Comment: Three commenters expressed opposition to the proposed mine expansion stating that this project does not represent multiple use of public lands but is rather singular use since the area will be destroyed by mining. [Ltr726 Cmt3, Ltr812 Cmt3, Ltr839 Cmt3]

    Response: Mining is one of the potential uses of Federal lands administered with multiple use, land management regulations by the Agencies. See response to PC 26 Comment 1 for agency policy regarding multiple use.

The lands in question are within KPLAs and have been designated at the Federal level as potential mining areas. They are also areas designated for potential mining under the CNF RFP. Environmental impacts are described in **Chapters 4** and **5**. Reclamation requirements are described in **Sections 2.3** and **2.5** of the DEIS.

23. Comment: Commenters expressed opposition to the proposed mine expansion stating that it threatens biodiversity. [Ltr631 Cmt5, Ltr946 Cmt3]

    Response: Impacts to vegetation resources, wildlife resources, and fisheries and aquatics have been described in **Sections 4.5**, **4.7**, and **4.8** of the EIS. In addition, cumulative effects to these same resources have also been addressed in **Sections 5.6** (Vegetation), **5.8** (Wildlife), and **5.9** (Fisheries and Aquatics) of the EIS. Although impacts to a variety of species, as described in the EIS, would occur as a result of the Project, the existing biodiversity of the Study Area is not expected to be impacted because of the numerous acres of undisturbed habitat within and surrounding the Study Area, the monitoring and mitigation measures proposed to be implemented, and the temporary nature of some impacts for this Project. No species level impacts resulting in a loss of a particular species are anticipated as a result of this Project.

24. Comment: Commenters expressed opposition to the proposed mine expansion stating that it does not provide a proper balance of environmental protection and mineral extraction. [Ltr756 Cmt1, Ltr683 Cmt5]

    Response: The Agencies have evaluated the environmental impacts of the proposed mining operations and the analysis demonstrates that the Agency Preferred Alternative strikes a suitable balance between environmental protection and mineral extraction. The final decision with accompanying rationale will be disclosed in the Record of Decision.

25. Comment: Two commenters expressed opposition to the proposed mine expansion stating that until an over-arching set of principles and polices to inform and guide decisions regarding resource extraction in the greater Rocky Mountain area is in place, no mining expansion should be allowed. [Ltr646 Cmt7, Ltr355 Cmt1]

    Response: The Agencies are required to follow existing regulations, plans, and policies to review proposed mineral extraction operations. As demonstrated by this EIS, the Federal and state agencies in Idaho coordinate closely and frequently on regulatory and technical issues related to mining developments on the CTNF.

26. Comment: One commenter expressed opposition to the proposed mine expansion stating that huge fines need to be levied to pay for reclamation/restoration. [Ltr802 Cmt3]

    Response: See responses to PC6 Comments 1 and 2 above. Remediation at the Smoky Canyon Mine is being attained through the CERCLA process and Simplot is required to pay all the associated costs.

27. Comment: Commenters expressed opposition to the proposed mine expansion stating that the mine should consider other less-vulnerable areas where mining would have fewer impacts on area resources. There are other major sources of phosphate available.

Concentrate mining elsewhere, such as in the Great Basin. Mine private land rather than public land. [Ltr950 Cmt317, Ltr524 Cmt1, Ltr360 Cmt2]

Response: The required analysis in the EIS is of the Proposed Action and a range of alternatives that are reasonable. Mining of other phosphate deposits would not meet the purpose and need of the proposed action. There are no economically viable phosphate resources known in the Great Basin. The lands proposed for mining are within recognized KPLAs and are areas designated in the CNF RFP for potential mining.

28. Comment: One commenter expressed opposition to the proposed mine expansion stating that there will be more efficient ways to mine in the future. The phosphate deposits are not going anywhere; therefore wait to mine until other technology is available. [Ltr1043 Cmt3]

    Response: See responses to PC6 comments 1 and 2 above.

29. Comment: Commenters expressed opposition to the proposed mine expansion citing the fact that these are public lands belonging to all Americans and shouldn't be used for local economic benefits. The natural resources should be protected for future generations. [Ltr425 Cmt3, Ltr392 Cmt3, Ltr410 Cmt3]

    Response: The Agencies manage the subject Federal lands under multiple use approaches that support uses of the resources the local lands provide. Also see the response to PC 2 Comment 7 and PC 26 Comment 1 for agency policy regarding multiple use.

30. Comment: Two commenters expressed opposition to the proposed mine expansion stating that there will be significant detrimental effects to property owners including dust, noise, visual scars, roads in roadless areas, loss of habitat for fish and game, selenium contamination, and deterioration of water quality. [Ltr270 Cmt1, Ltr174 Cmt1]

    Response: Effects on the local area due to dust, noise, visual impacts, roads in IRAs, impacts to fish and game, and water quality have been evaluated by the Agencies in the EIS **Sections 4.2**, **4.3**, **4.7**, **4.8**, **4.11**, and **4.12**. The Agencies have determined that these impacts would comply with applicable environmental protection requirements and the CNF RFP.

31. Comment: One commenter expressed opposition to the proposed mine expansion stating that it will poison water and wildlife. The agencies do not have the authority to grant this degradation of public lands. [Ltr381 Cmt1]

    Response: The Agency Preferred Alternative would not poison water and wildlife. (See **Sections 4.3.1** and **4.3.2** of the FEIS for water quality impacts and **4.7** for wildlife impacts). See the response to PC 6 Comment 33.

32. Comment: One commenter expressed opposition to the proposed mine expansion stating that unlimited human expansion in a finite landscape cannot continue. Our public lands should be saved unfragmented for species diversity and renewal of the human spirit. [Ltr284 Cmt1]

Response: The Agencies are required to manage the National Forest lands for multiple uses and not solely the protection of existing environmental resources.

33. Comment: Two commenters expressed opposition to the proposed mine expansion stating that if it is allowed to occur then Crow Creek will be sacrificed. Crow Creek serves as the lifeblood of the local ecosystem; this will in turn affect the wildlife. The residents, their homes, their ranches, and their quality of life will be ruined. [Ltr270 Cmt1, Ltr549 Cmt6]

    Response: The Agency Preferred Alternative would maintain water quality in Crow Creek within applicable State water quality standards for sediment and COPCs including selenium. The beneficial uses of water in Crow Creek would be maintained so there would be no negative impact to terrestrial wildlife, livestock, irrigation water supplies, or drinking water supplies.

34. Comment: One commenter expressed opposition to the proposed mine expansion stating that the mine should not be dumping into the Sage Creek. Further, this expansion should not be allowed in roadless areas. [Ltr520 Cmt1]

    Response: There would be no dumping of overburden into Sage Creek from the proposed mining operations. See responses to PC6 Comments 8 and 10 for the roadless area issues.

35. Comment: Several commenters expressed opposition to the proposed mine expansion citing impacts to water quality. The mine will pollute the groundwater and nearby rivers. Seeps and springs will be lost which will impact the amount of water in the creeks and thus increase selenium concentrations. Creeks in the area drain to the west which would impact Bear River and Bear Lake. The project would affect the watershed. Selenium contamination will affect wells, water supplies, and streams. [Ltr504 Cmt1, Ltr549 Cmt4, Ltr618 Cmt3, Ltr671 Cmt5, Ltr677 Cmt5, Ltr950 Cmt313, Ltr953 Cmt3, Ltr382 Cmt3, Ltr597 Cmt1, Ltr305 Cmt1]

    Response: Impacts to water quality and watersheds are analyzed in **Section 4.3** of the FEIS. The Agency Preferred Alternative would maintain water quality in groundwater discharges to surface waters within all applicable State water quality protection standards. **Section 4.3.2** of the EIS concludes that reduction in flows to Project Area streams from impacts to springs would be minor due to the naturally low flows of the affected springs. The project is located in the Salt River drainage. None of the streams in the Project Area drain to the Bear River or to Bear Lake.

36. Comment: Commenters expressed opposition to the proposed mine expansion in view of recent mining tragedies. Mining in general does not have sufficient oversight and regulation. [Ltr199 Cmt3, Ltr202 Cmt3]

    Response: See responses to PC6 Comments 1 and 2 above.

37. Comment: One commenter expressed opposition to the proposed mine expansion and questioned why it is necessary to mine this substance [phosphate] when other, non-toxic materials are available. [Ltr186 Cmt3]

Response: Phosphorus is not a toxic element with regard to plants. There are three main plant nutrients: nitrogen, potassium, and phosphorus, which are normally present in plant tissues. These and some other elements are directly involved in plant metabolism; are essential to plant life, and cannot be replaced by other elements. Phosphorus is important in plant growth and is needed for the conversion of light energy to chemical energy during photosynthesis.

There is a public debate that inorganic fertilizers of the type produced at the Simplot Don Plant may be harmful to the environment when compared to organic fertilizers (manure, peat, green manure etc.) and this may be what the commenter is referring to. Organic and inorganic fertilizers both have reported advantages and disadvantages but it is clear that large-scale agriculture tends to rely on inorganic fertilizers while organic fertilizers are more commonly used on smaller-scale agricultural operations. In practice, a compromise between the use of inorganic and organic fertilizers is common, typically by prudent use of inorganic fertilizers as needed supplemented with organics that are readily available, such as the return of crop residues or the application of manure. The debate regarding the relative values of inorganic and organic fertilizers is beyond the scope of this EIS. In this action, the Agencies are administering Federal phosphate leases in compliance with applicable statutes and regulations pertaining to environmental impacts of the proposed mining operations; these applicable requirements are listed in **Table 1.2-1** of the EIS.

38. Comment: One commenter expressed opposition to the mine expansion stating that the Agencies should refuse to set policy without the money to enforce the policy. These projects would not be so contentious with the public if health and welfare of humans and wildlife were being protected with enforceable regulations. The technology is there but is neither used nor enforced. [Ltr293 Cmt2]

    Response: As mandated by NEPA, the BLM/FS will make a decision based on understanding of environmental consequences and take actions to protect, restore, and enhance the environment. The EIS provides a full and fair discussion of significant environmental impacts and the reasonable alternatives, which would avoid or minimize adverse impacts. The EIS includes disclosure of potential impacts to recreation (**Section 4.10**), roadless areas (**Section 4.11**), wildlife (**Section 4.7**), selenium (**Sections 4.3**, **4.7**, and **4.8**), air quality and noise (**Section 4.2**), visual/aesthetics (**Section 4.12**), water resources (**Section 4.3**), and property values and tourism (**Section 4.16**).

    The Agency Preferred Alternative has been disclosed in **Section 2.10.2** of the EIS. This would consist of Proposed Action mining of both Panels F and G, including the Panel F north and south lease modifications, Alternative D – Store and Release Cover over Seleniferous Overburden Fills, Alternative E – Power line along Haul/Access Roads, Proposed Action Panel F Haul/Access Road, and the Proposed Action Panel G West Haul/Access Road. The Agencies have determined that these components would balance socioeconomic benefits with potential environmental consequences. Mitigation, monitoring, and Best Management Practices will be implemented to help minimize and/or eliminate adverse impacts.

    The BLM and USFS conduct regular inspections of mining and reclamation operations to ensure compliance with approved plans of operation. The BLM and USFS have agreed

through a multi-agency Memorandum of Understanding to pursue, enforce, and remediate violations of the Clean Water Act, stemming from numerous historic phosphate mines, through the CERCLA process.

39. Comment: One commenter expressed opposition to the project citing surface water quality standards exceedances for selenium in all alternatives other than Alternative D. However, Alternative D leaves an unacceptable amount of mining area unreclaimed. [Ltr978 Cmt6]

    Response: See PC6 Comment 1 and 35 responses.

Public Concern ID 11

The BLM/FS should ensure that any approved mining or processing activity is conducted in a way that has the least possible impact on the environment

1. Comment: Several commenters expressed the need to protect the environment/ecosystem through long-term planning that recognizes and avoids/mitigates potential impacts of mining. Any mine expansion should be developed safely and under strict guidelines with the least amount of impacts possible. [Ltr69 Cmt3, Ltr217 Cmt3, Ltr218 Cmt3, Ltr614 Cmt3, Ltr669 Cmt5, Ltr61 Cmt1, Ltr69 Cmt1, Ltr644 Cmt5]

   Response: This EIS analyzes potential impacts of the proposed mine expansion in compliance with applicable NEPA regulations. It involves scoping to determine relevant issues and subsequent formulation of feasible alternatives to address those issues. Analysis of the Proposed Action and the alternatives indicates that through the use of proposed BMPs and additional mitigation measures that the Agency Preferred Alternative can be implemented without violation of applicable environmental regulations. The Agency Preferred Alternative has been disclosed in **Section 2.10.2** of the FEIS. The Agencies have determined that these components would balance socioeconomic benefits with potential environmental consequences.

2. Comment: Three commenters stated that through good land management, planning, and monitoring, mining can be conducted in environmentally friendly manner, thereby allowing the benefit of natural resources through mineral extraction. [Ltr102 Cmt1, Ltr546 Cmt5, Ltr438 Cmt3]

   Response: The Agencies believe that mining in the Project Area can be conducted incorporating reasonable environmental protection measures to ensure compliance with applicable regulations and to provide for stable and productive post-mining conditions.

3. Comment: One commenter stated that it is possible to build an exterior overburden dump containing selenium-bearing material that poses minimal risk to the environment if capped with an impermeable barrier that reduces infiltration. A store and release cover will reduce the amount of infiltration into the backfill and thereby reduce the amount of effluent emanating from the toe of the overburden piles. [Ltr973 Cmt4]

   Response: The Agencies have revised the Agency Preferred Alternative removing the requirement for rehandling all seleniferous overburden from external fills (Alternative B)

and will instead require that they be covered with a store and release cover that is described in **Chapter 2** of the FEIS.

4. Comment: One commenter expressed concern that because proper reclamation and prevention costs money, environmental standards are lowered in order to meet industry standards and profitability. Specifically the commenter's concern focuses on the Yellowstone Cutthroat Trout and the leaching of selenium into streams with YCT habitat. YCT represent a resource that is renewable and economically viable; why sacrifice that for a finite product. This project should use strict environmental standards. [Ltr362 Cmt1, Ltr362 Cmt2]

   Response: The Agencies have incorporated environmental protection measures into the Agency Preferred Alternative that would allow mining to proceed and also include mitigation measures intended to ensure compliance with applicable environmental standards and to protect fisheries in Project Area streams, including habitat for YCT. Simplot has also agreed to implement additional mitigation measures to further protect YCT habitat in the region.

Public Concern ID 23

The BLM/FS should continue to work with the Simplot Company to find balanced land use options and solutions that will ensure employment for thousands of citizens

1. Comment: Two commenters urged the Agencies to work with Simplot to find balanced land use options and solutions in order to ensure continuation of employment for thousands of citizens with the Simplot organization. [Ltr247 Cmt2, Ltr116 Cmt1]

   Response: The Agencies are responsible to make management determinations on multiple uses of Federal lands under their administration. Input from the mining industry and other affected parties is considered when making decisions on proposed mining operations.

2. Comment: One commenter stated that Simplot is environmentally cognizant which is evident in their work and operations. [Ltr246 Cmt2]

   Response: Comment noted.

Public Concern ID 24

The BLM/FS should acknowledge that the Simplot Company does an excellent job of preserving and restoring the mine area when they are finished

1. Comment: The commenter has toured some of the mines that Simplot Company has mined and feels they have done an excellent job of reclamation and preservation. [Ltr135 Cmt1]

   Response: Comment noted.

Public Concern ID 25

The BLM/FS should require the Smoky Canyon Mine to use the least damaging technologies

1. Comment: Two commenters stated that mining should only be conducted utilizing technologies that protect ecological values, roadless areas, and water resources. [Ltr143 Cmt3, Ltr214 Cmt3]

   Response: The Agency Preferred Alternative would include BMPs and other environmental protection measures that protect environmental resources for multiple uses.

Public Concern ID 27

The BLM/FS should acknowledge that when compared with the benefits of the Smoky Canyon Mine, the selenium issue is minimal at best

1. Comment: One commenter stated that the selenium issue is minimal since the current condition of elevated selenium is not an effect of negligence or environmental mismanagement. This issue is rather a result of a lack of knowledge and experience. The effect of selenium is almost negligible when compared to the socioeconomic benefits provided by the Smoky Canyon Mine and Don Plant. [Ltr150 Cmt1]

   Response: Selenium is an issue that needs to be carefully considered for reasons discussed in the FEIS. Selenium effects cannot be assumed at the outset to be negligible although the Agency Preferred Alternative is predicted to mitigate selenium effects to low levels.

Public Concern ID 31

The BLM/FS should promote improved energy efficiency and alternative fuels

1. Comment: Three commenters expressed the need to focus on sustainable living and renewable energies rather than out-dated and environmentally degrading methods of extracting non-renewable natural resources. [Ltr226 Cmt3, Ltr640 Cmt5, Ltr642 Cmt5]

   Response: This is beyond the scope of analysis for this EIS.

Public Concern ID 49

The BLM/FS should read the mining chapters of Jared Diamond's book Collapse

1. Comment: One commenter recommended reading Jared Diamond’s book Collapse which discusses the long-term effects of mining. [Ltr192 Cmt3]

   Response: Comment noted.

Public Concern ID 82

The BLM/FS should continue to listen to groups that scientifically look for answers and solutions to better mining practices

1. Comment: One commenter stated that the Agencies should listen to mining companies that know the best way to mine through scientific study of the alternatives. [Ltr546 Cmt2]

   Response: The Agencies are responsible to make management determinations on multiple uses of Federal lands under their administration. Input from the mining industry and other affected parties are considered by Federal land managers when they make their decisions on proposed mining operations.

Public Concern ID 130

The BLM/FS should acknowledge that the draft EIS is so flawed, that it must be withdrawn and redone

1. Comment: One commenting group stated several times that they believe the DEIS analysis is flawed due to flawed baseline data, therefore the DEIS should be withdrawn, rewritten, and re-released in order to avoid jeopardizing natural resources. The public and the decision-makers need to fully understand the consequences if the proposed expansion proceeds therefore full disclosure of impacts is imperative. [Ltr950 Cmt1, Ltr950 Cmt156, Ltr950 Cmt6]

   Response: In responding to comments on the DEIS the Agencies identified appropriate revisions to be made in the environmental analysis. These changes were incorporated into the FEIS.

2. Comment: One commenting group stated that the DEIS ignores impacts to intermittent streams that expansion of current mining activities may cause, such as pulse loading of COPCs, and in doing so, managed to minimize both the nature and severity of the impacts. [Ltr950 Cmt43]

   Response: Disturbance, runoff reduction, baseflow, and peak flow impacts to the entire affected watersheds of the Project Area are described in **Section 4.3.2** of the DEIS. Physical, sediment and chemical impacts to perennial and intermittent channels are described in **Section 4.8.1** of the DEIS. Slugs of contamination being discharged to intermittent channels from head of hollow overburden fills are not expected to occur in the Panels F and G project.

3. Comment: The DEIS suffers from flaws in its attempt to predict impacts to aquatic resources. There is no explanation as how selenium contributions of stream channels will impact the parent drainages or how they will be mitigated or replaced. [Ltr950 Cmt63]

   Response: A discussion on mitigation measures to be implemented for the impacts to aquatic resources and their habitat has been added to the Fisheries and Aquatics section in the FEIS.

4. Comment: The new DEIS should use Dr. Lemly's procedure to ensure the selenium impacts are fully disclosed before a decision is made to approve the mine expansion. [Ltr950 Cmt154, Ltr950 Cmt155]

   Response: Lemly (2006) has not been approved by the Agencies and is not considered guidance for this phosphate mine proposal or any other at the current time.

   The analysis in the DEIS follows a defensible scientific process to determine the environmental consequences of the mining operation. The FEIS does not provide a hazard analysis based on thresholds provided by one scientist. Instead, a range of thresholds and potential impacts is described, along with their relationship with local empirical data, in the revised **Section 4.8** of the FEIS and the new **Appendix 3C**.

Public Concern ID 330
The BLM/FS should coordinate all future activities under review that have the potential to impact Wyoming's air, water, or land resources with the Wyoming DEQ.

1. One commenter requested that all future activities under review that have the potential to impact Wyoming's air, water or land resources be coordinated with this agency. [Ltr1055 Cmt2]

   Response: The Agencies have included the Wyoming DEQ in the EIS mailing list, and have met and toured the existing Smoky Canyon Mine with WDEQ. The USFS and BLM have considered comments provided by the agency.

7.3.2 Chapter 1

(Purpose & Need, public involvement, policies and plans, tribal consultation, issues and indicators)

Public Concern ID 18
The BLM/FS should adopt a policy that focuses on conservation rather than preservation

1. Comment: The agriculture community has learned to adapt to conservation practices and has consistently produced a bounty that feeds a good portion of the world...and is therefore the "envy of the world!" However, the American farmer needs access to raw material at a reasonable cost, as they do not have the ability to pass on their increased costs to those purchasing their products. We feel that a policy of conservation and not preservation is the best way to approach all aspects of life. With global population ever increasing, we do not believe that a preservation policy is even feasible! [Ltr85 Cmt2]

   Response: Comment noted. The application submitted by JR Simplot Company is being processed consistent with current policy. The EIS process is not a policy setting process, but one to disclose the potential impacts of a proposed action. The Agencies must consider all resources that may be impacted from a given action during decision-making and balance potential adverse affects with relevant factors such as economic and technical considerations and agency statutory missions. The Agencies manage the public lands through existing laws and regulations authorizing multiple uses. We are required to consider Simplot's proposed mine expansion into two phosphate leases to

comply with the Mineral Leasing Act, regulations, and local land use plans. Through the leasing process, Simplot has purchased the right to develop the phosphate resource under the condition that a mine plan sufficiently protective of the environment and natural resources, can be developed and approved.

Public Concern ID 21
The BLM/FS should prevent personal biases from being applied during the information collection process

1. Comment: Two commenters expressed that in order for all issues and concerns to be given due consideration and analyzed appropriately, personal biases must be kept out of the information/data collection process. [Ltr111 Cmt1, Ltr110 Cmt1]

   Response: Data presented in the EIS is collected through scientific and analytic means by the Agencies and professional third-party contractors; the data presented is reviewed and approved by the Agencies. As mandated in the CEQ Regulations at §1502.24, methodologies used and sources relied upon are identified. Public involvement in the NEPA process provides the public opportunity to review this data and identify any concerns regarding methodology and scientific accuracy. The EIS provides a full and fair disclosure of environmental conditions, discussion of significant environmental impacts, and the reasonable alternatives which would avoid or minimize adverse impacts.

Public Concern ID 26
The BLM/FS should protect the environment and natural resources

1. Comment: Numerous commenters expressed the need for preservation and protection of the environment and the natural resources including: wildlife, water, vegetation, and visual qualities. Further, the protection of public health, roadless areas, and recreational opportunities must be ensured and maintained for future generations. [Ltr193 cmt3, Ltr203 Cmt3, Ltr212 Cmt3, Ltr214 Cmt4, Ltr216 Cmt3, Ltr349 Cmt1, Ltr391 Cmt3, Ltr394 Cmt3, Ltr396 Cmt3, Ltr397 Cmt3, Ltr409 Cmt3, Ltr422 Cmt3, Ltr428 Cmt3, Ltr431 Cmt3, Ltr433 Cmt3, Ltr456 Cmt3, Ltr458 Cmt3, Ltr474 Cmt3, Ltr494 Cmt3, Ltr515 Cmt4, Ltr616 Cmt3, Ltr628 Cmt3, Ltr629 Cmt3, Ltr639 Cmt5, Ltr648 Cmt5, Ltr658 Cmt5, Ltr670 Cmt5, Ltr674 Cmt5, Ltr676 Cmt5, Ltr679 Cmt5, Ltr692 Cmt5, Ltr695 Cmt5, Ltr703 Cmt3, Ltr801 Cmt3, Ltr808 Cmt3, Ltr813 Cmt3, Ltr819 Cmt3, Ltr820 Cmt3, Ltr825 Cmt3, Ltr827 Cmt3, Ltr828 Cmt3, Ltr834 Cmt3, Ltr837 Cmt3, Ltr855 Cmt3, Ltr857 Cmt3, Ltr868 Cmt3, Ltr879 Cmt3, Ltr881 Cmt3, Ltr882 Cmt3, Ltr890 Cmt3, Ltr891 Cmt3, Ltr892 Cmt3, Ltr893 Cmt3, Ltr897 Cmt3, Ltr898 Cmt3, Ltr902 Cmt3, Ltr903 Cmt3, Ltr904 Cmt3, Ltr906 Cmt3, Ltr910 Cmt3, Ltr917 Cmt3, Ltr919 Cmt3, Ltr926 Cmt3, Ltr930 Cmt3, Ltr932 Cmt3, Ltr936 Cmt3, Ltr938 Cmt3, Ltr967 Cmt3, Ltr968 Cmt3, Ltr972 Cmt3, Ltr976 Cmt7, Ltr984 Cmt1, Ltr985 Cmt1, Ltr997 Cmt4, Ltr1018 Cmt3, Ltr1023 Cmt5, Ltr1025 Cmt5, Ltr1029 Cmt5, Ltr1030 Cmt6, Ltr1036 Cmt3, Ltr686 Cmt5, Ltr843 Cmt3, Ltr923 Cmt3, Ltr623 Cmt3, Ltr810 Cmt3, Ltr473 Cmt3, Ltr807 Cmt3, Ltr811 Cmt3, Ltr823 Cmt3, Ltr641 Cmt5, Ltr650 Cmt5, Ltr838 Cmt3, Ltr852 Cmt3, Ltr821 Cmt3]

   Response: The Mine and Reclamation Plan submitted by Simplot is being processed consistent with current policy. The NEPA process is not a policy setting process, but one to disclose the potential impacts of a proposed action. The Agencies must consider

all resources that may be impacted from a given action during decision-making and balance potential adverse affects with relevant factors such as economic and technical considerations and agency statutory missions. The Agencies manage the public lands through existing laws and regulations authorizing multiple uses. The action must also be in compliance with other state and federal laws and regulations. The Agencies are required to consider Simplot's proposed mine expansion into two phosphate leases to comply with the Mineral Leasing Act, regulations, and land use plans. Through the leasing process, Simplot has purchased the right to develop the phosphate resource under the condition that a mine plan sufficiently protective of the environment and natural resources can be developed and approved. Environmental protection measures and mitigation measures analyzed in the EIS are considered adequately protective of human health and the environment.

The concerns identified in the comment letters related to impacts to water, vegetation, wildlife, and visual qualities are addressed in **Sections 4.3**, **4.5**, **4.7**, and **4.12** respectively of the EIS. Concerns over public health due to potential pollution of air, water, soil, and vegetation resources are also addressed in **Sections 4.2**, **4.3**, **4.4**, and **4.5** by showing how the proposed operations will comply with existing State and federal regulatory requirements or guidelines for control of pollution to these media. Impacts to roadless inventory areas and recreation values in the CNF are addressed in **Sections 4.10** and **4.11** of the EIS. Similar but more specific comments on each of these sections of the EIS are separately responded to in the applicable sections of this Chapter. Forest management is based on multiple-use and sustained yield principles along with meeting other laws and regulations. The Forest is administered under the Caribou National Forest Revised Forest Plan that was established under National Forest Management Act (NFMA) requirements. As stated in 16 U.S.C. §1600, it is in the public interest for the Forest Service to assess the nation's public and private renewable resources and develop a national renewable resource program; to serve the national interest. The development of the renewable resource program includes a thorough analysis of environmental and economic impacts, coordination of multiple-use and sustained yield, and public participation. The Forest Service has the responsibility and opportunity to assure a national natural resource conservation posture that will meet our citizens' needs in the future. The knowledge derived from coordinated public and private research programs promotes a sound technical and ecological base for the effective management, use and protection of the nation's renewable resources.

The BLM administers under a policy that is compliant with five important acts related to mineral resources: the Domestic Minerals Program Extension Act of 1953, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, National Materials and Minerals Policy, research, and Development Act of 1980, and the Energy Policy Act of 2005. The BLM recognizes that public lands are an important source of the nation's energy and non-energy mineral resources. The BLM is responsible for making these resources available for development under the principles of multiple-use and the concept of sustainable development. The BLM recognizes that mineral development can occur concurrently or sequentially with other resource uses. Sustainable development encourages social, environmental, and economic considerations prior to mineral decisions. It also promotes the use of practices and technology that least impact natural and human resources.

2. Comment: Impacts to the environment and natural resources must be mitigated before additional resources are made available to industry. Royalties paid by these companies should be substantial and benefit the public. Further, reclamation requirements and environmental standards must be well defined. [Ltr204 Cmt3, Ltr990 Cmt2]

   Response: The Agencies are acting in compliance with applicable regulations and policies related to mining phosphate resources from federal lands. These requirements do not necessitate full reclamation of all disturbed phosphate leases before other phosphate leases are made available for development. Ongoing phosphate mining operations typically incorporate concurrent reclamation, but mine expansions into undisturbed areas while mining is ongoing in other areas are the norm for such operations.

   Through the NEPA process and the analysis of alternatives and mitigation measures, the Agencies do not believe future mine projects will necessarily have the same environmental effects as prior projects. Analysis in this EIS for the Agency Preferred Alternative does not predict exceedences of state or federal standards. Mitigation measures that have been analyzed under NEPA adequately reduce threats to the environment. Information regarding the selenium releases and impacts from the existing Smoky Canyon Mine are thoroughly analyzed in the EIS.

   Because phosphate is a leasable commodity, the phosphate mining industry, including the J. R. Simplot Company, does pay substantial royalties to the federal government. Portions are then distributed to various levels of state and local governments as described in **Section 3.16** of the EIS. Reclamation requirements and performance standards for the same are described in **Chapter 2** of the EIS and further details will be included in the Record of Decision for this operation.

3. Comment: One commenter stated that other energy sources were available and the current extract-all approach must stop. [Ltr228 Cmt3]

   Response: This project does not involve extraction of energy resources.

4. Comment: Several commenters expressed generally that scientific and sensible methods to protect the environment and minimize pollution must be utilized when extracting our natural resources. [Ltr465 Cmt3, Ltr515 Cmt2, Ltr856 Cmt3, Ltr883 Cmt3, Ltr911 Cmt3, Ltr920 Cmt3, Ltr921 Cmt3, Ltr935 Cmt3, Ltr201 Cmt3, Ltr861 Cmt3, Ltr189 Cmt3]

   Response: The environmental protection measures and best management practices described in Chapter 2 of the EIS do include scientifically sound and sensible methods to reduce environmental effects from the proposed activities. Other mitigation measures that meet the same criteria have been identified during the environmental analyses and are described in the resource sections of Chapter 4 of the EIS.

5. Comment: One commenter expressed that impacts to the entire ecosystem must be recognized. Impacts to the ecosystem are observed in changes in weather, rising temperatures of air and water, loss of life to storms, pollution that causes human and animal disease, and extinction of species. [Ltr513 Cmt2]

Response: The environmental impacts to the ecosystem that can reasonably be attributed to the direct, indirect, and cumulative effects from the proposed actions and alternatives have been evaluated in the EIS. Regional or global impacts to weather or rising temperatures of air or water are not expected from the proposed mining activities, which are essentially a relocation of existing mining activities further south from their current location. Effects of pollution from the proposed mining activities are evaluated in the EIS.

6. Comment: One commenter asked that the Agencies please protect the National Forest including keeping the phosphate mine out of the Sage Creek and Meade Peak Roadless Areas of the Caribou-Targhee National Forest. [Ltr582 Cmt1]

   Response: As described in the Agency Preferred Alternative, the Agencies are proposing to manage the lands included in the proposed mining activity in compliance with the current Revised Forest Plan for the Caribou National Forest and the current national regulations and policies related to inventoried roadless areas on National Forest lands.

7. Comment: One commenter expressed the importance of responsible multiple use development in order for the United States to remain the world dominant power. [Ltr697 Cmt13]

   Response: The federal agencies are managing the multiple-use of federal resources within their responsibilities according to the applicable regulations and policies established by their national offices. How these natural resource management decisions fit into the geopolitical standing of the United States of America is beyond the scope of this EIS.

8. Several commenters expressed concern that the project would create pollution and toxic intrusions into the environment. [Ltr704 Cmt3, Ltr829 Cmt3, Ltr840 Cmt1, Ltr849 Cmt3]

   Response: The potential pollution and toxic effects of the proposed mining activities are described in the EIS and will be considered in the decision-making on this project by the Agencies. The objective of NEPA is not to avoid or eliminate all such environmental effects but rather to disclose environmental effects of proposed actions and alternatives and ensure that federal agencies consider environmental consequences in their actions. The impact analysis in the EIS does not predict any direct exceedences of State or federal laws.

9. Comment: Several commenters expressed concern that the Agencies are willing to sacrifice the wilderness/environment for short-term monetary gain. [Ltr626 Cmt3, Ltr632 Cmt5, Ltr636 Cmt5, Ltr652 Cmt5, Ltr664 Cmt5, Ltr675 Cmt5, Ltr706 Cmt3, Ltr707 Cmt3, Ltr709 Cmt3, Ltr713 Cmt3, Ltr788 Cmt3, Ltr841 Cmt3, Ltr842 Cmt3, Ltr853 Cmt3, Ltr905 Cmt3, Ltr1030 Cmt5, Ltr1037 Cmt3, Ltr1045 Cmt3, Ltr213 Cmt1, Ltr959 Cmt3, Ltr1022 Cmt3, Ltr869 Cmt3]

   Response: As described in the response to Public Concern 26 Comment 1 above, the Agencies manage the federal resources in question for this project under multiple-use principles in compliance with applicable, management plans developed in the past by

the BLM and USFS, with public input. Development of the phosphate resources in this specific area would be done in compliance with applicable environmental protection regulations and policies. No designated wilderness areas would be affected by the proposed mining activities and development would be in concert with the final USFS regulations on preservation of roadless inventory areas.

10. Comment: One commenter noted that the U.S. has 5% of the world's population yet consumes about 25% of its resources. Rampant resource development (whether oil/gas or minerals) does not help the long-term situation. [Ltr848 Cmt3]

    Response: This personal opinion does not address any specific concern related to the proposed mining activities or the EIS. Comment noted.

11. Comment: Two commenters expressed concern that mining interests are dictating land use policy. [Ltr872 Cmt3, Ltr907 Cmt3]

    Response: This personal opinion does not address any specific concern related to the proposed mine activity or the EIS. The applicable land use standards and guidelines under the Revised Forest Plan of the Caribou National Forest that apply to the Project Area comply with other State and federal regulations related to environmental protection and were developed in a public process, including a thorough review under NEPA.

12. Comment: Two commenters stated that more money could be made for the state of Idaho through tourism to these beautiful areas. [Ltr918 Cmt3, Ltr870 Cmt3]

    Response: The relative economic benefits to the local economy through continued expansion of the Smoky Canyon Mine into the Project Area versus its exclusive use for recreation are discussed in the Socioeconomics comments and responses in **Section 7.3.19**. No specific data regarding the assertion were provided by the commenters.

13. Comment: One commenter stated that the Agencies would be known as the people who allowed the destruction of the world's first national park (Yellowstone) if they allow this area to be spoiled. [Ltr960 Cmt3]

    Response: None of the Project Area or the Cumulative Effects Area is within Yellowstone National Park.

Public Concern ID 30
The BLM/FS should protect the Greater Yellowstone National Park Ecosystem

1. Comment: Several commenters expressed the need for protection of Yellowstone National Park and all of the resources therein. [Ltr215 Cmt3, Ltr417 Cmt3, Ltr809 Cmt3, Ltr922 Cmt3, Ltr933 Cmt3, Ltr899 Cmt3, Ltr620 Cmt3, Ltr462 Cmt3]

   Response: None of the Project Area or the Cumulative Effects Area is within Yellowstone National Park.

2. Comment: Several commenters expressed that the Agencies should resist the pressure of development in the Greater Yellowstone area because it poses a danger to the land, wildlife, and people and is not responsible stewardship. [Ltr466 Cmt3, Ltr931 Cmt3, Ltr941 Cmt3]

   Response: See the response under Public Concern 26, Comment 1.

3. Comment: Several commenters expressed the need to protect the Greater Yellowstone Ecosystem and all of the resources therein. [Ltr939 Cmt3, Ltr886 Cmt3, Ltr894 Cmt3, Ltr496 Cmt2]

   Response: This Project complies with the CNF Revised Forest Plan (2003) and the Resource Management Plan for the BLM. See the response under Public Concern 26, Comment 1.

Public Concern ID 33

The BLM/FS should give more weight to the opinions of local residents than those who live outside the area

1. Comment: Several commenters expressed concern that the Agencies would be influenced by environmental groups, outsiders, wealthy newcomers, and special interest groups that don't have anything to lose or have no real tie to the issues or resources. The commenters expressed that the Agencies need to focus on the facts and the interests of the locals that live in the area and rely on natural resource based industry. [Ltr237 Cmt3, Ltr255 Cmt3, Ltr975 Cmt14, Ltr256 Cmt1, Ltr603 Cmt7, Ltr690 Cmt6]

   Response: The Agencies are considering the facts on the potential environmental effects of the proposed mining activities, which tend to be predominantly local in nature to the Project Area and Cumulative Effects Area. However, the activities of the Agencies are of increasing interest to a wide cross section of American citizens, not only those residing within the local area, and their rights to comment under NEPA will be honored by the Agencies.

2. Comment: One commenter is concerned that the Agencies are relying on experts with limited or no local knowledge coupled with research in foreign environments. The studies of local experts are more accurate and valuable. [Ltr554 Cmt7]

   Response: The Agencies have allowed a number of professional contractors to be involved in generating and/or evaluating scientific data for the proposed project. These are considered by the Agencies to be professional, qualified contractors with adequate knowledge of local conditions for the work they are doing. In addition, all the work of these contractors is reviewed and approved by the Agencies' local staff before being incorporated in the EIS.

3. Comment: Another commenter expressed dismay that so many people and entities complain about mining yet consume the products of mining. [Ltr259 Cmt1]

   Response: This personal opinion does not address any specific concern related to the proposed mine activity or the EIS. Comment noted.

Public Concern ID 34

The BLM/FS should issue a timely Record of Decision (ROD) to assure the continuation of mining by the J.R. Simplot Company

1. Comment: Several commenters expressed that timing is critical in order to maintain continuous mining. The project schedule needs to be maintained and the Record of Decision needs to be timely. [Ltr162 Cmt9, Ltr164 Cmt1, Ltr975 Cmt13, Ltr991 Cmt8, Ltr242 Cmt4, Ltr162 Cmt4]

   Response: The Agencies are aware of the schedule implications on the operation of the Smoky Canyon Mine and are attempting to make decisions in a timely manner. Sections §1500.5 and §1501.8 of the CEQ regulations outline the process through which the Agencies reduce delay in decision-making. Universal time limits have not been prescribed by the CEQ as it would be too inflexible for the NEPA process.

Public Concern ID 40

The BLM/FS should be commended for the accuracy and professionalism of the draft EIS

1. Comment: Several commenters expressed that they believe the DEIS is well researched and written, and accurately identifies potential impacts and mitigation controls. The document reflects Simplot's commitment to the environment and the area. All parties involved should be commended for their professionalism. [Ltr248 Cmt1, Ltr547 Cmt15, Ltr554 Cmt11, Ltr184 Cmt1, Ltr1009 Cmt2, Ltr1010 Cmt2]

   Response: The Agencies appreciate the comment.

Public Concern ID 45

The BLM/FS should adopt the Precautionary Principle

1. Comment: Two commenters recommended using the Precautionary Principle, the idea that if the consequences of an action are unknown, but are judged to have some potential for major or irreversible negative consequences, then it is better to avoid that action. [Ltr222 Cmt3, Ltr185 Cmt3]

   Response: According to NEPA, federal agencies need not avoid considering or evaluating environmental impacts that are incompletely understood. According to 40 CFR 1502.22 and FSH 1909.15, Chapter 13.01, when an agency is evaluating reasonably foreseeable significant adverse effects on the environment in an EIS for which there is incomplete or unavailable information, the agency should disclose the uncertainties related to the impact evaluation and provide an analysis of impacts that is supported by credible scientific evidence, not based on conjecture, and is within the rule of reason. This is what was done in this EIS.

Public Concern ID 46

The BLM/FS should require businesses to pay for any use of public lands

1. Comment: One commenter wants to know why companies that extract natural resources from our public lands don't have to pay user fees while visitors to the public lands pay user fees. [Ltr187 Cmt3]

Response: The commenter is incorrect. The phosphate mining companies in Southeastern Idaho pay substantial leasing costs in the form of filing fees, rental fees based on acreage leased, and royalties based on production to the federal government to extract phosphate ores from federal lands, largely located on the Caribou National Forest. The amount of revenue contributed from past phosphate mining is discussed in the socioeconomic analysis found in **Section 3.16** of the DEIS.

2. Comment: One commenter said that the taxes that natural resource extraction companies pay on their profits do not begin to cover the cost of remediation of the environmental harm done. [Ltr190 Cmt3]

   Response: The taxes and royalties paid by the phosphate mining industry to State and local government in Southeastern Idaho are substantial and are described in **Section 3.16** of the EIS. None of this income is used by the recipients to cover the cost of reclamation or remediation of the environmental effects. The mining companies pay the cost of reclamation and remediation in addition to the tax and royalty revenues they generate. They also provide financial assurance of reclamation obligations through the bonding process.

Public Concern ID 58

The BLM/FS should conserve resources by responding to public comments via email rather than written letter

1. Comment: One commenter suggested that the Agencies conserve resources by responding to public comments via email. [Ltr197 Cmt3]

   Response: CEQ regulations require responding to comments in the Final EIS (§1503.4). CEQ rules also require that substantive comments, or summaries of same, should be included in the FEIS. Therefore, in order to comply with NEPA, responses to comments are part of the FEIS for this project. The FEIS will be available electronically on the Internet and on CD to minimize printing of hardcopies.

Public Concern ID 63

The BLM/FS should acknowledge that the EIS process has already taken too long, and Simplot should be granted the desired mining permit

1. Comment: Commenters are concerned with the amount of time it takes agencies to make decisions. It seems that lead times to complete the NEPA / decision-making process takes longer and longer. Timing is critical for the mine and any delay could jeopardize the mining operation. [Ltr253 Cmt4, Ltr316 Cmt3]

   Response: The complexity of the Smoky Canyon Mine Panels F and G project has required numerous baseline studies, intensive impact analysis, and thorough internal review. This entire process will take several years to complete, depending on public response to the FEIS and the Record of Decision. The Agencies are aware of the schedule implications on the operation of the Smoky Canyon Mine and are attempting to make decisions in a timely manner.

Public Concern ID 68

The BLM/FS should acknowledge that the public has shown little concern at public meetings and most concerns have been raised by special interest groups

1. Comment: Two commenters noted that very few people, other than phosphate mining company representatives and agency staff, attended the public meetings; therefore, there is little public concern. [Ltr242 Cmt5, Ltr1032 Cmt9]

   Response: Attendance at public meetings is not the only indicator of public concern for the project. Over 38,000 comment letters and emails were received in response to the release of the DEIS. Public comments reflect a large range of concerns (pro and con) regarding the environment, the local economy, reclamation, mining alternatives, and the phosphate resource.

Public Concern ID 69

The BLM/FS should manage lands to prevent loss of resources and private property from catastrophic events, protect the safety and health of the public, and avoid any arbitrary restrictions on development activities

1. Comment: One comment letter expressed: We feel that these lands should be managed to prevent the loss of resources and private property from catastrophic events and to protect the safety and health of the public. We ask that there be no arbitrary restrictions on development activities. Any seasonal restrictions, closures, or spatial buffers should be scientifically based and show a demonstrated and documented need. We believe that any restrictions should provide for waivers, modifications or exceptions. [Ltr245 Cmt2]

   Response: The Agencies believe their Preferred Alternative does prevent the loss of resources and adjacent private property from catastrophic events and protects the safety and health of the public. The Agencies have been quite careful and deliberate in their selection of appropriate mitigation measures to apply to the proposed mining activities. These selected mitigation measures have addressed identified environmental impacts and utilize measures with reasonable and scientific bases. It is not wise to include blanket waivers or exceptions to these mitigation measures at the outset of the project. If future conditions cause site-specific situations where modifications to established requirements are advisable, the Agencies will consider these on a case-by-case basis.

Public Concern ID 74

The BLM/FS should support repealing the 1876 Mining Act

1. Comment: One commenter expressed belief that the 1876 Mining Act should be repealed. [Ltr408 Cmt3]

   Response: The 1872 Mining Law has no bearing on this project due to the phosphate ore being a leasable mineral not a locatable one.

Public Concern ID 75

The BLM/FS should consider holding a public scoping meeting in Salt Lake City, and invite outdoor retailers

1. Comment: One commenter suggested holding a public scoping meeting in Salt Lake City and inviting outdoor retailers. [Ltr412 Cmt3]

   Response: The BLM and FS held public scoping meetings at the beginning of the EIS process to identify potential issues and concerns. These meetings were held in Pocatello, Idaho on October 7, 2003 and in Afton, Wyoming on October 8, 2003. Public meetings were also held after the release of the DEIS in Pocatello and Soda Springs, Idaho and Afton, Wyoming on January 17, 18, and 19, 2006 respectively. Public meeting locations were chosen for their proximity to the mine and associated communities. Meeting announcements were published in local newspapers and posted on agency websites. In addition, certain interested parties further publicized the EIS in printed media and the Internet. Regardless of not holding a scoping meeting in Salt Lake City, this project has a wide following of interested persons.

Public Concern ID 83

The BLM/FS should acknowledge that the draft EIS is inadequate

1. Comment: A nearby landowner said the federal agencies entrusted with this important task appear to have already decided to allow Simplot's mine expansion and have crafted the DEIS as a post hoc justification of their decision. The DEIS's failings should be meaningfully addressed before a final decision is made on Simplot's proposed expansion. [Ltr561 Cmt1]

   Response: The Agencies have conducted the review of environmental impacts required under NEPA. As indicated in the EIS, the Agencies identified most of the components of the Proposed Action in addition to the protective measures of Alternatives D and E as the Agency Preferred Alternative. The Agency Preferred Alternative was determined following careful analysis of the environmental effects and the EIS describes this decision.

2. Comment: A group of commenters said the DEIS has omitted important and necessary baseline information. It has relied on questionable information, ignored available data, and presented an incomplete and flawed picture of current conditions. It has also relied on flawed models that have produced biased results, results that downplay the severity of selenium contamination, and ignored the issue of selenium bioaccumulation as well as other important issues, including, for example, winter stress syndrome and the Forest Service's duties under the NFMA. As serious as these flaws are, the document also suffers from additional major defects. [Ltr950 Cmt128]

   Response: All the baseline information properly collected for the EIS was presented and used in the impact analysis. Additional baseline information collected by the commenters and others has been added to the fisheries discussion in the FEIS, and has a more expansive discussion of selenium bioaccumulation (including winter stress syndrome) and its potential effects in the Project Area. As described elsewhere in these responses to comments, the Agencies do not believe the models used are flawed or that

they have produced biased results downplaying the severity of selenium contamination. The groundwater impact analysis has been expanded to incorporate recommendations from commenters.

A nearby landowner had the following comments:

3. Comment: I've discovered that the Forest Service, rather than having agency experts intimately involved in assessing the damage caused by existing Superfund sites, seems to have succeeded in keeping them away from Caribou County for many years. I've discovered agency personnel who are afraid to tell the truth because of the institutional political power of the phosphate industry. I've learned about Kesterson in California, where they still can't put the selenium genie back in the bottle after twenty years of trying even though they are willing to spend more than a half a billion dollars. I've learned about a lake in Texas where the biomass was reduced by 72% after selenium contamination. Some experts say Caribou County is worse than Kesterson in terms of a real extent and volume of the contaminant. At every step of my education, I've become more worried about what is happening to Caribou National Forest and our ranch. It seems likely that our beautiful green valley surrounded by National Forest will become a valley of death and deformity caused by selenium. [Ltr1050 Cmt1]

   Response: **Section 3.1.6** of the EIS describes various actions taken by the mining industry, and State and federal government agencies to respond to the discovery of selenium releases from phosphate mines in the area. The Forest Service has been involved in most of these actions to some degree. Most of the ongoing CERCLA actions in the area are under the direction of the Forest Service.

4. Comment: I endorse the detailed critique of the DEIS that the Greater Yellowstone Coalition, the Natural Resources Defense Council and other concerned groups have submitted. My overall conclusion is that the document is an embarrassment to the Agencies presenting it. It is characterized by the selective use of data, assertions masquerading as analysis, and the omission of vitally important facts and conclusions. A particularly pernicious technique the authors use is to first distance themselves from industry funded or influenced research, and then cite it extensively to support the expansion of the mine. Another technique that is insidious is the use of largely unsupported threats as to the future of the local economy if the expansion is not approved. This appears to be an essentially coercive device to attempt to intimidate local residents into silence. Nobody wants to feel responsible for putting their neighbor out of work. I believe the Agencies are also serving the mining company's purpose by hiding the scale of the environment catastrophe at Smoky Canyon Mine from the local community. The DEIS should be withdrawn and completely rewritten. [Ltr1050 Cmt8]

   Response: The Agencies do not believe the EIS needs to be completely rewritten and have incorporated many of the recommendations received from commenters on the DEIS into the FEIS including discussion of additional data provided in the comments. Much of the area-wide and CERCLA related studies conducted on selenium in Southeastern Idaho have been paid for by the mining industry, which does not automatically mean these reports cannot be used in a NEPA analysis, especially those reports that have been reviewed and approved by the regulatory agencies and are considered the best available information. The socio-economic impact analysis conducted in the EIS discloses the economic affects that would occur if proposed mining

operations would, and would not, be approved. The environmental impacts of the Smoky Canyon Mine are described in the Cumulative Effects, **Chapter 5**. Other documents related to the area-wide and site-specific CERCLA investigations are also publicly available.

5. Comment: Of grave concern is the fact that the agencies seem to have turned a blind eye to the problems of selenium. I note that twenty-five years ago, the Agencies told Simplot that the mine didn't need to monitor fish anymore. I am unaware of any effort by the Agencies in the 1980s, after Kesterson, to conduct any investigation of the consequences of selenium release at Smoky Canyon Mine. It was impossible to be unaware of Kesterson; it had extensive national press coverage, including a very pointed "60 Minutes" segment on network TV. An extraordinarily distinguished group of agency and academic scientists, many veterans of Kesterson, published an extensive study of selenium in the phosphate patch in 2004, whose central message is one of extreme concern about the selenium releases that have already occurred. The Agencies response, less than two years later, is to endorse the expansion of the Smoky Canyon Mine into a Roadless Area, and release more selenium. Quite conceivably the mine area may go from Roadless to Superfund in a few short years. [Ltr1050 Cmt9]

   Response: Please review **Section 3.1.6** of the DEIS which describes extensive activity on the part of the Agencies and mining industry to respond to the selenium problem in Southeast Idaho. Note the Agencies did not approve the Proposed Action as submitted. The mitigative measures included in the Agency Preferred Alternative are in addition to those included in the Proposed Action and are intended to control the release of additional selenium into the area. The intent is to keep the mine expansion area from becoming a future CERCLA action.

Public Concern ID 121

The BLM/FS along with other agencies should consider the importance of working together

1. Comment: One commenter expressed the need for all parties to work together to protect the environment while allowing multiple use. Flexibility is needed for reclamation. [Ltr573 Cmt5]

   Response: The Agencies and phosphate mining companies do work together to protect the environment while allowing multiple use and the general public also has a variety of avenues to provide input into these decisions. Having said this, the Agencies and mining companies do not always come to the same conclusion on all matters.

Public Concern ID 123

The BLM/FS should base their decision on the best science and technology available through the use of Best Management Practices (BMPs)

1. Comment: One commenter noted that the Agencies' decisions should be based on science and technology utilizing Best Management Practices to mitigate concerns rather than be influenced by campaigns predicting environmental disaster. [Ltr574 Cmt1]

Response: The Agencies have evaluated all comments to the DEIS and will make a decision on the project considering the environmental impacts and reasonable mitigation measures, including BMPs.

Public Concern ID 128

The BLM/FS should recognize the need for responsible development of public lands with respect to an ever-increasing world population

1. Comment: One commenter noted that any kind of project in this area will generate a well-organized opposition. Responsible development of public land is necessary to support our ever-growing populations. [Ltr697 Cmt14]

   Response: See the response to Public Concern 26, Comment 1.

Public Concern ID 135

The BLM/FS should acknowledge that NEPA requires agencies to take a "hard look" at all potential environmental consequences-direct, indirect and cumulative-and the consequences of connected actions

1. Comment: For any proposal involving a major federal action, such as the Smoky Canyon mine, Panels F and G expansion, NEPA requires the agency to take a "hard look" at all of its potential environmental consequences - direct, indirect and cumulative - and the consequences of connected actions. [Ltr950 Cmt7]

   Response: The analysis contained in the FEIS meets the requirements of the CEQ, and is sufficient for the decisions in the ROD. Direct, indirect and cumulative effects to fisheries were considered in the DEIS. Additional baseline data and data provided by commenters are included in the FEIS. A bioaccumulation appendix was also added to the FEIS (**Appendix 3C**) to further disclose what the impacts to fisheries may be from increases in selenium to local streams.

   The Agencies would disagree that the DEIS violates NEPA. The NEPA process requires the Agencies to ensure the scientific integrity of the analyses conducted but does not require exhaustive scientific studies. The Agencies consider the analysis in the DEIS to be scientifically defensible and the predicted impacts of selenium therein to be conservative.

   The analysis for direct and indirect effects and connected actions upon fisheries and aquatics is in **Section 4.8.1.1** of the EIS. The analysis for direct and indirect effects and connected actions upon water resources is in **Sections 4.3.1** and **4.3.2** of the EIS. Cumulative effects analysis for fisheries and aquatics is in **Section 5.9** and water resources are in **Sections 5.3** and **5.4**.

2. Comment: The DEIS threatens to set the area on the path toward another Kesterson, another national tragedy caused by decision-makers failures or unwillingness to understand and appreciate the risks of selenium. The organizations and individuals submitting these comments urge the agencies to step off that path and withdraw the DEIS. With so much at stake, both the public and decision-makers deserve and need what NEPA demands - a full accounting of the potential impacts of the proposed action

and, in particular, a full understanding of the impacts of releasing still more selenium into the environment. [Ltr950 Cmt21]

Response: The selenium impacts that occurred at Kesterson National Wildlife Refuge in the 1980's from irrigation practices was a landmark case. There, geological and biological processes were intensely studied and these studies are used to improve other land management activities that have the potential to accelerate the release of selenium into the environment, including mine projects. Additional safeguards adopted in the Simplot mine expansion planning process include placing most seleniferous overburden in backfills and the remaining seleniferous material in approved external fills. Both the backfills and external fills, under the Preferred Alternative would incorporate a cover designed to minimize leaching into groundwater. Additional environmental protection measures are listed in **Section 2.5** of the EIS. The impacts of the proposed mine expansion Project can be found in **Chapters 4** (direct and indirect effects) and **5** (cumulative effects) of the EIS.

3. Comment: Unfortunately, the DEIS failed to take the hard look required by NEPA at this crucial issue, even though threats to YCT persistence have been raised in public scoping comments and other comments on phosphate mining proposals for at least the last five years. The DEIS' failure to include a thorough and defensible assessment of the risk of extinction at both the local and regional scale for this proposal is inconsistent with NEPA's fundamental objective of ensuring that a full and accurate portrayal of the potential impacts from the proposed expansion on one of the most important resources in the entire region is made available to decision-makers and the public before the proposed expansion is permitted to go forward. [Ltr950 Cmt78]

   Response: The analysis contained in the FEIS meets the requirements of the CEQ, and is sufficient for the decisions in the ROD. Direct, indirect and cumulative effects to fisheries were considered in the EIS. Additional baseline data and data provided by commenters was included in the FEIS. A bioaccumulation appendix (**Appendix 3C**) was added to the FEIS to further disclose what the impacts to fisheries may be from increases in selenium to local streams.

   The potential effects of the proposed action upon YCT persistence can be found in **Sections 4.8.1.1** and **5.9** of the EIS.

Public Concern ID 190

The BLM/FS should acknowledge that the proposed action is consistent with the Revised Forest Plan with respect to Inventoried Roadless Areas

1. Comment: On July 16, 2004, the Department of Agriculture proposed to replace the 2001 [Roadless Area Conservation Rule] rule with a proposal for a state petition process, with the forest plan to govern until such process was completed. See 69 Fed. Reg. 42637 (July 16, 2004); 69 Fed. Reg. 42648 (July 16, 2004). Simplot filed comments supporting this rule because: (1) it provided an opportunity for cooperative federalism to develop sound forest policy based on specific local conditions; (2) it eliminated any residual uncertainty regarding the legal status of the roadless rule in the wake of the lawsuits and various decisions of the federal courts; (3) it provided a practical way to ensure that prior rights under the Mineral Leasing Act were protected so Due Process violations were not implicated; and (4) it was consistent with the Multiple

Use/Sustained Yield Act, the Forest Planning Act and the Wilderness Act. The proposed rule for a state petition process was finalized on May 13, 2005. 70 Fed. Reg. 25654 (May 13, 2005). In promulgating the final rule, the Forest Service noted that "management requirements for inventoried roadless areas would be guided by individual land management plans until and unless these management requirements are changed through a State-specific rulemaking." Id. The State of Idaho has begun preparing the petition called for by the new rule, and has held public meetings by county to collect input into the process. The new rule has been appealed by several states and environmental groups in two pending lawsuits in the Northern District of California. The Forest Service stated in the preamble to the new rule that "should all or any part of this regulation be set aside, the Department does not intend that the prior rule be reinstated, in whole or in part." 70 Fed. Reg. 25654, 25656 (May 13, 2005). The history of the roadless rule now is of academic interest. The May 2005 state petition process rule is in effect, and it calls for the RFP [Revised Forest Plan] to control until a state specific rule under the petition process is promulgated. The RFP sets forth the guiding document with respect to IRAs; Simplot's development plans for Panels F and G are in accordance with that RFP. [Ltr475 Cmt113, Ltr475 Cmt114]

Response: The USFS mining operations and leasing action decisions described in the Agency Preferred Alternative would be in compliance with the existing rule for roadless areas and the CNF RFP regarding management of such areas.

Public Concern ID 254

The BLM/FS should acknowledge that a lack of clear, selenium-specific guidance has led to inadequate environmental impact statements and environmental assessments

1. Comment: A commenter stated that the lack of clear guidance, i.e. a selenium-specific protocol, has led to inadequate EISs and EAs, resulting in some cases of poisoned fish, wildlife, and livestock. [Ltr950 Cmt377]

   Response: This is the opinion of the commenter who is recommending use of a selenium-specific protocol developed by himself, which had not been formally reviewed or approved by the USFS, or published at the time the DEIS was written. The Agencies disagree that the recent NEPA documents have been inadequate because they did not incorporate the protocol being proposed by the commenter. NEPA does not require the Agencies to develop specific protocols for evaluation of specific environmental impacts. In addition, the protocol being proposed by the commenter is clearly a worst-case analysis protocol, which is not consistent with the requirements of NEPA. The Agencies have responded to the discovery of selenium contamination in the phosphate mining industry by: integrating a number of best management practices to control selenium releases; encouraging research into the effects of selenium contamination; developing investigation methods for analyzing environmental impacts; using CERCLA to address existing selenium impacts; and generally incorporating the changing body of knowledge on selenium in each of the EISs completed in the area since 1999. During this time, there have been unfortunate poisonings of livestock and wildlife due to existing conditions that had not yet been addressed by the recently developed BMPs or CERCLA remedial actions. These poisonings are not attributable to any projects that were the subjects of recent NEPA actions so their occurrences cannot be blamed on the recent EA or EIS decisions. With regard to the decision on this EIS, the Agencies have

included available information on the potential for selenium impacts to fish, wildlife, and livestock and incorporated appropriate mitigation measures into the Agency Preferred Alternative to control these impacts.

Public Concern ID 302

The BLM/FS should acknowledge that the principles of the Comprehensive Environmental Response Compensation and Liability Act are subverted if the polluter is allowed to define both the problem and solution

1. Comment: One commenter stated that an elemental problem of the EECA is that the CERCLA principle that the polluter pays is completely subverted if the polluter gets to define both the problem and the solution. [Ltr1050 Cmt7]

   Response: The Smoky Canyon Mine EECA was prepared separately from the Panels F and G EIS and has undergone a separate public notice and comment period. This comment is more appropriately directed at that federal action and not this EIS.

Public Concern ID 303

The BLM/FS should acknowledge that the Caribou National Forest has lost sight of its public responsibilities

1. Comment: One commenter expressed that the history of the Smoky Canyon Mine indicates that the Caribou National Forest as an institution has lost sight of its public responsibilities. [Ltr1050 Cmt10]

   Response: The management of the Smoky Canyon Mine operations has been in accordance with appropriate laws, regulations, and policy.

Public Concern ID 309

The BLM/FS should represent the public, not big business

1. Comment: Numerous commenters stated that because this is public land, the Agencies must manage and protect it with the interests of the people and future generations in mind rather than furthering corporate interests and profit. [Ltr206 Cmt3, Ltr348 Cmt1, Ltr393 Cmt3, Ltr404 Cmt3, Ltr420 Cmt3, Ltr454 Cmt3, Ltr528 Cmt2, Ltr622 Cmt3, Ltr634 Cmt5, Ltr637 Cmt5, Ltr649 Cmt5, Ltr660 Cmt5, Ltr680 Cmt5, Ltr718 Cmt3, Ltr720 Cmt3, Ltr786 Cmt3, Ltr815 Cmt3, Ltr816 Cmt3, Ltr817 Cmt3, Ltr831 Cmt3, Ltr836 Cmt3, Ltr851 Cmt3, Ltr864 Cmt3, Ltr865 Cmt3, Ltr944 Cmt3, Ltr954 Cmt3, Ltr956 Cmt3, Ltr633 Cmt5]

   Response: The Agencies manage the lands through multiple-use and sustained yield principles. This management follows appropriate laws, regulations, and policy. See Public Concern 26 Comment 1 for information regarding agency land management.

2. Comment: Several commenters stated that short-term corporate profit should not trump public health, nor should the public have to bare the costs and damage to the environment, or the destruction of their public lands. [Ltr220 Cmt3, Ltr860 Cmt3, Ltr689 Cmt5]

Response: The Agencies are not trading public health or the environment for short-term corporate profit but are acting within their applicable rules and stated policies related to management of the federal resources for multiple-use. See the response to Public Concern 26, Comment 1 for more information on this matter.

7.3.3 Chapter 2

(Alternatives, BMPs, Monitoring and Mitigation, Environmental Protection Measures)

Public Concern ID 3

The Agencies should implement Mining Alternative B or D

1. Comment: Numerous commenters expressed support for the mine expansion stating that the Agencies should select either Alternative B or D, not both, because requiring both of these alternatives would be too expensive and is not supported by the predicted environmental impacts. [Ltr2 Cmt2, Ltr3 Cmt2, Ltr4 Cmt1, Ltr5 Cmt2, Ltr6 Cmt2, Ltr7 Cmt2, Ltr8 Cmt2, Ltr9 Cmt2, Ltr10 Cmt2, Ltr13 Cmt2, Ltr14 Cmt2, Ltr15 Cmt2, Ltr16 Cmt2, Ltr18 Cmt2, Ltr19 Cmt2, Ltr20 Cmt2, Ltr21 Cmt2, Ltr22 Cmt2, Ltr23 Cmt2, Ltr24 Cmt2, Ltr25 Cmt2, Ltr26 Cmt2, Ltr27 Cmt1, Ltr29 Cmt2, Ltr30 Cmt2, Ltr31 Cmt2, Ltr32 Cmt2, Ltr33 Cmt2, Ltr34 Cmt2, Ltr35 Cmt2, Ltr36 Cmt2, Ltr37 Cmt2, Ltr38 Cmt2, Ltr39 Cmt2, Ltr40 Cmt2, Ltr43 Cmt2, Ltr44 Cmt2, Ltr45 Cmt2, Ltr46 Cmt2, Ltr47 Cmt2, Ltr55 Cmt2, Ltr57 Cmt2, Ltr59 Cmt2, Ltr62 Cmt2, Ltr63 Cmt1, Ltr70 Cmt1, Ltr72 Cmt2, Ltr74 Cmt2, Ltr75 Cmt3, Ltr76 Cmt1, Ltr77 Cmt2, Ltr78 Cmt3, Ltr79 Cmt5, Ltr83 Cmt2, Ltr85 Cmt5, Ltr86 Cmt2, Ltr87 Cmt2, Ltr88 Cmt2, Ltr89 Cmt2, Ltr90 Cmt2, Ltr91 Cmt2, Ltr92 Cmt2, Ltr93 Cmt2, Ltr94 Cmt2, Ltr95 Cmt2, Ltr96 Cmt2, Ltr97 Cmt2, Ltr98 Cmt4, Ltr99 Cmt2, Ltr100 Cmt2, Ltr101 Cmt2, Ltr102 Cmt2, Ltr103 Cmt2, Ltr104 Cmt2, Ltr105 Cmt1, Ltr106 Cmt2, Ltr107 Cmt2, Ltr108 Cmt2, Ltr109 Cmt2, Ltr110 Cmt2, Ltr111 Cmt2, Ltr112 Cmt2, Ltr113 Cmt2, Ltr114 Cmt3, Ltr115 Cmt3, Ltr116 Cmt2, Ltr117 Cmt2, Ltr118 Cmt2, Ltr120 Cmt2, Ltr121 Cmt2, Ltr123 Cmt2, Ltr126 Cmt2, Ltr127 Cmt2, Ltr128 Cmt2, Ltr129 Cmt2, Ltr131 Cmt2, Ltr134 Cmt3, Ltr135 C mt2, Ltr136 Cmt2 Ltr137 Cmt2, Ltr141 Cmt2, Ltr142 Cmt2, Ltr144 Cmt2, Ltr145 Ctm2, Ltr146 Cmt2, Ltr147 Cmt2, Ltr148 Cmt2, Ltr168 Cmt2, Ltr229 Cmt2, Ltr230 Cmt2, Ltr232 Cmt2, Ltr234 Cmt3, Ltr235 Cmt3, Ltr383 Cmt2, Ltr973 Cmt5, Ltr1 Cmt3, Ltr149 Cmt2, Ltr150 Cmt3, Ltr153 Cmt2, Ltr154 Cmt2, Ltr161 Cmt3, Ltr163 Cmt2, Ltr171 Cmt2, Ltr173 Cmt3, Ltr177 Cmt2, Ltr178 Cmt2, Ltr179 Cmt2, Ltr182 Cmt2, Ltr233 Cmt2, Ltr238 Cmt3, Ltr245 Cmt3, Ltr247 Cmt3, Ltr249 Cmt2, Ltr251 Cmt3, Ltr254 Cmt2, Ltr256 Cmt5, Ltr259 Cmt2, Ltr262 Cmt2, Ltr273 Cmt2, Ltr274 Cmt2, Ltr358 Cmt3, Ltr378 Cmt1, Ltr384 Cmt2, Ltr475 Cmt4, Ltr475 Cmt35, Ltr484 Cmt2, Ltr485 Cmt2, Ltr492 Cmt2, Ltr499 Cmt10, Ltr503 Cmt2, Ltr540 Cmt2, Ltr543 Cmt3, Ltr547 Cmt9, Ltr547 Cmt11, Ltr551 Cmt5, Ltr556 Cmt2, Ltr557 Cmt2, Ltr558 Cmt2, Ltr602 Cmt2, Ltr973 Cmt3, Ltr986 Cmt3, Ltr987 Cmt3, Ltr988 Cmt3, Ltr991 Cmt9, Ltr992 Cmt3, Ltr993 Cmt2, Ltr994 Cmt3, Ltr995 Cmt3, Ltr996 Cmt3, Ltr1001 Cmt2, Ltr1002 Cmt2, Ltr1003 Cmt2, Ltr1004 Cmt2, Ltr1005 Cmt2, Ltr1016 Cmt2, Ltr1017 Cmt2, Ltr1038 Cmt1, Ltr1039 Cmt3, Ltr1040 Cmt1, Ltr1052 Cmt4, Ltr157 Cmt5, Ltr132 Cmt1, Ltr1011 Cmt1, Ltr573 Cmt2, Ltr1006 Cmt2, Ltr1007 Cmt2, Ltr1008 Cmt2, Ltr1013 Cmt4, Ltr1015 Cmt4, Ltr28 Cmt1, Ltr42 Cmt1, Ltr1014 Cmt4, Ltr41 Cmt1]

   Response: Each of the alternatives represents a course of action that addresses issues and concerns to varying degree. The Agencies will select alternatives based on an overall analysis of environmental impacts, other relevant factors (i.e. economic and technical considerations), and agency statutory missions. The basis for selection of alternatives will be specified in the Record of Decision. In the FEIS, the Agencies have disclosed the Agency Preferred Alternative which includes the Proposed Action Mining of both Panels F & G including the Panel F north and south lease modifications, Mining Alternatives D and E, the Proposed Action Panel F Haul/Access Road, and the

Proposed Action Panel G West Haul/Access Road. The Agencies have determined that these components would balance socioeconomic benefits with potential environmental consequences. This is further described in Chapter 2 of the FEIS. Mitigation, monitoring, and Best Management Practices will be implemented to help minimize and/or eliminate adverse impacts.

2. Comment: Commenters expressed support for the mine expansion noting that by selection of alternative B or D, the Agencies will be supporting Idaho's economy by ensuring the jobs of Simplot employees, local businesses, the organizations and projects that Simplot supports, and events that Simplot sponsors. [Ltr98 Cmt2, Ltr132 Cmt2]

   Response: See PC 3 Comment 1 response above.

3. Comment: Commenters expressed support for the mine expansion stating that the Agencies should select Alternative B or D, not both, and Transportation Alternative 2 and the lease modifications. There is little environmental benefit to Alternative B which has a substantial cost. This selection would be both operationally viable and economically sustainable. [Ltr231 Cmt2, Ltr242 Cmt1, Ltr1012 Cmt1]

   Response: See PC 3 Comment 1 response above.

4. Comment: One commenter expressed support for the mine expansion stating that considering the numerous factors of the project either Alternative B or D appear to meet the environmental requirements and are the most economically viable. [Ltr502 Cmt2]

   Response: See PC 3 Comment 1 response above.

5. Comment: One commenter expressed support for the mine expansion noting that Alternative D which requires capping is substantially superior to re-handling material. The Agencies need to remember that NEPA does not require them to look at the worst case scenarios but reasonable scenarios. [Ltr1032 Cmt6]

   Response: The Agencies have evaluated comments received on the DEIS and have modified the Agency Preferred Alternative to retain Alternative D and eliminate Alternative B.

Public Concern ID 4

The Agencies should implement Transportation Alternative 2

1. Comment: Numerous commenters expressed support for the mine expansion stating that the Agencies should select Transportation Alternative 2 because it represents the least amount of environmental impact of the transportation alternatives. [Ltr2 Cmt4, Ltr3 Cmt4, Ltr4 Cmt3, Ltr5 Cmt3, Ltr6 Cmt4, Ltr7 Cmt3, Ltr8 Cmt3, Ltr9 Cmt4, Lt10 Cmt4, Ltr11 Cmt2, Ltr13 Cmt4, Ltr14 Cmt4, Ltr15 Cmt4, Ltr16 Cmt4, Ltr18 Cmt3, Ltr19 Cmt4, Ltr20 Cmt4, Ltr21 Cmt4, Ltr22 Cmt4, Ltr23 Cmt4, Ltr24 Cmt4, Ltr25 Cmt4, Ltr26 Cmt4, Ltr27 Cmt3, Ltr28 Cmt3,Ltr29 Cmt4, Ltr30 Cmt4, Ltr31 Cmt4, Ltr32 Cmt4, Ltr33 Cmt4, Ltr34 Cmt4, Ltr35 Cmt4, Ltr36 Cmt4, Ltr37 Cmt4, Ltr38 Cmt4, Ltr39 Cmt4, Ltr40 Cmt4, Ltr41 Cmt3, Ltr42 Cmt3, Ltr43 Cmt4, Ltr44 Cmt4, Ltr45 Cmt3, Ltr46 Cmt3, Ltr47 Cmt4, Ltr55 Cmt4, Ltr57 Cmt4, Ltr59 Cmt3, Ltr62 Cmt3, Ltr63 Cmt3, Ltr70 Cmt3, Ltr71 Cmt3, Ltr72 Cmt3, Ltr74 Cmt3, Ltr75 Cmt4 Ltr76 Cmt3, Ltr77 Cmt4, Ltr78 Cmt5, Ltr79 cmt7, Ltr83 Cmt3, Ltr85 Cmt7, Ltr86 Cmt4, Ltr87 Cmt4, Ltr88 Cmt3, Ltr89 Cmt4, Ltr90 Cmt4, Ltr91 Cmt4, Ltr92 Cmt4, Ltr93 Cmt4, Ltr94 Cmt4, Ltr95 Cmt4, Ltr96 Cmt4, Ltr97 Cmt4, Ltr98 Cmt6, Ltr99 Cmt4, Ltr100 Cmt4, Ltr101 Cmt4, Ltr102 Cmt3, Ltr103 Cmt4, Ltr104

Cmt4, Ltr105 Cmt3, Ltr106 Cmt4, Ltr107 Cmt4, Ltr108 Cmt4, Ltr109 Cmt4, Ltr110 Cmt4, Ltr111 Cmt4, Ltr112 Cmt4, Ltr113 Cmt4, Ltr114 Cmt5, Ltr115 Cmt5, Ltr116 Cmt4, Ltr117 Cmt4, Ltr118 Cmt4, Ltr120 Cmt4, Ltr121 Cmt3, Ltr123 Cmt4, Ltr126 Cmt3, Ltr127 Cmt3, Ltr128 Cmt3, Ltr129 Cmt4, Ltr131 Cmt3, Ltr132 Cmt3, Ltr134 Cmt4, Ltr135 Cmt4, Ltr136 Cmt4, Ltr137 Cmt4, Ltr141 Cmt4, Ltr142 Cmt3, Ltr144 Cmt4, Ltr145 Cmt4, Ltr146 Cmt4, Ltr147 Cmt4, Ltr148 Cmt4, Ltr229 Cmt3, Ltr232 Cmt3, Ltr233 Cmt4, Ltr235 Cmt5, Ltr254 Cmt3, Ltr475 Cmt118, Ltr557 Cmt3, Ltr977 Cmt6, Ltr1, Cmt5, Ltr149 Cmt4, Ltr150 Cmt4, Ltr151 Cmt1, Ltr153 Cmt3, Ltr154 Cmt3, Ltr157 Cmt6, Ltr161 Cmt5, Ltr163 Cmt3, Ltr168 Cmt4, Ltr171 Cmt3, Ltr172 Cmt3, Ltr173 Cmt5, Ltr176 Cmt3, Ltr177 Cmt4, Ltr178 Cmt4, Ltr179 Cmt4, Ltr181 Cmt3, Ltr182 Cmt4, Ltr188 Cmt3, Ltr230 Cmt4, Ltr234 Cmt5, Ltr238 Cmt5, Ltr245 Cmt5, Ltr247 Cmt5, Ltr249 Cmt3, Ltr251 Cmt5, Ltr262 Cmt4, Lt272 Cmt4, Ltr273 Cmt3, Ltr274 Cmt3, Ltr378 Cmt3, Ltr383 Cmt4, Ltr384 Cmt4, Ltr475 Cmt6, Ltr484 Cmt4, Ltr485 Cmt4, Ltr492 Cmt4, Ltr495 Cmt4, Ltr499 Cmt12, Ltr502 Cmt3, Ltr503 Cmt4, Ltr540 Cmt4, Ltr546 Cmt4, Ltr547 Cmt13, Ltr551 Cmt6, Ltr556 Cmt3, Ltr558 Cmt3, Ltr573 Cmt9, Ltr602 Cmt4, Ltr986 Cmt5, Ltr987 Cmt5, Ltr988 Cmt5, Ltr992 Cmt4, Ltr993 Cmt4, Ltr994 Cmt5, Ltr995 Cmt5, Ltr996 Cmt5, Ltr1001 Cmt4, Ltr1002 Cmt4, Ltr1003 Cmt4, Ltr1004 Cmt4, Ltr1005 Cmt4, Ltr1013 Cmt6, Ltr1014 Cmt6, Ltr1015 Cmt6, Ltr1016 cmt4, Ltr1017 Cmt4, Ltr1038 Cmt3, Ltr1039 Cmt4, Ltr1040 Cmt2, Ltr1052 Cmt6, Ltr385 Cmt13, Ltr539 Cmt2, Ltr543 Cmt2, Ltr253 Cmt1, Ltr545 Cmt1, Ltr554 Cmt12, Ltr1009 Cmt4, Ltr1010 Cmt4, Ltr603 Cmt3, Ltr259 Cmt4]

Response: Each of the alternatives represents a course of action that addresses issues and concerns to a varying degree. The Agencies will select alternatives based on an overall analysis of environmental impacts, other relevant factors (i.e. economic and technical considerations), and agency statutory missions. The basis for selection of alternatives will be specified in the Record of Decision. In the DEIS, the Agencies disclosed the Agency Preferred Alternative which included the Proposed Action Mining of both Panels F & G including the Panel F north and south lease modifications, Mining Alternatives B, D, and E, the Proposed Action Panel F Haul/Access Road, and Transportation Alternative 2 (East Haul/Access Road) as their Preferred Alternative.

Based on input received on the DEIS, the Agencies have determined that these components would balance socioeconomic benefits with potential environmental consequences, with the exception of inclusion of Alternative B and changing Panel G transportation alternatives. Alternative B has now been determined as not necessary for environmental protection reasons and is unreasonably expensive to implement. This is further described in Chapter 2 of the FEIS. Mitigation, monitoring, and Best Management Practices will be implemented to help minimize and/or eliminate adverse impacts. The Proposed Action Panel G West Haul/Access is now selected as the Agency Preferred Alternative. Transportation Alternative 2 traverses a portion of private property. This alternative can only be implemented if Simplot and the private land holder were to come to a mutual agreement that would provide Simplot an easement.

2. Comment: A commenter expressed support for the selection of Transportation Alternative 2, noting that Transportation Alternatives 2, 3, and 5 would effectively remove any additional traffic from the Crow Creek Road and any direct effect of increased traffic on the Crow Creek landowners. In the event that the private property owner is not amenable to an acceptable access or purchase agreement, Idaho law provides for a constitutional and statutory right of condemnation by a private company for access to mining property. [Ltr475 Cmt44]

   Response: The Agencies have decided to include the Proposed Action Panel G West Haul/Access Road in the Agency Preferred Alternative, as described in **Section 2.10.2**. However, if Simplot and the private land holder were to come to a mutual agreement that

would provide Simplot an easement for Transportation Alternative 2 – East Haul/Access Road, then the Agencies would prefer to implement this Transportation Alternative. Rationale for the decision including which Transportation Alternative is selected will be disclosed in the ROD.

3. Comment: A commenter supported the selection of Transportation Alternative 2 stating opposition to any alternatives that would allow fuel trucks and vendors to use Crow Creek Road for access. The Crow Creek Road is in poor condition, the creek is too close to the road, and environmental accidents and injuries to human life are too likely. [Ltr539 Cmt3]

   Response: See the response to PC 4 Comment 2 above.

Public Concern ID 5

The Agencies should resolve the Deer Creek lease modification issue in a way that ensures that overburden is not placed in an area that selenium will be a problem for water quality

1. Comment: Several commenters noted that the Deer Creek lease modification issue needs to be resolved in an environmentally reasonable way. Without the lease modification, overburden would be placed in the southwest corner of the existing springs as per the original mine plan which potentially increases selenium risk. [Ltr162 Cmt2, Ltr242 Cmt2, Ltr1032 Cmt2, Ltr551 Cmt3]

   Response: The Agencies have determined that placement of seleniferous overburden would not be allowed in the Panel G South Overburden Fill. If the requested overburden footprint off lease were not allowed, the overburden involved would need to be stored within the rest of the pit or East Overburden Fill footprint while remaining on lease.

Public Concern ID 7

The Agencies should authorize the plan Simplot developed to mitigate selenium issues

1. Comment: Several commenters stated that the Agencies need to authorize the plan that Simplot has developed to mitigate selenium issues. This plan was developed with the help of mining companies, agencies, and special interest groups. [Ltr162 Cmt6, Ltr242 Cmt8, Ltr246 Cmt4, Ltr1032 Cmt13, Ltr1032 Cmt15]

   Response: Much of the Proposed Action mine plan and environmental protection measures included in the Proposed Action are acceptable to the Agencies. The Agencies believe the mitigation measures in Alternative D, including a store and release cover designed to reduce infiltration of water into the seleniferous overburden, are also required to protect water quality. The water resources impact analyses have been changed in the FEIS to incorporate various suggestions by commenters on the DEIS.

Public Concern ID 12

The Agencies should implement Mining Alternatives B, D, E, the lease modifications, and Transportation Alternative 2

1. Comment: Several commenters expressed support for the mine expansion stating that the Agencies should select Mining Alternative B, D, and E, the lease modifications, and Transportation Alternative 2. [Ltr246 Cmt3, Ltr250 Cmt2, Ltr65 Cmt1]

Response: See PC 3 Comment 1 and PC 4 Comment 2 responses above.

Public Concern ID 22

The Agencies should acknowledge that constructing barrier covers as described in Mining Alternative D would not be effective

1. Comment: A commenter stated opposition to constructing barrier caps as described in Alternative D. Caps can be very effective on pond closures and other small scale projects; however, on the scale encountered in mining, the cap can be expected to be compromised over time because of large differential settlements as the replaced overburden settles beneath it. [Ltr114 Cmt2]

   Response: The overburden cover design has been modified and design studies have incorporated considerations for stability.

Public Concern ID 36

The Agencies should make technical and editorial changes to the draft EIS

1. Comment: The word "may" is used consistently. In many of the instances the word "will" should be substituted as many of the things discussed in this report will happen. [Ltr239 Cmt3]

   Response: The word "may" is used in the EIS to indicate future possibility. The word "will" is used to indicate a future certainty. The word "would" is used to indicate a certainty based on another factor such as the selection of a specific alternative or specific occurrence. The use of each of these verbs in the EIS is selected depending upon context and certainty.

2. Comment: Please define the acronym IRA on DEIS page ES-3. [Ltr241 Cmt3]

   Response: The acronym IRA refers to Inventoried Roadless Areas. Acronyms are defined at the first occurrence in the document and not within each chapter or section where it is used. Acronyms are also listed and defined in **Section 8.3** of the FEIS. Editorial change was made.

3. Comment: Please define the acronym SUA on DEIS page 2-37. [Ltr241 Cmt5]

   Response: The acronym SUA refers to a Forest Service Special Use Authorization. See PC36 Comment 2 response above.

4. Comment: The report citation in **Table 3.13-1** is incorrect; the authors on the Addendum B report include Dale Gray and William Statham. [Ltr475 Cmt122]

   Response: Editorial change was made.

5. Comment: On DEIS page 3-17, three studies are listed with "Southeastern" in the citation, which should be changed to "Southeast" to match the actual citation. [Ltr950 Cmt232]

   Response: Editorial change was made.

6. Comment: On DEIS page 3-17 there seems to be a missing citation for a Montgomery Watson report that was not finalized or approved by the Agencies. The reference should be added to that page. [Ltr950 Cmt233]

   Response: Editorial change was made.

7. Comment: A commenting group stated that the DEIS does not mention that Sage Creek (from source to mouth including the Pole Canyon drainage) has been added to the 303(d) list as impaired due to high selenium levels. Subsection 3.2.2 should be corrected to take this into account. [Ltr950 Cmt344]

   Response: The listing of Sage Creek to the 303(d) list by the EPA occurred after the DEIS was printed, although the potential change to listing status of area streams was described in **Section 3.3.2** of the DEIS. This new listing information has been incorporated into the same section of the FEIS.

Public Concern ID 44

The Agencies should acknowledge that true reclamation at the Smoky Canyon Mine is not really possible

1. Comment: One commenter stated that reclamation is a joke; recontouring land and replacing aspen/conifer forests with grass and forbs is like putting make-up on a toad. It will take hundreds of years for forests to return. Mining is not a "temporary" impact. Measured in the human lifetime, it is permanent. [Ltr239 Cmt23]

   Response: The reclamation proposed would restore most of the disturbed area to stable landforms blending with adjacent terrain. The recontouring, topsoiling and revegetation would restore the reclaimed area to a condition supportive of multiple use. It would be usable for wildlife, livestock, and public recreational activities. The EIS discloses that reforestation is a long-term process. The commenter is addressing reclamation only from an immediate reforestation perspective, which is not the goal of the Agencies with mined land reclamation or other land uses that result in disturbance of the forest.

2. Comment: Commenters stated that it would be unprofessional and illogical to imply that accomplishing good reclamation and remediation would be easy. High value environmental and recreational resources overlay and are attached downstream and downslope to the mine. Preservation of these environmental values is inherently in conflict with mining the rich deposits of phosphate. Unlike the setting of phosphate mining in the flatlands of Florida, Smoky Canyon miners work in difficult terrain and under a harsh climate. Space for placement of overburden is at a premium along the strike of folded bedrock. At Smoky Canyon, the two major ore beds are overlain, underlain and separated by seleniferous beds. The depth of the pits tends to hinder concurrent reclamation. To adjust to these conditions, the company creates large mounds of overburden on ridge tops and inadvisably in the case of Pole Canyon, in a head-of-hallow fill. Though expedient for mining purposes, the external fills have proven, in places, to be unstable and to contribute selenium in seeps and surface runoff. Potential problems from the pit fills are unresolved. The hydrologic complexity of the mountains area creates attractive and life-rich environmental corridors but adds to the difficulties of achieving good reclamation. Streams in the area appear in a dense, trellis drainage pattern-flowing south, north, and east from headwaters. Significant aquifers occur above and below the ore-bearing strata, and are subject to disruption of function, or infiltration of contaminants from mining. [Ltr950 Cmt282]

Response: This is not a comment on the DEIS but provides background for the commenter's other statements. Each of the two large panels proposed would be mined in a series of small stages, which does allow for concurrent reclamation. No head-of-hollow or cross-valley fills were proposed in the mine plan. Eighty-nine percent of overburden was proposed to be backfilled. The mitigation measures described in Alternative D are designed to prevent seepage of selenium to surface water or groundwater in exceedance of State and federal law.

3. Comment: One commenter stated that some bizarre parts of the proposed cleanup scheme seem to involve tens of thousands of tons of horse manure on other parts of the site and men in HAZMAT [hazardous material] suits having to process selenium waste possible for perpetuity. [Ltr1050 Cmt6]

   Response: This statement is not a comment applicable to the DEIS.

Public Concern ID 48
The Agencies should consider factors regarding Transportation Alternative 7

1. Comment: One commenter stated that regarding Transportation Alternative 7, the proposed bus is only helpful if the employees are required to take it; this system has been shown time and again not to work if it is simply an option. Secondly, most people with homes beyond where plowing stops prefer this arrangement. Many of the residents are not there during the winter. If the road is plowed past these homes, they will be more vulnerable to theft and vandalism. [Ltr239 Cmt24]

   Response: Transportation Alternative 7 is not the Agency Preferred Alternative. The Proposed Action Panel G West Haul/Access Road is included in the Agency Preferred Alternative. Maintaining the Crow Creek Road during winter would increase potential vehicular access to properties that are currently isolated during winter.

Public Concern ID 54
The EIS should state that the mill will not be moved to the south side of Deer Creek

1. Comment: One commenter expressed concern that moving the mill to the south side of Deer Creek is a possibility. Assurance that Simplot cannot move the mill in the future is requested. Moving the mill would be a major impact to environmental resources and should be analyzed in this EIS. The fact that the mine expansion includes 1,340 acres is discussed but the fact that the entire Smoky Canyon Mine will be stretched out over 14 miles is not discussed. This will compound all of the impacts to game, water, recreation, and everything else. [Ltr239 Cmt30]

   Response: Relocating the existing mill to Panel G was described in **Section 2.7.1** as being eliminated from consideration as an alternative in this EIS due to costs and logistical problems. The potential effects of the proposed mining on wildlife, water resources, recreation and other resources are described in Chapter 4 of the DEIS.

Public Concern ID 55
The Agencies should discuss the bonding issue in the EIS in greater depth

1. Comment: Several commenters requested the detailed bond calculations be included in the Final EIS. The amount of financial assurance must be adequate to cover both the estimated reclamation and contingencies. The Forest Service "Training Guide for Reclamation Bond Estimation and Administration" (April 2004) should be used to

estimate the bond. Further, the Agencies should urge the State of Idaho to use the exception provisions of subsection 47-1512c to set the bond at an appropriate level. [Ltr553 Cmt12, Ltr950 Cmt209, Ltr950 Cmt119, Ltr950 Cmt192, Ltr239 Cmt31, Ltr950 Cmt297]

Further, one commenter included a discussion that the proposed mine plan leaves significant high-walls exposed and a portion of Panel G that is not backfilled/reclaimed. The proposed mine plan allows external overburden dumps. The commenter recommended considering reducing the size of external dumps and increasing backfill of pit areas. Some double-handling of waster materials would be required but this offers several advantages including reducing the footprint of disturbance, maximizing acreage that is suitable for multiple use activities in post closure, and reducing the area subject to infiltration and potential release of contaminants via ground water pathways. The goal of mitigation should be to exclude water from entering the waste materials rather than promoting it. [Ltr553 Cmt12]

Response: The BLM and FS have developed an actual-cost bond estimate for the Agency Preferred Alternative and a summary of this information is included in Chapter 2 of the FEIS. The Agencies have determined that Alternative B should not be part of the Agency Preferred Alternative because the cover design would mitigate seepage from all parts of the overburden fills and the rehandling involved in doing both Alternative B and D is unreasonably expensive with little additional environmental benefit. While reduction of highwalls is of some environmental benefit, the cost associated with re-handling overburden reduces the overall depth and recovery of the mining operation, reducing mineral extraction and leading to a long-term result of having to open new open pits elsewhere more quickly. This would result in more disturbance per ton of ore recovered.

2. Comment: One commenter stated that the project proponent should be required to post a 20 million dollar performance bond. [Ltr846 Cmt3]

   Response: See the response to PC 55 Comment 1 above.

3. Comment: The DEIS states that Simplot has the latitude to request reductions in the bonding amount after they receive a mining permit. We fear that should Simplot ask for a reduction, it would most assuredly be granted. Costs for mine reclamation are not provided. How can regulatory agencies determine if a reasonable fit exists between the amount of assurance bond and the labor, material, and equipment necessary to reclaim the mined land? Idaho's weak bonding requirements of $1,800/acre to generally nor more than $2,500/acre would not be enough to accomplish reclamation. [Ltr950 Cmt117, Ltr950 Cmt118]

   Response: See the response to PC 55 Comment 1 above. The Agencies can approve reductions in bond amounts only after the operator has demonstrated that the reclamation work covered by that portion of the bond has been completed to the Agencies' satisfaction. The actual-cost bond estimate in Chapter 2 of the FEIS shows Simplot will be required to bond for much more than $1,800-$2,500/acre.

4. Comment: One commenter stated that contamination could occur after mining ceases and reclamation has been completed. Heavy precipitation or reclamation failure could cause seepage slugs to discharge from the backfill at any point. The monitoring must continue essentially forever to be certain that contamination does not affect the streams at some time in the future after the mine closes. The long-term monitoring must be accompanied by a mitigation plan and funding, bonding in perpetuity, to protect the resources over the long term. [Ltr950 Cmt120]

Response: Monitoring of water quality downgradient of the mine is described in the monitoring plan appendix that has been added to the FEIS. Funding of this monitoring and mitigation measures that may be required in the future will be considered in the Record of Decision for this project.

Public Concern ID 61

The Agencies should not allow the mine expansion until long-term selenium contamination can be studied

1. Comment: One commenter noted that no one knows the total adverse effect of selenium on deer and elk since no statistically significant, long term studies have been conducted. If the risk cannot be assessed, then the proposed mine expansion cannot be approved. The public is entitled to understand the consequence of this action. [Ltr240 Cmt5]

   Response: See **Section 3.1.6** of the EIS, which describes the studies conducted to date on selenium in Southeast Idaho. The Agencies believe risks associated with selenium releases from phosphate mining, and the BMPs developed to mitigate these risks, are understood well enough to approve new mine developments in the area. The effect of selenium on deer and elk from bioaccumulation of selenium in reclamation vegetation would be mitigated with the proposed cover described in **Section 2.6.1** of the FEIS. The potential effects of selenium uptake on big game are discussed in **Section 4.7.1** of the DEIS and are considered to be unlikely.

2. Comment: One commenter noted that air monitoring is not mentioned in the DEIS. Airborne exposure limits are 0.2mg/m3; the DEIS indicates selenium concentrations are as high as 708 mg/kg in the Smoky Canyon waste shale. The dust will not have infinite dilution when the ore is being dug up and handled. Selenium dust could be locally toxic and could contribute significantly to water pollution as well. Selenium is a severe irritant to the respiratory system and can aggravate pre-existing conditions. Crow Creek residents and visitors could be exposed to selenium dust, as well as the mineworkers. Where are the calculations for selenium dust concentrations under various climate conditions? The areas suffering from the consequences of pollution can be very distant from the pollution source. Where are the plans for monitoring particulates? The 2.5-micron level (PM2.5) is the latest EPA criteria. Data monitored at Soda Springs, Idaho and Kemmerer, Wyoming is irrelevant for Crow Creek residents. Baseline data from both winter and summer must be taken locally, such as at the intersection of Deer Creek and Crow Creek Road. This is particularly critical if the East Haul Road, Modified East Haul Road, or Crow Creek Road travel alternatives are selected. [Ltr240 Cmt7]

   Response: For predicted selenium exposure, see responses regarding air quality in **Section 6.3**, Responses to the Shoshone-Bannock Tribes Comments. The Smoky Canyon Mine controls fugitive dust and past site monitoring has shown compliance with the MSHA dust limit of 10 mg/m^3. Assuming this maximum dust concentration was occasionally produced within the active mine area, with a selenium concentration of 708mg/Kg, the resulting selenium concentration in the air would be 0.007 mg/m^3, or 3.5% of the 0.2 mg/m^3 health standard. The majority of dust generated will be from the overburden and chert, thus airborne selenium levels are expected to be much lower than 0.007 mg/m^3. Air monitoring of the mining operations is not expected to be necessary. If nearby residents believed they were being negatively impacted by dust from the mining operations, air monitoring could be conducted at selected receptor locations to determine exposure levels.

Using an average selenium assay concentration of 50 mg/Kg for the run of mine overburden at the proposed Panels F and G, and the dust concentration from handling this material is at the Mine Safety and Health Administration (MSHA) threshold of 10 mg/m^3, the selenium exposure level for the workers would be 0.25% of the allowable threshold limit value (TLV) for selenium. This demonstrates that mine employees would not be exposed to particulate selenium concentrations over the selenium TLV within the workplace of the mine. Persons outside the active mine area would be exposed to even lower selenium levels. Past monitoring of workers conducted by MSHA indicate that Simplot Smokey Canyon Mine controls dust at the mine well below the applicable nuisance dust level of 10 mg/m^3.

Particulate monitoring has been added to **Section 4.2.3** Mitigative Measures. Monitoring for PM2.5 may not be the best particulate size to monitor dust emissions because these operations usually produce coarse particulates (greater than PM2.5). There are no thermal or chemical processes (i.e. kilns) at the mine site that would produce significant PM2.5. Particulate matter from combustion sources (i.e. diesel engines) is also characterized as coarse particulates.

3. Comment: One commenter stated that a previous request by Simplot for a lease modification in the proposed Panel F had been denied due to fisheries concerns in Deer Creek. Please clarify in the FEIS what conditions have changed that would support the new request for a lease modification, particularly in light of the fact that it is acknowledged in the DEIS that "water quality impacts caused by groundwater contributions of selenium to surface waters would result in increased levels, and in some cases, exceedances of aquatic criterion." [Ltr241 Cmt1]

   Response: The comment is referring to a recommendation by the CNF in 1997 when the Manning Lease boundary was established. Since then, the significant studies and mitigation measures related to selenium that are discussed in the EIS have been developed.

Public Concern ID 66

The Agencies should include the environmental impacts from the mill and tailings facilities in the proposed action section of the draft EIS and the final EIS

1. Comment: One commenter noted that the mill and tailings facilities are interrelated and interdependent to the proposed action and should therefore be considered in the proposed action and environmental consequences sections of the EIS. Specifically the tailings facilities are necessary for the current and proposed mining activities. Without the mining activities, the tailings ponds would have no other use. [Ltr241 Cmt4]

   Response: The Agencies do not believe that the existing mill and tailings facilities are connected actions with Panels F and G, under NEPA, for the reasons stated in **Section 2.3.6** of the DEIS, "*The mill and tailings facilities are not considered to be connected actions for this EIS because the Proposed Action does not justify or act as a prerequisite for the currently authorized mill and tailings facilities. The Proposed Action also does not trigger any additional mill or tailings pond permitting not already authorized. For these reasons, the tailings ponds are not included within the Proposed Action or Alternatives for Panels F and G, and the environmental impacts for the tailings ponds are evaluated as part of the Cumulative Effects analysis in this EIS*." Also note that the 1982 EIS for the Smoky Canyon Mine did include the mill and tailings ponds. The tailings ponds were again evaluated with an Environmental Assessment conducted by the Corps of Engineers in 1990. Additional environmental studies of the tailings ponds were

completed as part of the Area B AOC investigations, which are referenced in **Chapter 5** of the EIS.

The design and permitting for the tailings ponds necessary to contain all the tailings from the existing operations and Panels F and G has already occurred. The environmental effects of the tailings pond operations necessary to hold all the tailings from Panels F and G have already been evaluated by two previous NEPA documents. The primary environmental effect from the full tailings pond footprint, wetland disturbance, has already been fully mitigated off site. The potential effects of selenium and other COPCs from the tailings facility have already been investigated under the Area B AOC. Therefore the tailings facility environmental analysis, permitting and mitigation have already been completed without the existence of Panels F and G and do not require additional environmental analysis in this EIS. The Agencies believe the tailings facility and Panels F and G have independent utility and are not "connected" for NEPA purposes.

Public Concern ID 71

The Agencies should make sure that Simplot understands that the total cost of mining factors in environmental responsibility and sound stewardship

1. Comment: One commenter stated that the cost of doing business should factor in environmental responsibility and a stewardship for the natural resources that are to be disturbed during the mining process. [Ltr362 Cmt3]

   Response: The Agencies address mining proposals from project proponents, conduct analyses, determine probable environmental effects, and make informed decisions based on these analyses. The total cost of mining in these circumstances includes: environmental studies required for environmental impact analyses and permitting, incorporating required environmental impact mitigation measures into the construction and operation of the mining facilities, reclamation performance bonding, monitoring and reporting of environmental information during operations, reclamation and closure of mining facilities in compliance with approved plans, post-closure monitoring and, if necessary, remediation of unexpected environmental effects during and after operations.

Public Concern ID 85

The Agencies should acknowledge that there are no proven techniques that will keep selenium in check

1. Comment: One commenter stated that there are no proven techniques to keep selenium in check and current cleanup plans utilizing BMPs are not working. The proposed mine expansion will affect water bodies downstream including Sage Creek, Deer Creek, and Crow Creek. The DEIS, even when using best-case data, states that there will be exceedances of allowable standards for selenium. It is a violation of the law to approve a proposal that would knowingly violate the law. [Ltr549 Cmt3]

   Response: The commenter has provided no specific information that applicable BMPs are not working. Results from studies at the Smoky Canyon Mine that are described in **Chapter 5** of the EIS indicate that covering seleniferous overburden with chert and topsoil mitigates bioaccumulation of selenium in reclamation vegetation, thus mitigating this important pathway for human health, vegetation, wildlife, aquatic resources, and livestock. **Sections 4.3.1** and **4.3.2** of the EIS show that the Proposed Action and mining alternatives other than the Agency Preferred Alternative would result in exceedances of applicable groundwater and surface water protection standards. The

EIS shows that the Agency Preferred Alternative for Mining Alternative D would not result in these exceedences.

Public Concern ID 86

The Agencies should recognize that mining Alternative B significantly complicates the entire mining process in both panels

1. Comment: Three commenters stated that Mining Alternative B significantly complicates the mining process in both panels. It requires opening a large enough backfill area within the first pit boundary to allow the sequencing of material back into the open cuts as the pits progress through the lease. It will delay reclamation in both panels and make concurrent reclamation impossible in much of the project area. Alternative B substantially affects the economics of the project as it increases the costs due to rehandling, reduces strip ratio causing a loss of resource, and also reduces mine life. The DEIS is inaccurate in stating that this alternative will minimize the quarry size needed for excavating the Dinwoody formation that will be utilized for capping purposes. [Ltr475 Cmt31, Ltr475 Cmt32, Ltr991 Cmt6]

   Response: The Agencies have considered additional logistical and economic information provided in comments to the DEIS and have decided that application of the cover design developed for Alternative D would accomplish the environmental objectives of Alternative B. The Agencies have removed Alternative B from the Preferred Alternative.

Public Concern ID 87

The Agencies should recognize that mining Alternative C significantly complicates the entire mining process in both panels

1. Comment: One commenting group noted that Alternative C is similar to Alternative B in its impacts to the economics of the project. Reclamation activities would be significantly delayed and concurrent reclamation activities would at a minimum be hampered if not impossible. Again there is a loss of resource and significant economic loss compared to the proposed action. [Ltr475 Cmt33]

   Response: The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision. The effects of Alternative C on mining the affected phosphate resources are described in **Section 4.1.1** of the DEIS. Alternative C is not part of the Agency Preferred Alternative.

Public Concern ID 88

The Agencies should recognize that adopting Alternative D will result in significant loss of ore resource and economic losses

1. Comment: One commenting group noted that Alternative D can be worked into the mining sequence and concurrent reclamation can be accomplished although there will still be a resource loss and economic loss compared to the proposed action. [Ltr475 Cmt34]

   Response: This comment is consistent with the Agencies' understanding of Alternative D, which is described in the EIS.

Public Concern ID 89

The Agencies should recognize that adopting Alternative A will result in reduced resource in Panel F and complicate the access into the north end of the reserves

1. Comment: One commenting group noted that Alternative A would unnecessarily reduce the resource in Panel F and complicates access into the north end of the reserves. The resource would most likely not be mined in the future and would be a lost resource to the public. The mine life would be reduced by 2.2 years. [Ltr475 Cmt36]

   Response: The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision. The effects of Alternative A on the potential to mine the affected phosphate resources are described in **Section 4.1.1.2** of the DEIS. Alternative A is not part of the Agency Preferred Alternative.

Public Concern ID 91

The Agencies should better inform the public in the EIS about the background of the G Panel East External Overburden Fill

1. Comment: One commenting group noted that the EIS would better inform the public of the background of the Panel G East External Overburden Fill if it briefly discussed the process by which the Agencies encouraged Simplot to develop this off-lease overburden fill option in Nate Canyon. Initially Simplot proposed to manage Panel G overburden entirely in the southwest corner of the Deer Creek lease. This overburden includes material known to be elevated in selenium. The southwest corner of the Deer Creek lease is the only area within the lease with adequate surface area to safely place the overburden according to industry BMPs. Immediately downgradient from this area a spring discharges water from a shallow aquifer that feeds the Salt River drainage. The Agencies requested Simplot modify it proposed action to move this overburden to an area on the opposite side of the pit which is on a dry ridge area at the top of Nate Canyon without any springs or other water influence. Simplot considered this to be a reasonable request due to environmental concerns. Therefore, Simplot agreed to eliminate what was then an Alternative G mining alternative and amend the proposed action at the Agencies' request. As a result, Simplot submitted a proposed lease modification for the Panel G lease area and modified the proposed action to change the location of the Panel G overburden to the less environmentally sensitive area just outside the lease boundary while contiguous to the existing Deer Creek lease. Neither agency disagrees with the environmental benefits of moving the Panel G overburden. The FS could authorize this action through a Special Use Permit or the BLM could authorize it through a lease modification. The BLM lease modification is likely the most efficient way to resolve this issue. [Ltr475 Cmt41, Ltr475 Cmt42]

   Response: Additional information on the East External Overburden Fill has been added to **Section 2.4** of the FEIS.

Public Concern ID 92

The Agencies should recognize that Alternative 1 is unreasonable because it provides no environmental benefit

1. Comment: One commenting group noted that Transportation Alternative 1 was developed to respond to scoping comments regarding the Sage Creek Roadless Area. It is not feasible to completely avoid all IRAs, nor is it necessary. The rationale for Alternative 1 of avoiding the IRA is without merit because the governing Caribou-

Targhee Revised Forest Plan allows for road building within IRAs to develop phosphate lease areas. Alternative 1 would result in a loss of ore recovery and provides no environmental benefit. [Ltr475 Cmt43]

Response: Alternative 1 is not part of the Agency Preferred Alternative.

Public Concern ID 94

The Agencies should eliminate the G-Panel Proposed Action route from consideration

1. Comment: One commenting group noted that it is advisable to eliminate the G-Panel proposed action transportation route from consideration because Transportation Alternatives 2 and 3 represent more environmentally preferable routes in terms of wetland impacts and stream crossings and more importantly would eliminate the intermingling of mine equipment and public traffic on established forest system roads. [Ltr475 Cmt45]

   Response: The Agencies have decided to include the Proposed Action Panel G West Haul/Access Road in the Agency Preferred Alternative as described in **Section 2.10.2**. However, if Simplot and the private land holder were to come to a mutual agreement that would provide Simplot an easement for Transportation Alternative 2 – East Haul/Access Road, then the Agencies would prefer to implement this Transportation Alternative. The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision.

Public Concern ID 100

The Agencies should not consider Transportation Alternative 5

1. Comment: One commenting group noted that Transportation Alternative 5 superficially appears beneficial due to it being removed from the Crow Creek area. However, this fact must be weighed against the predicted impacts this alignment presents relative to Alternatives 2 and 3, as well as the Proposed Action. This alignment represents 226 acres of disturbance, 28 of which would not be reclaimed. These acreages are higher than the Proposed Action as well as Alternatives 2 or 3. In addition, this alignment is the closest in proximity to the North Fork of Deer Creek and crosses the South Fork of Deer Creek. Both of these stream segments have been listed on the 2002 303(d) IDEQ list of impaired stream segments due to sediment. (IDEQ 2005) This alignment also parallels more of Diamond Creek and the South Fork of Deer Creek than any other alternative to the Proposed Action, resulting in nearly double the predicted sediment delivery to surface water relative to Alternatives 2 or 3. Finally, this alignment results in impacts of 1.43 acres of jurisdictional wetlands, which is more than double the impact to wetlands under Alternatives 2 or 3. Finally, this alignment also results in the potential intermingling of public traffic with mining equipment, making it less desirable from a safety perspective. [Ltr475 Cmt50]

   Response: Alternative 5 is not part of the Agency Preferred Alternative. The transportation alternatives were developed, and the DEIS was printed, prior to the December 2005 listing of certain Project Area streams under 303(d). The FEIS has been modified to reflect this new information on 303(d) and the affect it has on the impact analyses. The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision.

Public Concern ID 101

The Agencies should develop clear, objective, and measurable performance standards for determining the success of reclamation tasks and for determining whether and when to release financial assurance

1. Comment: A commenter stated that the BLM needs to develop clear, objective, and measurable performance standards for determining the success of reclamation tasks and for determining whether and when to release financial assurance. This would help the public evaluate and comment on the protectiveness and adequacy of the standards to be used. For example, standards or criteria should be developed for cap performance under Alternative D, selenium content of cap materials, selenium content of reclamation vegetation, chemistry of ground water in the immediate vicinity of the mine at closure, and others. It should be useful to include a table summarizing reclamation objectives and the related performance standards and criteria that would be used to determine reclamation success and lead to bond release. This approach would be consistent with the Forest Service guidance for reclamation bond estimation and administration as it is applied at hard rock mine sites. [Ltr553 Cmt11]

   Response: Cover construction and performance monitoring have been added to **Section 2.6.1** of the FEIS. More details on the required monitoring plan have been provided in a new appendix (**Appendix 2E**) to the FEIS. The USFS has guidelines regarding selenium content in growth media and release criteria for reclamation vegetation. Surface and ground water monitoring are part of the monitoring plan.

Public Concern ID 102

The Agencies should be aware that EPA's Multi-Sector General Permit (MGP-2000) expired in October of 2005, and a new permit has not yet been finalized

1. Comment: One commenter stated that the Agencies need to be aware that EPA's Multi-Sector General Permit (MSGP-2000) expired at midnight on October 30, 2005. A new permit has not been finalized at the present time. The 2005 permit has been administratively continued until EPA takes action to issue a new permit. On December 1, 2005, EPA proposed an NPDES Storm Water Multi-Sector General Permit for Industrial Activities (MSGP). This proposed permit will replace the MSGP-2000 that expired on October 30, 2005. EPA sought comments on the proposed permit through February 16, 2006. EPA is now in the process of considering public comments and determining what revisions may be appropriate prior to issuing the final permit. More information on the proposed 2006 multi-sector permit is available on EPA's website at: http://cfpub2.epa.gove/npdes/stormwater/msgp.cfm. Subsequent documents (e.g. final EIS, Record of Decision) should ensure that the most current requirements are incorporated. [Ltr553 Cmt15]

   Response: Reference to the proposed 2006 multi-sector permit has been added to Chapter 1 of the FEIS. The ROD will also cite the most current permit and permit developments.

Public Concern ID 106

The Agencies should include both the north and south lease modifications to the Manning Creek lease

1. Comment: The two lease modifications account for 28 percent of the total reserves located in Panel F and 2.2 years of operation of the mine. The lease modifications

should be granted to maximize recovery of the phosphate resource. Further, without the lease modifications, the overburden would be placed in the southwest corner of the current lease over existing springs. [Ltr475 Cmt30, Ltr495 Cmt3, Ltr574 Cmt3, Ltr574 Cmt4, Ltr603 Cmt4, Ltr991 Cmt3]

Response: The Agencies have identified their Preferred Alternative (**Section 2.10.2**), which includes granting both the north and south lease modifications for Panel F. The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision.

2. Comment: One commenter stated that the lease modifications should be granted. It was contradictory of the FS to have an approved lease (Panel G) in the Deer Creek drainage and then not include the proposed South Lease Modification for fear of impacts to Deer Creek. [Ltr499 Cmt11]

   Response: The Agencies have identified the Agency Preferred Alternative (**Section 2.10.2**), which includes granting both the north and south lease modifications for Panel F. The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision.

Public Concern ID 114

The Agencies should recognize that phosphate mines, particularly Smoky Canyon Mine, are Superfund cleanup sites and require clean up of selenium contaminants before approving any expansion

1. Comment: Numerous commenters expressed opposition to the proposed mine expansion stating that the Smoky Canyon Mine has already polluted the area, including selenium contamination, and is under a Superfund cleanup order. The mine needs a clean up plan and to pay to clean up its current pollution. The Agencies have not figured out how to clean up existing selenium contamination, why expand it? It would be risky and irresponsible to allow this expansion without a plan for prevention, remediation, and control of selenium; additional contamination is an unacceptable risk. [Ltr659 Cmt5, Ltr630 Cmt5, Ltr278 Cmt1, Ltr925 Cmt3, Ltr982 Cmt2, Ltr998 Cmt1, Ltr999 Cmt2, Ltr1000 Cmt3, Ltr1019 Cmt3, Ltr265 Cmt1, Ltr490 Cmt1, Ltr767 Cmt3, Ltr122 Cmt1, Ltr243 Cmt1, Ltr588 Cmt1, Ltr239 Cmt1, Ltr244 Cmt1, Ltr593 Cmt2, Ltr306 Cmt1, Ltr373 Cmt1, Ltr375 Cmt1, Ltr580 Cmt1, Ltr586 Cmt3, Ltr586 Cmt4, Ltr866 Cmt3, Ltr519 Cmt1, Ltr586 Cmt1, Ltr491 Cmt1, Ltr191 Cmt4, Ltr266 Cmt1, Ltr269 CMt1, Ltr292 Cmt2, Ltr302 CMt1, Ltr303 Cmt1, Ltr304 CMt1, Ltr308 CMt2, Ltr344 Cmt1, Ltr376 Cmt1, Ltr515 Cmt3, Ltr548 Cmt3, LTr579 Cmt1, Ltr581 CMt1, Ltr589 Cmt1, Ltr594 Cmt1, Ltr684 Cmt5, LTr688 Cmt5, Ltr688 Cmt6, Ltr731 Cmt3, Ltr764 Cmt3, Ltr773 Cmt3, Ltr814 Cmt3, LTr830 Cmt3, Ltr835 Cmt3, Ltr877 Cmt3, Ltr878 Cmt3, Ltr886 Cmt4, Ltr929 Cmt3, Ltr962 Cmt3, Ltr965 Cmt3, Ltr976 Cmt3, Ltr983 Cmt2, Ltr194 Cmt4, Ltr379 Cmt2, LTr381 Cmt3, Ltr382 Cmt1, Ltr434 Cmt3, Ltr529 Cmt2, Ltr646 Cmt5, Ltr648 Cmt6, Ltr687 Cmt7, Ltr690 Cmt5, Ltr1023 Cmt6, Ltr480 Cmt1, Ltr194 Cmt4, Ltr379 Cmt2, Ltr962 Cmt3, Ltr965 Cmt3, Ltr976 Cmt3, Ltr983 Cmt2]

   Response: The first CERCLA cleanup plan for the Smoky Canyon Mine has already been prepared, following the site investigations that were described in the Panels F and G DEIS. The EE/CA for a portion of the Smoky Canyon Mine has been drafted and underwent public comment starting June 2, and ending July 24, 2006. It identifies various removal alternatives considered along with the agency preferred removal action alternative. A new **Appendix 2A** has been added to the FEIS that describes the CERCLA progress to date and provides information on the implementation schedule and

estimated effectiveness. Based on the solid progress made to date on understanding the selenium problem, in a general sense, throughout Southeastern Idaho from regional studies and specifically at the Smoky Canyon Mine through site-specific studies, the Agencies believe enough is known to evaluate the Panels F and G operations and prescribe mitigation measures to control selenium releases.

2. Comment: One commenter expressed opposition to the project citing that selenium contamination from phosphate mining in this region has caused complete extermination of wild trout populations from nearby streams and other populations are quickly declining. Streams have been posted to warn people against consuming fish from those waters. Further, horses and sheep have died as a result of eating selenium-laced grasses in the region. Another commenter opposes the expansion until it can be demonstrated that current levels of selenium contamination is not adversely affecting local populations of Yellowstone Cutthroat trout or other native fishes. [Ltr549 Cmt2, Ltr586 Cmt2]

   Response: A large body of information describing selenium effects of phosphate mining has been generated in the recent past and this is described in **Section 3.1.6** of the EIS. All of the currently known environmental effects of selenium from phosphate mining in Southeast Idaho were caused by mine operations that preceded the current understanding of the selenium problem. BMPs and other site-specific mitigation measures are being applied to current and new phosphate operations to prevent reoccurrence of past problems. None of the commenter's descriptions of environmental effects of selenium were at the Smoky Canyon Mine. Additional information on the potential effects of selenium on trout has been added to the fisheries sections in the FEIS and a new appendix has also been added on this topic.

3. Comment: Phosphate mines have a horrible track record when it comes to pollution. No one knows how to prevent selenium poisoning from such operations. Who will pay residents who share aquifers with the existing and proposed mine sites? Money won't compensate that loss. We do not want to leave a toxic hazard to our children. [Ltr361 Cmt1, Ltr525 Cmt1]

   Response: See responses to PC 114, Comments 1 and 2 above related to what is known about selenium effects from phosphate mining and how to prevent selenium releases from phosphate mines, including the Smoky Canyon Mine. The actual cost of implementing remedial actions, as determined by the Agencies, is also an obligation of the phosphate mining companies.

4. Comment: One commenter noted that there needs to be air monitoring for dust and other contaminants that are being transported by wind and rain. [Ltr884 Cmt3]

   Response: See response to PC 61 Comment 2 above.

5. Comment: One commenting group stated that it is imperative that no further contamination takes place if in fact the proposed expansion of Smoky Canyon Mines goes forward. Therefore, some form of treatment of selenium-laden waters must be employed. Selenium treatment is applicable to any location in Smoky Canyon Mine where selenium-laden waters are segregated, e.g., in mine pit, or where such waters can be collected and conveyed to a treatment plant, e.g., from the toe of an external deposit. To date, none of the published environmental reports of the Smoky Canyon Mine have included treatment as a BMP for control of selenium. In the Idaho DEQ's response to the Greater Yellowstone Coalition's comments on risk management, there is a virtual dismissal of even the concept of treatment of selenium-laden waters. I quote:

"...requiring the remediation of waste rock itself would be equivalent to digging up a sanitary landfill because you suddenly realized it has trash in it." This disingenuous argument overlooks the practice common in sanitary engineering of collecting, treating and disposing of toxic wastewaters from landfills. If the water quality standards of Idaho and the removal action levels of the Clean Water Act are to be met, treatment may become the only effective means of controlling selenium in most of the deposits in the Smoky Canyon Mine. The possibility of selenium treatment is introduced, but not explored further, in the SEIS for Panels B and C, with these words: "This water [[in the external fill]] would need treatment for selenium before being discharged to the surface environment. Treatment of this water would add considerable cost to the overall project."

The above reasoning comes across as a denial of reality. Presently, there are numerous discharges of water from the Smoky Canyon Mine for which treatment may be the only safe means of containing the toxicity and protecting the environment. Selenium is distributed generally across disturbed lands at the Mine, and has been found in water discharging from an external overburden deposit in an extraordinarily high concentration of 13.6mg/L (68 times the action level for transitory wildlife, if an animal should be unlucky enough to stop for a drink). There are two basic truths that need to be faced:1) selenium contamination has occurred and is occurring as a result of Smoky Canyon Mine and 2) someone will have to pay the cost of cleaning up the selenium contamination. Responsible parties need to focus on how to do that effectively and in a timely manner. [Ltr950 Cmt289, Ltr950 Cmt290]

Response: The majority of the comment pertains to the Risk Management Plan and the Smoky Canyon Mine EE/CA.

In general, the Agencies prefer to remediate through source control rather than perpetual treatment. Collection and treatment of selenium-contaminated water was reviewed in the EE/CA for the Smoky Canyon Mine. The EE/CA preferred removal alternative for reduction in ground water and surface water selenium impacts from Smoky Canyon Mine is the diversion of Pole Canyon Creek around the Pole Canyon external overburden disposal area. This removal action will isolate the waste rock from contact with the creek water. Subsequent remedial actions will address reducing infiltration through the waste rock.

Impacts described in the comment are from the existing mine and not the proposed expansion. In the proposed mitigation for the leaching of selenium from the overburden fills in the Panels F and G EIS, the Agencies believe the best approach is to control the amount of leachate being generated to prevent contamination of groundwater and surface water to levels that need to be treated.

6. Comment: One commenter stated that the proposed mine expansion should not be permitted until proven water quality protection methods have been developed. The Deer Creek watershed should be designated as a unique aquatic reference. [Ltr978 Cmt17]

   Response: See responses to PC 114 Comments 1, 2, and 5 above.

Public Concern ID 124

The Agencies should recognize that re-handling of the overburden multiplies the risk of selenium oxidation

1. Comment: One commenter stated opposition with the logic behind Mining Alternative B. Rehandling of the overburden multiplies the opportunity of the sulfides containing

selenium to be oxidized. This is contrary to the goal of reducing the amount of available selenium. The increased risk of solubilizing selenium far outweighs any benefit that might be achieved by relocating an already capped material. [Ltr574 Cmt2]

Response: The Agencies have considered this and other comments recommending against including Alternative B in the Agency Preferred Alternative and have decided to drop it from inclusion in the Preferred Alternative.

Public Concern ID 129
The Agencies should require perpetual monitoring of the proposed site

1. Comment: One commenter stated that Simplot should have to clean up any environmental damage and then monitor the site forever. [Ltr347 Cmt1]

   Response: See responses to PC114 Comments 1 and 2 above about Simplot cleaning up existing environmental damage. Monitoring of the Smoky Canyon Mine is described in the new monitoring appendix (**Appendix 2E**) to the FEIS. Long-term monitoring will be discussed in the ROD.

Public Concern ID 134
The Agencies should recognize that the existing selenium problem at Smoky Canyon still exists and clean up has not yet begun

1. Comment: One commenting group stated that cleanup of the existing and ongoing selenium contamination has not even begun, yet additional contamination is being proposed. Given the serious risks attendant upon the discharge of more selenium into area water, the DEIS should have been especially rigorous and thorough. [Ltr950 Cmt5]

   Response: See responses to PC 114 Comments 1, 2, and 5 above.

Public Concern ID 137
The Agencies should ensure that in addition to compliance with NEPA the Agencies must also demonstrate in the EIS compliance with other applicable State and Federal law

1. Comment: One commenting group stated that the Forest Service is required to demonstrate compliance with each of the water quality standards before approving a project on National Forest system lands. Further, the FS must demonstrate compliance with state and federal water quality laws including the Clean Water Act, the safe Drinking Water Act, and all substantive procedural requirements of state, federal, and local government bodies. [Ltr950 Cmt15, Ltr950 Cmt16, Ltr950 Cmt36]

   Response: The impact analysis for the Agency Preferred Alternative has indicated the alternative would comply with existing water quality standards. More information on this matter has been added to **Section 4.3.1** and **4.3.2** of the FEIS. The rationale for selecting and not selecting various alternatives will be disclosed in the Record of Decision.

2. Comment: One commenting group stated that intentional and premeditated removal of springs violates Public Water Reserve No. 107 (PWR 107). Springs and waterholes in the West are reserved for public use by that order and, under federal public land law, BLM and FS must ensure that such springs and waterholes be protected. [Ltr950 Cmt39, Ltr950 Cmt18]

Response: Public Water Reserve No. 107 is a Presidential Order from 1926. This order reserves all springs and water holes on public land for public use. It also withdraws these areas from settlement, location, and sale. The order does not protect springs from disturbance or development, but it does reserve them for public use. Thus, these lands are managed under the local land use plans, the 1988 Pocatello RMP, and the 2003 CNF RFP. According to these plans development of phosphate reserves is a recognized appropriate and important use of resources.

3. Comment: A commenting group noted that the DEIS concedes that all mining alternatives, including the agency "Preferred Alternative," will increase the level of selenium in area streams. Such an increase in selenium in those streams would violate State of Idaho water quality standards, which mandate that "existing beneficial uses of the waters of the state will be protected." In December 2005, Sage Creek was added to the state's 303(d) list of impaired streams due to selenium contamination. That contamination emanates from the Smoky Canyon Mine. Inclusion on the 303(d) list means that Sage Creek has already been degraded to the point of failing to support cold-water biota and salmonid spawning due to selenium. In light of its existing degraded status, the BLM and Forest Service may not permit additional loadings of selenium to Sage Creek. As noted above, all of the mining alternatives will increase the concentration of selenium in Sage Creek, IDEQ water quality standards and Idaho law are quite clear that all this is illegal: Until TMDLs or their equivalents are developed, interim changes in the permitted discharges from point sources and best management practices (BMPs) for non-point sources are required, as necessary, to prevent further impairment of existing or designated beneficial uses.(emphasis added)In addition, regardless of whether a stream is on the 303(d) list, agencies must administer state water quality laws to protect existing beneficial uses. Applicable law includes the state's antidegradation standard directs that "existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected". As discussed above, the Forest Service is required to demonstrate compliance with each of these water quality standards before approving on project on National Forest system lands. The Clean Water Act prohibits such deliberate violation of state standards. [Ltr950 Cmt35]

   Response: Within the scope of the project, Sage Creek is currently 303(d) listed on the 2002 list as being impaired by selenium. Based on DEQ's current TMDL workload and limited resources to complete TMDLs under their existing court-ordered schedule, those waters added to the 2002 list are scheduled for TMDLs beginning in 2008. It is anticipated that the existing regulatory structure, (Memorandum of Understanding, signed in 2000) for cleanup of those sites actively contributing to violations of water quality standards for selenium, may preclude the need for development of TMDLs.

4. Comment: The Forest Service is obligated to preserve a diversity of fish and wildlife and to protect their habitats on the national forests. The DEIS on the Smoky Canyon Mine Panels F and G purports to assess the impacts that approving this expansion will have on resident species and habitats and to conclude, based on that assessment, that species viability will not be affected. In fact, because the management indicator species (MIS) were wrongly selected for the Caribou Zone of the C-TNF [Caribou-Targhee National Forest], it is impossible for the Forest to assert that the viability of wildlife resources will be maintained. [However], the MIS selected are not representative. As a result, the DEIS fails to accurately disclose and analyze the direct effects of the proposed action on fish, wildlife, and their habitat. The Forest Service's decisions on proposal on the C-TNF [Caribou-Targhee National Forest] are governed by the National Forest Management Act (NFMA), which sets forth a statutory framework for the management of our national forests. NFMA first requires the Forest Service to develop

a Land and Resource Management Plan for the entire Forest. The CNF choose to use the 1982 forest planning "rule" in developing its 2003 forest plan (hereinafter "RFP"). NFMA requires that the Forest Service "provide for diversity of plant and animal communities" in managing national forests. The 1982 rule required that the RFP select appropriate MIS. The Forest Service is then required to ensure that the forest is managed in compliance with its plan. The agency must analyze specific proposals, such as the proposed Smoky Canyon Mine Panels F and G expansion, in order to assure that each proposal is consistent with the plan.

The Caribou Forest's 2003 RFP is deficient in respect to MIS because it selected only three avian species as the MIS to represent the estimated 334 species of terrestrial vertebrate species that inhabit the Caribou Zone of the CTNF. The RFP's failure to select appropriate MIS threatens wildlife at the project level, as the proposed mine expansion clearly shows. The CTNF's MIS selections left many habitat types within the 1.1 million acre Caribou Zone of the forest un-represented by any MIS. The CTNF justified its patently insufficient MIS selections by stating that there were not enough of other habitat types that all other potential MIS in the zone were too difficult to monitor, and/or that habitat changes outside administrative control of the Forest Service could cause population reductions. In addition to failing to select MIS for most terrestrial habitat types in the Caribou Zone, the Forest failed to select MIS riparian areas and aquatic habitats even though abundant literature exists that highlights the requirements of native species of trout, such as Yellowstone cutthroat trout, for cold, clean water. In the case of Yellowstone cutthroat trout on the Caribou Zone of the C-TNF [Caribou-Targhee National Forest], the Forest Service acknowledged wide range of threats: [[D]] documented impacts to Yellowstone cutthroat trout habitat included agriculture, urban expansion, timber harvest, livestock grazing, road building/maintenance/use, dispersed camping, off-road motor vehicle use, and mining... These impacts affect species habitat requirements, which result in decreasing population productivity, and potentially, long-term population viability (emphasis added).

The failure of the Forest Service to select any aquatic species as MIS for aquatic habitats is a serious defect in the Caribou Zone RFP and a serious problem for subsequent proposals such as the Smoky Canyon Mine extension, that are tiered to the RFP: 70% of the streams on the Forest are non-functioning or functioning risk and there are 23 streams on the state 303(d) list (more than 200 miles), including Sage Creek. Significantly, the Targhee NF RFP selected five MIS for aquatic resources, including Yellowstone cutthroat trout. Given that there are both Yellowstone and Bonneville cutthroat trout and two rare non-game fish species occupying the Caribou Zone of the C-TNF [Caribou-Targhee National Forest], at a minimum the CNF RFP should have selected several aquatic species as MIS for aquatic habitats in order to monitor the effects on this habitat type from proposals such as the Smoky Canyon mine extension. In the past other similar mining projects have resulted in significant impacts to numerous streams in Southeast Idaho, including stream channel alterations, excessive sediment loading of steams, and, most significantly, the contamination of surface waters by selenium. In several instances selenium contamination has resulted in the extirpation of coldwater fish species from the streams that formerly provided habitat for those species.

In this case the "project area" is the Smoky Canyon Mine Panels F and G Extension project area. Only one of three selected MIS for the Caribou Zone, the northern goshawk, occurs within the project area. One of the C-TNF [Caribou-Targhee National Forest] MIS, the sage grouse, occurs near the project area. However most habitat types that occur within the project area have no MIS selected for them. Indisputably, this project area contains the following communities for which no MIS were selected: tall forbs, riparian areas, aquatic habitats, aspen, early and late seral forest, and mountain

brush. The discussion of effects of the proposal on MIS in the DEIS is limited - "The three MIS Species: greater sage-grouse, Columbian sharp tailed-grouse, and northern goshawk are discussed above as sensitive species." The effects of the Forest Service's failure to select adequate MIS for a wide variety of habitat types on the Caribou Zone of the C-TNF [Caribou-Targhee National Forest] and in particular aquatic habitats are evident with this proposal. Impacts to habitat for YCT have been discussed immediately above in this section, Section IV, of these comments. However, because YCT [Yellowstone Cutthroat Trout] have not been selected as a MIS, there will be no monitoring of trends in their numbers or of changes in habitat conditions. Thus, if this proposal goes forward without the Forest selecting additional MIS, and conducting the required monitoring of their populations prior to as well as after its implementation, the effects of this proposal will no doubt remain largely unknown and un-quantified, until vulnerable wildlife habitat and dependent species like YCT suffer significant, negative effects.

In the meantime, the fact that most of the habitat types on the Caribou Zone of the C-TNF [Caribou-Targhee National Forest] do not have representative MIS makes it impossible for the Forest to assert, with any confidence, that the viability of wildlife resources will be maintained. For the species and habitats unrepresented in MIS, the Forest Service lacks quantitative baseline population, condition and trend data. Without this information, the Forest cannot ensure that implementation of the Smoky Canyon Mine extension will not threaten the viability of many species that now inhabit the Forest. In fact the opposite appears to be true at least for YCT [Yellowstone Cutthroat Trout]: YCT populations for project area streams as well as other adjacent streams may well be placed at risk of extinction, which would constitute a violation of the NFMA. In the absence of an MIS for this particular species - an MIS that is required by NFMA, the Forest Service cannot guarantee viable populations will remain on the Forest, let alone that, in the case of the Smoky Canyon Mine Panels F and G extension, this proposal will not adversely affect the viability of aquatic species such as YCT. [Ltr950 Cmt79, Ltr950 Cmt80, Ltr950 Cmt81, Ltr950 Cmt82 Ltr950 Cmt83]

Response: This EIS, addresses and provides analysis for a mining expansion proposal, including the effects to wildlife, it does not analyze the adequacy of the current and approved MIS species that were evaluated and determined to be appropriate in the RFP (USFS 2003a). A Decision on Appeal (#03-13-00-0401) of the Caribou National Forest Land and Resource Management Plan Revision found analysis in the FEIS and supporting documentation met the requirements of 36 CFR 219.19 [NFMA 1982] and FSM 2621 for selection and evaluation of management indicator species, therefore this comment is beyond the scope of this EIS.

5. Comment: NFMA requires the FS to provide for and manage the diversity of plant and animal communities. This applies to all FS permitted, authorized, funded, or implemented project and proposals. The EIS must demonstrate that the proposed expansion will not violate these wildlife protections. [Ltr950 Cmt17]

   Response: The EIS accurately and adequately addresses and discloses the potential impacts from the proposed project. This information will be used to decide if the proposed expansion would violate any wildlife protections. This information ensures that the USFS can make informed decisions on providing for and managing the diversity of plant and animal communities that occur on USFS lands in the Study Area as required by NFMA.

Public Concern ID 150

The Agencies should recognize that rehandling of overburden material will result in more contamination

1. Comment: One commenter stated that rehandling the waste will not eliminate air and water reactions with rocks containing selenium. Air and water would still come into contact with the waste rock as it is being placed in the overburden pile and as it is being rehandled back into the pit. Rehandling of overburden material would also increase air emission over a longer period of time. [Ltr973 Cmt6]

   Response: See response to PC 124 Comment 1 above.

Public Concern ID 151

The Agencies should only allow the project to be within the confines of Alternative A, with no north or south lease modifications

1. Comment: One commenter stated that if the mine expansion is permitted it should be under Alternative A and not include the north or south lease modifications. However, the power line that bisects the IRA should not be allowed as it represents an unacceptable intrusion into a sensitive area. Instead it should be placed along the selected haul/access road. [Ltr978 CMt4]

   Response: The Agency Preferred Alternative has been disclosed in **Section 2.10.2** of the FEIS. The Agencies will make a decision based on the understanding of environmental consequences and potential benefits of the project. This would include the Proposed Action mining of both Panels F and G, both the north and south lease modifications to Panel F, Alternative D store and release cover, and the power line would be placed along the Proposed Action Panel F Haul/Access Road and the Proposed Action Panel G West Haul/Access Road routes as described in transportation alternative E. The Agencies have determined that these components would balance socioeconomic benefits with potential environmental consequences.

Public Concern ID 157

The Agencies should acknowledge that the proposed mine expansion is an ecological time bomb

1. Comment: Two commenters expressed opposition to the proposed mine expansion citing phosphate mining as an ecological time bomb. Expansion of the mine will only exacerbate this. [Ltr682 Cmt5, Ltr696 CMt5]

   Response: The Agency Preferred Alternative has been designed to control selenium releases to comply with applicable water quality standards (FEIS **Sections 4.3.1** and **4.3.2**). The cover design would also isolate the seleniferous overburden from affecting vegetation, humans, wildlife, and livestock within the mine area. Additional information has been added to the fisheries sections of the FEIS related to bioaccumulation of selenium in the aquatic habitats. The analysis demonstrates that the mining of Panels F and G would comply with all legally applicable requirements for environmental protection.

Public Concern ID 163

The Agencies should make technical and editorial changes to the EIS regarding mining processes and monitoring techniques

1. Comment: One commenting group stated: Chapter 4 of the DEIS discusses the predicted peak concentrations of selenium in ground water and surface water for each of the alternatives. The cumulative impacts analysis in Chapter 5 identifies the scenario under which the selenium concentration in lower Sage Creek (between South Fork Sage Creek and Crow Creek) would exceed the surface water standard year-round (0.007 mg/l). It is not clear from the DEIS what the individual selenium loading is from the expansion of panels F and G alone, although the implication (p.5-24) is that the selenium load from panels F and G will not by themselves result in surface water quality exceedances. The cumulative effects section would be helped considerably by an additional figure illustrating the conceptual model of what is happening at the north end of the project maps. The discussion of the relationship between Hoopes Spring and South Fork Sage Creek Spring and the various monitoring points in the area used to illustrate those relationships was very hard to interpret and follow. It is difficult to clearly differentiate the impacts fro the existing/historic mining form impacts associated with the proposed Panels F and G mine expansion. One such example is at page 5-22, paragraph 4. There appears to be conflicting statements regarding whether or not the selenium concentration in Sage Creek is currently above the water quality standard. The text says it is "above the monitoring action levels," but the concentration cited is 0.0036 mg/l, which is less than 0.005 mg/L. Please clarify that the monitoring action level is different form the water quality standard. Another example is at page 5-23, last paragraph. It is not possible for a discharge of water with a concentration above the standard (even though the load may increase significantly) unless there is an additive contribution with an existing selenium load. It is implied, but not explicit, that the existing selenium load from historic operations is currently greater than the water quality standard and therefore the load from the mine expansion would contribute to continued water quality exceedances. Please provide an additional map and text to help distinguish between historic impacts and predicted impacts from the mine expansion. [Ltr553 Cmt8]

   Response: The selenium concentrations in surface waters directly and indirectly affected by the Agency Preferred Alternative for Panels F and G would comply with surface water standards (FEIS **Section 4.3.2**). This is illustrated in **Table 4.3-23** of the FEIS which shows that the modeled selenium concentrations downstream of where the groundwater discharges occur, i.e. mouth of Deer Creek and Crow Creek downstream of the mouth of South Fork Sage Creek, are well below the surface water standard of 0.005 mg/L. The existing exceedances of the cold-water criterion for selenium in lower Sage Creek are due to discharges of selenium in water from Hoopes Spring and South Fork Sage Creek Spring. These conditions are due to existing mining operations at the current Smoky Canyon Mine and closure actions at the mine are expected to reduce selenium concentrations at these two springs and consequently in lower Sage Creek well before the peak selenium concentration from Panel F would occur in South Fork Sage Creek (see FEIS **Appendix 2A**). In this case, the selenium concentration in lower Sage Creek along with the added selenium from the Agency Preferred Alternative would remain below the surface water aquatic criterion (FEIS **Table 4.3-23**). Additional explanation of this topic has been added to the surface water impacts sections of **Chapters 4** and **5**.

Public Concern ID 175

The Agencies should acknowledge that the draft EIS presents an inadequate range of alternatives

1. Comment: Alternatives Eliminated from Detailed Analysis; this section describes alternatives to the Proposed Action that were considered but were not adopted for consideration or detailed review. A range of alternatives to be evaluated in an EIS should meet certain key principles derived from NEPA case law including: - The overall range of alternatives should be governed by the "rule of reason". When there are potentially a large number of alternatives, only a reasonable number of examples, covering a full spectrum should be analyzed. - All alternatives considered must achieve the objectives of the Purpose and Need. - Alternatives must be "reasonable," i.e. they must be technically and economically feasible. - Alternatives that are speculative and geographically remote need not be considered. - Alternatives with environmental impacts that are obviously worse than the Proposed Action or other alternatives under consideration can be eliminated. It would appear, from the list of "alternatives" considered, that, despite the principle that reasonable alternatives outside the jurisdiction of the lead agency must be considered, alternatives "geographically remote" from Smoky Canyon have been uniformly eliminated. If that is the case, the consideration of alternatives is deficient on its face.

   The only rule of geographic remoteness which is consistent with the rule of reason regarding alternatives is a rule of geographic remoteness from the point at which the "purpose and need" is to be fulfilled. Only that kind of remoteness affects technical and economic suitability to purpose and need. In this case, that is "Simplot's fertilizer plant", not Smoky Canyon. A rule of geographic remoteness from the project site allows the proponent, in all cases, to eliminate all possible alternatives which are not geographically identical to the site proposed. Reserves closer to Pocatello and more economically accessible, even if environmentally superior, would be eliminated because "geographically remote" from Smoky Canyon. The result, as in this case, is that only variants of mine design are considered. Smoky Canyon itself is "geographically remote" from Pocatello. It is not eliminated on that basis because it is not logistically or economically remote. This means that all alternative sources of supply which are not, based upon transport logistics and economics rather than physical distance, more remote from Pocatello than Smokey Canyon, must be appropriately considered (whether or not in the lead agency's jurisdiction). [Ltr498 Cmt2, Ltr498 Cmt3]

   Response: The proposed mining activities are not arbitrarily limited to Panels F and G but are affected by the practical limitation of reasonable transportation of ore to the existing Smoky Canyon mill. These leases have been identified for development by the Smoky Canyon Mine as extensions of its existing operations for many years as a logical and planned development of available phosphate reserves near the mill. Development of other phosphate leases, regardless of their geographic remoteness from the mine and mill, would incur more environmental impacts than Panels F and G due to the necessary disturbance for additional roads, power lines, tailings ponds, and mill sites that are not required for Panels F and G.

Public Concern ID 180

The Agencies should acknowledge that the draft EIS analysis of mining processes is inadequate

1. Comment: One commenter stated that the Agencies appear to be relying upon the lapse of Simplot's option contract as a reason for not including Simplot's plans to mine the Wells Canyon lease in the cumulative effects analysis. The DEIS suggests the Agencies are aware of this yet consciously omit this information when it could affect their impact analysis. This segmentation of Simplot's mining plans violates NEPA and should not be condoned by the Agencies. [Ltr561 Cmt4]

   Response: Simplot does not own the Wells Canyon Lease and, as of the time this EIS was prepared, has not announced any mining plans for the lease. The Agencies are therefore not required to include analysis of Simplot mining the Wells Canyon Lease in this EIS. If this situation were to change in the future, a new EIS would be required to evaluate the cumulative effects of the Wells Canyon Lease operations in addition to all the previous Simplot Smoky Canyon Mine operations.

2. Comment: Figure 2.6-5 depicts how overburden backfills in the pits would be covered with (1) a compacted layer of Dinwoody Formation, followed by layers of (2) chert and (3) topsoil. The proposed stair step configuration leaves the potential for the migration of infiltrating water into the seleniferous backfill if the grade and length of stair steps is not done correctly. The slope of the closed pit backfills is shown in Figure 2.6-5 as 3H: 1V. This is not too steep for the construction of a continuous compacted Dinwoody cover. The disadvantage of the approach over the proposed one is that cover installation could not be done contemporaneously. However, since only a side cover, which is far less effective than a top cover in limiting infiltration, would be impacted, the EIS should discuss which construction approach would yield the better long term results. [Ltr950 Cmt210]

   Response: The detailed investigations into cover design have yielded a refined design that is described in **Section 2.6.1** of the FEIS. It would be continuous Dinwoody cover as described by the commenter and would be built concurrent with regrading activities as they occur during mining.

3. Comment: One commenting group stated that the proposed cover design seems to anticipate roughly the same cover design presently being used by Simplot, with the addition of a barrier layer of compacted Dinwoody formation. Simplot is presently using a cover thickness of four feet of chert beneath one to two feet of topsoil, as described below: "Nobel (1991) compared the root characteristics of various groups of vegetation and found that winter annuals and perennial grasses generally had maximum root depths of less than three feet...In a survey of reported maximum rooting depths of 253 herbaceous and woody plants, Canadell et al. (1996) found that the mean maximum root depths of Herbaceous plants, shrubs, and trees were 8.5, 16.7, and 23.0 feet, respectively. "Within the last several years, Simplot has begun using a cover design that includes four feet of chert and one to two feet of topsoil for all seleniferous overburden reclamation activities at the existing Smoky Canyon Mine. Sampling reclamation vegetation growing on these covered areas has demonstrated a lack of selenium accumulation in the vegetation compared to areas where reclamation vegetation is growing directly on top of seleniferous overburden (JBR 2001c, New Fields 2005)." DEIS, pp. 3-105, 3-107 (emphasis added) Since the rooting depth of annuals and new perennials - the plants most likely populating the covers of the newest waste dumps - is shallow, there is some potential for the selenium levels to increase in plants on the

waste covers when these plants become older, more established, and more deeply rooted. It appears from the statement above that there may not have been sufficient time for vegetation on the new cap design to develop roots to their final depths - which could reach into the waste underneath the cover. How will the vegetative mix for the final covers be chosen to ensure that root penetration into the seleniferous waste, with potential accompanying selenium uptake into the vegetation, will not become a problem? How will the monitoring plan account for this possibility? [Ltr950 Cmt213, Ltr950 Cmt214]

Response: The cover design for the Agency Preferred Alternative has been revised since the DEIS and this revised design is described in **Section 2.6** of the FEIS. The cover would consist of, from top-down, 1 to 2 feet of topsoil, 3 feet of Dinwoody material, and 2 feet of chert for a total thickness of 6 to 7 feet of non-seleniferous material over the ROM overburden. The cover is designed to hold water (and plant nutrients) in the 4 to 5 feet of fine-grained growth material in the upper part of the cover and be free draining in the lower 2 feet of chert. This design would tend to concentrate root growth above the chert layer and above the ROM overburden. As described in **Sections 3.5.6 and 4.5.1** of the FEIS, the rooting depths of grasses and annuals (important forage for livestock) are typically less than three feet and reclamation vegetation species would exclude selenium accumulators. Deeper-rooted woody plants can have maximum rooting depths greater than the cover thickness, but again the revegetation mix would exclude selenium accumulator species. Monitoring of reclamation revegetation conditions would include sampling and analyses of COPCs in forage as described in **Section 2.10** of the FEIS.

Public Concern ID 182

The Agencies should consider reclamation of mined sites a perpetual activity

1. Comment: One commenting group noted that the list of Appropriate Revegetation Species (**Table 2.4-4**) is acceptable for listed grasses and forbs but does not provide the diversity of habitat conditions for a variety of game and non-game wildlife species that more native grass/shrub/forested habitats did, prior to mine activities. Reclamation of mined sites must be considered as a perpetual activity, in order to make progress toward more diverse habitat conditions. Reestablishment of the entire vegetative community not just grasses and forbs will become increasingly important as new information is developed on different plant species abilities to act as accumulators of selenium in some mine situations.

   IDFG is in full agreement as to the importance of aspen communities as they support high levels of wildlife diversity and the importance of setting back successional stages to provide these diverse plant communities. IDFG is committed in assisting in restoring, maintaining, and improving aspen habitat as part of the Mule Deer Initiative and other wildlife population enhancement programs. We request concerted efforts be made to reestablish these important community types in areas from which they have been compromised from mining activities. IDFG will continue to support and encourage efforts by state and federal agencies in restoring these most important habitats.

   The extent to which selenium in water, soils, and plants may affect wildlife in the mine area continues to be an area of concern. As the agency tasked the protection of the State's wildlife resources we request the collaboration of all interested parties in adopting standard protocols and criteria for collection and analysis of wildlife and fish collected from the area. It is our hope that with such a document in place disagreements over results from differing collection procedure and analysis would be avoided, thereby

allowing for timely management actions taken to ensure that wildlife resources are protected. [Ltr555 Cmt7, Ltr555 Cmt8, Ltr555 Cmt9]

Response: It is recognized that the post-reclamation vegetation cover would not equal the pre-mining cover with regards to species diversity and this is discussed in **Section 4.5** of the EIS. The effects to wildlife from this vegetative cover change are described in **Section 4.7** of the EIS.

Public Concern ID 183

The Agencies should provide detailed discussion of the monitoring that will be required for the new mine

1. Comment: One commenting group stated that there is no detailed discussion of required monitoring in the DEIS. Critical information on site monitoring must be included in the EIS. The basic details of monitoring, such as things to be sampled, sampling frequency, and constituents to be monitored could be disclosed in the EIS without having to develop a full site monitoring plan, which would include sampling site locations, data collection, and quality assurance procedures. [Ltr950 Cmt204]

   Response: A new monitoring appendix (**Appendix 2E**) has been added to the FEIS to provide more information on this topic than was included in the DEIS.

Public Concern ID 193

The Agencies should acknowledge that requiring Simplot to incorporate Alternative B will not result in any identifiable benefits

1. Comment: One commenter stated that there is no evidence that requiring Simplot to incorporate Mining Alternative B into the mining plan will result in any identifiable benefits. [Ltr499 Cmt3]

   Response: The Agencies have considered additional environmental, logistical and economic information provided in comments to the DEIS and have decided that application of the cover design developed for Alternative D would accomplish the environmental objectives of Alternative B. The Agencies have determined to remove Alternative B from the Agency Preferred Alternative.

Public Concern ID 194

The Agencies should consider that a properly constructed store and release cover design on an external overburden pile will allow more restoration and vegetation establishment than a re-handle option

1. Comment: A commenter stated that a properly constructed infiltration barrier design on an external overburden pile will allow more rapid restoration and vegetation establishment than a re-handle option and should be more than sufficient in isolating seleniferous materials from oxidation and weathering. [Ltr547 Cmt10]

   Response: The Agencies have considered additional logistical and economic information provided in comments to the DEIS and have decided that application of the cover design developed for Alternative D would accomplish the environmental objectives of Alternative B. The Agencies have determined to remove Alternative B from the Preferred Alternative.

Public Concern ID 195

The Agencies should require the same standards for reclamation and environmental protection be applied to backfills in Panels E and F

1. Comment: One commenting group stated that since backfill of Panel F waste into Panel E is a direct result of the proposed mining, the impacts of this process should be evaluated as part of this EIS. The DEIS attempts to draw a distinction between the closure requirement for the pit backfill of Panel E and Panels F & G. The description of the expected effects from this backfill on Panel E begins with: "The characteristics of the seepage through the Panel E backfill, both in rate and chemistry, are expected to be very similar to those estimated for Panel F. The ground water regime under the Panel E backfill is also similar to that under Panel F. In both cases, the ground water that could be affected is contained in the Wells formation and is flowing toward the east." DEIS, p.4-44. But the discussion then goes on to say: "The ground water effects from the existing Panel E overburden fills is outside of the scope of this EIS and is being studied under separate AOC [Administrative Order on Consent] studies being conducted under the authority of the USFS, IDEQ [Idaho Department of Environmental Quality] and other agencies." DEIS, p.4-44. Although it is not clear from the information presented in the DEIS, it is implied that the covers being utilized for closure of the older portions of the Smoky Canyon mine are not as impervious as those being proposed for Panels F & G. Since the backfill of a portion of Panel E is a direct result of the mining proposed for Panel F, it should not only be evaluated as a part of this EIS, but the same standards for reclamation and environmental protection should be applied. [Ltr950 Cmt186, Ltr950 Cmt206, Ltr950 Cmt219]

   Response: The commenters did not include other statements from page 4-44 that described that the Pit E-0 site of the proposed backfill was already surrounded by existing mine overburden fills that may have different geochemistry as Panel F and would affect groundwater chemistry in addition to the Pit E-0 backfill. The effects on groundwater of these other overburden fills are currently under investigation through the CERCLA process independent of the Panel F and G NEPA permitting. Page 4-44 also states that any groundwater impacts from the E-0 backfill would be addressed along with the collective impacts from the other Panel E and D pit backfills through actions taken under the AOC. The Agencies therefore have decided to let the AOC process control the investigation and mitigation of groundwater impacts from overburden north of South Fork Sage Creek.

Public Concern ID 196

The Agencies should provide detailed information on topsoil thickness requirements

1. Comment: One commenting group stated that an exact topsoil thickness, with acceptable variations, or an explanation as to why a variable topsoil thickness of one to three feet performs the same, should be provided in the EIS and Reclamation Plan. There could be significant differences in vegetation growth potential, root penetration, and cover performance due to the presence or absence of one to two feet of topsoil. If the final cover designs are not to be specified in the EIS, then cover performance specifications should be stated. Otherwise cover design and performance could be something drastically different that what is being presented in the EIS. [Ltr950 Cmt190, Ltr950 Cmt207, Ltr950 Cmt211]

   Response: The range of reclamation topsoil thickness is expected to be 1 to 2 feet and inconsistencies with this fact (1-3 feet) in the DEIS have been corrected in the FEIS. In addition, the cover design described in **Section 2.6.1** of the FEIS includes a number of

additional feet of Dinwoody shale as subsoil between the topsoil and the chert layers of the cover. This Dinwoody material is non-seleniferous and would support vegetation rooting beneath the topsoil itself.

Public Concern ID 212

The Agencies should acknowledge that the existence of a virtual Superfund site is a result of mining and waste handling

1. Comment: One commenting group stated that the existence of a virtual Superfund site, as a result of mining and waste handling in Panels A, D, and E, attests to the inadequacy of both reclamation planning by the mining company and the performance of federal and state agencies involved in a review of mine plans and approval of leases. [Ltr950 Cmt106]

   Response: See responses to PC 144 Comments 1 and 2 above. The reclamation plans being considered for Panels F and G are significantly different, and improved, from the reclamation that occurred at historic mining sites in Southeastern Idaho that are known to have caused problematic selenium releases.

Public Concern ID 213

The Agencies should not issue land use authorization to allow the 18 acres of off lease overburden fill required for the Panel G East External Overburden Fill

1. Comment: One commenting group stated that the Agencies should not issue land use authorizations to allow the 18 acres of off lease overburden fill required for the Panel G East External Overburden Fill. The existing leases already included a 50 foot buffer to accommodate this type of need. The FEIS should reconfigure the mine plan to conform within the existing buffer. No forest plan amendments should be issued to allow for this operation. The Forest Plan was designed to balance resource protection and extraction and additional amendments will cause irreparable harm to water quality and wildlife values. The action alternatives are not consistent with the Desired Future Condition for minerals and geology, particularly with regard to maintaining hydrologic function, integrity, and quality, or preventing the release of hazardous substances in excess of established standards or eliminating human exposure to hazardous substances (USFS 2003a, p. 4-82-85). [Ltr978 Cmt5]

   Response: Additional narrative has been added to the description of the 18-acre overburden fill area in question in **Section 2.4** of the FEIS. If appropriate land use authorizations are not available to approve this off-lease disturbance at the time Panel G is mined, the East External Overburden Fill will be required to be contained in the rest of the pit and east overburden fill footprint on lease and the 18 acres of off-lease disturbance would not occur.

Public Concern ID 214

The Agencies should ensure that a reclamation project has a framework of rules in place to enable "good mine reclamation" that produces lasting, beneficial land use and avoids environmental damage

1. Comment: One commenting group expressed the need for a framework of rules, procedures, and practices to be in place to enable good mine reclamation that produces lasting, beneficial land use and avoids off-site environmental damage. That framework

must include effective governmental oversight and regulation, as well as professional, timely, and consistent actions by the mining company.

The DEIS contains no information on the procedures the USFS and BLM employ in field inspections (frequency, standards, reports, etc.). It appears that self-inspections and reporting by the mining company have been implemented but have not resulted in enforcement actions (warnings, citations, fines) when problems have been reported.

Two goals of the reclamation should be: 1) to lower the levels of selenium leaching from the seleniferous waste to levels that do not lead to exceedances of water quality standards in surface or ground waters, and 2) to keep contaminated water from entering surface waters and uncontaminated groundwater aquifers. [Ltr950 Cmt107, Ltr950 Cmt298, Ltr950 Cmt299, Ltr950 Cmt108, Ltr950 Cmt293]

Response: A new appendix has been added to the FEIS (**Appendix 2E**) that includes additional information on the required monitoring for the proposed mining activities. The Agency Preferred Alternative would protect groundwater discharges to surface water from contamination exceeding applicable water quality standards. The potential responses to monitored conditions that do not appear to conform to the approved plans are also included in the appendix.

Public Concern ID 215

The Agencies should ensure that the reclamation project is not based on a cost/benefit basis

1. Comment: One commenter stated that designing and implementing a reclamation plan for the proposed Panels F and G expansion will be difficult and expensive, given the terrain and the proposed mining methods as described in the DEIS. However, the valuable public resources that will be affected, including the resources downstream and down slope from the proposed mining, must be protected. The Area Wide Risk Management Plan acknowledges repeatedly that a failure to control selenium at the Smoky Canyon mine will have a disastrous effect on fish and game in the Salt River watershed. First, and foremost, reclamation should not be based on a cost/benefit basis or the economic bottom line of Simplot or any other mining company. Unfortunately, the "costs" to the mine operator appear to be one of the key elements in the agencies' evaluation of the reclamation aspects of the proposal. This deference to the mine operator's bottom line manifests itself most notably in connection with the decision as to whether the company would have to use a non-permeability synthetic liner or low-permeability soil barrier under the chert gap. And even as inadequate as the low-permeability barrier design chosen is, it was further compromised by cost considerations. As Chambers observed, "the 'iterative process' referred to in the DEIS refers to a process in which variables in the model are changed until a desired infiltration rate is obtained." In other words, rather than proposing a thicker low-permeability barrier that would give plenty of room for error, or high precipitation events or years, the chosen barrier's thickness was calculated so that the amount of water it will pass through the backfill will keep selenium concentrations in water discharged into area streams and springs at, or just below, the state water quality standard. [Ltr950 Cmt109]

   Response: The Agencies consider costs of environmental mitigation measures because extraction of any mineral deposit is essentially controlled by mining costs. The Federal agencies are managing the lands in question for multiple use and known phosphate lease areas have potential value to citizens if they are developed. Once an area is identified for development, the agencies try to foster maximum extraction of the

resource, while balancing environmental impacts. Environmental impact mitigation can increase mining costs to the point where extraction of the mineral resource is not maximized; hence the Agencies believe such costs must be considered in the impact evaluation. The iterative process described by Chambers was not conducted to find a lower cost cover design but was used to identify the potential effectiveness that the cover would need to meet in order to provide adequate environmental protection benefits. Additional information on the cover design for the Agency Preferred Alternative is found in **Section 2.6.1** of the FEIS.

Public Concern ID 217

The Agencies should replace topsoil at depths that approximate current conditions

1. Comment: One commenter stated that in order to better restore pre-existing vegetation patterns, topsoil should be replaced at depths that approximate current conditions. Sub Alpine fir root systems exceed the proposed four-foot chert buffer; therefore the thickness of the chert layer should be increased to a minimum of fifteen feet. The thickness of the chert layer should be tailored to the soil and vegetation type. [Ltr978 Cmt13]

   Response: Topsoil that is salvaged comes in a wide variety of thicknesses, relatively thinner on ridge tops and thicker in drainages. All salvaged topsoil would be used in reclamation of the disturbed areas but will not necessarily be restored to exact original thicknesses. Replacing topsoil to pre-mining thicknesses is not done in mine reclamation and the Agencies do not require it. See responses to PC 180 Comment 3 and PC 196 Comment 1 above for further information on topsoil depths.

Public Concern ID 220

The Agencies should recognize that the Site Investigation Report for Smoky Canyon Mine fails to acknowledge the damage that selenium will create in un-reclaimed areas

1. Comment: A commenting group discussed: The SIR for Smoky Canyon Mine gives data on a wide spectrum of conditions that have impacted, or have the potential to impact, the environmental due to selenium contamination. These conditions include, but are not limited to: large acreages of seleniferous overburden placed without chert or soil capping; burial or loss of topsoil; poor cover of vegetation on deposits of overburden; slop failures in some external fills; breaching of some sediment detention structures; and elevated levels of selenium in water, sediment, and biota.

   The SIR summarizes the contamination succinctly in Table 7-17 by noting that selenium is the only constituent of concern that is present above background or regulatory/removal action levels in nine environmental media in land and water areas related to mining and reclamation in Panels, A, D and E. Some of the selenium concentrations reported are:

   - Selenium in ground water in an alluvial well, downgradient from D panel fill (26 times greater than regulatory standard)

   - Selenium in surface water in Lower Pole Canyon (300 times greater than regulatory standard

   - Selenium in seeps from base of overburden from panel E (68 times greater than action level)

- Selenium in detention basin waters below overburden seep (34 times greater than action level)

Analyses of samples taken from shale-topped overburden disposal sites in Smoky Canyon Mine reveal concentrations of selenium that exceed what would be considered action levels, except that the SIR report (pages40-41) dismisses application of the regulatory standard with the statement: “removal action level does not apply to surface materials on waste rock dumps that were permitted as waste disposal facilities.” These areas are considered to present much lower ecological habitat value or potential for resident populations because of the short, sparse vegetative cover provided in reclaimed area.

Let's put the quoted phase in perspective by translating it into common language. This is what the authors are really saying: Because of essentially no reclamation at these disposal sites-compared to proposed BMPs-a wasteland has been created; therefore, no action is required under CERCLA. Furthermore, this statement wrongly implies there is no runoff of surface water or sediment from the site, and, if such does occur, the included contaminants are inconsequential in affecting the receiving environments. Elsewhere in the various reports on the Smoky Canyon Mine there are similar statements that would divert responsible parties from serious, cooperative efforts to achieve environmentally safe phosphate mining and reclamation. One of these is found in the designation of areas as "non-regulatory"-namely in the tailings ponds and detention basins at Smoky Canyon Mine. For these areas a selenium action level of .201 mg/L is set for transitory wildlife (this, 40 times higher than aquatic life criteria) and .050 mg/L for extended use by wildlife. Those experienced in observing wildlife know (as we learned in the San Joaquin valley) that birds will sit down and stay at water bodies, especially in arid or semi-arid areas, oblivious of the classification of the water body. And animals will drink from seeps where they find them on a mountainside, oblivious of the fact that the terrain is not classified as suitable for their use. There can be endless debates about criteria and numbers in any setting afflicted by high concentration of selenium. Enforcement actions have descended very slowly on the Smoky Canyon Mine. Sage Creek from source to mouth is now on Idaho's 303(d) list under the Clean Water Act for selenium impairment and Pole Canyon Creek has been recommended for 303(d) listing as a selenium-impaired watershed. But no TMDLs have been developed yet for those streams.

Selenium is not just another contaminant. When it becomes mobilized and concentrated in the environment, the costs to industry, and to the environment, have been shown to be huge. [Ltr950 Cmt300, Ltr950 Cmt301, Ltr950 Cmt302]

Response: This comment is not on the DEIS but on the SI for the Smoky Canyon Mine.

Public Concern ID 223

The Agencies should provide the cost information for mine reclamation, either for remedy of problems from past mining, or expenditures on current reclamation

1. Comment: One commenting group stated: The primary environmental reports on the Smoky Canyon Mine do not give the costs for mine reclamation-either for remedy of problems from past mining, or expenditures on current reclamation, or the projected costs to reclaim proposed Panels F and G. When such information is retained as confidential, regulatory agencies are disadvantaged in determining if a reasonable fit exists between the amount of assurance bond and the labor, material and equipment necessary to reclaim mined land. A dilemma in regulatory evaluation can be illustrated

in following exercise: Convert the 1,269 acres proposed to be reclaimed in Panels F and G into a lump sum for reclamation by multiplying by a bond of $1,800/acre, to obtain an aggregate sum of $2,284,200. Assume that 30 percent of that sum, $685,260, is assigned to labor, at $60,000/person/year (total package). Division of labor into capital gives us 11 person-years to reclaim two square miles of disturbed lands over a span of 14 years and onward for an unknown number of years of post-reclamation monitoring. Given the nature of the BMPs that necessarily should be applied to Panels F and G, there is an apparent mismatch between tasks to be accomplished and past bonding rates. Breakdowns of reclamation costs are essential for regulatory evaluations, including environmental impact statements like the Smoky Canyon DEIS.

Furthermore reliable information can demonstrate the beneficial economic impact of mine reclamation on local and regional economies. The National Association of Contractors estimates that each million dollars spent on mine reclamation projects (applying a multiplier effect) creates 59 jobs.

Though as noted the DEIS should have provided estimated costs for reclamation activities, the forthcoming EE/CA report for Panel A, D and E lands surely will contain detailed estimates for specific required actions. These costs should be broken down to segregate labor costs. As also noted, the mining company doubtless knows how much labor is being devoted to reclamation at Panels B and C. These unit figures should be generally applicable to proposed [Ltr950 Cmt306, Ltr950 Cmt307]

Response: The Agencies have worked with Simplot to develop an actual cost bond estimate for the Agency Preferred Alternative and this has been added to Chapter 2 of the FEIS. The current status of bonding at Smoky Canyon Mine is noted in **Section 2.3.7**. They are currently bonded for several times what the commenter estimates.

Public Concern ID 224

The Agencies should recognize that the Smoky Canyon Mine has a bond amount that is too low

1. Comment: One commenting group stated: As acknowledged in the environmental reports, thought not detailed, mine reclamation at Smoky canyon will require a wide variety of skilled jobs in: operation and servicing of equipment, soils science, agronomy, drainage, field sampling and testing, and operation of water control and treatment facilities. If Panels F and G are never opened, reclaiming the 1,400 acres of disturbed land remaining in year 2004, will require years of work and likely provide jobs to scores and scores of local people. At a minimum, using the forthcoming EE/CA report as a source, the DEIS should be supplemented with estimates of the numbers and kinds of jobs needed to reclaim the sites that are listed in the SIR on page 61. These are:

   - A Panel external disposal area
   - Existing A Panel pit backfill
   - Pole Canyon overburden disposal area
   - D Panel external disposal areas
   - D Panel pit backfill
   - E Panel external disposal area
   - E Panel NE pit backfill
   - All roads constructed of waste shale.

   All these are just the sites requiring reclamation that we know about now. We do not know anything about conditions at Panels B and C. Nor do we know about the extent of

selenium contamination in all the other areas that have been exposed due to the Smoky Canyon Mine. Without monitoring of wider coverage over a longer time frame than was employed to prepare the SIR, the true extent and degree of selenium contamination resulting from the Smoky Canyon Mine can only be estimated. Certainly the total area that will require remediation is far larger than the immediate area of the mine, which is reflected in the above list.

A rough estimate of the areal extent of lands and waters having selenium contaminated media -i.e., the total area that will require remediation-can be derived by comparing the selenium data given in Appendix B of the SIR with the locations of the data collection points plotted on the maps in Chapter Four of the SIR. An encirclement of the total mine area, downslope lands, and floodplains-where at least monitoring action levels of selenium were found in the Sage Creek and Tygee Creek watersheds-yields an aggregate of about 10,000 acres of contaminated and probably contaminated lands. This does not include any floodplains or riparian lands in Stump Creek, after joined by Tygee Creek, or in Crow Creek, after joined by Sage Creek. Obviously, if through credible, comprehensive sampling and analyses these lands and waters are confirmed as needing remediation, costs could well run into tens of millions of dollars. Indeed, even the unreasonably low per acre bond amount limit set in Idaho, $2,500, yields a total of $25 million. In my professional opinion, this sum, which is three times the bond amount now held on Simplot for the Smoky Canyon Mine, constitutes the low end of the range for total remediation costs. [Ltr950 Cmt308, Ltr950 Cmt309]

Response: This is a comment on the SIR and not the DEIS. The Agencies have worked with Simplot to develop an actual cost bond estimate for the Agency Preferred Alternative and this has been added to **Section 2.10** of the FEIS.

Public Concern ID 228

The Agencies should recognize that the draft EIS lists several other possible locations for ore exploration

1. Comment: One commenter stated that there are many other alternative sites for phosphate mining in addition to those proposed for the expansion. The DEIS predicts dire consequences for the area's phosphate industry if it isn't allowed to expand into the proposed area. [Ltr950 Cmt318]

   Response: Mine alternatives that are geographically remote from the existing Simplot facilities are not reasonable as new mill facilities would need to be constructed and would therefore have a greater impact than the Proposed Action and other alternatives. Also see response to PC 175, Comment 1 above.

Public Concern ID 229

The Agencies should acknowledge that the BMPs have not yet been monitored over an extended period of time, so their effectiveness is assumed through general experience to be sufficient

1. Comment: A commenting group noted that a number of water and sediment control BMPs proposed for use in Panels F and G have not yet been monitored over any extended period of time. Their effectiveness is assumed; the actual effectiveness of these BMPs must be evaluated through comprehensive monitoring and rigorous evaluation before a decision is made about applying them to reclamation in Panels F and G. [Ltr950 Cmt141, Ltr950 Cmt172, Ltr950 Cmt283]

Response: The available information on the effectiveness of the BMPs indicates they should be sufficient for meeting their intended purposes. The BMPs under consideration are also relatively simple, i.e. runoff and sediment controls, topsoil application, covering with low selenium rock, etc. The potential effects of these BMPs are therefore relatively predictable and there is not much uncertainty. A new **Appendix 2E** has been added to the FEIS describing monitoring that is proposed for Panels F and G.

Public Concern ID 230

The Agencies should evaluate the effectiveness of Best Management Practices being proposed for reclamation in Panels F and G

1. Comment: The existence of a virtual Superfund site as a result of mining and waste handling in Panels A, D, and E attests to the inadequacy of both reclamation planning by the mining company and the performance of federal and state agencies involved in review of mine plans and approval of leases. Ignorance of the biochemical behavior of selenium is a partial excuse, but some of the blame for the ghost lands that now need remediation at Smoky Canyon Mine can be found in Title 47, Chapter 15 of the Idaho Statutes, as illustrated in the following examples: -From section 47-1509, abandoned affected lands shall be topped to the extent that such overburden is reasonably available from the pit...Tailings ponds shall be reasonably prepared [to] not constitute a hazard to human or animal life. -From section 471510, No planting shall be required...where planting would not be practicable or reasonable because the soil is composed of sand, gravel, shale, stone or other material to such an extent as to prohibit plant growth. According to the commenter, escape clauses of the kind quoted above lead to weak mine reclamation plans. Even though a mining company may know how to reclaim far more effectively than statutes dictate, a reclamation plan tends to be based on the lowest common denominator-which in the case of Panels A, D and E was the Idaho Statutes. By acceding to State primacy for standards in reclamation planning, the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) have been party to creating problem lands at Smoky Canyon that may cost much more to remediate than the historic royalties paid to the federal government as a percentage of the mined phosphate. Given these complexities and inherent conflicts, changes in emphasis and practice are needed if an expansion of phosphate mining is to be granted in approving Panels F and G. Major improvements are needed in environmental monitoring, watercourses, and preparations for closure of tailings ponds. [Ltr950 Cmt294]

   Response: The Federal agencies have primacy for establishing reclamation requirements for the Smoky Canyon Mine on federal land, not the State. The reclamation plans for the Panels A, B, C, D, and E were reviewed by the BLM and FS and they specified the components of the reclamation. Mining in Panels B and C is covered by an actual-cost, estimate bond, not the blanket amount established by State rules. All closure and reclamation costs at the mine are paid for by Simplot not the Federal government and the CERCLA investigation and remediation costs are also borne by Simplot. Another actual cost estimate bond would be required of Simplot for the Panels F and G operations before that mining could begin. No changes in these practices are required to grant an extension of the Smoky Canyon Mine.

Public Concern ID 231

The Agencies should assure that the Engineering Evaluation Cost Analysis (EECA) report covers and evaluates all means that may be needed to prevent major ecologic disruption from selenium contamination

1. Comment: One commenter stated that the EECA represents the environmental bill for the Agencies' failure to protect the forest and Crow Creek for the first twenty years of the Smoky Canyon Mine. That bill amount, as calculated by a consultant to Simplot, could be as high as $115 million in present value terms or $180 million in absolute dollars. The Agencies are now supporting another twenty years of mining and are unwilling to accept that the liability for the first twenty years is important public information that must be disclosed in the EIS. [Ltr1050 Cmt2]

   Response: The selenium problem in Southeastern Idaho was not recognized by the Agencies and the industry until the late 1990's, at which point the Agencies and mining companies immediately began to cooperatively investigate the problems and develop mitigation measures to deal with the problems, as they were understood. It is an unfair statement that the Agencies failed to protect the environment from a problem prior to them knowing about it. The high costs proposed by the commenter are not for the remediation that is expected to be completed at the Smoky Canyon Mine and, regardless of its actual value, will be paid by Simplot. All the results of the Site Investigations and the EE/CA are publicly available and have already been disclosed by the Agencies as public information.

2. Comment: A commenting group stated: Federal and State regulatory and land management agencies should assure that the forthcoming Engineering Evaluation/Cost analysis (EE/CA) report covers, and evaluates in detail, all means that may be needed to prevent major ecologic disruption from selenium contamination. Investigations to date have not addressed two measures that may provide the only possible means of preventing contamination from old fills or some new fills. The first of these measures is an impervious lining concept described in a report on the Smoky Canyon DEIS by DR. Tom Myers. The second is treatment of selenium-laden water, which is discussed in "The Need for Selenium Treatment at Smoky Canyon Mine." Appropriately, EE/CA evaluations focus first on effectiveness (e.g., engineering performance) before turning to costs and who pays. Without correction of the problem of old fills, the environment will certainly pay, and without documented proof that remediation is actually succeeding in correcting these problems, the Smoky Canyon Mine should not be expanded into Panels F and G. [Ltr950 Cmt284]

   Response: This is a comment on the EE/CA and not the DEIS. A new appendix (**Appendix 2A**) has been added to the FEIS describing the CERCLA process at the Smoky Canyon Mine, the actions that are planned, the schedule for implementation of these plans, and the anticipated effectiveness of these actions.

Public Concern ID 232

The Agencies should update abandonment and closure plans for the tailings ponds

1. Comment: A group commented: The two tailings ponds at the Smoky Canyon Mine are an integral part of the whole mine operation. The ponds were designed solely for engineering performance and permitted by the U.S. Army Corps of Engineers, before awareness of the extreme toxicity of selenium and its prevalence in the waste products stemming from milling operation. At the time of permitting, a plan for ultimate abandonment and closure of the ponds was filed with the Idaho Department of Water

Resources and the Idaho Department of Lands. Not only must that plan now be updated, but also the draft plan cited in the SEIS for Panels B and C, to take into account the possibility of a long-term legacy of selenium toxicity that must be dealt with at Ponds #1 and #2. Apparently, the large pond, Pond #2, is to be closed by de-watering to create a dry upland land mass. A residual pond of water would be created adjacent to the dam.

For regulatory purposes, the tailings ponds are in mine Area B, a "non-regulated" area for which it is presently assumed there will be only transitory visits by wildlife. I find no data in the four primary environmental reports- the DEIS, SEIS, SIR, and Area Wide Risk Management Plan-to support such an assumption. I once served on a task force that studied scores of ponds, some seemingly sterile and uninviting in appearance. All these ponds and reservoirs were used by birds, sometimes in high populations and for long periods of time. Selenium concentrations as high as 0.030mg/L (higher than the acute aquatic life standard) have been found in the large tailings pond. Data are needed on the concentrations of selenium that might be present as fugitive dust when the ponds are dried, and as concentrations of selenium increase-which seems logical-in residual waters. If evaluations show the tailings ponds should come under the aquatic life criteria, the ponds will have to be operated differently and perhaps, closed sooner. This should be known before a pond-dependent mine expansion is approved. [Ltr950 Cmt287, Ltr950 Cmt288]

Response: In response to the Area B AOC work, the State of Idaho has finalized an updated closure and reclamation plan at the tailings pond. The Area B is regulated by the State of Idaho, U.S. Corps of Engineers, and EPA so stating it is “non-regulated” is incorrect. The tailings ponds are fully permitted for the life of the Smoky Canyon operations, including Panels F and G and are not connected actions with Panels F and G under NEPA. Thus the approval of the proposed mine expansion is independent of the AOC work at the tailings ponds.

Public Concern ID 233

The Agencies should implement selenium treatment as part of the package of Best Management Practices (BMPs) for reclamation and removal actions

1. Comment: One group commented: Though showing some operations deficiencies, in trials, a biological treatment process developed by Applied Biosciences of Salt Lake City should be considered as a good candidate. Selenium was reportedly reduced from 0.500mg/L to 0.005 mg/L in a small pilot plant. Reliable cost estimates will depend on further testing at a larger scale and longer duration. With respect to all technologies for treating selenium, trials should be run using actual waters from the Smoky Canyon Mine. Experiments in California showed that several solutes in drain water-e.g., nitrates, sulfates, and TDS-can impede the biochemical reactions essential for reduction of selenium to elemental form. The particular process to be tried must be matched to the chemistry of the water and the conditions at the mine site. The most complete published summary of the physical performance and costs of selenium treatment technology, to date, is a seminal paper by W.T. Frankenberger and eleven co-authors, who represent, collectively, a great deal of expertise in selenium treatment technology. The Frankenberger paper evaluates the advantages and disadvantages of essentially all known processes. In terms of percent of selenium removed, some of the more promising reports of performance are: -A reduction of 90% of selenate at a projected cost of %150/AF--in a chemical process being developed by the U.S. Bureau of Reclamation, Technical Center, Denver -A reduction of total soluble selenium from 0.400 mg/L to less than 0.010 mg/L with an estimated cost of a few hundred dollars per AF-in

an algal-bacterial process being developed by the University of California, Berkeley-Consistent reductions of total soluble selenium from 0.500mg/L to less than 0.030mg/L, at costs estimated to range from $300 to $500/AF-in anaerobic reduction processes developed by EPOC AG, La Trobe University, and the California State University (Fresno).

Many unknowns remain in the technology of selenium treatment and its application to a field problem. This is brought out each year in the annual review of treatment technology that is convened by the University of California. Each year, however, as laboratory and field work progresses, there are generally reports of improved performances at lower costs. Given the complexities of correcting and preventing selenium contamination from the Smoky Canyon Mine, treatment should be considered as part of the package of BMPs for reclamation and removal actions. [Ltr950 Cmt291, Ltr950 Cmt292]

Response: The comment concerns treatment of the existing impacts from the existing mine and would be more appropriately addressed in the EE/CA than the DEIS. They are not impacts of the proposed action.

Treatment was one remedial alternative considered in the Smoky Canyon Mine EE/CA and is not the preferred removal action at this time mainly because the quantities of water to be treated are so large and the concentrations of selenium are relatively low. For Panels F and G the Agencies prefer to mitigate the leachate generation within the overburden fills through infiltration controls in a store and release cover. The idea is to eliminate the potential for future groundwater or surface water contamination that then requires other types of remediation. The Agencies will consider active water treatment as applicable on a case-by- case basis in the future.

Public Concern ID 235

The Agencies should acknowledge the draft EIS wrongly attempted to separate past and current mining activities at the Smoky Canyon Mine

1. Comment: A commenting group stated that although past and current mining activities at the Mine are clearly related to the proposed Panels F and G expansion, the agencies have not addressed these connected actions. It appears the agencies are attempting to segment the various planning efforts and ongoing activities. The interdependencies of mining operations and the potential for a whole-mine impact on the environment are obvious. The agencies have partitioned the work of planning for mining and environmental protection into multiple parts: a Site Investigation Report for historic mining in Panels A, D, and E; a Supplemental EIS for Panels B and C; ongoing investigations for eventual closure of Area B ponds; a DEIS for Panels F and G; and revised reclamation plans for handling wastes in Panel E – these reports and actions are not separable. The DEIS does not account for the environmental impacts of actions on other parts of the mine complex in assessing the potential impacts of the proposed expansion. All connected actions must be evaluated as part of the proposed expansion in the EIS. [Ltr950 Cmt146, Ltr950 Cmt147, Ltr950 Cmt148, Ltr950 Cmt149, Ltr950 Cmt150, Ltr950 Cmt151, Ltr950 Cmt187]

   Response: CERCLA actions including the Site Investigation, EE/CA, RIFS, and remedial actions at existing mines are the most effective means of dealing with these problems independent of any planned NEPA actions for mine expansions. Thus the State, Federal, and Tribal agencies have pursued CERCLA actions where deemed necessary to clean up existing problems. From time to time, certain mine expansions

trigger NEPA analysis to deal with the site-specific environmental issues for the mine expansions. Clearly, these new mines do not fall under CERCLA and the proponents and Agencies do not intend them to be, now or in the future, so they are not incorporated into the ongoing CERCLA work. The NEPA projects also cannot simply be put on hold until all the CERCLA work is completed on the existing problems so they proceed independently of the CERCLA work. This referencing previous work is the most effective way for both regulatory programs to proceed efficiently. In so doing, there is no intention to subvert the requirements of NEPA to evaluate connected and cumulative actions as applicable.

Public Concern ID 241

The Agencies should acknowledge the draft EIS contains no information on the procedures the USFS and BLM employ in field inspections

1. Comment: One commenting group expressed concern that the EIS contains no information on the procedures the Agencies employ in field inspections/monitoring, such as frequency, standards and reports. The BMPs noted in **Appendix 2C** are written too generally and ambiguously. These do not instill confidence that the BMPs will be applied with any great diligence or enthusiasm. [Ltr950 Cmt111, Ltr950 Cmt112, Ltr950 Cmt185, Ltr950 Cmt339]

   Response: The Agencies have responded to this and similar comments on the DEIS by incorporating more detail on the planned monitoring and inspection programs in a new appendix to the FEIS (**Appendix 2E**).

Public Concern ID 242

The Agencies should acknowledge the draft EIS failed to include a set of "typicals" for the BMPs

1. Comment: One commenting group stated that the EIS needs to include “typicals” for applying BMPs, that is examples describing how specific BMPs would be applied or implemented on the ground and situations likely to be encountered. This discussion should be in sufficient detail so that the EIS can estimate and project the odds that the BMPs will actually work as claimed. This should include examples or case studies of the application of individual BMPs in similar mining operations. [Ltr950 Cmt113, Ltr950 Cmt184, Ltr950 Cmt340, Ltr950 Cmt341]

   Response: The BMPs mentioned in this document are not experimental or new but include commonly used practices described in previous BMP publications that are cited in the introductory paragraphs of both BMP appendices in the DEIS. These other documents contain more complete descriptions of the BMPs, in many cases with typical drawings. The BMPs included in the EIS refer to these other publicly available documents and do not need to reproduce them.

Public Concern ID 243

The Agencies should require proof that the backfill pit design will work, before the project is approved

1. Comment: A commenting group expressed concern regarding the chert cover over backfilled overburden. The concerns include: 1) it leaves the potential for migration of infiltrating water into the seleniferous backfill if the grade and length of the stair steps is not done correctly, 2) cover installation could not be done contemporaneously, and 3) no

comparison of the two options was provided. The chert cover over backfill overburden should decrease movement in some of the pathways but not all. The agencies should require proof that this will work and not approve the project until another site has been constructed and monitored for a sufficient time to prove that the cover will work after reclamation. [Ltr950 Cmt113, Ltr950 Cmt114, Ltr950 Cmt167]

Response: The Agency Preferred Alternative includes the Alternative D store and release cover, not just the chert cover of the proposed action. The ongoing design evaluation of the cover has resulted in a refined design that is described in **Section 2.6.1** of the FEIS. This type of store and release cover is a more conventional cover design that has fairly extensive history of utilization in many mining environments. It will be able to be built contemporaneously with regrading of the overburden. The Agencies are requiring that a test fill and cover be built before production cover construction begins at Panels F and G (see **Appendix 2E**).

Public Concern ID 245

The Agencies should require Simplot to outline how it will track the origin and placement of overburden materials

1. Comment: One commenting group stated that another important aspect of reclamation is the segregation/differentiation and placement of seleniferous and non-seleniferous waste. How will Simplot's production staff track the origin and placement of overburden materials? What does this actually mean? Will they test the material for selenium concentrations before loading it onto trucks that are then sent to overburden dump sites for non-(read "low") seleniferous or to the pit for seleniferous waste disposal? If the material were to be tested, how frequently would those tests be done? Or, is the tracking overburden, as referenced, to be carried out as envisioned for the North Rasmussen Ridge Mine. That is, will shovel operators, truck drivers, excavator operators, and dozer operators simply make "ocular" determination about overburden material, quite literally guessing by its color whether it is seleniferous or non-seleniferous waste? Finally, as Imhoff emphasizes, cutting corners on mining and reclamation to enhance the immediate bottom line can prove disastrous both environmentally and financially in the long run when the cost of remediation is added to the total costs. Kesterson is important because it offers valuable lessons for agency managers about the complexity and expense of selenium remediation at the existing Smoky Canyon Mine. The lessons are important guidance for assessment of the risks of expansion into Panels F and G. Regrettably, the DEIS does not indicate that any of Kesterson's lessons have yet been taken to heart by its authors or others involved with this proposal. [Ltr950 Cmt116]

   Response: Typically, the mining companies consider all of the center waste shale as seleniferous. The various other types of overburden are generally considered non-seleniferous; however, prior to use as construction material or placement in a non-seleniferous storage area, a program of check sampling is in place to verify non-seleniferous status. This is done in the pit, prior to removal. The selenium content of overburden used for constructing purposes at the Smoky Canyon Mine is monitored for selenium content as described in procedures approved by the BLM.

Public Concern ID 246

The Agencies should acknowledge that the draft EIS needs a section detailing Simplot's monitoring plan

1. Comment: Several commenters stated that although the EIS discusses monitoring, it does not provide specifics. Some of the objectives of a monitoring program would be to

evaluate environmental outcomes, validate predictions, and provide information to make informed decisions on adequacy of reclamation and bond release. There is no discussion of problem levels or what would happen if monitoring reveals problems. There should be real financial penalties in cases where negligence is found and the mine should be shut down until major problems are corrected. Given that the issue of monitoring has been addressed at Smoky Canyon Mine through prior NEPA analysis, the EIS should discuss whether similar monitoring protocols, frequency, etc would be expected for the proposed mine expansion. [Ltr239 Cmt4, Ltr553 Cmt9, Ltr950 Cmt123]

Response: The Agencies have responded to this and similar comments on the DEIS by incorporating more detail on the planned monitoring and inspection programs in a new appendix (**Appendix 2E**) to the FEIS.

2. Comment: One commenting agency strongly recommended the installation of a series of groundwater monitoring wells along probable flow paths to detect releases and to monitor and understand the fate and transport of contaminants. [Ltr553 Cmt10]

   Response: The requested monitoring wells are included in the monitoring plan appendix to the FEIS (**Appendix 2E**).

3. Comment: A commenting group stated that monitoring programs should trigger immediate and enforceable remedial actions up to and including stoppage of operations when a problem is detected. Further, monitoring is not mitigation. Mitigation is measures taken to make right any environmental damage that could not be prevented or avoided despite BMPs and other best efforts. The EIS should not include monitoring in the mitigation section. [Ltr950 Cmt363]

   Response: There are triggering events included in the monitoring plan appendix (**Appendix 2E**). See PC247 Comment 1 response.

4. Comment: One commenting group stated that the EIS should include a robust, if not final, monitoring plan so the public can fully evaluate its validity. It is essential that the public know how Simplot and the permitting agencies will monitor the selenium problem. The basic details of monitoring (things to be sampled, sampling frequency, and constituents to be monitored) should be disclosed in the EIS without having to develop a full-site monitoring plan. It is obvious that similar types of monitoring would be required for any of the mining alternatives; the same holds true for the various transportation alternatives. [Ltr950 Cmt121, Ltr950 Cmt122]

   Response: The agencies have responded to this and similar comments on the DEIS by incorporating more detail on the planned monitoring and inspection programs in a new appendix to the FEIS (**Appendix 2E**).

5. Comment: One commenter stated that monitoring is not specifically mentioned for wetlands. Monitoring wetlands is important because selenium and other COPCs could accumulate in aquatic sediments, aquatic plants, and aquatic invertebrates that in turn could be fed upon by wildlife. It is imperative that wetlands potentially impacted by phosphate mining be monitored for contaminant impacts. That monitoring should include water, sediment, aquatic plants, aquatic invertebrates, and fish, if present. Any and all monitoring should include triggers that would require on-going activities to be changed in response to defined findings. [Ltr950 Cmt230]

   Response: Water resources and aquatic habitat monitoring has been included in the monitoring plan included in the new appendix to the FEIS (**Appendix 2E**).

6. Comment: Subsections of **Section 2.5** discuss the specific resources that would be monitored in accordance with the requirements of the Record of Decision. This should be included in the surface water section (**2.5.5**). The agency approved final Monitoring Plan should be available for public comment before the Record of Decision is signed. Monitoring Plans for aquatic resources, including wetlands, must include measuring selenium residues over time in water, sediments, aquatic invertebrates and fish. [Ltr950 Cmt228]

   Response: The agencies have responded to this and similar comments on the DEIS by incorporating more detail on the planned monitoring and inspection programs in a new appendix to the FEIS (**Appendix 2E**).

Public Concern ID 247

The agencies should not confuse monitoring and mitigation

1. Comment: A commenting group stated the monitoring is not mitigation and should not be included in that discussion. Further, careful design, careful construction, careful operation, and the application of BMPs are things that are expected would be done to prevent or avoid the occurrence of environmental impacts. Prevention and avoidance measures should not be credited as mitigation. Mitigation would be measures taken to make right any environmental damage that could not be prevented or avoided despite BMPs or other best efforts. The EIS should present an active discussion on how they propose to make right unavoidable impacts in a subsection on mitigation that is properly located to follow the Unavoidable (Residual) Adverse Impacts section. The DEIS fails to provide the kinds of information about both monitoring and mitigation that are essential to inform and assure the public on two key points: 1) that unavoidable impacts of the proposed expansion have been minimized to the maximum extent, and 2) that, if the proposed expansion goes forward, all relevant impacts will be tracked and immediate action taken in the event protective thresholds are exceeded. [Ltr950 Cmt126, Ltr950 Cmt127]

   Response: The EIS did not indicate that monitoring is mitigation. The discussions of mitigation and monitoring both appeared in **Section 2.5** as Environmental Protection Measures included by the proponent as part of the Proposed Action and any action alternatives and **Section 2.10** as agency required monitoring and mitigation prior to the discussion of impacts. Specific resource mitigation was discussed following the impacts analysis for each resource in **Chapter 4**. NEPA and CEQ Regulations define Mitigation at § 1508.20 to include: (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and (e) compensating for the impact by replacing or providing substitute resources or environments. These parameters were used in defining mitigation within the EIS.

   The specific resource mitigation was identified after the discussion of impacts in each resource section.

Public Concern ID 251

The agencies should acknowledge that Simplot thwarted a required analysis of cumulative effects and concealed its impermissible segmentation of mining plans by letting its option contract to purchase the Wells Canyon Lease from Monsanto lapse

1. Comment: A commenter stated concern over the Wells Canyon Phosphate Lease, saying it is well established in the courts that the DEIS may not "segment" its analysis so as to conceal the cumulative effects of Simplot's plans for future mining and the proposed action. As seen on pages 5-5 and 5-48, the DEIS impermissibly ignores Simplot's plans to mine the Wells Canyon Lease for the ostensible reason that "no mine plan has yet been proposed for that lease." The maps provided in the DEIS reveal that the Wells Canyon Lease is located in plain view of the Stewart family's homes. What the DEIS does not disclose is that the Wells Canyon Lease is currently owned by Monsanto, but Simplot held an option contract for many years to buy it from Monsanto. As evidenced by its recent exploratory drilling in the Wells Canyon Lease, Simplot intends to extend its Smoky Canyon Mine into this lease. Simplot, however, cannot cost-effectively mine the Wells Canyon Lease if the proposed action in the DEIS is not taken. Simplot also knows that an analysis of the cumulative impacts from mining the Deer Creek lease and the Wells Canyon lease would jeopardize its chances of having the agencies approve the proposed action in the current EIS. Thus, to thwart a required analysis of cumulative effects and to conceal its impermissible segmentation of mining plans, Simplot let lapse its option contract to purchase the Wells Canyon Lease from Monsanto. [Ltr561 Cmt3]

   Response: Simplot does not own the Wells Canyon Lease. Past exploration drilling on the lease by Simplot does not equal a proposed action to mine the Wells Canyon Lease and Simplot has not indicated its plans to buy or mine the lease. Lacking a proposed action for mining the lease, there is no reasonably foreseeable action that can be evaluated by the agencies in a cumulative effects analysis and doing so would be speculative. The agencies have therefore not included analysis of mining the Wells Canyon Lease in this EIS. If a proposed action mine plan were provided to the agencies in the future for the Wells Canyon Lease, a new EIS would be prepared to evaluate the direct and indirect impacts of that proposed action including the cumulative effects of the proposed operations in addition to all the previous Smoky Canyon Mine operations, including Panels F and G.

Public Concern ID 252

The agencies should realize the Alternative B is not a reasonable alternative

1. Comment: A commenter stated that it is well established under CEQ guidelines and case law that only “reasonable” alternatives be analyzed. Considerations of cost and technical feasibility are very relevant to what is “reasonable.” The combination of Alternatives B and D is not a reasonable course of action due to economic costs and it does not serve the purpose of the project. The agencies should select the Proposed Action and Alternative D. [Ltr560 Cmt1]

   Response: According to NEPA’s 40 Frequently Asked Questions, “reasonable alternatives” include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. The agencies believed that Alternative B was a reasonable alternative for the DEIS. Additional information provided by commenters on the DEIS along with continued evaluation of the reduced infiltration cover design has changed the agencies opinion regarding the need for Alternative B in the Agency Preferred Alternative.

Public Concern ID 261

The agencies should require documented proof that remediation is actually succeeding in correcting selenium problems in the next draft EIS

1. Comment: A commenter stated that the agencies need to provide documented proof in the EIS that remediation is actually succeeding in correcting selenium contamination. [Ltr950 Cmt173, Ltr950 Cmt174]

   Response: See responses to PC 231 above.

Public Concern ID 262

The agencies should require that the draft EIS provide details on how the two tailings ponds at the Smoky Canyon Mine will be reclaimed

1. Comment: A commenting group noted that the two tailings ponds at the Smoky Canyon Mine are such an integral part of the whole mine operation that details on how they will be reclaimed should be included in the EIS. The Panels F and G expansion is pond dependant and how these ponds will be operated, whether they will come under the aquatic life criteria, and how soon they may need to be closed must be disclosed in the EIS. [Ltr950 Cmt175]

   Response: The general reclamation plans for the tailings ponds are described in **Section 2.3.7** of the DEIS. **Section 2.3.6** describes the reasons why the tailings ponds are not connected actions to the Panels F and G and thus are not evaluated in the DEIS.

Public Concern ID 268

The agencies should require the EIS to provide estimated costs for reclamation activities

1. Comment: The agencies should provide estimated costs for reclamation activities in the EIS. [Ltr950 Cmt191]

   Response: An actual cost reclamation cost estimate has been prepared for Panels F and G and the summary of these cost estimates are included in **Section 2.10** of the FEIS.

Public Concern ID 269

The agencies should acknowledge that major improvements are needed in the draft EIS for environmental monitoring

1. Comment: A commenting group stated that in order for the public to comment on the adequacy of monitoring, more detailed information regarding site monitoring must be included in the EIS and should include details such as items to be sampled, sampling frequency, constituents to be monitored, sampling site locations, data collection and quality assurance procedures, trigger values, and first-step responses to exceedances. A scientific monitoring system must be in place to facilitate the tracing of selenium along the pathways from mining waste dumps to water to sediment and plants to invertebrates to fish and water dependant wildlife. [Ltr950 Cmt193, Ltr950 Cmt194, Ltr950 Cmt195, Ltr950 Cmt296]

   Response: A monitoring plan has been added to the FEIS as **Appendix 2E**.

Public Concern ID 272

The agencies should include the basic components of the Monitoring Plan in the draft EIS

1. Comment: A commenter stated that the basic components of the monitoring plan should be included in the EIS so that reviewers can evaluate them. [Ltr950 Cmt229]

   Response: A monitoring plan has been added to the FEIS as **Appendix 2E**.

Public Concern ID 290

The agencies should select Mining Alternative D only

1. Comment: A commenter expressed surprise that the agencies would prepare a DEIS basing their alternative decisions on statistically insignificant differences in ground water modeling results. Alternative B provides negligible protection to water quality at all locations and has significant economic impacts, therefore it should be removed from the agency preferred alternative. [Ltr499 Cmt7]

   Response: In response to comments received on the DEIS and additional analysis of the reduced infiltration cover design, the Agencies have dropped Alternative B from the Agency Preferred Alternative.

Public Concern ID 311

The agencies should require that all open pits are completely filled to limit selenium exposure

1. Comment: Two commenters stated that all external waste and overburden should be rehandled and refilled into the pits as described in Alternative C. Further, the seleniferous material should be managed through layers of infiltration barriers. However, the EIS does not provide an alternative that adequately prevents selenium releases from the temporary waste piles. The EIS needs to examine ways to cap and isolate the temporary waste piles. [Ltr978 Cmt7, Ltr978 CMt8]

   Response: The Agencies have determined that Alternative C is not necessary if covering described in Alternative D is implemented. While complete backfill is of environmental benefit, the cost associated with re-handling overburden reduces the overall depth and recovery of the operation leading to a long-term result of having more disturbance per ton of ore recovered. This results in the need for more mines more quickly, generally producing more mine disturbance.

   All external overburden fills would remain in place in the Agency Preferred Alternative in the FEIS and seleniferous overburden areas would be covered with a store and release cover concurrently with regrading activities during mining.

Public Concern ID 328

Transportation Alternative 1 appears to have fewer environmental impacts than all other alternatives, including the Proposed Action

1. Comment: One commenter stated that Transportation Alternative 1 would result in fewer disturbed acres, lower emissions, fewer culverts, less sedimentation, less disturbance to wetlands, no disturbance to perennial stream channels, and essentially avoids the inventoried roadless areas. [Ltr1054 Cmt2]

Response: The fewer disturbed acres include the smaller open pit caused by the Alternative 1 road alignment, this also results in lower emissions because less ore is mined. Alternative 1 has more culverts than the Proposed Action road, more annual sediment load, more acreage not reclaimed, the same wetland disturbance, more feet of intermittent channel disturbed, and more acres of disturbed AIZs. The Agencies prefer the Proposed Action Panel F Haul/Access road alignment. The rationale for selecting and not selecting various alternatives and necessary discussion of laws and regulations will be addressed in the Record of Decision.

7.3.4 Geology, Minerals, and Topography

Public Concern ID 13
The BLM/FS should ensure that selenium is contained properly

1. Comment: A number of reviewers commented that selenium pollution was related to teratogenesis or reproductive failure in affected fish and wildlife. They also indicated concern over selenium accumulation in vegetation, which would negatively affect livestock. [Ltr69 Cmt2, Ltr79 Cmt2, Ltr421 Cmt3, Ltr208 Cmt3, Ltr668 Cmt7, Ltr210 Cmt3, Ltr304 Cmt2, Ltr415 Cmt3, Ltr402 Cmt3, Ltr668 Cmt6, Ltr613 Cmt3]

   Response: As indicated in **Sections 3.1.6**, **3.8.5**, **4.5.1**, **4.7.1**, **4.8.1**, and **4.9.1** of the DEIS, the Agencies are aware of these concerns related to fish, wildlife, and livestock and have addressed these potential impacts in the EIS. Measures to control the release of selenium to vegetation, sediment, surface water, and ground water are part of the Agency Preferred Alternative and will be required in the ROD.

2. Comment: Some of the commenters expressed concern that selenium effects could be long-term and Simplot and agencies should first address existing selenium releases at the Smoky Canyon Mine before expanding mining operations into the Project Area. Others expressed concern that the taxpayer may ultimately be paying for the environmental cleanup of the mine area. [Ltr139 Cmt2, Ltr439 Cmt3, Ltr464 Cmt3, Ltr765 Cmt3, Ltr518 Cmt1, Ltr496 Cmt1, Ltr521 Cmt2, Ltr310 Cmt1, Ltr357 Cmt1, Ltr363 Cmt1, Ltr483 Cmt2, Ltr494 Cmt1, Ltr143 Cmt2, Ltr268 Cmt1, Ltr293 Cmt1, Ltr294 Cmt1, Ltr488 Cmt1]

   Response: As described in a new appendix (**Appendix 2A**) in the FEIS, the Agencies and Simplot have been following a well-planned and rigorous process of investigation and remediation planning for the existing Smoky Canyon Mine. The EE/CA for a portion this project was approved during 2006 and remedial actions commenced in 2006 before any expansion into Panel F would occur. As prescribed under CERCLA, Simplot will finance the cleanup of the Smoky Canyon Mine. In addition, sufficient reclamation bonding is in place to cover the cost of reclamation at the current mine should Simplot default on their reclamation obligations.

   Via the NEPA process and the analysis of alternatives and mitigation measures, the Agencies do not believe future mine projects will have the same environmental effects as prior projects. Analysis in Chapter 4 for the Agency Preferred Alternative does not predict exceedences of State or federal standards. Mitigation measures that have been analyzed under NEPA adequately reduce threats to the environment. Information regarding the selenium releases from the CERCLA investigation at SCM is reviewed in the EIS (see **Appendix 2A**).

3. Comment: A reviewer commented that the change in land use of the Project Area from timber, water yield, recreational value and wildlife habitat can be quantified in economic terms. The reviewer also commented that reclamation and control of selenium at the Smoky Canyon Mine could be a positive economic impact because of the jobs that will be occupied for years in this work. [Ltr950 Cmt310]

   Response: The timber that would be cut from the disturbance area would be handled with a timber sale with the proceeds going to the federal government. The DEIS discusses the impacts of the project on water yield, recreational value and wildlife habitat as being minor to moderate, local, and with short-term durations. The reclamation of the Smoky Canyon Mine facilities would be concurrent with mining so most of the heavy reclamation and closure work would be done at the same time mining is ongoing. The estimated time for the remaining reclamation/closure activities following the cessation of mining is about three years. The final remediation plans for the existing Smoky Canyon Mine have not been finalized so economic impacts from them were not available for discussion in the EIS.

4. Comment: A nearby landowner commented that the agencies should not recommend approval of actions that are out of compliance with the Clean Water Act, Resource Conservation and Recovery Act, and Clean Air Act. [Ltr240 Cmt2]

   Response: The Agencies would not recommend approval of an action that is shown to be in non-compliance with these federal statutes and regulations. The analysis conducted for the Agency Preferred Alternative indicated that with sufficient mitigation measures in place, the project could be conducted in compliance with these requirements.

5. Comment: One reviewer suggested that the percolation rate through the cover should be reduced from what is described in Alternative D of the DEIS to decrease the amount of selenium contamination added to the groundwater. They also suggested that, instead of the proposed overburden cap system to limit infiltration into the overburden fills, an impermeable liner system at the bottom and sides of the pits backfills should be considered. [Ltr950 Cmt215, Ltr950 Cmt220, Ltr950 Cmt222, Ltr950 Cmt244]

   Response: The design of Alternative D, the Agency Preferred Alternative proposed in the DEIS, has been changed in the FEIS to reduce the amount of allowable net percolation and better protect water quality. A review of the feasibility of constructing an impermeable liner on the bottoms of the pit backfills has also been added to **Sections 2.6 and 2.7** of the FEIS.

6. Comment: Another reviewer said long-term monitoring and treatment facilities might be required so the final transportation plan should include long-term access for perpetual water treatment facilities. [Ltr978 Cmt16]

   Response: The existing Forest Service roads would remain following completion of mining and reclamation. The larger haul/access roads would be reclaimed when access to the mine sites is no longer necessary. No exceedences of State and federal water quality standards are predicted in groundwater discharges to surface streams for the Agency Preferred Alternative. Water treatment facilities are not currently planned but, if they were found to be necessary in the future, the required access roads would be part of their project designs.

7. Comment: One commenter said common sense should be used in decisions regarding the project. If mitigative actions address the impacts well enough, the use of the phosphate resources should be allowed and the opinions of a select few should not have such an economic impact on so many. [Ltr179 Cmt1]

   Response: The Agencies have identified in the Agency Preferred Alternative an approach to the project that should mitigate the environmental concerns to the point where the proposed mining could go forward. The agency decision makers will consider comments from all reviewers in making the final decisions on this project.

Public Concern ID 57
The BLM/FS should recognize the disturbance mining would cause to the grounds and geology of the volcanic Yellowstone region

1. Comment: A reviewer expressed concern over locating the operations in the volcanic Yellowstone region. [Ltr196 Cmt3]

   Response: The proposed mine area is approximately 110 miles south of the mapped cauldera boundary and mining operations would have no effect on the volcanism of Yellowstone.

Public Concern ID 79
The BLM/FS should acknowledge that the EIS over estimates the potential effects of selenium contamination

1. Comment: A number of reviewers commented that the EIS only focused on the negative aspects of selenium and did not discuss the "balance in selenium in the environment", or the positive nature of selenium in the health of wildlife, livestock, and humans. One commenter suggested that this violates the "reasonable" effects outline by NEPA. [Ltr532 Cmt1, Ltr1032 Cmt12]

   Response: These reviewers are correct that selenium is an important trace nutrient in the diet of animals and humans. A general discussion of selenium chemistry, its importance as a nutrient, and its toxicity has been added to **Section 3.1.6** of the FEIS.

Public Concern ID 81
The BLM/FS should make sure the discussion regarding impacts of selenium is clearly understood

1. Comment: One commenter mentioned that it is not clear from the DEIS if it is recognized that selenium speciation can change under various environmental conditions, altering its availability. [Ltr544 Cmt1]

   Response: The Agencies are aware of the speciation potential of selenium. The analysis of environmental impacts in the EIS did not assume the selenium would be reduced from its most oxidized and mobile species, selenate.

2. Comment: One commenter said that the chemical impacts sections of the DEIS focused on selenium as the major COPC and did not discuss other elements as being potential problems. [Ltr544 Cmt2]

Response: The impact analysis was not limited to selenium. The discussion on the selection of the COPCs to be evaluated in the DEIS is contained in **Section 4.3.1** of the EIS where a number of COPCs were evaluated and selenium, manganese, cadmium, chromium, sulfate, and zinc were selected for further analyses. The groundwater modeling showed that only selenium could be problematic at the groundwater discharge locations.

Public Concern ID 111

The BLM/FS should acknowledge that the selenium studies funded by the mining industry are legitimate and well done

1. Comment: One commenter wrote that the agencies have continually ignored or disregarded the selenium studies conducted as part of the area-wide investigations, including work by Dr. John Rattie, Dr. Ron Hardy, and Lonn Kock. Just because an element such as selenium is above an agency standard does not mean that it is harmful. Biological risk assessments should be conducted to show if there is really any harm to the environment. [Ltr573 Cmt3, Ltr573 Cmt4]
2.

   Response: The EIS did not ignore the previous regional selenium work conducted by the mining industry. **Section 3.1.6** of the DEIS does reference the work by Ratti and Hardy and also describes the regional studies done by the IMA. These were also referenced in other sections of the DEIS including **Section 3.7.7** in the discussion of selenium issues with wildlife. **Section 3.7.7** extensively cites regional work done by the IMA's consultant on wildlife (MWH 2003).

   Where applicable, risk assessments are part of site-specific CERCLA investigations. The EIS also cites the Human Health and Ecological Risk Assessment, which evaluated risk to wildlife from selenium (IDEQ 2002c). The objective of this regional risk assessment was to provide an overall framework of potential risk to wildlife from COPCs in the phosphate production area of Southeastern Idaho.

Public Concern ID 133

The BLM/FS should acknowledge that selenium problems at Smoky Canyon are serious, and are greater than the problems at Kesterson National Wildlife Refuge

1. Comment: One commenter referred to statements by two others that the ecosystem in the Project Area is a tinderbox and the selenium contamination problem at Smoky Canyon already dwarfs Kesterson. [Ltr950 Cmt4]

   Response: The Agencies are aware of the current selenium releases at Smoky Canyon Mine. They are currently being addressed through the CERCLA process. A description of the remedial actions is contained in **Appendix 2A** of this FEIS. To the Agencies knowledge, no quantitative comparison has been made between the Smoky Canyon Mine and Kesterson Refuge.

Public Concern ID 210

The BLM/FS should acknowledge that the draft EIS underestimates the severity of the mine expansion's effect on human health

1. Comment: One commenter said the DEIS and the HHERA did not adequately evaluate the future risk of consuming groundwater contaminated with selenium. [Ltr950 Cmt84, Ltr950 Cmt87]

   Response: The comments on the Final HHERA (IDEQ 2002c) are not pertinent to the EIS because the EIS did not tier from or cite the HHERA for the groundwater impact analysis of the Project Area. The commenter claims that the HHERA did not utilize the Idaho groundwater standard of 0.05 mg/L in evaluating impacts. Without judging the accuracy of this claim, the Agencies want to point out that the groundwater impact analysis in the Panels F and G DEIS did use the Idaho groundwater standard of 0.05 mg/L. This is a standard that is based on the EPA MCL for selenium, a drinking water standard which itself is based on a human health risk analysis conducted by EPA.

   The groundwater impact analysis in the DEIS calculated future concentrations of selenium in the groundwater downgradient of the proposed mine panels and then compared these concentrations to the 0.05 mg/L groundwater standard. The analysis of the Agency Preferred Alternative showed that groundwater concentrations everywhere in the groundwater model domain would be less than 0.05 mg/L. With regard to the groundwater modeling results for the Proposed Action, the downgradient location of the maximum extent of selenium concentrations exceeding 0.05 mg/L were well short of any potential discharge points to surface water streams. There are no culinary water wells within the area of these groundwater plumes and being located under very mountainous terrain within the CNF, it is extremely unlikely that any culinary water wells would ever be located in these areas in the future. As proposed, Simplot will continue to use their existing culinary well, adjacent to the existing mill facility. Although groundwater may be developed elsewhere in the future for beneficial uses, water well development for residential or community water supplies is not planned in this part of the CNF (USFS 2003a).

   The predicted lack of potential human health impacts related to groundwater at the proposed mining operations is consistent with conclusions by the Idaho Department of Health and Welfare's conclusion in the Health Consultation Evaluation of Selenium in Groundwater, which concluded that adverse health effects are unlikely to occur in adults or children from drinking and or using groundwater from the Southeast Idaho Phosphate Mining Resource Area (BCEH 2001). This same conclusion was reaffirmed in the Public Health Assessment for Southeast Idaho Phosphate Mining Resource Area by the Idaho Department of Health and Welfare and the federal Agency for Toxic Substances and Disease Registry, February 2006.

   The calculated peak selenium concentrations at any of the groundwater discharge points for the Proposed Action were an order of magnitude less than the drinking water standard. Consequently, the potential risk to human health from drinking water downgradient of the proposed mining operations is minimal because all this water would comply with State and federal drinking water standards for selenium.

2. Comment: The same commenter said there is a pressing need to redo the HHERA, which is allegedly flawed. Because the HHERA is allegedly flawed, the DEIS' conclusion regarding risks to human health is similarly flawed and therefore must be redone. [Ltr950 Cmt198]

   Response: As described above, the groundwater impact analysis did not rely on the HHERA for its conclusions. The concentrations of selenium in groundwater and surface water downgradient of the proposed mining operations were calculated and compared to the applicable State groundwater and surface water protection standards. For the Agency Preferred Alternative, none of these concentrations exceeded the drinking water standard for selenium.

   Most data used in the FEIS was from the baseline studies. Other sources of data include but were not limited to: ongoing monitoring of the Smoky Canyon Mine, past EISs, the CERCLA Site Investigations, information provided by Greater Yellowstone Coalition and the HHERA. As an existing source of area wide selenium data, the HHERA was reviewed by the Agencies and the public and provides the best data available to the Agencies in some cases.

3. Comment: The same commenter wrote that the DEIS never discusses the human health hazards associated with increased surface water selenium concentrations. The statement is made that the State has already imposed limits on fish consumption in this area due to selenium concentrations and that the HHERA results show there is potential for health effects for subsistence lifestyle individuals. [Ltr950 Cmt85]

   Response: As described in other responses to comments, the EIS compares selenium concentrations in groundwater and surface water with applicable State groundwater and surface water protection standards. The EIS is clear that none of the selenium concentrations in surface waters or groundwater for the Agency Preferred Alternative exceeded the health-based drinking water standard for selenium. The EIS does discuss potential effects of persons eating fish that may bioaccumulate selenium in **Sections 3.8.5** and **5.15**. This later section specifically applies to Native Americans and their potential subsistence utilization of fish. To augment the evaluation of human health effects of potential selenium bioaccumulation in fish, a discussion on this has been added to the Selenium Issues with Fish subsection in **Section 4.8.1** of the FEIS.

   It is incorrect to say the State has already imposed limits on fish consumption in this area due to selenium concentrations. The Idaho Department of Health and Welfare Idaho Fish Consumption Advisory for Selected Idaho Waters lists nine water bodies in the State, none of which are located in the Project Area or in the Salt River drainage. The only consumption advisory for selenium in this document is for East Mill Creek, which does not restrict consumption for the general public, but does recommend a consumption restriction for children under the age of 7 to not eat more than 6 meals a month of trout flesh taken from the stream. East Mill Creek is not located in the Project Area or the Salt River watershed.

   The Public Health Assessment for the Southeast Idaho Phosphate Mining Resource Area issued by the Bureau of Community and Environmental Health and the federal Agency for Toxic Substances and Disease Registry on the Southeast Idaho Phosphate Mining Resource Area concluded that it is unlikely that selenium in fish from the resource area will result in adverse health effects to the general public (BCEH 2006).

The Health Consultation Evaluation of Selenium in Beef, Elk, Sheep and Fish released by the Idaho Bureau of Environmental Health and Safety concluded that people eating "large amounts" of trout from East Mill Creek would be a concern but because the creek does not support a large fishery, this pathway does not present a public health concern (BEHS 2001). This was reaffirmed by the Health Consultation Selenium in Fish Streams of the Upper Blackfoot River Watershed by the Bureau of Environmental Health and Safety (BEHS 2003). This document said that selenium concentrations in East Mill Creek were elevated to the point where they recommended consumption of trout by children under age seven to be limited to four (4 oz.) meals per month. There was no fish consumption restriction placed on pregnant women or the general public at any location, including East Mill Creek. Based on all the previous statements on this matter issued by the Idaho Department of Health and Welfare, it is apparent that the State has placed no restrictions on fish consumption in the Project Area.

4. Comment: The same commenter said that the DEIS wholly failed to consider the impact of groundwater contamination in the long term and that groundwater in the area is already contaminated at some locations and cites selenium concentrations in monitoring well MC-MW-5 exceeding the drinking water standard. The comment is also made that the employees at Smoky Canyon Mine do not drink the groundwater. [Ltr950 Cmt85, Ltr950 Cmt86]

   Response: The groundwater impact analysis conducted for the DEIS evaluated potential water quality impacts to groundwater for a period of 500 years and showed the timing and peak concentration of selenium within the groundwater over this long period of time. Monitoring well MC-MW-5 was installed within the Meade Peak member of the Phosphoria Formation during the DEIS baseline studies. As described in **Section 3.3.7** of the DEIS, the Meade Peak member is considered to be an aquitard of regional importance and groundwater within it is of limited extent and is not connected with the underlying Wells Formation aquifer. The selenium concentration in MC-MW-5 is a baseline condition not due to existing operations at Smoky Canyon Mine. The DEIS describes how the Meade Peak member is not expected to yield any significant amounts of groundwater to the proposed open pits or pit backfills so the water chemistry measured in MC-MW-5 does not represent any threat to downgradient water quality in the Wells Formation aquifer. The Smoky Canyon Mine has elected to add bottled water to its culinary water system because there are insufficient water fountains to serve all the employees conveniently. The groundwater at the mine meets State drinking water standards and is provided without restriction to all who wish to drink it.

Public Concern ID 225

The BLM/FS should recognize that the risk assessment of the Southeast Idaho Phosphate Mining Resource Area by Tetra Tech EM is inadequate

1. Comment: One commenter said the risk assessment within the HHERA is inadequate for six reasons related to: soil ingestion, vitamin supplements, ingesting contaminated water, ingesting contaminated fish, and not using the Idaho groundwater standard. The commenter claims that the DEIS relied on this risk assessment in predicting impacts of the proposed mine expansion. Because of the risk assessment's inadequacies, the commenter claims the DEIS likely underestimated the severity of the mine expansions human health impacts. [Ltr950 Cmt311]

Response: These comments are directly addressed to specifics of the IDEQ HHERA and not the DEIS. It is inaccurate that the DEIS relied only on the risk assessment in the HHERA to predict impacts of the proposed mine expansion. Some data, compiled in the HHERA, was used for comparison in describing existing conditions in the project area and is thus cited in the DEIS. As stated elsewhere in these responses to comments, the calculated contamination levels in groundwater and surface water were compared to the Idaho groundwater and surface water standards and not to any results from the HHERA. The potential impacts to human health from eating fish were modeled after the Health Consultation Selenium in Fish Streams of the Upper Blackfoot River Watershed by the Idaho Department of Health and Welfare (BEHS 2003) and not the HHERA.

Public Concern ID 226

The BLM/FS should recognize that the draft EIS gives insufficient consideration to potential health risks from excess exposure to selenium as well as studies describing current and future water concentrations that exceed standards

1. Comment: One commenter writes that the DEIS gives insufficient consideration to the human health risks of current and future water concentrations of selenium and also does not fully acknowledge the potential for health effects due to subsistence-lifestyle consumption of fish. [Ltr950 Cmt312]

   Response: **Section 4.3** of the DEIS describes the selection process for COPCs that were analyzed and indicated these were selected based on the potential to exceed State groundwater and surface water standards. These standards are listed in **Table 4.3-3** as primary (health-based) or secondary (aesthetic-based) groundwater standards or surface water standards. The description of water quality impacts for the Agency Preferred Alternative said that the mitigated groundwater concentrations for the COPCs did not exceed the applicable groundwater standards at any of the observation points. The Idaho health-based groundwater standards are based on EPA MCLs for drinking water; hence compliance with the primary groundwater standards is also an indication that the water is suitable for drinking water from a human health perspective. The EIS already involves consideration of the groundwater quality impacts with regard to human health issues but additional text has been added to **Section 4.3** to further emphasize that the Agency Preferred Alternative is protective of human health with regard to drinking water supplies.

   The DEIS also shows that the selenium concentrations in the surface water streams that could be impacted by the Agency Preferred Alternative are all approximately one order of magnitude lower than the drinking water standard for selenium. Thus, drinking this water would also not be a hazard to human health from selenium ingestion. Additionally, we are not aware of any residents along Crow Creek or Salt River that obtain their drinking water directly from these surface waters.

   Section 5.15 of the DEIS says that the anticipated selenium concentrations in any of the affected surface water streams would not present a human health hazard to the visitor (tribal member) unless bioaccumulation in fish could occur to the point where limitation on consumption of the fish would be advisable. It also says such a limitation is more likely to affect consumption of fish by children than adults. This is consistent with all that has been determined to date by the Idaho Department of Health and Welfare for other streams in Southeast Idaho that have been impacted by selenium contamination from existing phosphate mining (see response to Public Concern ID 210). The Idaho

Department of Health and Welfare determined in its Public Health Assessment Southeast Idaho Phosphate Mining Resource Area (BCEH 2006) that, "It is unlikely that the cadmium, chromium, and selenium in the fish from the Resource Area will result in any adverse health effects to the general public, as well as the Native American subsistence population who consume up to 70 grams of fish every day." Additionally, we are not aware that Tribal members practice subsistence-level harvesting of fish from the streams in the Project Area immediately downstream of the proposed mining activities. We believe this is highly unlikely in the future due to the extent of private land along most of these stream channels, which is increasingly being posted as private with no public access to the streams.

2. Comment: This same commenter also said the HHERA was flawed because there were assumptions made that undermine the purpose of fully protecting the resident population and because of this flaw, the DEIS's conclusions regarding risks to human health were also flawed. [Ltr950 Cmt314]

   Response: The Draft HHERA was published in July 2002 and a formal 45-day public comment period was completed on that document. Following receipt of public comments, the IDEQ completed the Final HHERA in December 2002. The NRDC did not comment on the Draft HHERA prior to now. The GYC also did not comment on the HHERA during the public comment period. Sheryl Hill reviewed the Final HHERA and provided comments to the GYC on that document on March 7 and April 28, 2003. These comments were included and made part of the GYC/NRDC comments on the Panels F and G DEIS. The EIS's conclusions regarding risks to human health due to potential increases in selenium concentrations were not based on the HHERA findings. As has been described before, the calculated concentrations of selenium in groundwater and surface water were compared to long-standing State groundwater and surface water protection standards and not the HHERA. The discussion of potential effects to persons eating fish that may bioaccumulate selenium were based on the findings of the Health Consultation Selenium in Fish Streams of the Upper Blackfoot River Watershed (BEHS 2003).

Public Concern ID 249

The BLM/FS should recognize that the SIR (Site Investigation Report) and/or HHERA (Human Health and Ecological Risk Assessment) assessments were flawed and the documents cannot be used by the IDEQ as a basis for risk management decisions

1. Comment: One commenter wrote that the HHERA and the Smoky Canyon Mine SIR were flawed and should not have been used as the "building blocks" for the DEIS discussion of the effects of selenium contamination of the waters of the area. The argument is made that the flaws in these preceding documents undermine the accuracy and validity of the DEIS because the authors of the EIS relied on the HHERA in predicting impacts of the proposed mine expansion. [Ltr950 Cmt129, Ltr950 Cmt131, Ltr950 Cmt135, Ltr950 Cmt138]

   Response: The DEIS discussion on the potential selenium impacts on fish was not based solely on the HHERA or the Smoky Canyon Mine SIR. In **Section 3.8.5**, the DEIS authors attempted to provide a concise but broad discussion of the range of information available on the effects of selenium on fish. The selenium concentrations for fish from the HHERA and SIR were cited in the DEIS as background information, but so were data from numerous other workers including: Hamilton and Buhl (2003), Hamilton

et al. (2004), Presser et al. (2004), Lemly (1993a), Lemly (1999), Hardy (2005), Maier and Knight (1994), USDI (1998), and EPA (1987 and GLEC 2002). In fact, Dr. Dennis Lemly in his comments on the DEIS said he strongly agreed with the conclusions in the document with respect to toxic impacts to fisheries and aquatics. Dr. Lemly's comments were cited and included in the commenters' overall comments on the DEIS.

2. Comment: The same commenter said that experts, Teresa Presser and Cheryl Hill, were highly critical of the methodologies and assumptions used in the HHERA. Hamilton claimed that "background concentrations" of selenium in fish in the Blackfoot and Salt River drainages were determined inappropriately in the HHERA to be 8.3 mg/Kg dw and he offered his own background calculation result of 4.6 mg/Kg. Trotter claims that a number of fish tested to establish background levels in the Salt River watershed came from a different watershed and one of the background samples from Upper Sage Creek is questionable because Sage Creek was recently listed as being impaired for selenium. [Ltr950 Cmt130, Ltr950 Cmt132, Ltr950 Cmt133, Ltr950 Cmt134]

   Response: These comments are directed to the IDEQ regarding the Final HHERA and not the DEIS. The impact analysis in the DEIS did not rely solely on the background information in the HHERA.

3. Comment: The same commenter said that additional data on selenium concentrations in water, aquatic plants, aquatic insects, and fish tissue were provided by GYC to the agencies from three streams in the Blackfoot River drainage and four streams in the Salt River drainage. However, the SIR used data from the HHERA for assertions about background concentrations from streams emanating from the Smoky Canyon Mine. Because of the alleged flaws in the SIR and HHERA, the commenter claims that this will prevent the development of an effective cleanup plan for the Smoky Canyon Mine. Given the questionable data used to describe background concentrations, the claim is made from the commenter that environmental consequences for the Panels F and G expansion will be down played and the projected contamination of groundwater and surface water described in the Agency Preferred Alternative will exceed water quality standards. [Ltr950 Cmt136, Ltr950 Cmt139]

   Response: The commenter does not provide any explanation how the lack of using the offered data from GYC in the SIR will prevent development of effective cleanup plans for the Smoky Canyon Mine. This is the personal opinion of the commenter. In addition, it is unclear how this alleged flaw in the SIR would also prevent the Agency Preferred Alternative from complying with applicable water quality standards. The DEIS is clear that the agencies believe the future cleanup actions at Smoky Canyon Mine will restore the water quality of Sage Creek to concentrations below the State surface water protection standard. The alleged flaw in the SIR and HHERA background concentrations would not affect this cleanup goal. Additionally, it is incorrect that the SIR relied on the HHERA to describe background concentrations at Smoky Canyon Mine. The HHERA was not used directly in the SIR, which relied on monitoring action levels and removal action levels in the Area-Wide Risk Management Plan (IDEQ 2004a) and State groundwater and surface water quality standards. As indicated in Sections 7.2 and 7.3 of the SIR, two screening levels were used: the area-wide monitoring action levels (IDEQ 2004a) and the Idaho water quality standards. Comparisons to the water quality standards were used to identify locations were actions might be needed to address water quality contamination. Thus, the determinations of required cleanup actions for water contamination were not based on background concentrations cited in

the HHERA as suggested by the commenter, but were based on long-standing water quality standards.

4. Comment: The same commenter provides specific comments on the Smoky Canyon Mine SIR related to: application of the removal action level to certain overburden fills, assumption of attenuation in groundwater without verification, sediment detention basins, the actual maximum concentrations of selenium in Pole Canyon Creek, sampling intervals, potentially stratified aquifers, capping overburden similar to the Agency Preferred Alternative for Panels F and G, relocating the Pole Canyon overburden fill, and installing groundwater pump back wells. [Ltr950 Cmt137, Ltr950 Cmt501, Ltr950 Cmt502, Ltr950 Cmt503]

   Response: All of these comments are directed to the Agencies with regard to specific questions related to the SIR and not the DEIS. None of these comments has a direct relation to the impact analyses contained in the DEIS and the commenter does not claim such in these comments.

Public Concern ID 263
The BLM/FS should require a full discussion of selenium bioaccumulation and its consequences to be added to the FEIS

1. Comment: A number of commenters said the DEIS did not include a complete enough discussion of the potential effects of bioaccumulation of selenium in the environment, primarily to aquatic habitats. [Ltr950 Cmt9, Ltr950 Cmt110, Ltr950 Cmt177]

   Response: A new appendix (**Appendix 3C**) has been added to the FEIS that includes a discussion of the bioaccumulation issue in aquatic habitats and the narrative of the FEIS has also been changed to incorporate this more complete discussion.

Public Concern ID 315
The BLM/FS should make technical and editorial changes to the DEIS in the geology section

1. Comment: A commenter asked that Section 3.1.6 be changed to indicate the statistical significance of the correlation between selenium concentrations in vegetation and growth medium. [Ltr241 Cmt8]

   Response: This sentence has been changed in the FEIS to indicate the correlation coefficient between selenium in vegetation and the extractable concentration in the growth medium was 0.92 with $\alpha<0.01$.

7.3.5 Air Resources and Noise

Public Concern ID 38
The BLM/FS should test for mercury emissions from the Smoky Canyon Mine

1. Comment: One commenter noted that a possible emission from the Smoky Canyon Mill is mercury and wanted to know if any testing has been conducted. If so, the information should be made available to interested parties. Mercury testing needs to be conducted. [Ltr239 Cmt5]

Response: Mercury in phosphate ore and overburden is typically bound to other metals, sulfides and alkyls. Mercury compounds are in a greatly reduced toxic state when bound with other compounds. The mill's function is to reduce the size of the ore particles. No thermal treatment occurs at the mill, thus the potential for releases at the mill of significant mercury, especially in it's more toxic forms, is negligible. With the ground ore quickly going into a slurry, minimal dust is generated in the mill process.

Mercury emissions resulting from mining activities are addressed in the Shoshone Bannock Tribes – Fort Hall Business Council comments in **Section 6.3** of the FEIS.

Public Concern ID 39

The BLM/FS should recognize that the increase in noise levels resulting from the proposed mine expansion will be significant

1. Comment: One commenter noted that the current sound level is 35.7 dBA. The DEIS predicts noise levels to be 50.2 dBA. In no way can a 36 to 50 dBA increase in noise level be described as negligible as stated in the DEIS. The 50 dBA predicted noise level is at the high side of suburban noise environment and is in fact only 2 or 3 dBA away from the urban level.

   Further, predicted noise measurements are based on data taken somewhere else and calculations. The calculations used are described as having a potential error of +/- 3dB for distances less than 1000 meters. The distances being dealt with are over 1000 meters, which makes the calculations even more uncertain. [Ltr239 Cmt6]

   Response: The area at the mouth of Nate's Canyon will be impacted with noise from mining activity, from Panel G under the Proposed Action and mining Alternatives A - F. The predicted increase will be approximately 14.5 dBA. The EPA (1981) describes 50 dBA as "quiet suburban or rural community, not located near industrial activity". The Federal Transit Authority describes noise levels of less than 54.6 dBA as "low noise exposure areas". The Noise Effects Handbook states that outdoor activity at 50dB indicates 100% intelligibility (normal conversation can be conducted without raising one's voice).

   Given the predicted noise levels (50 dBA), that level of classification, population density and the number of full time residences near the mouth of Nate's Canyon, we described the level of impact as negligible to minor. If a community was located near the mouth of Nate's Canyon, the impact could be classified differently. Some areas on Crow Creek Road, under the Proposed Action will have negligible noise impacts, other areas, such as the mouth of Nate's Canyon will have minor impacts from noise.

   We agree that potential error in noise predictions could be greater given distances greater than 1000 meters. Noise predictions could be more <u>or less</u> than 3 dB error. What that deviation value is could not be calculated with any degree of certainty, so what was stated is the most accurate statement we could document.

2. Comment: The commenter stated that foliage attenuation should not be used in predicting noise impacts since sage brush is the only vegetation along much of Crow Creek Road. Mining activities can already be heard on clear winter days at distances of

5, 3, and 2 miles from location of the activities. The noise level could be mitigated by requiring noise reduction over and above that supplied by the original equipment manufacturer. Improved muffler systems are available. The decibel rating of noise level is not all that should be considered, it is also the quality of the sound. [Ltr239 Cmt7]

Response: None of the calculations, models, or noise levels determined in the impact analyses considered foliage attenuation. The EIS notes foliage as an attenuator because it does attenuate noise, especially in late spring, summer, and fall when the residences in the Crow Creek area are most utilized and the occupants may be exposed to noise generated from mining activity.

Optimal conditions for noise transmission are likely on clear, snow covered, quiet winter days. The change in noise levels from these activities were not measured in the Crow Creek area for this study because the road is not plowed all the way into the Project Area where noise impacts would occur and this area is generally uninhabited during winter. Given the very few winter residences within the Project Area, presumed minor noise level increases, and timeframe of optimal noise propagation, impacts from mining activities 2 miles or more away are considered negligible.

Noise is defined as unwanted sound. We refer to and recognize that the majority of man-made sound generated by mining activity should be classified as noise.

3. Comment: The commenter questions that with a 15 mph wind the sound would vary from 27.8 dBA to 80.8 dBA on Crow Creek Road near Deer Creek Road. By the way, there is no Deer Creek Road. There is no rating for frequency or sound quality. Sound has not been measured in the project area during winter. [Ltr240 Cmt6]

   Response: Data from an ANSI certified Sound Level Meter was electronically recorded and produced for this report. The location of this sound measurement was recorded as location E-2, as seen on **Figure 3.2-1**. The 80.8 dBA was recorded and documented, but not used in any comparison. The value recorded must have been influenced by unusual, man-made conditions not representative of a natural baseline condition. "~~Road~~" will be removed from **Table 3.2-6**. We recognized that natural occurring sound is not usually referred to as "noise". Noise is defined as unwanted sound, but to keep consistent with the text, both background sound and mining noise were referred to in the DEIS as "noise". The noise study predicts minor to moderate impacts from mining activities for residences along Crow Creek.

Public Concern ID 173

The BLM/FS should acknowledge that the topographic ridge near Stewart's Crow Creek Ranch does not completely shield the Ranch from noise from the proposed haul road

1. Comment: One commenter noted that on page 4-25 of the DEIS it states that the Stewart Crow Creek Ranch is located behind a topographic ridge which "completely" shields it from noise from the proposed haul road. This conclusion is unsupported by scientific analysis and is contrary to years of experience. [Ltr561 Cmt7]

   Response: The FEIS has been updated. The statement has been changed to read: "located behind a topographic ridge shielding it from the greater part of haul road noise."

Public Concern ID 316

The BLM/FS should make technical and editorial changes to the draft EIS in the Air and Noise Section

1. Comment: The commenter stated that the DEIS slightly mischaracterizes the air quality regime under which Simplot operates; it states that the mine is regulated under the State Implementation Plan, the state regulations (IDAPA 58.01.01.650), and based on opacity standards. Opacity standards are not applicable to fugitive emissions but rather are applicable to smokestack emissions. It is suggested that these be removed from the DEIS. [Ltr475 Cmt51]

   Response: The Idaho Administrative Code (IDAPA) 58.01.01 states that fugitive emissions from nonmetallic processing operations, haul roads, crushers, screens, material transfers and stockpiles must be controlled in accordance to IDAPA 808.01. This citation states control strategies for fugitive emissions must be initiated if certain triggers are encountered. Twenty percent opacity is referenced in 799.03, .04, .05, and .06, which pertains to operations that will be located at the Project Area. In addition, EPA Method 22 is a specific reference method for determining the presence of emissions.

7.3.6 Water Resources

Public Concern ID 35

The BLM/FS should recognize that the draft EIS makes assumptions that favor the selected alternative and should be revised to reflect more likely possibilities, including data on the seeps for the overburden at the reclaimed mine

1. Comment: One commenter said assumptions are often necessary to reach conclusions but must represent the most likely possibility or sometimes the worst-case possibility. This draft EIS makes assumptions favorable to the selected alternative at every step. All of the conclusions in this draft must be revisited evaluating the most likely input data [Ltr239 Cmt2]

   Response: The Agencies believe that the input data into the water resources impact assessments were reasonable and defensible. Predicted water resource impacts guided the agencies in not selecting the Proposed Action as the Agency Preferred Alternative.

2. Comment: The same commenter said they doubt that any analysis can fully comprehend all of the sources of contamination to the Crow Creek watershed and that incomplete analysis of this is misleading and fails to protect the public interest. [Ltr239 Cmt16]

   Response: The Agencies believe the significant impacts to Crow Creek have been identified in the EIS and the Agency Preferred Alternative mitigates these impacts to a reasonable level, which will also protect the public interest and comply with the Clean Water Act.

Public Concern ID 41

The BLM/FS should acknowledge that the mine expansion plan puts the Deer Creek and Crow Creek watersheds at risk from a quantity of flow and quality standpoint

The owners of the private property at the mouth of Deer Creek had the following comments (1 – 8) about potential effects to Deer Creek and Crow Creek.

1. Comment: Obviously the water is even more important as you move up the drainage through Crow Creek, Sage Creek, Deer Creek and all the other streams and springs both named and unnamed. The mine plan puts this water at risk from both a quantity of flow and a quality standpoint. The draft EIS discussed losing 7 springs in panel F and two more in panel G. The numbers for G get much worse when we come to the section on grazing. There are 5 unnamed springs plus Books springs that will be disrupted. So we don't really know how many springs will disappear or be disrupted, be we know it's a lot and probably more than stated. The unnamed springs are claimed to be small and this may be true, but they add up. Books spring is not small; in fact it is quite large (2.9cfs). I suppose this water will leave the aquifer somewhere, but who knows where. The other possibility, lurking in the background, is that Simplot will capture this water and much more to use in the slurry line. [Ltr239 Cmt8]

   Response: The baseline studies conducted for this EIS have identified all springs that could be located with walking surveys and reviews of water rights records. The impacts to these springs have been estimated and disclosed in **Section 4.3.1** of the EIS. The potential impacts to Books Spring have also been described and these do not include physical disruption or reduction in flow. The only consumptive use of groundwater in the Project Area is described as a 100 gpm water supply well at Panel G and the water will not be used in the slurry line.

2. Comment: The lease modification area seems to be a major factor in disrupting and elimination springs that flow into Deer Creek. I have counted 6 springs that flow from the lease modification into the North Fork of Deer Creek. The draft EIS states that 4 of these springs will disappear. That will surely have a major effect in reducing the flow to the main stream of Deer Creek. I am not convinced that only 4 springs will be lost, I think they all will disappear. It is also obvious that many of these springs, which flow, into the North Fork of Deer Creek would be saved if the South lease modification were not allowed. Disallowing the South lease modification would go a long way toward maintaining the life of Deer Creek [Ltr239 Cmt9]

   Response: The impacts to springs in the North Fork of Deer Creek are described in **Section 4.3.1**. The reduction in flow to Deer Creek from these springs is described in **Section 4.3.2** as being from 0.5 to 1 percent of the flow in the creek, which was described as a minor impact.

3. Comment: Ground water will be affected by the proposed mine with respect to both quantity and quality. Section 5 of the draft EIS identifies 13 springs and seeps that will be eliminated. Two have been affected by the existing mine, thus the mine expansion is much more destructive with respect to springs. This also does not account for the countless small seeps that are not even considered by Maxim in their study of the area.

Most of the springs and seeps that are not eliminated by the mine will suffer a reduction of flow rate and selenium contamination. [Ltr239 Cmt12]

Response: The DEIS describes affects to known springs in the Project Area and identifies that certain springs and their associated habitat would be eliminated. As described in the response above for Comment 2, the cumulative reduction in flow from the affected springs is described as being a small percentage of the flow in the nearby creeks. **Section 4.3.3** also describes that Simplot would replace springs that are physically disrupted or contaminated by mining in accordance with the CNF RFP requirements. The ecological functions and values of the spring replacements would likely be different than the original springs.

4. Comment: The final problem for the surface water with this draft EIS is the selenium contamination. It is freely admitted that Deer Creek, Crow Creek and Sage Creek will all suffer from selenium contamination. The draft EIS admits to exceedances. The Deer Creek exceedance is surely underestimated because all of the potential contamination sources were not considered. For example, there will be contamination directly from the mine into the creek through surface water. This contamination would be reduced if the south lease modification were not allowed. The admission of planned exceedances is made even though the applicant used the most favorable assumptions possible. The contamination will inevitably be worse than predicted. I do not understand how any mine plan can be approved when it admits that there will be contamination exceedances under a best-case analysis. In fact the draft EIS states "the Agencies cannot approve any alternative that would violate laws". [Ltr239 Cmt11]

   Response: As described in **Section 4.3.2** of the EIS, the selenium concentrations in groundwater discharged to lower Deer Creek, South Fork Sage Creek and Crow Creek caused by the Agency Preferred Alternative are not expected to exceed the aquatic criterion. The exceedance of the aquatic criterion for selenium in lower Sage Creek from the proposed mining activities is only under the present conditions of existing water quality impacts from the Smoky Canyon Mine. **Section 5.4** describes that this exceedance is not expected to actually occur because of the planned remediation of selenium contamination from existing sources at the Smoky Canyon Mine before the peak contamination from the Panel F mining occurs. Based on the impact analysis in the FEIS, the mining operations included in the Agency Preferred Alternative would not likely result in any exceedances of surface water quality criterion. Chapter 2 of the FEIS also describes that surface runoff from the mine site would be contained on site and not be discharged to the surface streams so the estimated maximum selenium concentrations in the streams are not underestimated.

5. Comment: Much of the data presented is inadequate, questionable, or misleading. Monitoring is repeatedly mentioned. However, no limits are set for any conditions monitored and no action proposals are described that Simplot must take if limits are exceeded. Some examples follow: Page 3-46 The baseline selenium data was taken in drought years and “could have implications regarding selenium levels produced one a more normal hydrologic regime returns”. “The data set was not extensive so trends regarding selenium, season and flow cannot be ruled out.” Page ES8. “…impacts on surface water quality should be negligible” “assuming that environmental protection measures are effective.” It is also “assumed” that current elevated concentrations of

selenium in Hoopes Spring and Sage Creek can be decontaminated before any additional mining is done. Page 3-20. Data from 2001 is used when assessing human and animal risk. The BEHS "concluded that sheep or cattle taken directly off seleniferous pasture to slaughter, and the liver of elk grazing on pasture with elevated selenium could present an indeterminate public health hazard, but more information is needed to evaluate the risk." No additional studies have been done. Page 3-20 also states that "cutthroat trout from East Mill Creek did not appear to present a public health hazard". There is no health hazard from eating trout because all of the cutthroat trout in East Mill Creek have disappeared, as shown by a July 2005 electro-shocking study. [Ltr240 Cmt4]

Response: The description of the monitoring in the DEIS was generic because of the uncertainty at the time related to the design of the Agency Preferred Alternative. This design is now better defined and a more detailed monitoring plan has been added to the FEIS in **Appendix 2E**.

The DEIS narrative quoted from page 3-46 in the comment was intended to clearly disclose the drought conditions under which the baseline data were obtained and refer to other studies conducted in Southeastern Idaho that might be illustrative of what selenium conditions might be during more normal precipitation conditions. This does not mean the baseline data collected is inadequate or misleading. In fact, the hydrologic baseline data for the portion of the Project Area currently unimpacted by mining would not be expected to respond to seasonal changes in selenium concentration observed downstream of phosphate mine external overburden fills elsewhere in Idaho. This is because there are no man-made sources of potential selenium pollution in this undisturbed part of the Study Area.

The DEIS narrative quoted from page ES-8 was referring to environmental protection measures used to control contact of surface water with seleniferous overburden and seeps on external overburden fills. These environmental protection measures are included in the BMPs discussed in **Section 2.5** for erosion, sedimentation, and selenium control. These environmental protection measures include covering seleniferous overburden with chert and topsoil covers and controlling runoff and sediment transport from mining areas with ditches, sediment ponds, and standard erosion control measures such as vegetation. All of these measures have been previously employed at the Smoky Canyon Mine and elsewhere in the phosphate mining industry of Southeastern Idaho, and have been shown to be effective (**Appendix 2C** and **2D** of EIS). This pre-existing knowledge has been included into this EIS via the appendix. Therefore, there is no need to conduct more site-specific analyses of these protection measures within this EIS and the statement on page ES-8 that these measures are assumed to also be effective for the proposed Panels F and G is reasonable.

The Agencies have indicated in this EIS that the current selenium contamination in lower Sage Creek would be cleaned up by the time the peak selenium concentration from the Panels F and G is added to this watershed multiple decades in the future. These statements are based on site investigations and actions that have already been planned. The effectiveness of these actions has also been predicted and supports the agencies' assertion in the EIS that the CERCLA cleanup actions at Smoky Canyon Mine would reduce selenium concentrations in lower Sage Creek. More information on the CERCLA actions at Smoky Canyon Mine is included in a new **Appendix 2A** to the FEIS.

The baseline data used in the DEIS to evaluate potential environmental impacts was collected from 2000 to 2004. Additional baseline data collected in 2005 and 2006 has been added to the FEIS in the Water Resources and Fisheries and Aquatics sections.

The BEHS study evaluated risk to livestock and wildlife grazing on phosphate mine overburden areas that were reclaimed in the past before the selenium contamination issue was known. These past reclamation practices generally included revegetation with minimal or no cover material over run of mine overburden. This resulted (in retrospect) in conditions that favored bioaccumulation of selenium in vegetation growing on the reclaimed overburden and increased risk of selenosis in livestock and wildlife grazing in these areas. Since about 1998, the phosphate mining industry in Idaho has practiced covering seleniferous overburden with chert and topsoil covers that are thick enough to reduce selenium uptake in vegetation to levels that are not problematic for grazing animals. A number of site-specific studies of mines reclaimed in this way have shown the effectiveness of this approach (DEIS **Section 3.1.6**).

The narrative from page 3-20 of the DEIS quoted in the comment is a correct statement describing the conclusions of the BEHS June 2001 Health Consultation report.

6. Comment: All of the water on our property will be contaminated by selenium. There is no mitigation likely other than shipping in water. This includes Books Spring with 2.9 CFS, which computes to 1,874,314 gal/day! Even a small dilution of 1/1000 would require 1,875 gal/day. This does not include our culinary/bathing water from the well at the cabin. All of the small streams, seeps, and springs flowing into North Deer Creek will be destroyed or contaminated. There are no plans to mitigate by providing alternate water sources for wild animals. There will be additional sedimentation. Between the sedimentation and the selenium, cutthroat trout populations will crash in Deer Creek. There will be downstream impacts on Crow Creek, and subsequently the Salt River. [Ltr240 Cmt10].

   Response: **Section 4.3.1** of the EIS discloses that peak selenium concentrations under the Agency Preferred Alternative in Books Spring are estimated to be more than an order of magnitude less than the drinking water standard. No mitigation for this water quality impact would be required for human health, agriculture, or wildlife utilization of this water. Additional sediment load to Deer Creek from the Agency Preferred Alternative, Proposed Action Panel G West Haul/Access Road, has been predicted in **Section 4.3.2** as being a 2.7% increase over the current sediment load. Impacts to trout populations from sediment are described in **Section 4.8.1** of the EIS as being moderate. Long-term productivity of fish from selenium contamination is described in **Section 4.8.4** of the EIS.

7. Comment: The culinary well at the mine is so contaminated that the employees can't drink from it (5.3 - 5-14). Secondly, Hoopes Spring, which is fed by the Wells Canyon Aquifer, is seriously contaminated and feeds Sage Creek. It should be pointed out that the contamination to Hoopes Spring comes from Panel E. This panel was mined after the selenium problem was "discovered" and the BMPs were put in place to control it. It is also my understanding that two wells have been drilled on the nearby Peterson property but they are unusable because of selenium contamination. The increased contamination from the lost aquitard has not been accounted for in any analysis. Books Spring, for example, with its high flow rate feeds into Crow Creek. The selenium from

Books Spring will thus add to the contamination of Crow Creek. This result has not been considered when analyzing the contamination of Crow Creek. The same reasoning in all likelihood also applies to South Fork Sage Creek Spring. Singling out Books and South Fork Sage Creek Springs understates the problem. According to the draft EIS there will be a 7% recharge of the Wells Canyon Aquifer from the pits. This contaminated flow will affect all the small springs and seeps, which are fed from the Wells Canyon Aquifer. [Ltr239 Cmt13]

Response: The selenium concentration in the Culinary Well at the Smoky Canyon Mine is not over the public drinking water standard and water from the well is used for culinary purposes at the mine with no restrictions. As described in **Section 5.3** of the EIS Hoopes Spring is impacted by primarily by selenium from the Pole Canyon overburden disposal area. A number of monitoring wells have been installed by Simplot in Sage Valley but none of these are intended for beneficial use. **Section 5.3** of the EIS indicates that existing groundwater contamination at the Smoky Canyon Mine is not thought to have the potential to measurably affect groundwater regime under the Panels F and G project area. The potential selenium contamination in Books Spring from the Agency Preferred Alternative has been calculated and included in calculations of selenium concentrations in Crow Creek, which is expected to comply with current aquatic criterion for selenium. The full water quality impact from the seepage out of the proposed mining panels has been predicted and discussed in **Section 4.3.1** of the EIS, including identification of any springs that might be affected by this contamination.

8. Comment: The actual contamination of Crow Creek is probably worse than even the scenario above suggests. From Lamb Canyon to the narrows the flow rate of Crow Creek increases approximately 11.8 cfs from aquifer discharge. (JBR Environmental Consultants, Inc. (JBR). 2004c. Memorandum on Crow Creek Water Balance with Winter Data, by Brian Buck.) All of this water is subject to 100's of years of selenium contamination from the mine. [Ltr239 Cmt14]

   Response: Groundwater discharge to Crow Creek was included in the groundwater flow model so potential water quality impacts to Crow Creek have already been included in the impact analysis of the EIS. All surface water quality criteria are expected to be complied with for Crow Creek.

9. Comment: The wetlands in the lower Deer Creek watershed will be affected by diminished flow caused by the elimination of springs and seeps. The water that remains will be contaminated. Much of this wetland area is on our ranch. The impacts to wildlife, fisheries and vegetation are irreparable in any living person's lifetime. [Ltr239 Cmt17]

   Response: As described in **Section 4.3.2** of the EIS, diminished flow to Deer Creek from affected seeps and springs was calculated to be a 0.5 to 1% reduction in flow in the creek. Water quality impacts to lower Deer Creek from the Agency Preferred Alternative are expected to be lower than aquatic criterion, which are also protective of riparian vegetation. Impacts to wetlands from these flow and quality impacts are expected to be minor.

10. Comment: Books Spring is on our ranch and we hold the water rights to Books Spring. We do not want it or the fish that live there to be contaminated. We do not want the waterfowl which visit the pond contaminated. We do not wish to have our land contaminated. We do not wish to have the birds that nest in the field contaminated. We do not wish to have any of the small springs and seeps contaminated. We do not wish to have any of the animals, wild or domestic, large or small contaminated. We also would like to build a house near Deer Creek and we do not want the water there contaminated. The mine culinary well and the Peterson wells demonstrate that drilling us a new well will not help once our water is poisoned. We feel very strongly about this and we are sure that you will treat this direct threat with the respect and consideration that it demands. [Ltr239 Cmt15]

    Response: As described in the response to Comment 5 above, the selenium impacts to water quality in Books Spring are predicted to be less than the drinking water standard and the aquatic criterion, which IDEQ has determined should be protective of fish, wildlife, livestock, birds, and vegetation. The resulting water quality is predicted to comply with State and federal water quality standards for drinking water and the aquatic criterion.

11. Comment: Another commenter said the Caribou-Targhee area is a head-water region for rivers, streams, and groundwater for southern Idaho and waterways leading to the Pacific. We do not want the toxins from the proposed Smoky Canyon Mine in our water. Water is a life or death issue in the West. [Ltr612 Cmt3]

    Response: The responses to the above comments indicate that the flow, sediment, and water quality impacts to Crow Creek have been described in **Section 4.3.2** as being minor and in compliance with applicable aquatic criteria.

12. Comment: A third issue raised by these statements is that the admitted increases in selenium released into the streams discussed would occur during late summer, base-flow conditions. It is well known that selenium concentrations in streams affected by phosphate mining in Idaho are highest during and right after spring runoff, and at their lowest concentrations during low flow. Indeed, that fact is also acknowledged in the DEIS. And, as Myers notes in his report and we discuss elsewhere in these comments, flows below base-flow will likely have increased concentrations of selenium. Thus, by only disclosing concentrations that would occur during base-flow conditions the DEIS down plays the important effects of selenium contamination on fish and other aquatic resources during spring runoff and during low flow conditions and totally misrepresents the nature and size of the problem. There is more than a probability that selenium loadings to an affected stream would increase three to seven times above the concentrations predicted for base-flow conditions. As an example, selenium in water samples taken from Mill Creek (in the Blackfoot watershed) in April 2005 measured 417 mg/L. Selenium concentrations in samples taken at the same location in Mill Creek in late July 2005 measured 103 mg/L. This loading of selenium concentrations in streams affected by phosphate mining, caused by runoff, would obviously exacerbate the contamination that is already expected to approach or equal the current water quality criterion for selenium. In fact these elevated concentrations of selenium would obviously violate Idaho water quality standards in the streams affected by the proposed mine expansion and, as such, the Forest Service's duty under NFMA to comply with state and federal water quality requirements and federal water laws. [Ltr950 Cmt72]

Response: It is true that streams draining several phosphate mine areas in Southeast Idaho do show increased selenium loadings during spring runoff. This was discussed in **Section 3.1.6** of the EIS. This is caused by seasonal flushing of historic overburden fills by water that either percolates into the surface of the fills or enters through runon and/or French drains. These overburden fills were not constructed according to the BMPs developed in recent years to reduce contact of surface water with phosphate mine overburden. The designs of the proposed overburden fills for Panels F and G do incorporate these BMPs. As described in **Sections 2.5** and **4.3.2** of the DEIS, there would be no surface flow of water from these overburden fills to surface streams so the seasonal surface water loading of selenium observed at historic overburden fills elsewhere in Idaho would not occur at Panels F and G.

13. Comment: This plan poses a very dangerous and unacceptable risk of selenium contamination in streams, groundwater, and drinking water supplies. [Ltr976 Cmt4]

    Response: The analysis in **Section 4.3** of the FEIS shows that the Agency Preferred Alternative would result in selenium concentrations in groundwater downgradient of the mining activities that are predicted to comply with State groundwater and surface water standards for selenium. Concentrations of selenium in both groundwater and surface streams under the Agency Preferred Alternative are predicted to be less than the primary drinking water standard. Surface streams in the Project Area are not used by residents in the area for drinking water.

14. Comment: The aquatic life chronic criterion for selenium in Crow Creek is 0.005 mg/L. All of the alternatives including the proposed action in the DEIS would reach or exceed this limit (**Table 4.3-15**). Therefore, all mining alternatives in the DEIS are not acceptable for protecting Wyoming surface water quality as proposed. The preferred alternatives selected by the BLM and USFS must ensure that Wyoming surface water quality standards are not exceeded and it is strongly recommended that the preferred alternative contain mitigation measures in the event that water quality criteria are exceeded. [Ltr1055 Cmt1]

    Response: The narrative **Section 4.3.2** of the EIS that discusses the modeling results clearly indicates that selenium values in lower Sage Creek that currently exceed the surface water criterion for selenium are expected to decrease to below the criterion by the time the peak selenium concentrations from the Agency Preferred Alternative occur at the groundwater discharge locations. Additional impact modeling discussed in **Section 4.3** of the FEIS indicates the selenium concentrations at the groundwater discharge points under the Agency Preferred Alternative would be below the surface water standard for selenium.

Public Concern ID 97

The BLM/FS should ensure that the final EIS reflects the uncertainties regarding the future commitment to perform the work and achieve the necessary selenium loading reductions at Lower Sage Creek in compliance with current regulatory requirements

The EPA had the following comments (1-5) on this topic:

1. Comment: The DEIS predicts that, under certain circumstances, total loads of selenium would result in a concentration of 0.007 milligrams/liter (mg/l) in lower Sage Creek year-round (DEIS, p.5-23). If this level of selenium is reached, it would exceed the surface water standard of 0.005 mg/l. The DEIS predicts that surface water exceedances will not occur until 50 years or more into the future, and only if planned cleanup actions under CERCLA are not taken in a timely manner. It is critical to note that the DEIS analysis demonstrates that successful, timely implementation of CERCLA cleanup actions are essential if water quality standards are to be achieved. The magnitude of mining operations (past, existing, and proposed) temporal delay in impacts, and difficulty in taking corrective actions lead us to believe that it is wise to conduct further analysis to determine if additional modifications to the Preferred Alternative are needed. [Ltr553 Cmt1]

   Response: The Agency Preferred Alternative is not predicted to result in groundwater discharges that exceed surface water standards in South Fork Sage Creek, Crow Creek, and Deer Creek at any time in the future. Lower Sage Creek currently exceeds the surface water standard seasonally during low flow periods of the year due to selenium load from Hoopes Spring and South Fork Sage Creek Spring. Under the Agency Preferred Alternative analysis in the DEIS, the groundwater discharged to South Fork Sage Creek would carry some added selenium load. This would not occur for between 50 and 100 years from when Panel F first affected water quality in the Wells Formation aquifer. It is the goal of the Federal and State agencies and Simplot that the remedial actions planned for the Smoky Canyon Mine would clean up the contamination of Hoopes Spring and South Fork Sage Creek before then, resulting in maintenance of water quality in lower Sage Creek within surface water standards year round.

   For the Final EIS, Simplot has provided a design for an engineered cover system for Panels F and G, such that groundwater concentrations are calculated to be well below applicable surface water quality standards at any of the Wells Formation aquifer discharge locations to the surface environment. The prediction of a year-round selenium exceedance at the mouth of Sage Creek was calculated based on the current selenium concentrations in lower Sage Creek. Selenium concentrations in lower Sage Creek are currently elevated due to existing conditions at the Smoky Canyon Mine. A CERCLA Site Investigation and an Engineering Evaluation/Cost Analysis (EE/CA) have been completed at Pole Canyon. The preferred removal alternative identified in the EE/CA is the diversion of Pole Canyon Creek around the Cross Valley Fill. This removal action is predicted to reduce the selenium concentration at Hoopes Spring from the current range to less than the surface water standard (0.005 mg/L). It is anticipated that it will take approximately 10 years to see the benefit of the Pole Canyon Creek diversion at Hoopes Spring. At South Fork Sage Creek, existing elevated selenium concentrations are expected to be reduced to well below the surface water standard following final closure and reclamation activities at Panel E. Additionally, the Agencies will require that Simplot implement a water quality monitoring and surveillance plan to evaluate the effectiveness of those best management practices that are implemented as part of an approved mine plan.

   A new **Appendix 2A** to the FEIS provides further information on the timing and anticipated effectiveness of the remediation measures at the Smoky Canyon Mine to better describe the confidence the agencies have with regard to these remedial actions being able to achieve the results described in the EIS. Additionally, the Agencies have

included a discussion in the EIS on groundwater impacts demonstrating the very conservative nature of the impacts analyses contained in the EIS and showing that the effectiveness of the proposed cover design would be sufficient to protect water quality in the future in compliance with surface water standards.

2. Comment: Table 4.3-7 of the DEIS shows that peak selenium concentrations are estimated to exceed the surface water standard at South Fork Sage Creek Spring and lower Deer Creek as a result of the proposed action (DEIS, p. 4-40). The cumulative impact analysis in **Chapter 5** concludes that mining Alternatives A - C are predicted to exceed water quality standards. The DEIS also does a good job of evaluating these reasonably foreseeable future impacts to water quality. In addition, the DEIS discusses the IDEQ's draft 2002 recommendations for 303 (d) listed waters and the EPA-approved 1998 303 (d) listings. In December 2005, EPA approved the IDEQ's 2002 Integrated Water Quality Report, which finalized the 2002 303 (d) listings. The DEIS should now be updated to include this more current information. Further, the final EIS should discuss modifications needed in the preferred alternative to: 1) ensure that water quality is not further impaired and, 2) contribute to the improvement of water quality, then the EIS must discuss how the project would comply with the requirements of state statue IDAPA 58.01.02.054, Water Quality Limited Waters and TMDLs. These state standards address what types of activities are allowed prior to development of a TMDL, in watersheds which are 303 (d) listed. As discussed in the cumulative impacts section below, it is not entirely clear whether it is only historic or also proposed mine operations that are related to 303 (d) listed waters. [Ltr553 Cmt3]

   Response: The information on the 303(d) status of streams from the 2002 EPA approved list in the Project Area has been added to **Section 3.3.2** of the FEIS along with the interpretation of how this will affect compliance of the Agency Preferred Alternative with the applicable regulations.

3. Comment: It is assumed that current elevated concentrations of selenium in Hoopes Spring and lower Sage Creek would be sufficiently mitigated prior to delivery of additional selenium load from the proposed mining expansion to meet water quality standards. This is a critical assumption, which anticipates the Agencies' selection of CERCLA response action, and assumes that the cleanup will be successful in achieving water quality standards in the predicted time frame. The final EIS should reflect the substantial uncertainties with respect to the future commitment to perform the work and the ability to achieve the necessary selenium loading reduction. [Ltr553 Cmt5]

   Response: See the response to Comment 1 above. In addition, the IDEQ will require inclusion of a contingency plan in any Consent Order for Panels F and G that will propose actions that could be taken if monitoring indicates that additional mitigative measures are required.

4. Comment: To address these uncertainties, completion of the EIS (and permitting of the proposed panel F & G expansion) could be timed to coincide with the agreement by Simplot to undertake the actions identified in the EE/CA that are necessary to reduce selenium loading sufficiently to meet water quality standards. We recommend that additional information be provided in the final EIS on the range of removal and/or long-term remedial actions considered, and that specifically be provided for the CERCLA action(s) selected. This additional information would provide further assurance that the

CERCLA and EIS actions are coordinated. Including some combination of additional CERCLA/EIS coordination, additional proposed mitigation measures, and appropriate lease conditions and financial assurance would provide greater confidence that the additional loading form panels F&G will not cause or contribute to violations of state water quality standards. [Ltr553 Cmt6]

Response: The planned CERCLA response actions and timing are discussed in the new **Appendix 2A** to the FEIS.

5. Comment: Ground water modeling was conducted by back-calculating the amount of acceptable infiltration so that surface waters would just meet water quality standards with no margin of safety. It is unclear what assurances the agencies have that the calculated infiltration are achievable by the design and would be met within the facility as it is constructed. The mitigation package currently allows degradation of ground and surface water up to, and in the case of Sage Creek, beyond the applicable standards. This approach is problematic considering the uncertainty associated with the predicted impacts. We recommend that you consider additional mitigation measures to add a factor of safety, and to minimize impacts to the extent feasible rather than to the limit of a stream's assimilative capacity. [Ltr553 Cmt7]

   Response: Information has been added to **Section 4.3.1** of FEIS demonstrating the conservative evaluation of the groundwater impacts described in the EIS. The latest design for the cover described in this FEIS does reduce seepage more than was described for the Alternative D description of the DEIS.

6. Comment: A group of commenters said the DEIS writers have assumed that corrective measures (mislabeled mitigation measures in this section) that would be taken by Simplot to reduce the Se in Hoopes Spring will keep lower Sage Creek from exceeding the threshold level for Se. This assumption can only be labeled as a best-case scenario. Hoopes Spring discharges into Sage Creek upstream from its confluence with South Fork Sage Creek, and contributes over half the flow in lower Sage Creek. Elevated levels of Se in Hoopes Spring (and in Sage Creek between Hoopes Spring and South Fork Sage) have been traced to groundwater infiltration from the base of the Pole Canyon Overburden Fill, which is a legacy from the old mining activity at Smoky Canyon Mine Panels A, B, C, and D. Measures are supposed to be taken to reduce the Se in Hoopes Spring under an Administrative Order of Consent between Simplot land whatever agency or agencies are responsible for enforcement. But nowhere in the DEIS could I find a discussion of what measures are to be employed, or a timetable for completion, or an estimate of the likelihood for success of these measures. Therefore, the DEIS writers should also include a worse-case scenario that spells out the impact of the cumulative effect of increased Se if these corrective measures are slow to be taken, are never taken, or if they fail. And again, of course, since even the best-case scenario fails to take into account that Sage Creek (source to mouth, including the Pole Canyon drainage) is now on the 303(d) list for Se impairment, even that scenario needs to be modified. [Ltr950 Cmt368]

   Response: The EE/CA indicates there are technically and economically feasible remedial actions that can be applied to the current Smoky Canyon Mine selenium releases. In addition, Simplot has proposed additional and immediate water management measures in Sage Valley that indicate a reduced selenium load to Sage

Creek during 2006. Estimates of the effectiveness of these measures have also been prepared and show that the existing contaminant levels in Lower Sage Creek can be reduced to the applicable water standards well before the peak concentrations from Panel F would be discharged to South Fork Sage Creek. A new **Appendix 2A** has been added to the FEIS describing the CERCLA process at the Smoky Canyon Mine and the timing and expected effectiveness of the remedial actions. Calculation results are included in the EIS that use existing conditions in Sage Creek combined with impacts from the Agency Preferred Alternative to determine impacts if clean up efforts at the mine were not successful. The affect of the new 303d listing for Sage Creek on the Agency Preferred Alternative is described in **Section 3.3.2** of the FEIS. The Agencies disagree that current impacts measured at Hoopes Spring are part of a legacy of mining Panels B and C; they are a result of previous mining operations.

7. Comment: A commenting group stated that because of the potential financial risk to the public in the event of the bankruptcy of a mine operator, detailed bond calculations should be included in the Final EIS. The "Training Guide for Reclamation Bond Estimation and Administration", USDA Forest Service, April 2004, should be used to estimate this bond. [Ltr950 Cmt203]

   Response: In response to this and other comments on the DEIS, the Agencies and Simplot have prepared an actual-cost type reclamation bond estimate for the Panels F and G operations and a summary of this bond estimate has been included in **Section 2.10** of the FEIS.

Public Concern ID 103

The BLM/FS should use more conservative measures in calculating sediment releases into the Deer Creek, Manning Creek, Sage Creek, and South Fork

1. Comment: A state agency said streams impacted by the Proposed Action include Deer, Manning, Sage and South Fork Sage creeks, which support healthy riparian zones and native cutthroat trout. The Proposed Action proposes many important BMPs, but does not prevent an additional 0.5 and 8.5 tons of sediment entering South Fork Sage and Deer Creeks, respectively, systems that are currently listed as sediment impacted. These additional sediment releases in excess of background will contribute to factors limiting stream dwelling salmonid populations in this area of Southeast Idaho. We strongly urge more conservative measures are taken to further sediment releases into these drainages. [Ltr555 Cmt1]

   Response: The sediment releases from the Agency Preferred Alternative for the Proposed Action Panel F Haul/Access Road and the Proposed Action Panel G West Haul/Access Road are shown in **Section 4.3.2** of the DEIS as being approximately 0.60 tons per year for South Fork Sage Creek and 8.3 tons per year for Deer Creek. These are negligible increases over the existing background sediment loads in these streams of 155 and 308 tons per year respectively. North Fork and South Fork of Deer Creek have been recently listed as being impaired for sediment. The BMPs applied to the mining disturbances for Panel G would retain runoff and sediment at the mine for runoff events up to the 100-year, 24-hour storm.

Public Concern ID 136

The BLM/FS should require that the draft EIS provide a comprehensive and accurate analysis of current conditions in the area that will be affected, and provide proper alternatives

A group of conservation organizations and private landowners provided the following concerns in their comment letter related to the baseline description and range of alternatives in the DEIS:

1. Comment: The DEIS must provide a comprehensive and accurate picture of current conditions in the area that will be affected by the proposed expansion, including in particular, an accurate picture of the resources and values that are likely to be impacted by the proposal, including, but not limited to, Yellowstone cutthroat trout and groundwater. [Ltr950 Cmt8]

   Response: The commenters' concern for including all available information on selenium in aquatic systems of the Project Area has been responded to by including all this information in a new **Appendix 3C** to the FEIS on selenium affects on fish.

2. Comment: The DEIS must provide a thorough and detailed assessment of the impacts of the proposed action on the surface and ground waters of the area, and in particular the impacts that increasing current concentrations of selenium will have in addition to already elevated concentrations present in many of those waters. [Ltr950 Cmt10]

   Response: The commenters' concerns for increasing selenium concentrations in Project Area waters have been addressed in the FEIS by adding a more complete and detailed discussion on the breadth of scientific information on selenium impacts to fish. The new **Appendix 3C** to the FEIS applies this scientific information to the existing Project Area streams in an objective manner.

3. Comment: The DEIS must provide an analysis of properly selected alternatives to the proposed action, including in particular one or more alternatives that will directly address the serious potential problems associated with adding still more selenium to the waters of the area. [Ltr950 Cmt12]

   Response: The Agencies have responded to this and similar comments by evaluating a version of the cover design that minimizes infiltration of water to the maximum extent economically feasible. This minimal infiltration cover is described in **Section 2.6.1** of the FEIS and the water quality effects are calculated in **Sections 4.3.1** and **4.3.2** of this FEIS.

4. Comment: DEIS must provide an accurate analysis of the impacts of the proposed action on human health. An accurate and comprehensive analysis of the real economic choices posed by this proposal and a full assessment of the economic benefits that will result from remediation of existing sites contaminated by selenium. [Ltr950 Cmt13]

   Response: See the response to PC 136 Comment 6 below for the comment on human health effects. The social and economic effects of the proposed mining activities have been evaluated in **Section 4.16** of the EIS and responses to comments on that section are found elsewhere in **Chapter 7** of this FEIS.

5. Comment: In preparing the DEIS agencies must insure that they include essential available and accurate data for use in predicting impacts as well as the "professional integrity, including scientific integrity, of the discussions and analyses" it contains. Information obtained from the applicant must be "independently evaluated" to verify "its accuracy." [Ltr950 Cmt14]

   Response: All data and analyses incorporated into the EIS have been independently reviewed for scientific integrity by Agency scientists and engineers. Not all information or interpretations provided by the proponent were accepted by the Agencies for this reason. For example, a great deal of column test information and geochemical interpretation related to selenium releases from pit backfills was not accepted by the Agencies for incorporation in the DEIS because there was insufficient, empirical evidence to corroborate the laboratory results.

6. Comment: All the mining alternatives considered in the DEIS are unacceptable because they will result in further selenium contamination of already contaminated ground and surface waters in the area. The selenium contamination in ground and surface waters that will result if the proposed expansion is permitted to go ahead has been seriously underestimated by the DEIS due to flows in modeling, sampling and other errors. Not withstanding the existing selenium problem, the DEIS failed to consider any alternative designed to prevent the addition of any more selenium to the environment. Not only has the current impact of selenium on aquatic resources been underestimated, but also the potential cumulative impact of the added selenium that will result from expanded mining has been seriously underestimated, due in large part to the DEIS' failures to take into account the bioaccumulative nature of selenium and to examine the impacts of past and current mining activities at Smoky Canyon. The combined biotic effects of selenium contamination have been completely ignored. Although the appropriateness of carrying out such assessments and methodologies for conducting them are well established, none were employed in preparing this DEIS. Not only have impacts from existing and proposed activities been underestimated within the "project area," but the geographic focus of the DEIS has been inappropriately narrowed to exclude consideration of the impacts of selenium loading in the upper Salt River. The impacts of connected actions at the mine have been erroneously excluded from analysis. Unjustifiable assumptions about the efficacy of reclamation, Best Management Practices and other corrective actions as well as the resulting impacts have been made repeatedly. Human health impacts have been underestimated. [Ltr950 Cmt19]

   Response: The Agency Preferred Alternative is calculated to maintain groundwater and surface water quality within the legal requirements of applicable Federal and State regulations. As described elsewhere in responses to comments in PCs 139, 140, 142, 143, and 160, the groundwater modeling is reasonable and defensible and information added to **Section 4.3.1** of the FEIS shows that the water quality impact analysis of the EIS is conservative and actual water quality impacts could be less. Information added to the Fisheries sections of the FEIS and the new **Appendix 3C** on selenium effects on fish provides a balanced review of the potential impacts of selenium on Project Area streams. The surface water impact analysis did not include the Salt River, because all downgradient selenium concentrations were calculated to be in compliance with the State surface water standard for selenium in Crow Creek, upstream of the Salt River (see FEIS **Tables 4.3-22** and **4.3-23**). **Section 2.3.6** of the EIS explains why the Agencies believe existing operations are not connected actions. The Agencies believe

in the efficacy of reclamation practices, BMPs and corrective actions disclosed in the DEIS. The reclamation practices and BMPs described in **Appendices 2C and 2D** of the FEIS are not experimental and cite pre-existing, publicly available source documents for the general methods and techniques. More information on the proposed remedial actions for the Smoky Canyon Mine has been provided in a new **Appendix 2A** to the FEIS. Human health impacts have been analyzed in the DEIS. **Section 4.2** of the DEIS showed that air emissions from the proposed operations would comply with the health-based National Ambient Air Quality Standards. The resulting groundwater and surface water quality from the Preferred Alternative were shown in **Section 4.3.1** and **4.3.2** of the DEIS to be well below the applicable, health-based drinking water standard. **Section 4.5.1** demonstrated that the proposed cover would limit selenium uptake in revegetation to within established USFS guidelines. **Section 4.7.1** of the DEIS disclosed potential selenium accumulation in terrestrial wildlife from the project as being unlikely and that impacts to predators of these animals would also be minimized. **Section 5.15** of the DEIS discussed potential selenium effects to Native Americans and concluded that selenium in Project Area streams from the Preferred Alternative would not present a human health hazard unless bioaccumulation in fish could occur to the point where limitation of consumption would be advisable. Even then, this is more likely for chronic consumption of fish by children and not by adults. This would be carefully monitored during and after operations as described in a new appendix to this FEIS (**Appendix 2E**). The monitoring would be paid for by Simplot.

7. Comment: Other resources of the area, including especially fish, are already experiencing selenium related stress, which is certain to increase if the expansion is approved. The severe impacts that the mine expansion might well have on Yellowstone cutthroat trout have not been assessed. Conclusions cannot be drawn about other species of wildlife because the Forest Service has not selected appropriate management indicator species. The real social and economic tradeoffs of approving the proposed expansion have not been appropriately assessed. The DEIS suffers from massive flaws and is so inadequate as to preclude meaningful analysis. It should therefore be withdrawn and redone. [Ltr950 Cmt20]

   Response: More information on selenium effects to fish has been added to the Fisheries sections of the FEIS. A new appendix providing a very complete discussion of this topic has also been added to the FEIS (**Appendix 3C**). This information suggests that the potential severe impacts on cutthroat trout predicted by the commenters have not been documented and may not be present. The information provides further confirmation that the Agencies are correct in using the existing water quality standard of 0.005 mg/L for selenium when analyzing the effects of the proposed Agency Preferred Alternative. The social and economic effects of the proposed mining activities have been evaluated in **Section 4.16** of the EIS and responses to comments on that section are found elsewhere in **Chapter 7** of this FEIS.

8. Comment: As noted in the DEIS, among the most significant effects of the proposed extension of the Smoky Canyon mine are the impacts to groundwater quality and surface water quality and quantity. In the case of both groundwater and surface water, degradation of water quality will result from seepage leaching through waste material backfilled into mined-out pits and waste rock dumps. Contaminants that will enter area groundwater, and eventually adjacent surface waters, as a result in this leaching include

selenium, cadmium, zinc, and sulfate. The most harmful contaminant entering groundwater and surface water as a result of mine expansion is selenium. Selenium has been described as one of the most sinister elements in aquatic ecosystems due to its bioaccumulative nature. A Forest Service expert has characterized the effects of selenium on fish in particular as the "insidious time bomb". The proposed action includes the addition of eight feet of "nonseleniferous" chert cap on top of the backfill in an attempt to segregate the backfill and decrease the pathways for contaminants to reach the surface environment. Even with this measure the DEIS reveals that the contaminated seepage will still degrade both groundwater and surface water. In particular, the DEIS discloses that proposed action will cause selenium concentrations to exceed both groundwater and surface water standards. [Ltr950 Cmt22]

Response: **Section 4.3.1** of the DEIS states that selenium concentrations at all groundwater observation points and groundwater discharge locations are predicted to be below the applicable water quality standards for the Agency Preferred Alternative. The revised impact analysis in this FEIS, using the revised cover system for Alternative D, predicts lower impacts to water quality than were predicted in the DEIS. The new **Appendix 2A** in this FEIS describes ongoing CERCLA actions to correct this existing contamination.

9. Comment: The DEIS discloses these serious consequences of the proposed action despite the fact that its treatment of water quality impacts is badly flawed as detailed immediately below. Had the authors utilized sound groundwater and solute transport models, for example, rather than models which underestimate impacts, it is likely that the predicted water quality impacts would have been far more serious. To quote Myers: Compliance with the Clean Water Act will essentially depend on a coin-toss. Given the model shortcomings cited above, the coin is in fact loaded against a result that complies with the Clean Water Act. As currently designed, Alternative D will likely cause water quality that violates standards; from a water quality perspective this is unacceptable and likely illegal. Similarly, had the DEIS discussed the significant on-going selenium contamination of ground and surface water from the existing mined areas of the Smoky Canyon Mine and combined the impacts of that contamination with the predicted contamination from the mine expansion, the environmental damage would definitely have been far worse. Yet, even though the predicted degradation of ground and surface waters that will result from the proposed expansion will be in addition to the significant on-going contamination of groundwater and surface water from the current and past mined areas of the Smoky Canyon Mine, and even though to date there has been no attempt to minimize water infiltration of waste dumps and partially or completely backfilled pits, the DEIS failed to discuss these existing selenium problems, let alone to address the likely cumulative impacts of approving the expansion. [Ltr950 Cmt23]

   Response: The additional information added to **Section 4.3.1** of the FEIS shows the groundwater modeling included in the DEIS is conservative. The new **Appendix 2A** added to the FEIS provides more description of the remedial actions proposed for the existing Smoky Canyon Mine, including substantial reductions in water infiltration into Pole Canyon overburden fill, and indicates that improvements (decreases) in selenium concentrations of Hoopes Spring and lower Sage Creek are anticipated to occur well before the peak impacts from the mine expansion would occur. This appendix also includes a separate report describing recent selenium contamination of South Fork Sage Creek and the mine closure actions that are predicted to clean up this selenium

contamination before the surface water quality impacts from Panel F occur. The combination of the conservative nature of the modeling and the cleanup of the existing contamination provides more assurance that compliance with water quality standards for selenium would be observed in Project Area streams in the future. The revised Alternative D cover design provides for more control over net percolation through the cover and the revised water resources impact analysis in this FEIS predict lesser impacts to water quality for the Agency Preferred Alternative than were included in the DEIS. In addition, the IDEQ will require a contingency plan to be included in any Consent Order issued for the project that would address actions to be taken if monitoring indicates that additional mitigative measures are required.

10. Comment: Regarding selenium issues with fish, the DEIS acknowledges that the risk of selenium inputs to streams and bio-accumulation up the aquatic food web to trout still exists, even though selenium control measures would be implemented. Given the inadequacies of the DEIS that have already been pointed out, it is likely that selenium bio-accumulation will have much more serious consequences for the trout populations of the study area than the DEIS now acknowledges. Furthermore, the problem will persist for hundreds of years, not even peaking in Deer Creek until 50 years and in the Sage Creek system until 100 years after mining commences. [Ltr950 Cmt359]

    Response: Additional information has been added to the Fisheries sections of the FEIS and a new **Appendix 3C** has also been added to provide a more complete discussion of the effects of selenium on trout and the existing conditions in Project Area streams. Information has been added to **Section 4.3.1** of the FEIS that gives better perspective as to the conservative nature of the impact analysis in the DEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in receiving streams than were shown in the DEIS. More information has been added to the FEIS (**Appendix 2A**) describing the timing and anticipated effectiveness of the CERCLA remedial actions proposed for the Smoky Canyon Mine, which will lessen the current selenium concentrations in lower Sage Creek and prevent future exceedances of selenium surface water standards even when the long-term impacts of the Preferred Alternative are added to Deer Creek and South Fork Sage Creek in the future.

Public Concern ID 139

The BLM/FS should recognize that the groundwater model, the solute transport model, and the recharge model are flawed

A group of conservation organizations and private landowners provided the following concerns and recommendations in their comment letter related to the groundwater impact analysis in the DEIS. In the interest of brevity, because many of these comments are reiterations of the same comments contained in the report by Dr. Tom Meyers, the Agencies' responses in some cases refer to more complete responses elsewhere in this document where Dr. Meyers' comments are addressed:

1. Comment: There is scant discussion in the DEIS explaining the groundwater model. There are less than two pages in Chapter 3, which mainly address the water balance. The DEIS estimates contaminant concentrations in the groundwater downstream and where it discharges to surface water based on the groundwater and solute transport

modeling of the Wells formation. This modeling provides most of the results on which the water quality predictions in the DEIS are based. As documented by Dr. Tom Meyers, this foundational material is inadequate and provides biased input for the DEIS. [Ltr950 Cmt24]

Response: **Section 4.3.1** of the DEIS provides a summary of the groundwater impact analysis including descriptions of methods, inputs and results. The DEIS does not include all the detailed information required to conduct a detailed review of the groundwater modeling efforts. The documents in the project record that are the foundation for the groundwater impact analyses are cited in the DEIS and are available on request in hardcopy and CD format to anyone interested in reviewing them. A statement has been added to **Section 4.3.1** of this FEIS clearly indicating the availability of these documents to interested readers.

2. Comment: Impacts to groundwater quality are expected to occur as seepage leaches through waste material that has been backfilled into mined-out pits. In an attempt to protect groundwater, and thus surface waters, the Agency Preferred Alternative includes the installation of a foot-thick soil barrier between the capping material and the backfill. Even if the predictions on additional contamination as presented in the DEIS were accurate, selenium concentrations in groundwater would be just below state water quality standards, and surface water standards would exceed state standards. Unfortunately, the three models employed by the agencies in the DEIS, the groundwater model, the solute transport model, and the recharge model, upon which those optimistic predictions are based, contain significant flaws that will not be easily or quickly remedied. And yet, even these flawed models predict that seepage from the mine for Alternative D is likely to violate groundwater standards. Specifically with regard to the three models, Myers notes that the prediction made from this alternative still allows selenium concentrations in nearby streams to exceed standards above an arbitrarily chosen observation point. In addition, modeling assumptions and the quality of the input data bias the predictions downward. In aggregate, the modeling grossly under predicts the potential degradation. As Dr. David Chambers points out, compounding this serious flaw is the fact that the significant contamination resulting from this proposal will last "forever" in human terms! He states "contamination from the seleniferous waste will be present for a very long time - in the neighborhood of 500 to 1,000 years. [Ltr950 Cmt25]

   Response: A more detailed description of the Agency Preferred Alternative cover design has been added to **Section 2.6.1** of the FEIS. Additional groundwater impact analyses have been conducted and described in **Section 4.3.1** of the FEIS demonstrating the conservative nature of the anticipated impacts to groundwater and surface water included in the DEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted concentrations are now well below the State and federal surface water standards for selenium. The Agencies believe the impact analyses used reasonable and defensible models. The mitigation included in the Preferred Alternative results in groundwater concentrations of selenium that are below State groundwater standards underneath and downgradient of the proposed overburden fills. The concentrations of selenium caused by the Agency Preferred Alternative would be well below surface water standards at all of the discharge points where impacted groundwater discharges to the

surface environment. Where the additional selenium load is added to the currently impacted lower Sage Creek, surface water exceedances are predicted under current conditions. However, the EIS also indicates that, by the time the calculated peak selenium load from the proposed mining activities reaches the discharge point, the currently planned remediation methods at the Smoky Canyon Mine are expected to reduce selenium concentrations in lower Sage Creek so there would be no exceedances of the surface water standard. An appendix has been added to the FEIS providing more definitive information on the planned remedial work at the Smoky Canyon Mine and the anticipated effectiveness of this remediation to decreasing selenium concentrations in lower Sage Creek (**Appendix 2A**). Information on the duration of the surface water impact from the proposed operations has been added to **Section 4.3.1** of the FEIS and shows that the selenium concentrations are expected to peak within a 50 to 100 year timeframe and then steadily decrease. The concentrations are expected to drop by about 50 percent within about 200 years of the peak concentrations and be down to very low concentrations about 300 years after the peak. As indicated above, all groundwater discharges from the Agency Preferred Alternative to surface waters are predicted to remain within State and federal water quality standards at all times.

3. Comment: The groundwater model was poorly done for several reasons. They are: -Calibration was completed with too little data - just two well observations and a few springs.-The flow balance is substantially wrong because the locations where flux to streams to simulated differ from that observed in the field. This was due to specified flux boundaries in the model controlling the exact location. Water placed in incorrect locations likely caused more dilution than would occur in the field. -There was no transient calibration even though the model must predict the transient flow of seepage through the system. -The choice of layers was poor because it does not reflect the observed geologic layering. It is inappropriate to combine layers into one 2000-foot thick layer (in the 2-d model) or in 1800- and 200-foot thick layer (in the 3-d model); the industry-standard methodology requires that model layers represent actual stratigraphic layers. This is especially true when the stratigraphic layers have such different sets of properties as are observed here. -The model uses inappropriate boundary conditions which are based on a series of probably faulty assumptions (details on this are provided in the report).-Individual portions of the calibrated water balance are very out of balance which potentially drives the solutes of dilutes them incorrectly. The fact that the overall water balance has little error is irrelevant because it is driven by the recharge. -Recharge to the model was not adjusted to reflect the changes in water flow that will occur with seepage from the pits. -The upper aquifer in the Dinwoody formation was not considered; this is not correct because discharge from it to the streams controls the recharge through the streams into the Wells formation. [Ltr950 Cmt26]

   Response: See responses to comments in PCs 139, 140, 142, 143, and 146.

4. Comment: The recharge model, which estimates recharge through the backfilled pits, incorrectly underestimates the potential recharge and its leaching capabilities for the following reasons: -The model underestimates annual precipitation during wet years because it inappropriately uses statistics from Pocatello, Idaho. This decreases the transient recharge fluxes that would occur during very wet years. -The model overestimates average temperature which dries the model layers quicker than would occur at the mine.-The model does not consider all sources of inflow. In addition to the

precipitation, interflow to the pit backfill from the pit walls and surface runoff into the pits will add to the inflow. [Ltr950 Cmt27]

Response: See responses to comments in PCs 139 and 140.

5. Comment: The solute transport model, which is based on the flawed groundwater flow model, is used to estimate contaminant concentrations in groundwater and at points of discharge to surface water, specifically springs and seepage to streams. Because the groundwater and recharge models drive the transport model, the extensive flaws in the models cause the input to the transport model to be corrupt. There are in addition serious problems specific to the concepts utilized by the solute transport model:-The modeling assumes that contaminants disperse through the entire saturate thickness of the top model layer. This dilution significantly reduces the concentration at the very point the contaminant is introduced to the aquifer.-The solute transport coefficients were not calibrated to existing data, which are available both onsite and at the existing Smoky Canyon mine. [Ltr950 Cmt28]

   Response: See responses to comments in PCs 139, 142 and 143.

6. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data is handled as specified here:-The material placed into the column for testing does not represent that which will be backfilled into the pits. Also the methods do not mimic natural processes because once a significant amount of water has been added to the columns, oxidation will cease. This varies from what occurs naturally because the backfill will not have a constant flux of water seeping through it; rather, the backfill will undergo wetting and drying at least annually. Oxidation will continue in backfill after placement.-The column tests do not adequately reflect the contact time of water seeping through waste piles. Pore volumes are not a substitute for contact time; it takes 146 years for one pore volume to leach through an actual waste pile. Column testing vastly and inappropriately speeds this process.-The test also fail to account for other field conditions including freeze-thaw, which may increase the release rate of selenium, preferential flow paths which may increase the relative proportion of elemental selenium encountered by the seepage, and anoxic conditions which may occur in the waste rock and affect the pH, especially in the presence of organic matter.-There are far too few tests to account for the variable elemental rock chemistry likely to occur in a waste rock pile.-Concentrations resulting from the column tests incorrectly adjust the chemistry to account for the different sizes, gradation and packing in the column.-The backfill concentrations were also adjusted according to Simplot's perceptions of the relative amounts of each material in the backfill which inappropriately assumes perfect mixing in the backfill and ignores preferential flow [Ltr950 Cmt29]

   Response: See responses to comments in PCs 142 and 143.

7. Comment: Input concentrations for each time period in the model, one year long, are determined using a polynomial curve fitting routine which averages the initial concentrations with much lower concentrations that occurred after a full pore volume had leached. Sound models for groundwater and solute transport are absolutely critical to the preparation of a sound, legally adequate EIS on the proposed mine expansion. The

issue of groundwater contamination from selenium discharges is one of the key issues the draft document purports to address. The deeply flawed models that were used present an inaccurate picture of the degradation that is likely to result and one that seriously underestimates the problem. As such the use of these models negates the purpose of the DEIS for decision-makers and the public. [Ltr950 Cmt30]

Response: The responses to comments and the added narrative in **Section 4.3.1** of the FEIS show that the water quality impact analysis included in the DEIS was conservative in a number of important ways, which results in conservative predictions of the water quality impacts. These impacts resulted in the Agencies rejecting the Proposed Action as originally proposed by Simplot and developing the Agency Preferred Alternative that includes significant controls on the leaching of contaminants from the overburden fills, which are expected to reduce groundwater and surface water impacts so that the mitigated actions comply with all applicable water quality standards. The commenters have said that compliance with the existing surface water standard for selenium is not good enough and concentrations less than half the legal standard should be enforced. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are now well below (approximately half) the State and federal surface water standards for selenium.

The pore volume data from the unsaturated column test results were used to prepare a curve of concentrations to input into the model. This curve incorporates the available data and allows the modeling to simulate the decreasing solute concentrations expected in the overburden seepage, as indicated by the column testing results and general experience in the mining industry with regard to leaching ores. Starting solute concentrations used in the modeling appear to be similar to potentially comparable values observed at historic phosphate overburden fills at Smoky Canyon Mine and elsewhere in Southeast Idaho.

8. Comment: Myers' comments on the DEIS highlight the fact that the most important analysis supporting the DEIS is virtually useless. It is based on a solute transport model developed with little data, driven by underestimates of both contaminant concentration and seepage, and designed to minimize concentration by diluting the contaminant through the entire model layer thickness. The amount that this assemblage of bad data, modeling and assumptions underestimates the impacts of the project cannot be estimated without redoing all of the work in an acceptable manner. Even with flawed models which biased the results downward, the DEIS concludes that selenium concentrations will exceed state water quality standards under all mining alternatives except the Agency Preferred Alternative, and, in the case of the Agency Preferred Alternative, selenium concentrations will approach or equal state water quality standards. Had the models been done correctly, selenium concentrations that would be entering the groundwater would be greater and the resulting impacts to aquatic resources, including Yellowstone cutthroat trout, would have been even more significant. [Ltr950 Cmt31]

   Response: See the previous response to PC139 Comment 7.

9. Comment: In addition to the significant issues and flaws relating to and flaws of the three models flagged by Myers and Lemly, Chambers identifies other flaws with the models. Chambers notes that, in the case of the recharge model, the DEIS describes the topsoil cover as having typical depths of "12 and 36 inches" - or alternatively "1 to 2 feet". On the other hand the HELP [Hydrologic Evaluation of Landfill Performance] (recharge) modeling for the DEIS used a topsoil thickness of 24 inches. As Chambers point out, "there could be significant differences in vegetation growth potential, root penetration, and in the effect on cover performance due to the presence or absence of one to two feet of topsoil. This discrepancy appears to be significant when combined with the problems with modeling identified by Myers and described above. Chambers also identifies another significant problem with the recharge model, one which Myers noted as well. The HELP modelers used precipitation data from Pocatello, ID, in the model rather than site precipitation data. The elevation of Pocatello is 4630', while the mine elevation is 7600'. In Southeast Idaho as well as most other areas of the Rocky Mountain West, an increase in elevation typically translates to a significant increase in precipitation. In his comments on the DEIS, the Forest Service scientist, A. Dennis Lemly, Ph.D., argues that the number of core drillings upon which the models are based are far too few to accurately characterize selenium concentrations over the 1,300+ acre site given the extreme variability of selenium concentrations within short distances. He also takes issue with the once-through column leaching of those core drillings because it significantly underestimates selenium concentrations in environmental leachate. [Ltr950 Cmt32]

   Response: The correct range of topsoil depths for the proposed reclamation activities is 1 to 2 feet and this has been clarified in the FEIS. The actual amount of topsoil that is likely available, based on a soil balance, is approximately 22 inches so the HELP modeling using 24 inches is satisfactory as the difference in vegetation growth potential between 22 and 24 inches of topsoil is not significant. Precipitation data from Slug Creek Divide was used, which is a comparable elevation and mountainous climate to the Smoky Canyon Mine. The Agencies believe a defensible number of core drillings were used to characterize the overburden for the EIS. It is typical practice to use existing mineral exploration drill hole data to conduct mine planning, including overburden characterization and this was done for the Panels F and G project. In addition, these existing exploration drill holes were augmented with another 52 drill holes installed for environmental baseline study purposes. A total of 225 separate rock samples were obtained and used in the geochemical characterization for the EIS and the Agencies believe this is reasonable for the purposes of an EIS. The column testing conducted is appropriate for overburden geochemistry characterization. Data from multiple (10 to 20) pore volumes were used to describe the leaching of the overburden. The test columns were not only tested in a “once-though” manner, rather they were leached from 10 to 20 times.

10. Comment: Lemly notes that these two items "...are fatal flaws that essentially negate all calculations, estimates, and predictions of selenium concentrations, e.g., the projected concentrations in the streams of the study area." The Smoky Canyon mine has been in operation since 1984. The intention to explore and mine the Manning Creek and Deer Creek leases has been in play since at least 1994. It has been known that selenium has been leaching from phosphate mine dumps and fills since 1980, and specifically at the Smoky Canyon Mine since 1999. Equally well known is the fact that the leaching of

selenium is directly related to precipitation. Under these circumstances, the failure of the agencies or the company to collect on-site precipitation data is inexcusable: this important, relevant and easily obtainable information should have been being gathered for more than a decade. At the very least, the HELP model should have been calibrated to compensate for the elevation difference between Pocatello and the Smoky Canyon Mine site. The failure to do so constitutes yet another flaw in the modeling and renders the results even more suspect. [Ltr950 Cmt33]

Response: The Agencies and industry were not aware of the problems caused by selenium releases from phosphate mine overburden in Southeastern Idaho until the late 1990's. As described above in the response to Comment 9, representative precipitation data from Slug Creek Divide was used in the HELP modeling.

11. Comment: The groundwater model should be recalibrated after sufficient well data have been collected. Additional bore holes should be drilled to obtain better information on the Wells formation. [Ltr950 Cmt157]

    Response: As described in the responses to comments in PCs 139 and 140, the groundwater model is calibrated well enough for the predictions made in the EIS. Additional monitoring well information for the Wells Formation aquifer in the vicinity of the mine panels was unavailable. Additional boreholes to monitor water levels in the Wells Formation aquifer in these areas would be exorbitantly expensive due to the depth of drilling these wells (700' to 1,000'). More wells would have made the development of the potentiometric surface more accurate but the number of calibration points used in the modeling is considered sufficient for the purposes of the EIS. This is because the water balance for the model was determined from measurements of groundwater discharge.

12. Comment: The groundwater model must be redone to account for the deficiencies noted in the water quality section of these comments and in Meyers' appended report. [Ltr950 Cmt158]

    Response: The groundwater modeling has been augmented with additional model runs to respond to comments by the commenters and by Simplot. These results are discussed in **Section 4.3.1** of the FEIS. See responses to comments on Public Concerns 140, 142, 143, and 160.

13. Comment: The estimates of infiltration into the groundwater from seepage through the backfill must be improved per Meyers. [Ltr950 Cmt159]

    Response: Additional infiltration modeling through the Mining Alternative D cover has been completed and these modeling results are described in **Section 4.3.1** of the FEIS. The Agencies believe steady-state modeling is representative of the long-term condition being modeled. Further information on this is included in responses to comments on Public Concern ID 140.

14. Comment: Better estimates of the water quality for seepage through the backfill must be obtained than were obtained from the column tests. The recommended chemistry would be that of the well drilled in the backfill in Panel A of the existing mine. [Ltr950 Cmt160]

Response: Water quality in monitoring well GW-11 is not considered by the Agencies to be representative of the future seepage from the Panels F and G.

GW-11 was installed in the pit backfill of Panel A in summer of 2000. It penetrates 134 feet through approximately backfilled ROM overburden into the underlying bedrock and is screened across the contact between the backfill and the underlying limestone. A solid casing below the screen acts as a storage sump for water that gradually accumulates in the backfill. When the well was installed, it was dry (BLM and USFS 2002). A water level in the well was measured in December 2000, 2003 and three times in 2004. NewFields obtained three water samples, one in 2003 and two in 2004. Each time there was from 15 to 20 feet of water in the well casing but each time the water level was lower in elevation than the bottom of the pit backfill. This indicates that the water in the well sump is stagnant water that most likely drains from the bottom of the pit backfill and accumulates in the well sump. The well does not recover when bailed for sampling. None of the water samples are considered to be representative of groundwater flow into the well (NewFields 2005b, page 6-2).

Panel A was the first open pit developed at the Smoky Canyon Mine and the south part of the pit was backfilled early in the operations. The panel extends approximately 1.8 miles in a north-south direction. The bedding of the rocks in the pit is inclined (dip) to west and the entire structure of the area is also inclined (plunge) to the north. This results in the pit bottom having a slope from south to north. GW-11 is approximately 2/3 mile from the south end of the panel. If water can collect on the pit bottom and flow along the contact with the pit backfill and the underlying rock, the location of GW-11 and northward slope of the pit suggest that, at best, GW-11 could monitor water from only the southern third of the pit backfill.

For a number of years, the north part of Panel A was open and runoff water collected in the pit bottom on a seasonal basis. Observations by Simplot mine engineers of the fluctuating water levels in these seasonal ponds indicated that the rock in the pit bottom has a high permeability. It is therefore likely that seepage water moving through the pit backfill does not collect at the interface with the bedrock at the bottom of the pit to any significant degree but rather percolates vertically downward. This suggests that water collected in GW-11 is most likely derived from the immediate vicinity of the well location and has not contacted more than the relatively small volume of pit backfill in the immediate area of the well.

For the above-described reasons, the water samples obtained to date from GW-11 are not considered to be representative of seepage water chemistry in the Panel A backfill.

The Phosphoria Formation at the Smoky Canyon Mine extends for a distance of approximately 11.5 miles measured along the strike of the outcrop from the north end of Panel C to the south end of Panel G. The geochemistry of the Meade Peak member of the Phosphoria Formation is variable and concentrations of COPCs vary widely within the Formation as a function of depositional environment and subsequent alteration (Herring and Grauch 2004). Weathering removes carbonate, lowers organic carbon content and elevates concentration of phosphate. Oxidizing alteration that occurs in certain zones greatly reduces concentrations of many elements, including selenium. USGS researchers documented significant stratigraphic variations in chemistry within

the Meade Peak member and also concluded that considerable compositional variation occurs laterally along strike in the Meade Peak member (Herring and Grauch 2004). This general understanding of the variability in geochemistry of the Meade Peak shale throughout Southeastern Idaho suggests that geochemistry of overburden materials in Panel A would likely be different than that in Panels F and G.

Site-specific geochemistry studies at the Smoky Canyon Mine have documented variations in geochemistry between Panels F and G (EIS **Section 3.1.5**). **Table 3.1-2** in the EIS shows that Panel F contains appreciable altered Meade Peak shale while Panel G did not. The mean selenium assay concentration in Center Waste Shale within Panel G was 68.3 mg/Kg while the mean concentrations in Panel F were 56.3 and 87.3 mg/Kg in altered and unaltered Center Waste Shale respectively. Solubility of selenium in these rocks also varied widely. The mean selenium concentrations in saturated paste extracts from Panel G Center Waste Shale was 0.31 mg/L. The mean selenium concentrations in extracts of altered and unaltered Center Waste Shale were 0.11 mg/L and 0.38 mg/L respectively. These data demonstrate the significant variability in selenium assay concentrations and soluble selenium concentrations along strike in the Meade Peak member at Panels F and G.

Herring and others (2000) sampled the Meade Peak member in the Sage Creek area of the Smoky Canyon Mine and documented considerable variation in selenium assay concentrations ranging from 6 to 708 mg/Kg. Munkers (2000) discussed drill core assays from the Smoky Canyon Mine and showed that selenium concentrations were generally below 150 mg/Kg but ranged up to about 250 to 300 mg/Kg. These past studies document the variability in selenium geochemistry at the existing Smoky Canyon Mine.

The recognized variability in selenium geochemistry within the Meade Peak member in Southeast Idaho and at the Smoky Canyon Mine indicate why geochemical data collected for overburden at Panel A is not considered to be representative of overburden at Panels F and G.

The geochemistry baseline studies of Panels F and G were based on 225 site-specific samples of overburden collected from 52 drill holes within the proposed mine panels. These individual samples were carefully assembled in composite mixtures representative of the lithologies and alteration described for the individual panels. The composite mixtures were then leached in test columns to simulate long-term percolation of water through the overburden fills. The chemistry of the leachate samples from the test columns were adjusted for particle size differences between the drill hole cuttings and future ROM overburden. The concentration data from the sequential column leach tests indicated that selenium concentrations dropped with additional leaching. This leach curve was captured in the impact analyses by adjusting the concentration of seepage in the model inputs to mimic the observed leach curves produced by the column test data. The column test results were also weighted in the same proportion as the known lithologies within the proposed overburden for each panel. The results from 77 separate leachate water samples were used in the final analyses

The column test data are considered to be far more representative of future leaching conditions at Panels F and G than using three water samples from GW-11 that are not

representative of the overburden seepage in Panel A and even less likely to be representative of overburden seepage in Panels F and G.

15. Comment: Solute concentration predictions must be redone using the corrected groundwater model and improved recharge rates and contaminant concentrations to make the results comply with NEPA data quality standards. [Ltr 950 Cmt161]

    Response: The Agencies believe the water quality impact analyses completed are reasonably conservative and adequately protective of water resources. The groundwater modeling used in this EIS complies with appropriate data quality standards. However, the groundwater modeling from the DEIS has been augmented in **Section 4.3.1** of the FEIS with additional modeling to show a range of results and better disclose the potential water resources impacts.

16. Comment: The solute transport model should be run using seasonal input rather than annual periods. This will allow for seasonal slugs of flow, which cause rising and falling water concentrations. [Ltr950 Cmt162]

    Response: The Agencies believe a steady-state model is more appropriate for the long-term impacts being modeled. More details on this are found in the response to Public Concern 142, Comment 4.

17. Comment: The initial conditions for the solute transport model should include the existing concentrations in the groundwater. [Ltr950 Cmt163]

    Response: The baseline concentrations of selenium in the groundwater are those measured for the major groundwater discharges and well MC-MW-1, and these are near or below the detection limit. Well MC-MW-5 is developed in the Meade Peak shale and is not representative of Wells Formation groundwater.

18. Comment: Since precipitation at the mine site is likely to be higher than that in Pocatello, leading to higher infiltration rates into the mine waste, the HELP model should be rerun to account for this discrepancy. [Ltr950 Cmt165]

    Response: The precipitation data used for the HELP modeling were not taken from Pocatello but were obtained from the Slug Creek Divide station and are considered representative of the mine site.

19. Comment: To improve the water quality predictions, the new model should have an uncertainty band similar to a confidence limit on a regression equation prediction. A 95% confidence band would provide managers with 95% confidence, based on the parameterized model, that the predicted water quality would lie within the band. Setting the upper limit on the confidence band to equal the water quality standard would provide a 2.5% risk that the standards would be exceeded. A confidence band will also show how much earlier than predicted the standards could be exceeded. [Ltr950 Cmt169]

    Response: The need for extensive, stochastic modeling effort should be evaluated within the Agencies' charge under NEPA to evaluate reasonably foreseeable significant adverse impacts. The Agencies already recognize the uncertainties in all groundwater

models and that model results are not to be considered exact predictions. These uncertainties are described in **Section 4.3.1** of the EIS. The Agencies understand that groundwater model results are reasonably foreseeable indications of how proposed actions may affect groundwater resources. With this understanding of uncertainties inherent in model results, groundwater models can be used to compare and contrast reasonable alternatives to proposed actions to help the Agencies select the preferred alternative. This selection process does not require precise model results. In the case of Panels F and G, a stochastic approach to developing confidence bands around the groundwater modeling results was not necessary for the Agencies to evaluate the mining alternatives and develop the Agency Preferred Alternative. All the mining alternatives, except Alternative D, resulted in unacceptably high groundwater and surface water contamination. Extensive stochastic modeling would not change the Agencies' decision to not consider approval of any mining alternative but one that incorporated mitigation measures to protect water quality, i.e. Alternative D. With regard to Alternative D, the existing groundwater modeling results have clearly indicated that compliance with applicable groundwater and surface water protection standards can be achieved by reducing the infiltration of precipitation into the overburden fills. Extensive stochastic modeling would not change this finding and is not necessary after the fact. The DEIS indicated the maximum infiltration rates that could be allowed for the project impacts to just comply with the applicable water quality standards. In compliance with NEPA, the DEIS clearly discloses the potential sensitivities and uncertainties related to the groundwater modeling results and additional stochastic modeling is not required to comply with NEPA in this regard. However, the reviewer is correct that the uncertainties related to the modeling results of Alternative D must somehow be considered during final design of the mitigation included in that design. The Agencies have indicated their preference to address the uncertainty in the groundwater modeling results for Alternative D by incorporating sufficiently conservative design features into the overall cover design and presenting a range of predicted impacts in the FEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharged to receiving streams than were shown in the DEIS. These predicted groundwater concentrations would be well below the State and federal surface water standards for selenium.

20. Comment: Given the long-term impacts to water quality, the DEIS did not examine potential changes to rainfall, temperature, evapotranspiration, and other changes occurring through global climate change. If rainfall amounts change significantly over the next hundred years, the impacts to water quality could be very different than anticipated. The FEIS should reexamine modeling calculations according to the best available science and predictions for Southeast Idaho. [Ltr978 Cmt11]

    Response: The stochastically generated, 100-year precipitation time series and other inputs to the HELP modeling were prepared in a professional manner consistent with past EIS projects in Southeastern Idaho. See responses to PC 160 for further detail on this matter. The 100-year time series captures recent climatic conditions. Evaluating the long-term impacts that might occur through estimates of long-term global climate change is too uncertain to meet the data quality requirements of this EIS.

Public Concern ID 140

The BLM/FS should recognize the groundwater modeling was poorly done

The technical review report by Dr. Tom Meyers was submitted in support of the GYC/NRDC group comment letter and listed the following reasons why he thought the groundwater modeling was poorly done:

1. Comment: The DEIS contaminant concentration predictions in groundwater and discharged to streams were obtained by a set of chemistry inputs and three different numerical models of groundwater and solute flow. A groundwater model prepared by JBR (2004) attempts to analyze flow through the primary aquifer, the wells, and predict seepage rates to nearby streams. The biggest change to groundwater flow if this project is approved will be the additional recharge through the backfilled pits. An unsaturated flow model, HELP, was used to estimate recharge rates through the backfilled pits to provide a flow rate of contaminated water to the regional aquifer for the different scenarios (Knight Piesold 2005). The groundwater model (JBR 2004) was not used to predict the water level or flow changes due to the added recharge. Flow of contaminants, selenium being of primary interest, was modeled using a solute transport model (JBR 2005); the results are predictions of solute concentrations at specified locations. However, the chemistry of the flow recharge was based on column tests, which very likely underestimate the concentrations. Therefore, the estimated contaminant concentrations are based on flawed chemistry and three flawed numerical models. [Ltr950 Cmt400]

   Response: The groundwater model was not used to predict seepage rates to nearby streams. The groundwater discharge rates were obtained from field measurements. The groundwater flow model did incorporate the recharge and its chemistry from the pit backfills to calculate the water quality changes due to the added recharge. The effects of the relatively small amount of added recharge (compared to the overall water balance of the model) are included in the model results. The column test results used for model inputs in the EIS are considered to be conservative. See additional responses to comments under PC 143.

2. Comment: Calibration was completed with too little data - just two well observations and a few springs. [Ltr950 Cmt401]

   Response: The calibration was completed with all available data, which includes water levels in two wells and six spring/stream discharge locations. These data included all significant discharge locations for the Wells Formation. Calibration of a model at eight locations with head and/or flow observations within the model domain is considered to be quite acceptable.

3. Comment: The flow balance is substantially wrong because the locations where flux to streams is simulated differ from that observed in the field. This was due to specified flux boundaries in the model controlling the exact location. Water placed in incorrect locations likely caused more dilution that would occur in the field. [Ltr950 Cmt402]

   Response: Field data indicates that streams crossing the carbonate rock outcrops lose water during flow events and these stream channels are accurately located within the

model domain. For the stream recharge areas, there is no head dependency between the recharge through the stream channel and the aquifer so specifying the recharge flux under the losing stream reaches is acceptable. The model simulated stream flows are based on measured gain-loss stream measurements. Measured stream recharge inflows to the Wells formation are distributed equally in the model along their respective stream channels, thus the total modeled stream recharge will reach their respective discharge location. From a practical perspective, it would not be possible to accurately field measure and assign the stream inflow flux to tens or hundreds of locations along the relatively short stream reaches. Just as significantly, assigning the same stream inflows to different locations in the model domain will not change the total flux of inflow water. It is important to keep in mind that concentration is a measure of mass of solute (i.e., selenium) per volume of solvent (i.e., groundwater). Changing the location of inflow flux will not change the mass of solute or the mass of solvent, thus it will not change the concentration in the aquifer. It could change very slightly the time when a particle of water reaches the discharge point; however, because the model is essentially a steady-state flow model this distinction is immeasurable.

4. Comment: There was no transient calibration even though the model must predict the transient flow of seepage through the system. [Ltr950 Cmt403]

   Response: Water flux was modeled as a steady-state condition, thus a transient calibration is not necessary or useful. Although the model may be thought of as providing transient information regarding selenium contamination, the only transient condition modeled is the concentration of COPCs passing through the overburden waste piles. In the model, a concentration of selenium was introduced in the saturated Wells formation and the resulting concentration in Wells formation water was evaluated for various downgradient locations for various times in the future. A transient state model could be beneficial if the ratio of water in storage were small relative to the annual recharge or if artificial groundwater discharge were anticipated. Neither condition is anticipated for the Project Area.

5. Comment: The choice of layers was poor because it does not reflect the observed geologic layering. It is inappropriate to combine layers into one 2000-foot thick layer (in the 2-d model) or in 1800- and 200-foot thick layers (9 in the 3-d model); the industry standard methodology requires that model layers represent actual stratigraphic layers. This is especially true when the stratigraphic layers have such different sets of properties as are observed here. [Ltr950 Cmt404]

   Response: The industry standard is not to use named geologic layers (e.g., X Formation) as model layers but to base models on appropriate hydrogeologic units. Stratigraphic layers are based on geologic depositional units which may be mapped and represent continuous or nearly continuous sedimentary deposition in an ancient environmental setting. What is critical in groundwater modeling is the designation of rock units with similar hydrodynamic properties that have hydraulic communication. In contaminant modeling it is also important to represent layers that will likely receive similar contaminate loading. In the proposed mine area the Wells formation was described by Cressman (1964). In the type section (i.e., Wells Canyon) the Wells formation is 2,400 thick and ranges in thickness from 1,500 to 2,000 feet thick elsewhere. To be reasonably conservative, the 2,000-foot interval was further divided

into an upper 200-foot thick layer and a lower 1800-foot thick layer so that the contaminant plumes would be primarily confined to the upper 10% of the overall aquifer. This is considered to be appropriate because discharge of groundwater east of the proposed mine panels is supported by a much greater thickness of aquifer material than just the upper 200 feet. The modeled 200-foot and 1,800-foot thick layers also reasonably represent the measured stratigraphic differences in the Wells formation in Deer Creek Canyon. Here the upper 182 feet of the unit consists predominantly of limestone and dolomite layers, and sandstone layers are most common in the next 800 feet. In a measured section in Deer Creek, the Wells formation consists of 1.5- to 40-foot thick layers of dolomite, limestone and sandstone. The limestone and dolomite layers constitute about 50% of the section and sandstone layers about 50%. Thus, the total model thickness of the Wells formation (2,000 feet) is a reasonable approximation for the Wells formation thickness. Modeling individual stratigraphic layers within the Wells formation does not make sense for many reasons including: individual stratigraphic layers in the Wells formation are 1.5 to 40-foot thick and are not laterally continuous, thus even with unlimited money and time it would not be possible to obtain the data necessary to evaluate the continuity and hydraulic properties of each sedimentary layer, and the slope of the water table surface in the Wells formation is appreciably less than the dip of the Wells formation, thus groundwater not only flows along bedding surfaces but considerable cross-layer flow must occur. Cross-layer flow means that modeled layers must include numerous Wells Formation stratigraphic layers.

6. Comment: The model uses inappropriate boundary conditions which are based on a series of probably faulty assumptions (details on this are provided in the report). [Ltr950 Cmt405]

   Response: Boundary conditions commented on include losing streams, west and south specified flow boundaries, specified flux for Wall (sic.) Canyon Spring, Wells Canyon fault to account for Wells Canyon spring, and Crow Creek upward leakage. The comments regarding losing streams are of two general types:

   First, the reviewer suggests that the selection of the stream boundary conditions was incorrect. The model is a steady-state flow model, so the use of specified flow boundaries is appropriate. By using specified flow boundaries water was supplied in the model to the underlying Wells formation at the average annual rates specified in the water budget. With a steady-state water budget the critical path for calculating spatial and temporal variability in selenium concentration is the temporal selenium loading from the overburden fills.

   Second, the reviewer suggests that there are gross errors in the stream water budget and the temporal distribution of stream water. Since the flow model is a steady-state model, the stream water budget was distributed annually. The reports by Ralston (1979) and Maxim (2004c and 2004d) include results of gain/loss surveys of Smoky, Pole Canyon, Sage, Wells Canyon and South Fork Sage Creeks. The individual stream losses measured for these streams ranged from 0.01 to 0.045 cfs per 100 feet of channel. For the studies where flow was measured at the top and bottom of the reach, the average stream loss was 0.027 cfs per 100 feet of channel. This average stream loss rate was used in the groundwater flow model for the streams crossing the carbonate rocks in the model domain.

Based on observations at Smoky Canyon Mine, intermittent stream flow sufficient to maintain flow over the outcrop areas occurs from April to July, depending on the stream. A flow period of 90 days was used for the model calculations for the streams with larger drainage areas (South Fork Sage Creek and Deer Creek) and a flow period of 30 days was used for the other smaller stream watersheds (Lamb Canyon, Stewart Canyon, Wells Canyon and Manning Canyon). The exception is lower Deer Creek, below North Fork of Deer Creek, where perennial flow in the North Fork sustains perennial flow in Deer Creek downstream.

The annual recharge rates for each stream in the model domain were calculated by determining the channel length over the Wells formation and Brazer Limestone multiplied by the standard loss rate of 0.027 cfs per 100 feet of channel times the durations that intermittent flows occurred per year. These data and the results in acre-feet/year are shown in Table 3 of the Groundwater Modeling Report used for the DEIS (JBR 2005).

The Agencies do not believe the potential error in the field measurements could result in very great changes in the recharge rates. These measurements were all made during spring runoff when sustained stream flow occurred over the carbonate rocks in these incised mountain channels. Under these conditions, recharge into the channel bottom would be relatively immune to actual flow rates in the streams as long as the channel was bank full and the entire channel bottom was covered with water. If more water than this were flowing in the streams, it would simply flow through the channel and be lost downstream without affecting the recharge rate significantly. So there may be great fluctuation in the stream flow from day to day but not as much change in the recharge rate.

In addition, the total quantity of the stream recharge in the overall water budget for the model domain is 1,866 acre-feet/year out of a total water budget of 11,804 acre-feet/year or about 15.8 percent. So even if we accept the reviewer's comment that the stream loss calculations could be off by as much as 20 percent, that would amount to only 373 acre-feet/year change out of a total water balance of 11,804 acre-feet/year, which is not a large deviation. The way the model works, the water budget is always balanced by underflow at the model boundaries so errors in the recharge due to stream losses would simply be balanced by this underflow. Because we know the annual discharge from the aquifer system we know the total annual inflow.

The reviewer suggests that the west and south specified flow boundaries were inappropriately modeled and should have been modeled as general head boundaries. This is not correct because the flow model is a steady-state model and not a transient state model. The water flux across the boundaries is based on the water budget. In the budget the discharge from the Wells formation is known and the surface recharge (i.e., precipitation and stream inflows) in the model domain was estimated from reliable sources. The difference between surface recharge and known discharge was assigned as underflow along the west and south model boundaries. This is entirely reasonable.

General head boundaries would have been an alternative approach if the flow model were a transient model. However, using a general head boundary requires an estimate of the initial hydraulic head values at the boundary and then an adjustment made to the

conductance at the boundary to account for the flux across the boundary. Initial hydraulic head data would have to be estimated for the boundary conditions in this model because field data are not available and the conductance adjustment would also need to be an estimate. Both of these estimates would be subject to significant potential error. Because the flow model is a steady-state model, the hydraulic head in the model does not fluctuate in response to transient stress and thus the water flux across the boundary will not change over time. Therefore, only the flux across the boundary needs to be modeled and the specified flow boundary is the appropriate approach.

The reviewer suggests that the specified flux for Wall (sic.) Canyon Spring was inappropriate; that a drain would have been a better choice and that there is insufficient information to assume that the spring discharge is associated with the Wells Canyon Fault. Because the flow model is a steady-state model either a specified flux or drain are appropriate devices to model the small discharge from Wells Canyon Spring. The specified flux is the best choice for this model because the modeled discharge is not subject to transient hydraulic head conditions. In addition, because this spring is relatively close to the proposed Panel G, it was important to maintain flow at this spring in the modeling to capture any effect this spring would have on directing the flow of impacted groundwater from the mine panel.

The Wells Canyon Fault is well documented along Wells Canyon (Cressman 1964) and Wells Canyon Spring discharges in the bottom of Wells Canyon near the mapped fault trace. Total spring discharge is 0.2 cfs; just over 1 percent of the total measured groundwater discharge in the model. The spring elevation is higher than the much larger Stewart Ranch spring (6.0 cfs), which is located 2,500 feet south of Wells Canyon spring. The ridge separating Wells Canyon and Stewart Ranch springs is underlain by an anticline in the Wells formation. The surface outcrop area of the ridge draining toward Wells Canyon spring is not adequate to support the perennial discharge at the spring from just local recharge. It is also unlikely that a perched water zone, which would have to be a local phenomenon, could capture sufficient annual recharge to account for the perennial spring discharge. Therefore, the damming of Wells Formation groundwater along the Wells Canyon Fault zone with water discharging downgradient from the fault's damage zone in Wells Canyon is a reasonable explanation for Wells Canyon spring.

The reviewer suggests that Crow Creek upward leakage requires an aquiclude and the VCONT set to 0. VCONT (vertical conductance) was set as a percentage of horizontal conductance. Upward leakage occurs because the downgradient Crow Creek boundary was set as a no flow boundary and Crow Creek was set as a drain from layer 1. Therefore, the rising water level along the boundary causes the model to discharge water into Crow Creek.

7. Comment: Individual portions of the calibrated water balance are very out of balance, which potentially drives the solutes or dilutes them incorrectly. The fact that the overall water balance has little error is irrelevant because it is driven by the recharge. [Ltr950 Cmt406]

   Response: It does pay to look at individual portions of the water balance because not all groundwater discharges are equally important. The most important groundwater

discharge points downgradient of the proposed mine panels are South Fork Sage Creek Spring and Lower Deer Creek. These have the highest selenium concentrations of any other discharge locations. The total error between measured and modeled groundwater discharges for these locations is 105 acre-feet/year out of the observed total flow of 3,912 acre-feet/year or about 2.6 percent. This is a relatively small error. The next most important discharge points for the selenium concentrations downgradient of the proposed mine panels are Books Spring and Crow Creek. The total error for these discharge locations is 1090 acre-feet per year out of the observed flow of 3,404 acre-feet per year, about 32 percent. This is a relatively high error, but it is an error on the more conservative side because the entire error is positive; that is the modeled discharges at these locations are higher than observed. This means the model is directing more water, thus more contamination load, at these discharge locations than is really likely to occur. This is a conservative, and therefore acceptable, error. Finally, the modeled flow at Stewart Ranch Spring is 1,027 acre-feet/year lower than the observed 4,344 acre-feet per year, about 24 percent. However, this does not affect selenium concentrations at the spring because it is located approximately 2 miles south of the east-west migrating plume from Panel G.

South of Panel G, groundwater in the model discharges at Steward Ranch Spring and Crow Creek. Stewart Ranch Spring is up gradient of Crow Creek. The computed discharge for Stewart Ranch Spring is 1027 acre-feet/year less than observed and the computed discharge into Crow Creek is 950 acre-feet/year greater than measured. These two errors are offsetting and do not impact contaminant concentrations downgradient of the F and G panels. The offsetting errors occur because when the conductivity was set sufficient to match the measured Stewart Ranch Spring discharge modeled water levels rose and additional flow occurred in the model along Crow Creek.

8. Comment: Recharge to the model was not adjusted to reflect the changes in water flow that will occur with seepage from the pits. [Ltr950 Cmt407]

   Response: This is not true. The steady-state flow model was calibrated without recharge from the pits. Then this calibrated steady-state model was modified to include the estimated annual recharge from the backfilled pits. This simulates the effect of the pit backfills on the steady-state system.

9. Comment: The upper aquifer in the Dinwoody formation was not considered; this is not correct because discharge from it to the streams controls the recharge through the streams into the Wells formation. [Ltr950 Cmt408]

   Response: As described in the DEIS, there is ground water flow in the Dinwoody formation, but this flow system is separate from the Wells formation aquifer. Adding the Dinwoody formation as a model layer would unnecessarily complicate the groundwater and transport models and would not change the water budget or total recharge flux to the Wells formation because these units are not hydraulically connected. Discharge from the Dinwoody formation supports surface stream channels west of the proposed mine panels. These streams flow across the Wells formation outcrop east of the proposed mine panels. Flow in these streams can recharge the Wells formation where they cross this outcrop and this recharge has been accommodated in the stream water budget and the steady-state flow model for the Wells formation.

10. Comment: The groundwater model must be redone accounting for the deficiencies listed in the Summary and detailed below in the section on groundwater modeling. This is necessary for the model predictions to comply with the NEPA requirements that the best available data be used for the analysis. The following are recommendations that should be included in the improved model so that it includes acceptable modeling practices. -the layers should be based not on a constant thickness but designed to model specific lithologic layers. The top layer should be split so that a relatively thin upper layer can better accommodate the solute transport without dilution. -the Dinwoody formation should be modeled as layer 1 with an intervening layer to represent the unsaturated Meade formation-all of the available water level data should be used for steady-state calibration. Several pump tests using existing wells should be completed to obtain transient parameters. -additional water levels to improve the data used for calibration should be obtained by drilling new boreholes in areas with little data. -transient calibration should be accomplished with transient recharge, as measured along the streams, and seasonal water level changes. -boundary conditions should be better estimated and modeled using head-dependent flux boundaries rather than specified flux boundaries. [Ltr950 Cmt426]

    Response: The model does not have to be redone and does meet NEPA requirements for methodology and scientific accuracy. The model was constructed with widely accepted codes and practices using the best available data for the site and the mining proposal and is as comprehensive as any of the other groundwater models supporting phosphate mine EISs in Southeast Idaho. The reviewer has failed to understand the design and fundamental construction of the model and made several errors in his review. The most critical error is that the reviewer assumes the flow and transport models should be transient-state models when the models are more appropriately steady-state. Responses to specific *reviewer* recommendations (underlined italics) follow.

    The layers should be based not on a constant thickness but designated to model specific lithologic layers. The top layer should be split so that a relatively thin upper layer can better accommodate the solute transport without dilution. As was discussed previously in our responses, it is not appropriate to use a thinner top layer than was selected in the modeling. The groundwater flow conditions in the project area, including discharge at the downgradient locations involve a great thickness (2,000 feet plus) of aquifer so only using a thin top layer would be inappropriate. The thickness of the top layer used in the model (200 feet) is approximately equal to the uppermost limestone unit of the Wells formation (187 feet). The known movement of huge quantities of water through the model domain from west to east is opposed to only bedding-controlled flow, which dips to the west, thus there is obviously significant groundwater flow across bedding so restricting flow to discrete and thinner units would be incorrect. Subdividing the model into multiple thin layers could not be supported with reliable aquifer characterization data, because they do not exist. Finally, the concentrations of selenium at the major discharge points are a function of the total selenium load added to the groundwater divided by the total amount of ground water discharged, this final concentration would not be significantly different if the model were divided into multiple thin model units

    The Dinwoody Formation should be modeled as layer 1 with an intervening layer to represent the unsaturated Meade Formation. The reviewer is incorrect. This topic has

been discussed in detail above. Adding the Dinwoody formation and an intervening unsaturated Meade Peak member would not change the contaminant concentrations at any Wells formation discharge location. This is because the main effect of the groundwater in the Dinwoody formation in the model domain is supporting perennial flow in area streams, which then flow across and recharge the Wells formation rocks. The recharge from these streams has already been incorporated into the model and would not change if the Dinwoody were added to the groundwater model. Introducing such a layer would add unnecessary complexity to the model without any meaningful improvement in the results.

All of the available water level data should be used for the steady-state calibration. Several pump tests using existing wells should be completed to obtain transient parameters. All available water level data were used for the steady-state calibration. Because the models are not transient state, the recommendation regarding pumping tests to obtain transient parameters would not be useful.

Additional water levels to improve the data used for calibration should be obtained by drilling new boreholes in areas with little data. This would be extremely expensive, and is not necessary because the model was constructed with water level information from two wells and six springs. Eight water level observation points in a model this size is acceptable. NEPA does not require the construction of additional deep and expensive wells to obtain additional water level data. This model is already sufficiently calibrated. Additionally, as the model is a steady-state model and the water surface in the Wells formation downgradient of the mine panels is already set by drain elevations at the groundwater discharges, water level data from numerous additional wells would not likely result in significant changes in contaminant concentrations.

Transient calibration should be accomplished with transient recharge, as measured along the streams, and seasonal water level changes. As is discussed elsewhere in these responses, stream recharge to the groundwater is not sensitive to groundwater levels and may not be very sensitive to changes in stream flow as long as the losing reach of each stream is under water. In addition, the total water balance error that could be attributed to potential error in the stream recharge is very small. Because the model is a steady-state model, there is no transient calibration for recharge. None of the other groundwater models prepared for the previous phosphate mine EISs in Southeastern Idaho were transient-state models.

Boundary conditions should be better estimated and modeled using head-dependent flux boundaries rather than specified flux boundaries. This is not true for a steady-state model of this type and this topic has been described in detail above in these responses. All the other groundwater models prepared for previous phosphate mine EISs in Southeastern Idaho used mixtures of boundary conditions that included fixed-head or specified flux conditions.

11. Comment: Ralston (1979) performed the first detailed examination of the hydrogeology in the area. It was primarily focused on the existing Smoky Canyon Mine, but the conceptualization he made pertains to the drainages further south near the current proposal because the stratigraphy and structural features extend that far south. There are two groundwater flow systems in the area - an upper one in the Dinwoody/Thaynes

formation and a lower one in the Wells formation. Because the spring flows observed to emanate from the Wells would have required 1.2 feet of recharge in the local watershed, he concluded the Wells formation likely had regional flow. NewFields (2005b) showed that discharge from Hoopes and South Fork Sage Springs exceeds by about 60 percent that which would occur if the springs discharged just local recharge. This means that groundwater flowed under or through the formations that cause topographic divides. Recharge into the Wells occurs west of the Webster ridge and flows east to join with recharge occurring where it outcrops on the east. Discharge from the upper aquifer system, the Dinwoody, which recharges locally, provides base flow in the upper reaches of the east-flowing drainages. That flow often infiltrates into the Wells formation as the streams cross it. This mixes with the ambient water in the Wells formation flowing eastward. Thrust faults on the east redirect the groundwater flow to the north or south and cause some water to surface in a series of springs. Pole Creek Canyon appears to be a dividing point for north-south flow in the vicinity of the existing mine. South of south Fork Sage Springs, the direction is north towards that and Hoopes Spring. Much of the water affected by this mine proposal will reach the South Fork Sage Spring. [Ltr950 Cmt436]

Response: This comment restates information in the DEIS. Comment noted.

12. Comment: Ralston (1979, Table 1) indicated hydraulic conductivity ranged from 0.07 to about 1.6 ft/day in the Meade Peak member of the Phosphoria formation. Values in fractured chert were as high as 75 ft/d. The Middle Waste Shale, in the center of the Meade Peak member, had a 4.0 ft/d value. Table 1 presents hydraulic conductivity and aquifer thickness values from Maxim (2004, Table 7, page 39). Maxim (2004, page 40) reported the following regional hydraulic conductivity values; Red chert (unfractured) = 2.8 ft/d; Rex chert (fractured) = 52 ft/d; Meade Peak (unfractured) = 2.4 ft/d; Meade Peak (fractured) = 25 ft/d; Wells = 1.8 ft/d. The damage zone near the West Sage Valley thrust has very high conductivity (NewFields 2005b). Based on observed water levels, Ralston (1981) concluded there is a downward gradient indicating recharge occurring across much of the site. From a pump test he found that the storage coefficient varies from 0.1 to 0.2, indicating phreatic conditions, and chose 0.1 for predictive purposes. Importantly, he notes the accuracy of that number is unknown (Ralston 1981, page 14). This is important because modeling assumed a storage coefficient of 0.1. [Ltr950 Cmt437]

    Response: This comment restates information in the DEIS. Comment noted.

13. Comment: The local groundwater in the Dinwoody formation is upgradient and above the ore zone. The Wells formation lies below it: The separation of the bedrock groundwater above and below the Meade Peak member is an important feature in the Study Area because groundwater in the Dinwoody formation is stratigraphically above the proposed pit backfills and external overburden fills. Therefore, the overburden fills from the proposed mining are downgradient of the Dinwoody aquifer. The Wells formation and Brazer Limestone are stratigraphically below the proposed mining operations and groundwater in these units is downgradient of the proposed mine pits, pit backfills, and external overburden fills. Groundwater in the Wells formation and Brazer Limestone west of the Meade Thrust Fault zone discharges upward to surface streams and springs located along the fault zone or locations west of it." (DEIS, page 3-59, emphasis added).

Streams crossing the Dinwoody formation, where the local groundwater predominately occurs, gain flow from groundwater discharges. Many consider the Phosphoria formation beneath the Dinwoody an aquitard, which prevents recharge of the Wells in regions where the Phosphoria formation overlies the Wells. Streams flowing across the Phosphoria neither gain nor lose flow other than through local processes. Downstream of the Phosphoria, the streams cross the Wells formation into which they lose significant flow. [Ltr950 Cmt438]

Response: This comment restates information in the DEIS. Comment noted.

14. Comment: The facts do not support the Phosphoria being an aquitard, however. For example, the hydraulic conductivity values shown above for the Meade Peak formation do not significantly differ from those for the surrounding layers. The presence of small sprigs emanating from the Phosphoria formation, which will be physically impacted by the pits (DEIS, Table 4.3-8) also indicates there is fracture flow. Also, well MC-MW-5, screened in the Meade Peak formation, shows very fractured shale and when pump tested it produced about 100 gpm (according to Maxim, 2004).

    Geochemistry analysis of springs that discharge from the Wells formation near its outcrop indicate that the water has mixed ages. The isotopic ration and carbon and tritium dating performed by Mayo (2004) also show an age difference depending on source. Springs and streams emanating from the Tier 1, upper level, aquifer in the Dinwoody formation exhibit "young", less than 50 years since recharge, water. Deep wells that tap the lower level, Tier 2 aquifer, the Wells formation, far from the outcrop points, have old water which indicates no mixing and no leakage from above. Water emanating form the Wells formation aquifer closer to Phosphoria formation outcrops shows significant mixing of young and old water. Also, wells near the point that streams disappear into the Wells yield substantially mixed water. The Wells formation at this point lies just beneath the alluvium as show in the well log for MC-MW-1 (Maxim, 2004). However, Books and Hooper's Springs at the northern end of the project area show a mix of old (500 years) and recent water. Recharge therefore occurs near the discharge points, which are also near the proposed mine, and mixes with Wells formation water which probably had recharged on the west side of the Webster Ridge at least 500 years ago. The Meade Peak formation is an aquitard only where it underlies substantial amounts of overburden. [Ltr950 Cmt439]

    Response: Hydraulic conductivity values measured in the Phosphoria formation throughout Southeastern Idaho vary due to differences in fracture flow conditions (Ralston 1979). This was also observed in the monitoring wells installed within the Meade Peak member at Panels F and G. Nevertheless, all the previous groundwater investigators in Southeastern Idaho have described the Meade Peak member of the Phosphoria formation as an aquitard of regional importance (Ralston et al. 1977, Ralston 1979, IWRRI 1980, Mayo et al. 1985, JBR 2001c). All of these workers were familiar with the groundwater conditions of the general area east of the Webster Range and applied this interpretation to this area. The Agencies disagree with the reviewer that we should reinterpret the general hydrogeology of this area to conclude that the Meade Peak member of the Phosphoria formation is not an aquitard in this area. This is a moot point directly over the proposed mine panels because the Phosphoria formation will be removed from this area and the groundwater modeling incorporated this effect. West of

the proposed mine panels, the Dinwoody formation overlies the Phosphoria and has substantial thicknesses. The Dinwoody does not exist on the east side of the proposed mine panels.

15. Comment: Spring flow rates also indicate the influence of local recharge. Hoopes Spring flow has decreased almost continuously from 1996 through 2003 (Figure 1). Springs emanating strictly from regional aquifers tend to have almost constant flows. Changing flow at Hoopes Spring indicates there is significant local influence. This further indicates that the spring is subject to mixing with the new flow.

    Therefore, leakage into the Wells formation and the presence of springs and seeps in the Phosphoria and Middle Waste shale, as documented in the DEIS, indicate that the ore body and surrounding shale is not as impervious as suggested throughout the analysis. Springs and seeps emanating from the Phosphoria and Middle Waste shale in the Meade Peak member indicate there is flow in this formation likely through fractures. Therefore, it is not a perfect aquitard, but the Meade Peak member retards the downgradient flow and the construction of the pits will remove that dam in places. Backfill will be very conductive, therefore groundwater will flow through the pit backfill from upstream and provide a source of new recharge to the Wells formation. [Ltr950 Cmt440]

    Response: The characterization of the large springs in question as draining a regional aquifer, and the Meade Peak member being an aquitard of regional significance is consistent with a variety of previous investigators and not just this EIS (see JBR 2007). The reviewer presents flow data for Hoopes Spring that is measured at the first occurrence of spring flow at the base of the hill (monitoring location HS). The flow at this location has decreased during the recent drought as indicated in the reviewer's comments. However, groundwater discharge to "Hoopes Spring" is spread over a large area east of the specific HS monitoring location. Flow measurements taken at the bottom of the Hoopes Spring drainage show more constant groundwater discharges (NewFields 2005b, Appendix B). For example, flow at this location in fall 2002 was 4.6 cfs, 6.09 cfs in fall 2003, 5.96 cfs in July 2004, and 4.85 cfs in fall 2006. These later flows are essentially equivalent to the Hoopes Spring flows measured in the 1996 to 1998 timeframe. They are also basically the same as the mean daily flow of 6.0 cfs reported for the 1979 – 1980 timeframe (USFS 1981). The low base flow readings at South Fork Sage Creek Spring are also relatively uniform over time. The fall base flow readings measured in 2002 through 2005 varied from 3.88 to 6.46 cfs (Maxim 2004d and NewFields 2005b). The mean daily flow for this same spring in the 1979-1980 timeframe was 4.6 cfs (USFS 1981). The flow in fall of 2006 was actually higher, at 11.8 cfs. The recently observed flow rate at Stewart Ranch Spring (6.0 cfs) is also the same as that reported in 1980. All the above data indicate that groundwater discharges in the model domain may vary from year to year but are anticipated to be consistently large, as is expected for discharges connected to a regional aquifer system.

    The Phosphoria formation rocks do not outcrop east of the proposed mine panels thus there will not be groundwater flow into the mine pits from updip. The groundwater impact model does include infiltration of recharge water through the pit backfills.

16. Comment: Many things affect the existing water quality on the site. These include the natural geochemistry of the geologic formations which groundwater and surface water flows and the existing Smoky Canyon Mine. The existing Smoky Canyon Mine has contaminated waters to the extent that it has been assessed for clean-up as a hazardous waste or Superfund site (NewFields, 2005b). Sage Creek is listed on the 2002 Idaho 303d list as impaired form source to mouth for selenium. As mentioned by NewFields (2005b, page 8-1), "overburden constituents are mobilized either by physical weathering of overburden solids or by chemical weathering with migration of water through the overburden."

    The existing Smoky Canyon Mine drains into Sage Creek, Crow Creek, and then the Salt River and finally, the Snake River (Presser et al. 2004, Figure 16.2). Presser et al (2004) implies that the selenium loading to the river system from the mined areas exceeds that from surrounding undisturbed watersheds. Selenium concentrations on the Blackfoot River downstream from the large mining area in its upper drainage, during two dry years, 2001 and 2002, peaked 12 and 24 days after the flow peaks (Presser et al. 2004). The lag time indicates that most selenium load results from leaching by seepage flowing through formations high in Se [Selenium]. This is because the interflow that leaches Se would be slower than surface runoff.

    Groundwater near the proposed new pits also currently has high selenium concentrations. Well MC-MW-5 has concentrations that exceed groundwater standards, with Se concentrations near 0.507 mg/l in October 2003. Several others, including MC-MW-2, DC-MW-2, DC-MW-4, DC-MW-5, and DC-MW-6, have concentrations that exceed the surface water standard. Table 2 shows water quality concerns at wells near the proposed project and the affected geologic formation. [Ltr950 Cmt441]

    Response: The flow in the major groundwater discharges from the Wells formation aquifer may vary from year to year but is generally uniform over time, and this is also demonstrated in monitoring well GW-16, as cited by the reviewer. All these monitored locations are in the east-west groundwater flow regime that exists from Pole Canyon south. This flow regime is abundantly recharged in high elevation areas to the west, which results in flow conditions that are closer to steady-state than highly transient as suggested by the reviewer. As described in the Panels B&C SEIS, the groundwater regime north of Pole Canyon is apparently different, with groundwater flow toward the northwest and west and limited recharge to the east of the mine. Thus it is not unexpected that the groundwater regime in this area would exhibit more variable conditions due to the smaller and lower recharge area elevation but it is incorrect to equate these conditions with those south of Pole Canyon. We disagree with the reviewer's interpretation of Presser et al. (2004) to mean that the observed selenium in that study was from leaching of in-place "formations" high in selenium. As described in Presser et al. (2004), "streams and drains issuing from mined waste rock and forage grown to stabilize waste rock provide pathways for dispersal of selenium in the environment..."

    With the single exception of well DC-MW-5, all the wells listed by the reviewer were drilled into Phosphoria formation rocks within the proposed pit limits, or alluvium near the proposed pits. None of these other wells represents groundwater conditions in the regional Wells formation aquifer that will receive any overburden seepage produced by

the future proposed overburden fills. Therefore the water quality data from these wells are not important to the groundwater impact analyses as suggested by the reviewer. The fact that monitoring wells drilled into the mineralized Phosphoria formation intercepted poor quality water is not surprising or significant because this water would not be contributed to the Wells formation aquifer in the future, as is described in the EIS. Also described in the EIS, the selenium concentration in well DC-MW-5 is not considered to be indicative of natural water chemistry in the Wells formation aquifer because of difficulties in proper development of this deep and low-yielding well.

17. Comment: Table 2: Water Quality Concerns at the Proposed Mine (Maxim 2004)

Borehole	Water Quality Concerns	Completion and Pressure
MC-MW-2	High Se and Mn	Rex Chert
MC-MW-4	High Mn	Red chert, under pressure
MC-MW-5	V high Se, high Mn	Meade Peak Formation, fractured, Q to 100 Gpm
DC-MW-1	Very high Mn	Alluvium, <7.5feet
DC-MW-2	High Mn	Grandeur limestone, under layers of shale pressure
DC-MW-3	High Mn	Deep (195 ft) Red chert
DC-MW-4	High Mn and Se	Meade Peak Formations, Q=1 to 3 gpm
DC-MW-5	Se	Wells Formation deep
DC-MW-6	Very high Mn, Zn, high Se	Alluvium, <7.5 ft

[Ltr950 Cmt442]

Response: See response to PC 140 Comment 16.

18. Comment: Numerous springs issuing from the proposed project area already have exceedances for selenium. The following passage describes those spring exceedances.

"For selenium, all [[surface water]] samples that had exceedances of the 0.005 mg/l standard are from springs rather than streams. These six springs are located along the outcrop of the Meade Peak Member of the Phosphoria Formation. Two of these springs (SP-UTNFDC-540 and -600) are located at the south end of the Panel F lease area in the North Fork Deer Creek Drainage. Three of the springs (SP-DC-350, SP-UTDC-700, and SP-UTDC-800) are located on the north side of the Panel G lease area. The last of these springs (SP-WC-400) is located at the south end of the Panel G lease area in upper Wells Canyon. Speculation shows that most selenium in surface water is in the higher oxidation state (VI versus IV)." (Maxim, 2004, page 31).

That the springs emanate from near the Meade Peak Member indicates that the formation proposed to be mined is susceptible to natural leaching. The poor well and spring water quality is very important for two reasons. First, the proposed mine will cause additional recharge that will push existing contamination into the streams. Second, the high concentrations indicate that natural groundwater flow leaches substantial amount of selenium from the rock. Blasting and crushing this rock and

increasing the amount of water seeping through it can only substantially increase the leaching.

The existing Smoky Canyon Mine has substantially contaminated both the ground- and surface water near its site. New fields (2005) documented the extent of contamination at the existing mine (the last section of this report reviews the New Fields (2005) report and finds that the existing conditions are accurately described but it underestimates and downplays the transport). [Ltr950 Cmt443]

Response: The Agencies agree with the reviewer that exposed Mead Peak member rocks can be naturally leached in the environment. The springs in question are located on or near the mapped area for the Phosphoria formation so the selenium in their waters is likely due to natural leaching of seleniferous rock or soil material. However, all these springs have small low flow rates suggesting they are connected to shallow groundwater flow paths.

We do not believe the Wells formation aquifer under the proposed mine panels is currently contaminated so increasing recharge through the mine panel areas would not mobilize existing groundwater contamination as suggested by the reviewer. Secondly, the water currently discharging at the springs mentioned above would not impact the Wells formation aquifer. That is because the Phosphoria formation overburden materials in the pit areas would be entirely removed and replaced as overburden. This would disrupt any of these springs located within the mine panels themselves. The springs from this list located downgradient of the mine panels could have their flow rates decreased or water quality affected (**Table 4.3-10** FEIS) but the flow that did continue would not affect the Wells formation aquifer.

19. Comment: Selenium contaminates surface water as demonstrated by concentrations occurring Lower Sage Valley, Hoopes Spring, and Lower Pole Canyon Creek (NewFields 2005b, Figure 7-8). The maximum Se concentration at Lower Pole Canyon Creek exceeds the standard for hazardous waste (1 mg/l). All observations at Hoopes Spring between October 2002 and July 2004 exceeded the surface water standard. Considering the basin that contributes flow to Hoopes Spring, the existing mine affects less than 10 percent of the discharge, therefore the load picked up by seepage at the mine is substantial (NewFields 2005b, page 8-38). In addition to the spring, Se concentrations exceed the groundwater standard in Lower Pole Canyon Creek. (The groundwater standard is 0.05 mg/l, ten times higher than the surface water concentration. When water emanates from a spring or seep, it becomes subject to a stricter standard. [Ltr950 Cmt444]

    Response: The comment restates information from NewFields 2005b. Comment noted.

20. Comment: The worst practice evident at the existing mines was the placement of waste rock in the Pole Canyon drainage so that the stream flows directly through it (NewFields 2005b, page 3-10-11). "Overburden materials were disposed in Pole Canyon, an existing canyon feature containing Pole Canyon Creek, between 1985 and 1990. The overburden was placed directly on top of the local surficial deposits, which include canyon floor alluvial deposits associated with Pole Canyon Creek and thin colluvial deposits on the canyon slopes. Wells Formation bedrock also outcrops/subcrops within

the backfilled portion of the drainage, which includes a losing reach of Pole Canyon Creek … Pole Canyon was filled form above by dumping overburden materials from end dump trucks into the canyon. Natural sorting of those materials by gravity resulted in very coarse materials (i.e., cobbles and boulders) filling the canyon bottom first and the subsequent creation of a high permeability zone through which Pole Canyon Creek continued to flow." (NewFields 2005b, page 8-10). This placement allowed the stream to flow through the waste rock and emerge at the downstream end after picking up substantial contaminants both from direct leaching by the stream flow and from seepage from above. Contaminants from that drainage have moved around and off the site and contributed to high concentrations in several places. "These results suggest that overburden constituents have been transported downgradient from the Pole Canyon area toward the West Sage Valley Branch Fault to Hoopes Spring and, to a lesser extent, from the A Panel backfill area to the mine's Culinary and Industrial Wells. Transport to the water supply wells is enhanced by the effects of pumping from those wells." (NewFields 2005b, page 8-40, emphasis added) [Ltr950 Cmt445]

Response: The comment restates information from NewFields 2005b. Comment noted.

21. Comment: The faulting that bounds the east side of Sage Valley causes contamination to move more quickly to discharge points at Hoopes Springs. "Transport to Hoopes Spring is facilitated by the local preferential flow path in the fault-damage zone along the West Sage Valley branch Fault. Assuming a maximum hydraulic conductivity for the fault damage zone of 300 feet/day and an effective porosity of 10 percent, the travel time form the mouth of Pole Canyon to Hoopes Springs would be on the order of 20 years." (NewFields 2005b, page 8-40) The distance between Pole Canyon and Hoopes Spring is about 2 miles. This computes to flow rate of about 1.4 ft/d. Selenium concentrations from seeps from waste piles at the existing Smoky Canyon Mine exceed hazardous waste standards (NewFields 2005b, Table 6-7, and Presser et al. 2004, page 458, see the section on selenium bioaccumulation for a presentation of these values). This may indicate the chemistry of the seepage that will eventually leach from the pit backfill. If this is the case, the chemistry of the input to the transport model will be much higher than modeled. In the Wells formation, Se is primarily in the form of selenate, which is quite mobile (NewFields 2005b, page 8-39). Concentrations should reflect weighting of source waters. Sediment samples resulted in selenium concentrations from 0.4 to 1.3 mg/kg with most in the lower oxidation sate (IV) (Maxim 2004, page 33). Maxim (page 32) also reported that both the North and South Fork of Deer Creek were on the state impaired waters list because of sediment. [Ltr950 Cmt446]

Response: The Agencies have already considered the existing seepage chemistry at Smoky Canyon Mine and throughout Southeastern Idaho in developing the selenium leachate concentrations used in the groundwater impact analyses of the EIS. This was described in the EIS. The details of this comparison are included in a May 24, 2005 memo from Buck, Mayo, and Schmiermund in the project record. The pore volume one selenium concentrations used in the impact analysis were 0.532 mg/L for Panel F and 0.641 mg/L for Panel G. The most significant source of groundwater contamination at Smoky Canyon Mine is the Pole Canyon overburden disposal area and the selenium concentration in the seepage from that facility was shown to be from 0.5 to 0.67 mg/L. The average selenium concentration for the Panel D overburden disposal area was shown to be 0.71 mg/L. The mean selenium concentration of all overburden seeps in

the Southeastern Idaho Selenium Database (v8) was shown to be 0.6 mg/L. All these empirical data values suggest that the initial pore volume concentrations used in the groundwater impact analyses are very much in the range of observed field conditions and higher input concentrations are not indicated as being necessary. Assay values for sediment downstream of overburden disposal areas or outcrops of Meade Peak shale indicate the total selenium concentration in the sediment and not the concentration of selenium in water in contact with such sediment. The effect of the 303(d) listing on the regulation of additional sediment releases to South Fork and North Fork of Deer Creek has been added to the water resources section of the FEIS.

22. Comment: As DEIS Chapter 1 points out, the primary water resource issues are surface water quality and quantity and groundwater quality. The proposed mine may change the timing and/or travel distance for surface flows across the site. Surface water runoff may erode soils and formation outcrops. This will increase the sediment loads in the streams and the contaminant concentrations of any constituents attached to that sediment. Mining will increase the surface area over which groundwater contacts the rock which will increase the leaching substantially and potentially increase the concentration in the groundwater. Selenium is the constituent of concern in a phosphate/phosphorus deposit. Much of the discussion in the DEIS concerning water resources addresses the seepage of water through the backfilled pits, where it will leach substantial amounts of selenium, to groundwater and to surface water. The handling of overburden and interburden affects how high levels of selenium in the rock will disperse to the environment. The DEIS describes the handling of overburden as follow: "Overburden is typically used to backfill existing open pits. Chert and limestone overburden is also used for road construction and other civil engineering projects at the mine. Some overburden may be disposed of in external overburden disposal sites. The chert typically does not release elevated concentrations of selenium and is currently used to cap or cover any seleniferous overburden that has been placed in pit backfills or external overburden disposal sites. This was not fully implemented in pre-2000 mining operations but has since been adopted as a management practice for seleniferous overburden. This is possible at Smoky Canyon Mine because the chert sampling/testing has thus far indicated low selenium concentrations." (DEIS, page 2-9) [Ltr950 Cmt447]

    Response: This comment restates information contained in the DEIS. Comment noted.

23. Comment: Thus, the DEIS suggests the chert overburden does not cause elevated concentrations of selenium and that the chert may be capping material. The interburden has substantially more selenium: "The center waste shale, which lies between the upper and lower ore beds, is removed and hauled to previous open pits for backfill or is placed in external overburden disposal sites. Because the middle waste shale is known to contain the highest concentrations of selenium and other COPCs [Chemicals of Potential Concern], it is placed deeper in these disposal sites and is covered with chert overburden to isolate it from the surface environment. This was not fully implemented in mining operations prior to 2000 but has since been adopted as management practice for seleniferous overburden." (DEIS, page 2-9, emphasis added)

    There is an implication here that burying the middle waste shale deeper will somehow prevent its selenium leaching to the environment. The chert should prevent erosion, but does not prevent seepage as the DEIS acknowledges and will be discussed below.

The management plans for protecting surface and groundwater (DEIS **Sections 2.5.5** and **2.5.8**) do not sufficiently recognize the interaction between the two. Groundwater discharge feeds surface water; the dividing line between groundwater and surface water standards is the earth's surface. Groundwater seeps directly to surface water resulting in a discharge to surface water. Where the groundwater concentration is sufficient, this seepage degrades surface water quality, often to the point where the concentrations exceed surface water standards. [Ltr950 Cmt448]

Response: As the quote from the DEIS states, burying center waste shale in pit backfills is intended to: "isolate it from the surface environment". There is no intended implication in this statement regarding the potential leachability of the overburden and subsequent groundwater impacts. The reviewer seems to make the general comment that impacted groundwater discharging to surface water "often" exceeds surface water standards. This is only the case where the discharging groundwater carries contamination at a high enough concentration, which is not a typical condition.

The reviewer does not provide any specific suggestions for improvements to the cited environmental protection measures (DEIS **Sections 2.5.5** and **2.5.8**). Burial of seleniferous overburden under chert prevents erosion of seleniferous material, prevents contact with roots, and prevents direct contact with meteoric water. Alternative D, the store and release cover, significantly decreases infiltration and reduces the amount of leaching and discharge of COPCs to the Wells formation aquifer.

24. Comment: Existing tailings impoundments, located offsite on private land near the existing mine, will be used to store the tailings from this project. Tailings are simply low value ore; the high value ore is slurried offsite for processing. The tailings impoundments lie near the headwaters of Tygee Creek; any seepage would not affect Sage Creek or Crow Creek near the proposed project. Wells constructed in support of an earlier mine expansion (JBR, 2001), GW-12, -12, and -14, do not show a geochemical signature of the tailings water. All three, including the shallow GW-12, have non-detect selenium concentrations; the tailings water has 0.041mg/l selenium. This indicates that any seepage is quickly diluted. Tygee creek does not show a significant effect of the tailings.

However, the tailings were not analyzed as a connected action because they are already permitted, although they will continue to be used (DEIS, page 2-12). Tailings will be added to the impoundment from this project. The DEIS claims the impoundment has "no discharge of tailings solids or water" by design (DEIS, page 2-12). Clarified water from the tailings is recycled to the mill at rates of 2500 gpm. The DEIS does not provide chemistry data for this tailings water. Without this project, the tailings could be reclaimed and any mobilization of contaminants would decrease, but the permitting of this project will authorize continued seepage from, and contamination at, the tailings impoundment. [Ltr950 Cmt449]

Response: As described in the Final SEIS for the Simplot Panels B and C (BLM and USFS 2002), not only are wells GW-13 and -14 not displaying any solute chemical signature of the tailings water, their isotopic signature indicates these two wells are, "not affected by any seepage from the tailings ponds." The SEIS also describes how construction of the tailings ponds sealed off natural saline springs that used to flow into

Tygee Creek and degrade its water quality with dissolved salt. The water conductivity (an indirect measurement of dissolved salt) of Tygee Creek was 2,010 umhos/cm before the tailings pond was built and 451 umhos/cm afterwards. Thus there has been a significant improvement in the water quality of Tygee Creek from the tailings disposal operations.

Permitting this project will not authorize continued seepage from and contamination at the tailings ponds. The tailings disposal facilities are fully permitted for their current operations, and the operations necessary to contain the tailings from Panels F and G, so permitting the Panels F and G would have no bearing on the existing regulatory authorizations related to the tailings ponds. As described above, the tailings ponds cause no known deleterious effects on groundwater quality under them and have actually improved overall surface water quality in Tygee Creek.

The DEIS does not contain chemistry data regarding water in the tailings pond as they are not discharging and mingling with potential impacted water from the F and G expansion. A summary of tailing pond water chemistry is contained in the *Smoky Canyon Mine Area B Groundwater and Environmental Media Investigation Report* (MFG 2003c). Selenium concentrations in contained tailings water ranged from .012 to .026 mg/L.

25. Comment: Onsite pond will contain all runoff from up to the 100-year 24-hour storm with no discharge. Chapter 4 predicts this will decrease surface flow in the streams. This will occur after reclamation as well. Sediment will eventually fill the ponds, therefore, these must be a long-term maintenance plan provided and funded to prevent overflow. The DEIS should discuss the amount of water reaching these ponds and how much of it recharges and eventually discharges to surface water. [Ltr950 Cmt450]

    Response: The runoff control ponds would be maintained as no-discharge facilities until the mine panels have been reclaimed and the need for runoff and sediment control from the disturbed areas is over. At this point, the ponds would be reclaimed in place with stable overflows. There is no need to prevent overflow from the ponds after the mine panel reclamation is completed so there is no need for a long-term maintenance plan or fund for this purpose. Chapter 2 the FEIS has been modified to include more information on the sediment control ponds.

26. Comment: This proposed project will excavate, crush, and backfill the overburden into pits that breach the Meade Peak member dam thereby substantially increasing the rate at which the natural processes move selenium from the site. Pathways for the contaminants to reach the environment include (1) wind dispersion and air deposition, (2) flow to groundwater in the alluvial or deeper bedrock (Wells formation) flow systems, (3) surface water runoff from overburden disposal areas, (4) surface water runoff from natural or created (newly exposed) outcrops of the Meade Peak formation, (5) surface water discharge at overburden seeps, (6) erosion/sediment transport from overburden, and (7) direct uptake by plants. Capping the overburden should eliminate the wind erosion, water erosion, and water runoff of the waste surface. If the thickness of capping is sufficient, there should be no direct uptake by plants. Much of Chapter 4 and supporting documents is an analysis of the flux along and control of these pathways.

Seepage of precipitation through overburden backfill will leach contaminants, with the most important being selenium, into the deeper groundwater, the Wells formation, from which it will flow to springs and seep into surface streams. The DEIS shows that, depending on the alternative, the groundwater standard will be violated at modeled monitoring points and the discharge to surface water will be a discharge which will exceed surface water standards and degrade the receiving waters. The DEIS bases its results on a groundwater and solute transport model of flow in the Wells formation.

The DEIS claims there will be no flow into the pits (DEIS 4-29). This may not be correct as evidenced by the several springs, which emanate from the ore zone and from the highly fractured and highly productive wells that were developed in the zone. [Ltr950 Cmt453]

Response: The geology of the proposed Panels F and G is basically the same as at the current Smoky Canyon Mine. As described in the EIS, the up-dip recharge area for the Phosphoria formation rocks is extremely limited in the proposed mine panels area and will essentially be removed during mining. Roughly 300 exploration holes have been drilled into the ore deposit. Very little water was encountered. This, plus the experience from over 20 years of mining at Smoky Canyon, gives a high degree of confidence to the conclusion that groundwater flow into the open pits at Panels F and G would be minimal.

27. Comment: The proposed action causes a substantial groundwater selenium plume with concentrations exceeding the Idaho groundwater standard (JBR 2005, Section 4.7). Seepage to surface water exceeds the surface water standards at two discharge points (JBR 2005, Table 13). The proposed action causes water quality to exceed standards and is therefore unacceptable. Alternatives A through C also violate standards although some of their features may be slight improvements to the Proposed Action. [Ltr950 Cmt454]

    Response: The reviewer is restating information from the DEIS in this comment. The peak groundwater concentration in the model results for selenium under the mine panels for Alternative D, the Agency Preferred Alternative, was well under the groundwater standard.

28. Comment: The discussion of the models in the DEIS was essentially copied from JBR (2005) and other reports; JBR (2005) is reviewed below. The following list highlights some of the problems and is not intended to be all-inclusive. More comprehensive discussion is included below. 1. The groundwater model, which models saturated flow around the project area, is poorly calibrated to both head (just two observations) and flux. There was no transient calibration although data are available. 2. The groundwater model relies on a poor representation of flux. 3. The recharge of water through the pits was underestimated because annual precipitation in wet years was underestimated, average temperatures were overestimated, and inflow from the side of the pits was inappropriately ignored. 4. The contaminant transport model inappropriately assumes that once a contaminant reaches the groundwater, it immediately disperses through as much as 200 vertical feet. 5. The column tests underestimate the selenium concentrations of the leachate, especially initially. These modeling problems all bias the predictions downwards. In combination, they result in substantial underestimates of the

selenium concentrations in the downgradient groundwater and discharge points. [Ltr950 Cmt455]

Response: This is restatement of other comments. See responses to PC 140 Comments 2, 3, 4, PC 160 Comments 2, 3, and 4, and all the PC 143 Comments. For these reasons, the Agencies believe the modeling in the DEIS is a reasonable estimate of future conditions. The additional information added to **Section 4.3.1** of the FEIS further indicates that the DEIS modeling was conservative in nature, likely overestimating water quality impacts instead of underestimating them as suggested by the reviewer. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharging to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

29. Comment: Even if surface runoff decreases, the infiltration into the backfill creates a huge problem that the BLM cannot easily assume away. Through extremely selective and biased analysis, the Agency eventually is able to make optimistic assumptions about such infiltration to decrease the predicted effects of pollution reaching the streams. "However, there remains the mechanism whereby infiltrated precipitation percolates through overburden, picks up selenium and other COPCs [Chemicals of Potential Concern], and is eventually discharged as groundwater contributing to area streams …" The implications of the contaminated groundwater to the water quality of area streams are further discussed here. In simple terms, groundwater flowing at a given rate and with a given selenium concentration would enter a stream channel through either diffuse flow or a discrete spring discharge. The stream is also flowing at a given rate and with or without measurable baseline selenium concentration. The two water sources would mix, and based upon relative flow rates and concentrations, a new selenium concentration would be present in the combined, downstream flow. Calculations using existing flow and water quality data for area stream and predicted groundwater flows and concentrations were made to predict represent one examined scenario; a winter scenario was also analyzed wherein flows for irrigation are not being diverted." (DEIS, page 4-69) The BLM makes these calculations, but relies on average baseflow. The agency does not discuss what happens to concentrations when the streamflow decreases below average baseflow. Assuming the groundwater flow and concentrations remain the same, the stream concentrations will become even high. Calculations regarding the degradation of a stream from a discharge to the stream should be based on the 10-year, 7-day low flow value; it is at that flow rate that the water quality is most in need of protection. [Ltr950 Cmt458]

    Response: There is insufficient stream flow monitoring history for the Project Area streams to derive a reliable 10-year, 7-day low flow value. Low flow measurements from the baseline studies were used to estimate groundwater discharge from the regional, Wells formation aquifer. These discharge rates were then used in the groundwater impact modeling. Because of the drought conditions prior to and during the baseline studies, the measured low flow readings very likely already describe the low baseflow supported by bedrock groundwater discharges to the streams without the addition of surface flow and shallow alluvial and colluvial groundwater discharges that would tend to dry up during prolonged drought. If baseflow were to become even lower than observed

it would likely have to be accommodated by decreased flow in the Wells formation at the groundwater discharge points. If concentrations of solutes remained the same in the groundwater, the decreased stream baseflow would not automatically have higher solute concentrations because the load contributed by the groundwater would have also decreased due to the lower discharge rates.

30. Comment: When the river flow is least, there is the least dilution and the groundwater will be a higher proportion of the flow and cause the concentrations to be much higher. [Ltr950 Cmt459]

    Response: See response to PC 140 Comment 29 above.

31. Comment: Alternative D adds an infiltration barrier to the top of the seleniferous backfill. JBR (2005, page 50) used interactive groundwater model runs to determine a seepage rate that would not cause concentrations in the discharge to surface water to violate surface water quality standards at the measurement, or compliance, points. The resulting rates are 0.8 in/yr for the northern portion of panel F, 1.5 in/yr for the southern portion of panel F, and 1.2 in/yr throughout Panel G and the east external overburden fill. However, JBR did not describe how the iterative process was completed. Then, using the HELP3 model (Knight Piesold 2005), JBR designed the seepage barrier.

    Alternative D design ignores uncertainty and does not even apply a factor of safety. All predictions from groundwater models are uncertain; the prediction here depends on the results of three models and one representation of input chemistry. The models and their parameterization are reviewed below in a different section. Anything that varies from the modeled parameters will cause a variation form the prediction. The parameters, if perfectly determined, are merely a best guess based on one realization of head and flux data which represents a snapshot in time. Due to micro and macro heterogeneity, anisotropy, variable representative elemental volumes, errors in head or flux measurements, and many other things, the parameters would be best described as a probability distribution. The base population of the distributions changes with parameter zone. Because of this variability, model predictions are an expected value in a probabilistic sense. This is the same as presenting a mean value for a sample of data and using that mean for a prediction: the actual values spread around it. [Ltr950 Cmt467]

    Response: The cover described in the DEIS was not designed around the target infiltration rates calculated for Alternative D. Alternative D describes a set of infiltration rates the project must meet to achieve compliance with surface water and groundwater standards. The stated maximum infiltration rates were derived by back calculating from the allowable surface water concentrations. A separate investigation and design project has paralleled the EIS work and resulted in a new cover design that is calculated to limit concentrations of selenium in surface water to well below the applicable surface water standards. As described in the revised water resources sections of the FEIS, the groundwater modeling conducted by the Agencies for the DEIS is conservative and may over predict groundwater water quality impacts. Additional details of the cover design for Alternative D has been added to **Section 2.6.1** of the FEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharged to receiving streams

than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

32. Comment: If the parameterization is not biased, the prediction may be a best estimate and similar to the mean of a data sample. If the potential errors cause the prediction to be normally distributed around the expected value, there is a 50 percent chance that the actual value will be greater than and 50 percent chance that it will be less than the prediction line.

    As JBR (2005) designed alternative D, the predicted water quality just barely falls beneath the water quality standards. Probability considerations therefore insure that there is a 50 percent chance with this design that the water quality standards will be exceeded. The water quality predictions in Figures 25 through 28 (JBR 2005) should have an uncertainly band similar to a confidence limit on a regression equation prediction. A 95% confidence band would provide the managers with 95% confidence, based on the parameterized model that the predicted water quality would lie with the band. Setting the upper limit on the confidence band to equal the water quality standard would provide a 2.5% risk that the standards would be exceeded. A confidence band will also show how much earlier than predicted the standards could be exceeded. This risk may still not be acceptable, and the contamination may still result in chronic aquatic toxicity or degradation that violates Idaho regulations, but it is preferable to the coin toss risk proposed in Alternative D.

    The confidence band may be determined with a stochastic modeling approach. The hydraulic conductivity, storage coefficients, porosity, dispersivity coefficients and recharge through the backfilled panels are the parameters most likely to affect the curves in Figures 25 through 28 of JBR (2005). Assuming the parameters follow a normal distribution, each can be described with a mean and variance. When there are insufficient data to determine the statistical properties, the variance would be based on measurement or literature values. [Ltr950 Cmt468]

    Response: The need for extensive, stochastic modeling effort should be evaluated within the Agencies' charge under NEPA to evaluate reasonably foreseeable significant adverse impacts. The Agencies already recognize the uncertainties in all groundwater models and that model results are not to be considered exact predictions. The Agencies understand that groundwater model results at best are reasonably foreseeable indications of how proposed actions may affect groundwater resources. With this understanding of uncertainties inherent in model results, groundwater models can be used to compare and contrast reasonable alternatives to proposed actions to help the Agencies select the preferred alternative. This selection process does not require precise model results. In the case of Panels F and G, a stochastic approach to developing confidence bands around the groundwater modeling results was not necessary for the Agencies to evaluate the mining alternatives and develop the Agency Preferred Alternative. All the mining alternatives, except Alternative D, resulted in predictions of unacceptably high groundwater and surface water contamination. Extensive stochastic modeling would not change the Agencies' decision to not consider approval of any mining alternative but one that incorporated mitigation measures, i.e. Alternative D. With regard to Alternative D, the existing groundwater modeling results have clearly indicated that compliance with applicable groundwater and surface water

protection standards can be achieved by reducing the infiltration of precipitation into the overburden fills. Extensive stochastic modeling would not change this finding and is not necessary after the fact. The DEIS indicated the maximum infiltration rates that could be allowed for the project impacts to just comply with the applicable water quality standards. In compliance with NEPA, the DEIS clearly discloses the potential sensitivities and uncertainties related to the groundwater modeling results and additional stochastic modeling is not required to comply with NEPA in this regard. However, the reviewer is correct that the uncertainties related to the modeling results of Alternative D must somehow be considered during final design of the mitigation included in that design. The Agencies preference is to address the uncertainty in the groundwater modeling results for Alternative D by incorporating sufficiently conservative design features into the overall cover design that is based on a conservative model, as described in the FEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design (**Section 2.6.1**) predict lower selenium concentrations in groundwater discharged to receiving streams than were shown in the DEIS. These predicted groundwater concentrations would be well below the State and federal surface water standards for selenium. The margin by which the predicted concentrations are below the applicable water quality standards helps to addess the uncertainties inherent in the model predictions.

33. Comment: The groundwater and transport model would be run a sufficient number of times to provide a sufficient set of predictions to determine the confidence band. The parameters for each run would be selected from the probability distribution based on random number generation or a Monte Carlo analysis. A predictive line would be determined for each subset of parameters. The number of lines needed for confidence in the risk analysis would depend on the variability in the data. If there were 1000 predictive lines, the lines would cluster around a mean line. The middle 950 lines would determine the confidence limit band. Because of the paltry calibration data, this model would be expected to have very uncertain estimates and a broad confidence band around the prediction line. [Lr950 Cmt469]

    Response: See response to PC 140 Comment 32 above.

34. Comment: The DEIS estimates contaminant concentrations in the groundwater downstream and where it discharges to surface water based on groundwater and solute transport modeling of the Wells formation. This modeling provides most of the results on which the water quality predictions in the DEIS are based. As this section documents, this foundational material is seriously defective and inadequate and provides biased input for the DEIS. JBR (2004) discusses the groundwater modeling effort. JBR (2005) repeats most of the groundwater modeling discussion as documentation for the solute transport section. JBR (2005) completes the modeling as well by describing the contaminant transport modeling. This section primarily deals with the groundwater modeling aspects of the review. JBR (2004) provides very little of the information regarding the model that is necessary to permit a thorough review. Table 6 provides a list of features that are not mapped or for which the parameters are not provided or are unclear. [Ltr950 Cmt475]

    Response: The discussion of the groundwater modeling is very technical and a detailed description of it is contained in the groundwater modeling technical report (JBR 2005). A

summary of this information was included in the DEIS and this summary was not intended to contain all the technical information a professional reviewer would desire. The Agencies have made all the technical support documents available to any commenter on the DEIS who requested this information. A statement has been added to the FEIS further clarifying the availability of the additional technical information for anyone who requests it from the Agencies. Specific responses to the commenter's comments on Table 6 (italics and underlined) follow:

Table 6, Top Row: JBR provides estimates of areal recharge but does not provide a map showing where the recharge occurs. A map has been added to the groundwater modeling report showing the locations of the recharge areas (JBR 2007).

Table 6, Second Row: JBR sets the inflow from out of the model domain as equal to the residual in a water balance based on the measured discharge to stream and estimated areal recharge. Other than claiming this boundary to be on the south and west, a good model presentation would provide a map showing the boundary condition. The detailed description of the west and south boundary conditions is found on page 7 of the groundwater modeling report used for the DEIS (JBR 2005).

Table 6, Third Row: The report claims that drain conductance was calibrated for, but provides no discussion or even the values. Also a map showing the location of drains for the springs and gaining streams would also be useful. The final conductance values for the drains were inadvertently omitted from the modeling report. Hydraulic conductivity of the drains is shown in Figures 2 and 3 of the groundwater modeling report used for the DEIS (JBR 2005). Figure 11 in the groundwater modeling report shows the locations of the groundwater discharges. The location and conductance values have been added to the final groundwater modeling report (JBR 2007).

Table 6, Fourth Row: The report mentions that this fault was modeled but does not indicate where it is or what the calibrated impedance was. The hydraulic characteristic of the horizontal flow barrier was inadvertently omitted from the report. The location and impedance of the Wells Canyon Fault has been added to the final groundwater modeling report (JBR 2007).

Table 6, Bottom Row: Figures show a perched boundary but the report does not explain what this means. Presumably it means that the upper layers including the Tier 1 aquifer are not included and would lie above the boundary. On page 5 of the Groundwater Modeling Report (JBR 2005) it explains, "The hashed area in Figure 1 is the limit of the outcrop area of the Meade Peak Member of the Phosphoria Formation in the model domain and includes all bedrock stratigraphically above the Wells Formation."

The report states that drain conductance was set during model calibration (JBR 2004d). This contradicts the statement in the calibration section that hydraulic conductivity was the only parameter adjusted during calibration. Both drain conductance and conductivity were adjusted during model calibration. Conductivity adjustments were discussed in the report.

Table 4 states that the regional recharge is specified flow to layer 2. this contradicts the statement on page 8 that the underflow through he south and west boundaries was

divided between layers on a 50/50 basis. The underflow was allocated on a 50/50 basis to layers 1 and 2.

35. Comment: The report states that drain conductance was set during model calibration (JBR 2004 page 8). This contradicts the statement in the calibration section that hydraulic conductivity was the only parameter adjusted during calibration (JBR 2004, page 9). The report should have a discussion of the calibrated conductance values.

    Table 4 (JBR 2004) reports the water balance for the model. The report, referring to Table 4 states that the regional recharge, recharge to the aquifer that occurs outside of the model domain, is specified to flow to layer 2 (JBR 2004, page 9). This contradicts the statement on page 8 that the underflow through the south and west boundaries was divided between layers on a 50/50 basis. [Ltr950 Cmt476]

    Response: Both drain conductance and conductivity were adjusted during model calibration. Conductivity adjustments were discussed in the report. The underflow was allocated on a 50/50 basis to layers 1 and 2. The necessary corrections to the technical report text have been made to the final groundwater modeling report (JBR 2007).

36. Comment: The groundwater model considers only the Wells/Brazer formation. The portion of the model domain overlain by the Meade formation and upper local aquifer is not included and is shown on figures as the perched boundary. Losing streams were modeled as "specified flow boundaries" (JBR 2004d, page 7). A losing stream is one from which flow enters the aquifer, therefore the surface water flow decreases with distance from upstream to downstream. A specified flow boundary, according to Anderson and Woessner (1992), is one in which the flux across the boundary is given, or specified. Using this type of boundary assumes there is always sufficient water in the stream to infiltrate into the aquifer and assumes that the head difference between aquifer and stream do not affect the flow. This is not correct, and JBR does not justify its use instead of the more appropriate head-dependent flux boundary. MODFLOW has three packages that model specified flow: recharge, wells, and no flow (and drain return flow in MODFLOW 2000). JBR fails to discuss or to mention which package it used. Presumably, JBR specified the flux based on the water balances provided elsewhere in the report. Table 3 (JBR 2004 page 6) indicates recharge from streams based on a flow rate loss of 0.027cfs/100 feet over from 30 to 90 days. This was based on stream flow measurements conducted over just a couple of days. The potential error in that analysis is so large that as a result the analysis loses much predictive value. Measurement error on the day that measurements occurred could have been as much as 20% on either end of the reach. Loss rates also would surely vary depending on the season due to riparian vegetation and river stage (just a foot or two difference in the head could change significantly the seepage rate). [Ltr950 Cmt477]

    Response: As discussed in previous responses, the Phosphoria formation and overlying units do not need to be included as separate model layers, because their hydrologic contributions to the model are accounted for by stream inflows in the water budget. The recharge from the losing streams occurs in areas where the water table is not in contact with the ground surface so the amount of recharge is independent of head. Head-dependent boundaries are not appropriate for a steady-state model as the flux across the boundary is not head dependent. The estimate of annual recharge is applied to these boundaries in a steady-state manner. Finally the amount of recharge contributed

by streams in the model water balance is only about 16 percent of the total so the model is relatively insensitive to errors in the recharge rate from losing streams. The MODFLOW well package was used in the groundwater modeling. The method used to estimate recharge from losing streams in the model boundary is appropriate. It is based on available field data for stream loss measurements made at the Smoky Canyon Mine and in the model domain. The reviewer suggests the error in these recharge estimates could be as much as 20 percent. The total recharge contributed by losing streams in the model domain is 15.8 percent so an error of 20 percent in this value would be a 3 percent error in the total water balance, which is not so great that the analysis loses much predictive value as asserted by the reviewer. Applying the recharge on an annualized basis is also not a fundamental flaw because the model is a steady-state one.

37. Comment: For these estimates, the report calculates the total annual loss for each stream. Presumably, because the report does not state or provide figures to show the specifics, this volume is annualized for input to the steady-state model for calibration. Thus, the highly variable and transient flows on the individual streams are assumed to provide a constant recharge spread over a year. This is fundamental flaw that becomes input to the groundwater model.

    Stream loss rates vary substantially which suggests there is a variable recharge rate to the streams. This probably causes the water level near the streams to fluctuate; the report should provide transient well data and discuss the changes in level. Flows on Pole Canyon, just north of this proposed project site, from NewFields (2005b, Figure 8-5) show the substantial difference in the rate that water flowing in the creek and through the overburden pile recharges the shallow groundwater (Figure 2). The simplifying assumptions made in the analysis are incorrect.

    The model also uses specified flow boundaries for flow into the model domain form the west and south to represent recharge to the Wells formation form outside the model domain. The flux rate was set based on water balance calculations. The report does not specify the boundary type, but it is likely to be the well package with injection specified to equal the desired flux. This unusual method of modeling boundary flow does not allow flux to change as a function of head. In fact, the specified flux used here will artificially control the head, which may temper effects caused by stressing the system. [Ltr950 Cmt478]

    Response: Stream losses are fully discussed in the groundwater modeling report where JBR indicates that the recharge from each stream likely only occurs over a 30 to 90 day period each year. Again, showing the transient nature of this recharge in the input is not necessary for a steady-state model.

    A main point of this comment is that a general head boundary should have been used rather than a constant flux boundary. This is not correct because the model is a steady-state model, not a transient state model as the reviewer described. Use of general head boundaries is often appropriate but not always necessary. All of the previous groundwater models used to support phosphate mine EISs in Southeastern Idaho used various types of fixed head or flux model boundaries. This is because in most modeling efforts, there is a great deal of uncertainty in the water balance of the model. This is

because the groundwater flow through the model domain cannot typically be measured but must be estimated. In the case of Panels F and G, the model water balance is controlled by the observed groundwater discharges from the model domain. In effect, we know how much water discharges from the model domain each year so it is clear that this much water must recharge the model. This can only come from three main sources, distributed recharge, stream losses, and underflow through the model boundaries. Once the amount of distributed and stream loss recharge has been estimated, the underflow component is set. Because this was a steady-state model, it is appropriate to set the underflow recharge through a specified flow. The topic of this flow through the south and west boundaries is described in detail above in other responses.

38. Comment: In MODFLOW the appropriate technique would be to model the boundary using the general head boundary (GHB) package. Modelers usually estimate the flux from water balance analysis and then calibrate the GHB. Then, during transient analysis, as stress reaches the boundary, usually in the form of perturbations to the head, the flow across the boundary changes.

    JBR's model appropriately uses drain boundaries to model the flow to gaining streams such as Crow Creek and the springs. Because they are always gaining, it would be inappropriate to allow the streams to recharge the aquifer if water levels fall. Presumably, because the stream baseflow depends on this discharge, they will dry if the discharge ceases. The drain boundary therefore allows flow to leave the model at the streams or springs based on the head in the aquifer and the calibrated conductance; the calculations are the same as those done by the river or stream package for gaining streams.

    The model however uses a specified flux, presumably a well, to model the Wall Canyon Spring. It mentions the very low flow and the need to model a fault to control the head, but does not provide a reason for using such a boundary. Specifying the flux is inappropriate because it could create a drawdown cone drawing flow (and contaminants) to the spring. A drain boundary essentially sets the ground surface as the upper level of the potentiometric surface, but if the potentiometric surface falls below the spring level, flow would stop. Using a specified flow boundary allows flow to continue even if the head falls below the ground surface. It would be more appropriate to use a drain and attempt to have the discharge just equal the same order of magnitude as measured. [Ltr950 Cmt479]

    Response: As described in our response to PC 140 Comment 6 using a specified flux for Wells Canyon Spring is appropriate. We wanted to maintain flow from this spring in the model regardless of head conditions to ensure the effect of this spring on the contaminant migration from Panel G was incorporated in a conservative manner.

39. Comment: JBR (2004, page 8) included the Wells Canyon fault to raise the head high enough for discharge from the Wells Canyon spring. This is appropriate if water level measurements support the presence of a barrier. The report should discuss the head difference across the fault to justify its use; unfortunately, the report does not even map the fault. Otherwise, there could be other explanations for the location and discharge of the spring, including localized perched conditions near the stream. The effect of the fault is obvious on the modeled potentiometric surface so an adequate justification of its

inclusion is essential. This is especially true since there are no measured water levels to verify that shape against. Also, the report should discuss the impedance so the reviewer can assess its effects on stressed conditions.

JBR (2004, page 7) states that the model "allowed water leak upward along the east side of the model domain along Crow Creek". This implies that the modeler set vertical flow to 0 between the other layers at other points in the model; in MODFLOW this would be setting VCONT equal to 0. Unless there is a documented aquiclude, this would be totally inappropriate. If this was actually done, the model report should contain a map of the locations where vertical flow was allowed. Otherwise, the model report should better explain that statement. [Ltr950 Cmt480]

Response: As described in the groundwater modeling report, Crow Creek was modeled as a drain in layer 1 of the model since it is a gaining stream throughout the model domain. This is no different than modeling the various springs in the model as drains and is entirely appropriate as a modeling methodology.

40. Comment: The modelers used an automatic calibration routine called PEST to determine the calibrated hydraulic conductivity (JBR 2004 page 11). As stated in the report (page 11), PEST "adjusts parameter values to achieve the optimum model solution subject to user-defined constraints." Table 5 (JBR 2004 page 13) shows that the model essentially matches the head at the two monitoring wells and that total flux matches but that individual flux components vary substantially (more on this below). But two monitoring wells are grossly insufficient for calibrating this model; matching the head at tow points is similar to drawing a line between two points. The report claims the modeled potentiometric surface is "generally consistent with the potentiometric surface derived from field measurements" (JBR 2004 page 12) and references another report (Maxim 2004) for the field measurements. There is no indication what "generally consistent" means. The potentiometric surface for the Wells formation in Maxim (2004, Figure M-1) is also based on just two wells and likely several springs. This is insufficient. The model should be recalibrated after sufficient well date has been collected. Additional boreholes should be drilled to obtain better information on the Wells formation. Statements that the flow directions and water balance generally match others' conceptualization do not substitute for and adequate steady state calibration. [Ltr950 Cmt481]

Response: The reviewer suggests that additional boreholes must be constructed to obtain better information on the Wells formation. When this recommendation is considered in light of the recommendation to divide the Wells formation into several additional layers, many new boreholes, some as much as 2000 feet deep, could be required. This is beyond the requirements of NEPA, which requires the Agencies to evaluate reasonably foreseeable, significant adverse effects. We believe the degree of calibration included in this model does allow the Agencies to reasonably foresee the proposed mine panels adverse effects on the groundwater resource. The potentiometric surface calculation and calibration was completed with all available data. This includes water levels in two wells that were drilled for this purpose, and flow and discharge elevations at six springs. This provides a total of eight calibration points within the model domain. These data included all significant discharge locations for the Wells formation within the model domain. The critical head measurements for the steady-state model

calibration are the downgradient discharge areas and all of these were used in the calibration of the model.

41. Comment: In this simplistic case, specific parts of the water balance are not correctly modeled. The computed flow at Stewart Spring is about 24 percent less than the measured value. (Note that the statement in the report incorrectly states that the "calculated discharge...is about 24% higher than the observed flow" (JBR 2004 page 13). Review of JBR (2005) indicates that JBR corrected the mistake. The computed discharge to Crow Creek is about 79 percent higher than measured. The error in flow to the creek however could be due to the measurement error in the flow measurements. The incorrect flux to Stewart Spring suggests and error if the flow from Stewart Springs were relatively constant as would be expected from a relatively regional aquifer. This suggests an error in the specified flux across the boundaries.

    JBR claims the model error is acceptable because (1) the field measurement is uncertain, (2) some discharge from the spring could actually be alluvial flow in the model, and (3) flows form the spring and Crow Creek are not likely to affect the contaminant transport modeling (JBR 2004 page 13). [Ltr950 Cmt482]

    Response: An important point is that the model errors in Stewart Ranch Spring and Crow Creek flows do balance each other. We disagree that these two errors suggest an error in the specified flux across the model boundaries for the model. This is because the flux across the model boundaries is based on the entire water balance of the model domain and not just these two locations. The errors were fully disclosed in the model calibration discussion of the groundwater modeling report.

42. Comment: These excuses are not acceptable because: 1. Uncertainty in the field measurement could as likely mean that the actual flow is higher rather than lower and the error is even greater than modeled here. 2. Discharge from the spring cannot actually be alluvial flow in the model because the modeled discharge is less than the observed discharge. If the modeled value actually exceeded the measured, the measured flow would not include near surface alluvial flow that the model would include as part of the drain flow, but as shown this is an error in that the calculate discharge is actually less than the measured. 3. The third excuse is also not legitimate because it is inappropriate to assume that substantial changes in the location of inflow to the model, especially flow near the Wells Canyon fault, will not change the direction and magnitude of fluxes within the model domain. If the driving force, the flow is incorrect, the transport will also be wrong. The old saying, "garbage in, garbage, out" applies here.

    In summary, the groundwater model was poorly calibrated. Its fluxes to different surface waters are wrong. It forms an inadequate basis for solute transport analysis. It must be redone with better data. [Ltr950 Cmt483]

    Response: Responses to each of the individual comments (italics and underlined) follow:

    Uncertainty in the field measurements could as likely mean that the actual flow is higher rather than lower and the error is even greater than modeled here. All three of these explanations apply to Stewart Spring only (JBR 2005). The record of measurements for

Stewart Spring, that form the basis of the flow rate used in the model, show that the uncertainty in measurement is more likely during irrigation season when all flows from the spring are difficult to account for compared to winter when all flow from the spring to the surface is more easily measured. In addition, a reported flow for the same spring in 1980 was 6 cfs, the same as was used in the modeling.

Discharge from the spring cannot actually be alluvial flow because the modeled discharge is less than the observed discharge. Our statement in the groundwater modeling report was intended to offer a physical explanation why it could be possible for flow from Stewart Spring to move to Crow Creek underground in the extensive alluvial deposits that occur between these two discharge locations. The mathematical reason why this occurred in the model was that water that did not drain from Stewart Spring caused an increase in water levels under Crow Creek, which then acted as a drain and increased in flow.

It is inappropriate to assume that substantial changes in the location of inflow to the model, especially flow near the Wells Canyon fault, will not change the direction and magnitude of fluxes within the model domain. If the driving force, the flow is incorrect, the transport will also be wrong. We stand by our comment because one needs to look at the locations of these specific discharge points within the entire flow field of the model and the modeled locations of the contaminant plumes before deciding if these errors will have an affect on the conclusions derived from the contaminant modeling. Stewart Spring and the reach of Crow Creek in question are located the southeast corner of the model domain. As the reviewer states in the previous paragraph, the two errors offset (or cancel) each other with regards to the entire water balance. Therefore the errors in the flow field of the model are confined the area located between Stewart Spring and the reach of Crow Creek. These are located well south of the flow field for the Panel F to South Fork Sage Creek Spring; and south of the intervening Lower Deer Creek groundwater drain in the model so it is clear that the local water balance error in the extreme southeast corner of the model domain should not affect the modeled fate and transport results for Panel F. With regard to the plume from Panel G, the particle track information included in the groundwater modeling report shows the dominant effect of the overall flow field in the southern half of the model domain on the direction of the particle tracks. This is largely controlled by: 1) the higher elevation water table in the southwestern part of the model; and 2) the combine drainage effects of lower Deer Creek, Books Spring, and Crow Creek. The local error in flows between Stewart Spring and Crow Creek would not affect the high water levels in the southwest part of the model because they are due to the more prevalent recharge along the south model boundary and this is due to larger recharge area south of the model domain. The flow direction of the contaminant plume from Panel G is apparently controlled by the proximity of the lower Deer Creek drain northeast the mine panel, which causes breakthrough of the plume within about 50 – 60 years compared to over 300 years for either Books Spring or Crow Creek. Thus any rebalancing of the water balance between Crow Creek and Stewart Spring is unlikely to affect the migration of the plume from Panel G. Taken all together, the above information indicates that the local water balance error in the southeast corner of the model domain would not likely have an affect on the contaminant transport modeling that would change the results to a significant degree.

The Agencies believe the groundwater modeling is sufficient for making decisions between the mining alternatives for the reasons included in the response to PC 140 Comment 39 above. The current model is adequately calibrated to produce results that reasonably foresee the impacts of the project to groundwater resources.

43. Comment: JBR (2005) added the transport analysis to the groundwater model. Most of the discussion concerns the input flow rates for recharge through the pits and the chemistry. The stress added to the system is the recharge from flow through the pits.

    There was apparently no separate calibration completed for the transport analysis. Dispersion coefficients and porosity values were based on previous NEPA studies. The chosen parameters may not apply to this site and they may have been inappropriately selected for the other studies. JBR ignores substantial available data by failing to do calibration. As documented by Maxim (2004), the groundwater under the proposed panels has significant concentrations of Se and Mn. Data also shows the concentrations at the many springs in the area. JBR should run its solute transport model in steady state mode to set parameters that model the concentrations at the panels and springs correctly. Alternatively, JBR could use the substantial information regarding the movement of solutes through these aquifers provided by NewFields (2005b). Solutes move 2.0 miles in 20 years between Pole Canyon and Hoopes Spring; this could be used to provide a much better estimate of parameters for this project. [Ltr950 Cmt484]

    Response: The porosity value used in the modeling is consistent with previous hydrogeological studies conducted at the Smoky Canyon Mine (Ralston 1981, JBR 2001c) and there is no evidence that this value was inappropriately selected in these previous studies. Further, this porosity value was tested in the modeling for Panels F and G to determine groundwater advection rates and compare them with isotopic values measured on groundwater samples from the Panels F and G model domain. As was described in the groundwater modeling report, a porosity value of 0.1 caused advection rates that were a good match with the isotopic results. The groundwater modeling report also discloses that the dispersivity values used in the transport analyses were obtained from literature values (Zheng and Bennett 1995) and not previous NEPA studies.

44. Comment: The transport model run includes 500 stress periods, 1 year per period, resulting in a 500 year long transient model run. The report does not discuss or provide maps of the changing potentiometric surface caused by the added recharge. Over a 500-year period, this added flow should cause a significant mount to form in the groundwater beneath the pits. Discussion of this would help the reviewer understand the predicted transport. Also the periods were annual rather than seasonal. As has been mentioned elsewhere, there are substantial changes in water levels in some wells at the site. This shows seasonal changes. Recharge through the backfilled pits would likely vary seasonally. The transient modeling should use periods with variable recharge rates based on seasonal effects.

    The report does not indicate the storage coefficients or how they were determined. There was no transient calibration of the groundwater model. The report also does not discuss how the model applies infiltration from the backfilled panels to the saturated aquifer domain. Presumably, it is a specified flux with a specified contaminant concentration. JBR (2005 page 24) provides a table with estimated percolation rates

through the backfill in inches per year. At no point does it provide the total flux or the area of the panels. Based on maps, the panel area approximates about two square miles; at three inches per year, the total flow into the model would exceed 300 af/y. The report should provide more details about modeling the infiltration from the backfilled pits. [Ltr950 Cmt485]

Response: The reviewer's comments are based on the general conclusion that the groundwater modeling should have been conducted as a transient model. As described in previous responses to comments, the modeling was performed in a steady-state mode and not a transient mode. The modeling of the groundwater impacts included recharge through the footprint of the mine backfills so any influence this may have on the piezometric surface are already included in the water quality results. The infiltration into the Wells formation through the backfilled mine panels was a specified flux at a specified contaminant concentration with the values listed in the groundwater modeling report (JBR 2005). The total amount of annual infiltration through the backfilled mine panels under the Proposed Action is estimated to be 99 acre/feet per year for Panel F (397 acres of pit backfill) and 75 acre/feet per year for Panel G (320 acres of backfill) or less than 1.5 percent of the total recharge of 11,804 acre/feet per year. Under the Agency Preferred Alternative, this annual recharge rate through the mine panels would be less than half as much.

45. Comment: Because the recharge likely varies annually as well (see the review of the HELP modeling), it would be preferable to model different recharge rates for different years. This would allow a better modeling of slugs of recharge.

    Transport modeling relies on the modeler specifying contaminant concentrations in the input. A basis for this is the chemistry of the water leaching from the backfilled pits. The basis for the chemistry is the column testing of the backfill, therefore the input depends greatly on the methods and assumptions that go into determining the input chemistry. JBR (2005 page 25) describes the column test method. Each of the eleven columns apparently is filled with different backfill material rather than a mixture.

    The solid material leached in the column tests represented single, homogeneous lithologies for the overburden of Panels F and G. The actual overburden fills will be a mixture of these different lithologies. Mixing the overburden in the panel backfills and external fills would affect the seepage chemistry, thus predicted leachate results from overburden fills would be different than the monolithologic column test results. The column test results should be weighted mathematically to produce results more representative of the actual overburden fill lithologies. (JBR 2005, page 27).

    This selection acknowledges that the actual backfill will be a mixture of material but that the chemistry from each of the columns must be weighted. The lab then determined the porosity of the material in the column so that water could be measured based on total pore volumes added to the column. However, the report does not provide those determined pore volumes or discuss whether they are similar to that expected in the pit backfill. [Ltr950 Cmt486]

    Response: The groundwater modeling was analyzing long-term effects and was therefore conducted as a steady-state model. Thus including annual or seasonal

variations in infiltration through the cover would not make sense when all other parts of the model water balance were estimated as long-term values. As described in **Section 4.3.1** of the DEIS the leachate results from the monolithologic test columns were weighted based on the relative quantities of those lithologies in the proposed overburden fills. The EIS also describes that the pore volumes in the test columns and proposed backfills were normalized in time so that the curve of leachate concentrations for the backfills had the same shape as the one for the weighted average column test results. The actual porosities of the test columns and the backfills is therefore, not important.

46. Comment: De-ionized water is slowly added to the column and allowed to drain through. The assumption is that all pores become filled which means the column must become saturated. Apparently all of the water from the first, second, third, fifth, seventh, ninth and tenth pore volumes is collect and analyzed. Chemistry from fractions of a pore volume is not obtained. [Ltr950 Cmt487]

    Response: The pore volume quantity is the calculated porosity or total void space in the test column. A quantity of water equal to this volume is considered one pore volume of water. However, the water was added to the test columns slowly to maintain unsaturated conditions throughout the columns. Thus the test columns did not become saturated during the tests.

47. Comment: Column testing does not mimic these natural conditions and likely underestimates selenium concentrations that will result from leaching the pit backfill. There are several reasons for this. First, the material placed into the column is from drill holes, not weathered run of mine waste. The material has not been adequately weathered so that the oxidation processes that create soluble selenite and selenate will not be complete. As noted by Buck and Winegar (undated), mining causes the relatively environmentally inaccessible selenide and elemental selenium to weather and oxidize to selenite and selenate. These oxidation products are highly mobile and can be transported easily through groundwater (Davis et al 1993). Once a significant amount of water has been added to the columns, oxidation will cease. This varies from what occurs naturally because the backfill will not have a constant flux of water seeping through it; rather, the backfill will undergo wetting and drying at least annually. Oxidation will continue in backfill after placement. NewFields (2005b, page 3016) indicates that weathering is essential for the best mobilization of selenium (and nickel and zinc). Because the column tests will not have been weathered or oxidized as long as backfill and because oxidation will cease as the test begins, the column tests likely underestimate at least the initial (first pore volume) selenium concentrations. Second, the column tests do not adequately reflect the contact of water seeping through waste piles. As noted by NewFields (2005b, page 11-9), the longer the contact time the more selenium load leached by the water. Pore volumes are not a substitute for contact time. As discussed in more detail below, it takes 146 years for one pore volume to leach through an actual waste pile. Column testing vastly and inappropriately speeds this process. [Ltr950 Cmt488]

    Response: The Agencies do not believe the column tests underestimate selenium concentrations and believe the unsaturated column tests do mimic natural conditions better than any alternative testing method available including the SPLP test or the Meteoric Water Mobility Testing Procedure. The drill hole cuttings used in the columns

were more oxidized than the future mine overburden because they were: drilled into small particles and lifted with air circulation, air dried in surface conditions, stored for months or years at surface conditions before being analyzed, oven dried, leached with fully aerated water, and blown with compressed air between pore volumes. None of these conditions would exist in the pit backfills except possibly the top few feet below the ground surface. As stated in previous responses, the unsaturated column tests were operated in a highly oxygenated condition throughout their testing. The Eh, dissolved oxygen, and selenite/selenate ratio data obtained for the column leachate verify this.

The Agencies disagree that the column tests do not adequately reflect the contact time of water seeping through overburden piles. First of all, the reviewer misquoted NewFields (2005b) who did not say the longer the contact time the more selenium load leached. What they did say was the longer the flow path through the overburden, the greater the mass of selenium released per unit of infiltration. They explained that the ratio of the infiltrating water to the mass of seleniferous overburden and the length of the flow path through the overburden were the primary factors controlling the release of selenium from the overburden. This is why the column tests were normalized to the pore volumes. The ratio of the amount of infiltrating water to the mass of overburden matrix is generally equal between the test columns and the field condition so a pore volume of water in the test columns is related to the solid matrix of the columns in approximately the same ratio as the actual overburden fills. In fact the concentrations displayed in the test columns suggests that soluble selenium is rapidly flushed out of the matrix in the first pore volumes and significant leaching and exposure of the matrix to oxygenating conditions thereafter does not cause increased concentrations of selenium to leach out over time. Herring (2004) showed that Meade Peak rocks react quickly with water and even highly altered rock samples can release soluble trace elements in times as short as one hour. Concentrations of selenium were shown to increase over periods of about 10 to 15 days after which concentrations tended to decrease or remain about the same for highly altered and less-altered rock samples. The column tests used for the Panels F and G EIS were run for periods ranging from 14 to 20 pore volumes with each pore volume taking approximately 4 to 5 days for leaching and 2 to 3 days to blow air through the column. Thus the time to obtain the 10 pore volumes of data used in the EIS was on the order of 60 to 80 days, far more time than is necessary to dissolve the soluble selenium minerals in the columns.

48. Comment: Third, the testing also fails to simulate or adequately account for other field conditions. These conditions include the impact of freeze-thaw which may increase the release rate of selenium (Herring 2002, page 296), preferential flow paths which may increase the relative proportion of elemental selenium encountered by the seepage, and anoxic conditions, which may occur in the waste rock and affect the pH especially in the presence of organic matter.

    Fourth, there are far too few tests to account for the variable elemental rock chemistry likely to occur in a waste rock pile. For example, the amount of organic matter is likely to be highly variable and may be influenced by the mining techniques. Herring (2002) found that organic matter increased the release of selenium. [Ltr950 Cmt489]

    Response: The comment that the testing failed to simulate field conditions is covered in our responses to PC 143 Comment 3. See the response to PC 143 Comment 4 for the

comment on there being too few tests. Herring (2004) showed a correlation between leachable selenium and organic-carbon concentration in Meade Peak member rocks. They also tested correlations of many other chemistry characteristics of the rocks with the amount of selenium released. Organic matter concentration tends to be higher in less altered Meade Peak rocks. A positive correlation between organic matter and selenium assay was shown for the Panels F and G overburden (Maxim 2004c) and the correlations were statistically significant (R^2= 0.56 to 0.82) indicating sufficient raw data was available from the samples to demonstrate this effect. The mining techniques proposed by Simplot would have no effect on the organic matter in the overburden.

49. Comment: The way that the models adjusted the chemistry and input to the transport models is potentially incorrect for several reasons. First, JBR (2005, pages 28-29) adjusts the column concentrations to reflect the different surface area per unit mass. The intention is to account for the different sizes, gradation and packing in the column. This will likely reduce the concentrations observed from the column testing even though as pointed out in the previous paragraph the column testing causes a downward bias in the observed concentration.

    Second, the backfill concentrations were also adjusted according to Simplot's perceptions of the relative amounts of each material in the backfill. This type of weighting assumes perfect mixing in the backfill, a very unlikely occurrence. Preferential flow may predominate in the backfill and concentrate flow in the sections with mostly Middle Waste shale or other highly seleniferous material. If this is the case, the concentration will mostly reflect the higher concentration of this waste.

    Third, the weighting calculations also do not account for the different gradation among the different lithologies (JBR 2004, page 29). If the Middle Waste shale fractures more than the overburden, either due to material properties or different handling, there is a significant possibility that flow would leach more from this finer grained material. Because the low seleniferous overburden would likely be stripped from above the phosphate ore, handling would tend to make for larger material. Because the Middle Waste shales lies between ore bodies, Simplot would likely be more careful in the separation; more handling would result in more disintegration of the material. It is also softer. This would lead to higher surface area and effective porosity. The preferential flow would prefer the material with small particles, likely the Middle West shale, from which much more selenium could be leached. [Ltr950 Cmt490]

    Response: The Agencies do not believe the column testing itself causes a downward bias in observed concentrations. The measured concentrations of each pore volume represent the actual solution chemistries produced in the test columns. The measured chemistries of the column leachate samples are composites of entire pore volumes hence they represent average concentrations for each pore volume. This means that the measured concentrations are likely less than the initial partial pore volumes and also higher than the later partial pore volumes.

    See the response to PC 143 Comment 6 for most of the response to the comment that backfill concentrations were adjusted according to Simplot's perceptions. Seleniferous shale comprises 80% of the overburden in Panel F and 69% in Panel G. Thus, when the weighted average column test solution chemistries were generated, the resulting

chemistry was dominated by the seleniferous shale component of the overburden. We understand the concern of the reviewer that preferential flow may tend to concentrate flow in the seleniferous shale overburden but we believe this has already been accounted for in the weighted average chemistries used in the analyses.

As described above, because the Center Waste shale lithology predominates in the overburden on a mass basis, the weighted average chemistry used in the impact analysis is already biased toward the chemistry of the Center Waste shale.

50. Comment: Fourth, input concentrations for each time period in the model, yearly, are determined using a polynomial curve fitting routine and the appendix provides an example of actual input concentrations for each year. The future on page 30 of JBR (2004) is an example of the polynomial curve. The polynomial equation describing the concentrations was determined based on numerical curve fitting. (This is not the same as polynomial regression because the estimation technique forces the line to intersect each point.) But the fit of the line depends on the point's integer values of pore volume. Estimating concentrations for fractional pore volume would be incorrect; concentration estimates for pore volumes less than 1.0 would be incorrect because the value for 1 pore volume was determined as an average for the entire pore volume. In other words, the high concentrations at the beginning of leaching, when only a fraction of a pore volume had seeped, were diluted. In field conditions, the seepage from a fraction of a pore volume would be the first to seep from the pit.

    Much ado is made of the observation that the column testing shows concentrations that drop below standards after approximately one pore volume. Accepting the calculation made by JBR (2005, page 35) that in the backfill one pore volume will be 146 years of infiltration, the high concentrations will emanate from the backfill to the groundwater for a long time. But, it is very likely that the initial years' concentrations are grossly underestimated because they are based on an averaged concentration over an entire pore volume as discussed in the previous paragraph. The entire input regime should be recalculated based on tests of fractions of a pore volume. [Ltr950 Cmt491]

    Response: The Agencies agree with the reviewer that extrapolating the existing column test data (integer values of pore volumes) to fractional values would be incorrect. We also agree that field data of initial seepage chemistry at overburden fills would reflect the early, fractional values of seepage. Because of the estimated time it would take for the first completed pore volume to pass through the existing phosphate overburden fills in Southeast Idaho, we conclude that the currently observed water chemistries for seeps discharging from these fills must represent early, fractional portions of the pore volumes.

    We disagree with the reviewer that these concentrations “grossly underestimated” the likely initial year’s concentrations. The Agencies were also concerned that the adjusted pore volume concentrations were reasonable and this was reviewed by comparing the adjusted column test data with field data from seeps located at Smoky Canyon Mine and elsewhere in Southeast Idaho. Based on this comparison, the Agencies determined that the column test values used in the impact analyses were comparable to observed field values. Based on the estimates of time necessary for one pore volume to pass through an overburden fill (100 to 200 years), the selenium values recently measured in seepage from the modern phosphate mine overburden fills in Southeastern Idaho likely represent

early fractional pore volumes. The adjusted column test data used for the impact analyses in the DEIS compare favorably with these field values and thus are suitably realistic.

51. Comment: A test better than column testing would be field leaching, either with prototype waste piles or by using the water quality that drains from actual overburden piles at the existing Smoky Canyon mine sites. NewFields (2005b) provided chemistry from overburden piles and backfilled pits that showed seepage chemistry that exceeds hazardous waste standards. The chemistry input to this model should be based on these field examples rather than column tests. Selenium concentrations at the base of the A-panel backfill range from 0.4 to 4.0 mg/l, a range that significantly exceeds that determined from the column tests (NewFields 2005b, page 11-9). This more closely resembles the conditions or leach tests. This seepage has also driven selenium through 600 feet of unsaturated Wells formation to contaminate the aquifer and water supplies at the existing Smoky Canyon mine. The thickness of unsaturated soil at the proposed expansion is much less. Therefore, the chemistry for the well constructed by NewFields (2005b) into backfilled overburden at the existing mine would provide a much more realistic estimate of expected chemistry at this mine; the solute transport modeling should be redone with this chemistry. [Ltr950 Cmt492]

    Response: As described in more detail in our response to PC 139 Comment 14, we disagree with this comment and the idea that the concentration of COPCs to be used in the groundwater modeling should be derived from sources other than the column tests. The column tests provide the only practical approach to measuring the concentrations of COPCs in leachate produced in contact with representative mixtures of rocks actually obtained from the proposed mine panels. Specific water quality sample data obtained from existing overburden fills at Smoky Canyon Mine are not representative of the future mine panels because they are based on different rock chemistry. In addition, the adjusted, weighted average column test data used in the Panels F and G impact analyses were compared to field values from Smoky Canyon Mine to test their reasonableness. We disagree that using a water chemistry from a few grab samples from GW-11 would be a better estimate of Panels F and G seepage chemistry than the one used in the groundwater impact analysis, based on the column tests.

Public Concern ID 142
The BLM/FS should acknowledge that the solute transport model was used incorrectly

The following concerns were raised in the Tom Meyers appendix to the GYC/NRDC comment letter.

1. Comment: The solute transport model, which is based on the flawed groundwater flow model, is used to estimate contaminant concentrations in groundwater and at points of discharge to surface water, specifically springs and seepage to streams. Because the groundwater and recharge models drive the transport model, the extensive flaws in those models cause the input to the transport model to be corrupt. There are in addition serious problems specific to the concepts utilized by the solute transport model. The modeling assumes that contaminants disperse through the entire saturate thickness of the top model layer. This dilution significantly reduces the concentration at the very point the contaminant is introduced to the aquifer. [Ltr950 Cmt412]

Response: In any groundwater model where contaminants are added to the water table, the concentration of the contaminants will be diluted through the uppermost model layer. This is not inappropriate but judgment is required to select an appropriate upper model layer thickness. In this model, the concentration at the point of contaminant introduction into the Wells formation decreases the concentration at the point of contaminant entry because the mass of contaminant is dispersed uniformly in the 200-foot upper layer. This is only the uppermost 10% of the entire modeled aquifer that contributes to the groundwater discharge downgradient and is not an excessive upper layer thickness for the scale of the model. The contaminant then enters the lower 1800-foot layer by advection and dispersion. This method of contaminant introduction does not effect contaminant concentration at Wells formation discharge locations (i.e., springs and creeks), because the total volume of water reaching the discharge point and the total mass of selenium released determines discharge point concentrations. Concentration is mass/volume. Constructing a model with more and thinner layers would increase the selenium concentration beneath the waste piles in the top layer. However, construction such a model would, 1) be based on numerous assumptions regarding the thickness, hydraulic head, and aquifer parameters of each layer, and 2) not provide more reliable predictive information regarding selenium concentrations at Wells formation discharge locations.

2. Comment: The solute transport coefficients were not calibrated to existing data, which are available both onsite and at the existing Smoky Canyon Mine. [Ltr950 Cmt413]

   Response: In the initial steady-state flow model existing aquifer parameter data were used. These data were then adjusted during the model calibration process to match water budget and observed water lever data. Because contamination attenuation was not modeled for the DEIS, decreases in contaminant concentrations only resulted from dilution and dispersion. Onsite dilution and dispersion data were not available. Other contaminant attenuation mechanisms (i.e., adsorption, etc.) were not modeled and onsite data regarding potential attenuation coefficients were not available at the time of modeling for the DEIS. Since then, empirical information from the Smoky Canyon Mine and laboratory studies have become available that demonstrate attenuation of selenium is expected to occur. This information has been incorporated into the final groundwater modeling (JBR 2007) and is discussed in **Section 4.3.1** of this FEIS.

3. Comment: The analysis supporting this DEIS is based on a solute transport model developed with little data, driven by underestimates of both contaminant concentration and seepage, and designed to minimize concentration by diluting the contaminant through the entire model layer thickness. The input data chemistry underestimates the concentrations likely to emanate from the bottom of the backfilled pits. The amount that this assemblage of bad data, modeling and assumptions underestimates the impacts of the project cannot be estimated without redoing all of the work in an acceptable manner. Anything less will not provide a reasonable basis to project the surface and groundwater impacts of the project. [Ltr950 Cmt421]

   Response: See responses to PC 143 for more responses to comments on the chemistry input data. We suggest that disagreements with details of groundwater modeling between professionals is not unusual, because there are multiple, equally professional approaches that can be taken for each groundwater modeling project. The fact that

professionals may disagree on these approaches does not automatically mean that opposing approaches are necessarily wrong. We believe that is the case in this matter. The reviewer has a professional difference of opinion related to the groundwater modeling approach used in this EIS. The Agencies believe that the groundwater modeling conducted for this project was done in a professional manner consistent with the level of care normally taken for NEPA projects of this type and we disagree that it must be redone.

4. Comment: Solute concentration predictions must be redone using the revamped groundwater model and improved recharge rates and contaminant concentrations to make the results comply with NEPA data quality standards. Several changes would improve the solute transport model. -the model should be redone so that the contaminants are added to the top of the top layer rather than dispersed throughout the top layer.-in steady state, the model should be calibrated so that observed concentrations around the site are adequately simulated by the model.-transient modeling should be tested so that the model adequately simulates expected seasonal variations in concentration.-the transport model should be calibrated using travel times observed at the existing Smoky Canyon Mine; for example, there are estimates of time for travel from Pole Canyon to Hoopes Spring. [Ltr950 Cmt429]

   Response: The model does not have deficiencies that require a redo to meet NEPA requirements. The model was constructed using the best available data; was prepared by experienced professionals; is an improvement in calibration quality over any of the previous phosphate mine EIS models in Southeastern Idaho; and meets the NEPA requirements for methodology and scientific accuracy. The Agencies fully understand that groundwater models do not provide exact predictions of future conditions, and this is not required under NEPA. Rather, NEPA requires that the Agencies evaluate reasonably foreseeable significant adverse impacts and groundwater models can do that when they are prepared with reasonable professional integrity and are applied equally to the various alternatives under consideration. The models prepared for the Panel F and G EIS are more than adequate for the Agencies to reasonably foresee the environmental effects of the different alternatives and make an informed decision on selecting the agency preferred alternative. The reviewer misunderstood the design and fundamental construction of the model and made several errors in the review. The most critical error is that the reviewer assumed the flow and transport models should be transient state models when the models are more appropriately steady-state. Responses to specific reviewer comments (italics underlined) follow:

   The model should be redone so that the contaminants are added to the top of the top layer rather than dispersed throughout the top layer. Adding contaminants to the top of the top layer would require an additional set of assumptions making the model more complex, less reliable and would not result in changed contaminant concentrations at downgradient discharge locations. Downward vertical leakage rates would have to be estimated. The reviewer incorrectly assumes that the contaminant concentration in the upper portion of the Wells formation controls the concentration at downgradient discharge locations. Because the models are steady-state, downgradient concentrations are controlled by the steady-state water flux and the total mass of contaminant released from the overburden fills. The downgradient concentrations are transient because the modeled mass of contaminate is set independently for each modeled year.

In steady-state, the model should be calibrated so that observed concentrations around the site are adequately simulated by the model. There are no known concentrations of contaminants in the model domain. Field data for the groundwater discharges in the model domain show the existing water quality is not contaminated. Groundwater contamination at the existing Smoky Canyon Mine occurs outside the model domain and the conditions, which have resulted in this contamination, will not be repeated under Panels F and G.

Transient modeling should be tested so that the model adequately simulates expected seasonal variations in concentration. Because the model is a steady-state model, there is no transient calibration. Field data indicate that groundwater discharge conditions within the model domain are actually uniform over time, which support the use of a steady-state model instead of a transient one.

The transport model should be calibrated using travel times observed at the existing Smoky Canyon Mine. For example, there are estimated of time for travel from Pole Canyon to Hoopes Spring. Particle tracking was performed on the groundwater flow model. Groundwater travel times were consistent with the short travel times predicted by the ^{3}H and ^{14}C groundwater age determinations and are consistent with the travel times between the Pole Canyon overburden disposal area and Hoopes Spring.

5. Comment: The solute transport model should be run using seasonal input rather than annual periods. This will allow for seasonal slugs of flow, which cause rising and falling water levels. [Ltr950 Cmt430]

   Response: Because the models are steady-state, seasonal inputs and fluctuating water levels are not model parameters. We believe the field data show that the groundwater discharge conditions within the Study Area reflect steady-state conditions.

6. Comment: The initial conditions for the solute transport model should include the existing concentrations in the groundwater. This is because adding transient recharge to the system will cause existing contaminants to move faster and possibly increase the loading downgradient due simply to increased flow through the system. [Ltr950 Cmt431]

   Response: The existing groundwater in the Wells formation aquifer is not contaminated. The water chemistry of this aquifer is correctly represented by the average water chemistry of the large discharge points for the aquifer. These have been monitored and the data shown in the DEIS indicates that the water discharging at this locations is not contaminated. Therefore, there is no potential for "existing contaminants" to be displaced and caused to discharge downgradient as indicated by the reviewer. Also see our response to PC 160 Comment 7.

Public Concern ID 143

The BLM/FS should acknowledge that the chemistry input into the solute transport model is wrong because of problems with the testing procedure and with how the water data is handled

The following concerns were raised in the Tom Meyers appendix to the GYC/NRDC comment letter.

1. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, the material placed into the column for testing does not represent that which will be backfilled into the pits. Also the methods do not mimic natural processes because once a significant amount of water has been added to the columns, oxidation will cease. This varies from what occurs naturally because the backfill will not have constant flux of water seeping through it; rather, the backfill will undergo wetting and drying at least annually. Oxidation will continue in backfill after placement. [Ltr950 Cmt414]

   Response: The geochemical sampling and testing procedures utilized for this project are considered by the Agencies to be state-of-the-art for evaluation of phosphate mining impacts in Southeast Idaho at this time. They were similar to geochemical investigations conducted on three previous phosphate mine EISs in Southeastern Idaho going back to 1998 all of which were evaluated by multiple federal Agencies as well as the general public, including GYC and ICL. The methods used for this EIS are very similar to those employed for the recent North Rasmussen Ridge EIS where both GYC and ICL conducted thorough analyses of the document and did not raise any of the same technical concerns over laboratory geochemical testing procedures that have now been raised. Our responses to specific comments (italics and underlined) follow:

   The material placed into the columns for testing does not represent that which will be backfilled into the open pits. This is incorrect. The samples used for the column tests were carefully selected to be representative of each major lithology expected to be encountered in the open pits. 225 drill hole samples were obtained from 52 borings. All the samples were inspected to confirm the lithologic description in the boring logs and specific samples were selected to represent the range of chemical characteristics for each major lithology and alteration condition. These were carefully loaded into the columns all parts of each sample were involved in the leaching flow within the columns.

   The methods of testing do not mimic natural processes because once the water is added to the columns oxidation will cease. This is incorrect because the unsaturated test columns that produced the data used in the DEIS were operated in an unsaturated condition so atmosphere could continue to penetrate the material in the columns. In addition, all influent water was fully aerated to maximize dissolved oxygen content, and the columns were blown with air between each pore volume to maximize oxygen content in the pore space. All of these methods are considered to be far more oxygenating than is expected to occur long term within the actual pit backfills.

2. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, the column tests do not adequately reflect the contact time of water seeping through waste piles. Pore volumes are not a substitute for contact time; it takes 146 years for one pore volume to leach through an actual waste pile. Column testing vastly and inappropriately speeds this process. [Ltr950 Cmt415]

   Response: The reviewer does not recommend any alternative tests that would be more satisfactory than column tests. In 1999 for the Dry Valley Mine EIS, the Agencies

employed the Synthetic Precipitation Leaching Procedure (SPLP) test to extract the selenium. This test exposes the rock samples to a 20:1 solution to solids ratio in a static container over a 24-hour period after which the solution is separate and analyzed. After that project, the USGS and U.S. EPA suggested that this was not adequately representative of leaching overburden fills and recommended column testing. It should be noted that Herring (2004) conducted similar 24-hour leach tests of fine-grained Meade Peak member rock samples and found that most of the leachable selenium was removed from these samples early in the test. For the next EIS, the Simplot Panels B&C SEIS, the Agencies considered and rejected using the Meteoric Water Mobility Test, which was initially developed by the State of Nevada to determine potential leachate chemistry from overburden. That test exposes a rock sample to a single-pass column leach solution of water, with a 1:1 ratio of water to solids, over a 24-hour hour period after which the solution is separated and analyzed. For the Simplot B&C Panels SEIS and the following EIS for the Agrium North Rasmussen Ridge the Agencies chose to use column tests to determine the potential leachate chemistry from phosphate overburden. The column tests used for the Panels F&G EIS were run for 60 to 80 days with strong oxidizing conditions, which is the longest duration leaching testing conducted for any Southeastern Idaho phosphate mine EIS to date. At the time the baseline studies were conducted for Panels F and G, the Agencies believed that laboratory column tests were more representative of field leaching conditions than any of the available alternative laboratory test methods.

3. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, the tests also fail to account for other field conditions, including freeze-thaw, which may increase the release rate of selenium, preferential flow paths which may increase the relative proportion of elemental selenium encountered by the seepage, and anoxic conditions which may occur in the waste rock and affect the pH, especially in the presence of organic matter. [Ltr950 Cmt416]

   Response: Because of the significant snow pack at the site, freezing conditions do not extend deeper than about 3 to 4 feet below the ground surface and would not affect a significant percentage of the overburden fills that are hundreds of feet thick. The Alternative D cover design would be over 6 feet thick. Once the permanent cover was placed on the overburden, the ROM material would be protected from freeze-thaw so the overburden would experience a relatively short duration of exposure to freezing conditions between when it is mined and when it is covered. The effect of freeze-thaw would be to potentially expose more of the overburden rock to potential leaching by precipitation, but this would not substantially affect the impact analysis particularly when the column leach tests are designed to wet 100 percent of the material within the columns. ...*preferential flow paths, which may increase the relative proportion of elemental selenium encountered by the seepage...* The reviewer does not explain how increasing the relative proportion of elemental selenium encountered by the seepage is problematic. The columns were carefully designed to eliminate preferential flow so 100% of the material in the columns would be contacted by water. As described in the EIS, 100% wetting is not expected to occur in the actual mine backfills and a smaller volume of rock will likely host water flow, which would reduce the amount of solutes leached from the overburden, not increase it as suggested by the reviewer. In addition, the notion that contacting elemental selenium in the rock with percolating water would

lead to increased selenium release is incorrect. Elemental selenium is extremely insoluble and chemically stable in the backfill environment. It would actually be a beneficial development if elemental selenium were the predominant selenium species in the overburden. ...*and anoxic conditions, which may occur in the waste, rock and affect the pH.* The reviewer is incorrect in assuming that anoxic conditions with changed pH (we assume the reviewer means a low pH) would occur in the backfills and lead to increased release of selenium from the overburden because the carbonate mineral content in the rock provides enough acid neutralizing potential to prevent acid conditions from occurring. First of all, even if anoxic conditions did occur, this would lead to lower Eh conditions that would favor formation of: selenite, which is more chemically reactive and subject to geochemical attenuation; selenide, which is more insoluble that either selenite or selenate, and; elemental selenium, which is almost insoluble. Low pH conditions would also tend to drive the speciation of the selenium to these lower valence states. Thus, if these conditions did occur, the result would be less release of soluble selenium not more.

4. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, there are far too few tests to account for the variable elemental rock chemistry likely to occur in a waste rock pile. [Ltr950 Cmt417]

   Response: The testing program was adequate to characterize the overall geochemistry of the future overburden. The lithology and alteration description was initially determined through drilling 52 boreholes and preparing detailed descriptions of the rock on 2-foot intervals. 225 samples were then selected from these boreholes specifically to represent all major lithologies and alteration of the overburden encountered in the boreholes. Samples were selected with a goal of collecting 20 samples per overburden lithology across the range of sub-units from each lease area. These samples were analyzed for metal assays, acid-base accounting and saturated paste analyses. Splits of these samples were retained for use in the leach columns and 11 unsaturated leach columns were prepared and tested. Each column consisted of multiple individual samples of cuttings intended to represent all the major lithologies and alteration types noted in the overburden exploration drilling.

5. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, concentrations resulting from the column tests do not adequately account for the different particle sizes, gradation and packing in the column. [Ltr950 Cmt418]

   Response: The columns were carefully packed with all the selected subsamples of borehole cuttings to provide a uniform matrix with similar density and hydraulic properties throughout each column. Glass wool was placed over the top of each column to ensure that the applied water was uniformly distributed across the top of each column so the water moved uniformly through the columns. Water was applied to the tops of the columns slowly to enhance homogeneous flow of water in an unsaturated condition through the columns. The clear plastic columns allowed visual verification that all matrix in the columns was being wet by the leachate. With all this care taken during the

leaching of the columns to ensure uniform leaching of the rock samples, the Agencies have no doubts that the chemistry of the leachate collected at the bottoms of the columns actually represents contact with all the material in the columns.

6. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, the backfill concentrations were also adjusted according to Simplot's perceptions of the relative amounts of each material in the backfill which inappropriately assumes perfect mixing in the backfill and ignores preferential flow. [Ltr950 Cmt419]

   Response: Mine modeling with the data from 52 borings established the relative quantities of each of these major lithologies and alteration types that would be encountered during mining. This is an established practice supported by standard engineering methods that are widely used in the mining industry, and were calculated with state-of-the-art engineering methods. We disagree with the reviewer's characterization that use of these quantities to develop the weighted average leachate chemistry is wrong. The total overburden will consist from about 20 to 30 percent chert, which is known to have very low selenium concentrations. During mining, it is likely that certain parts of overburden fills will be made completely of chert. If this were taken into consideration in the groundwater impact analyses, those specific parts of the overburden fills would not be considered potential sources of groundwater contamination. However, by assuming that all the overburden is uniformly mixed, this effect is eliminated and all areas of ROM overburden are modeled as potential contaminant sources. Therefore, unlike the assertion by the reviewer, considering all the overburden to be uniformly mixed is a more conservative assumption than not doing so.

7. Comment: The chemistry input to the solute transport model, which sets the initial concentrations in the model input, is also wrong because of problems with the testing procedure and with the way the data are handled, input concentrations for each time period in the model, one year long, are determined using a polynomial curve fitting routine which averages the initial concentrations with much lower concentrations that occurred after a full pore volume had leached. [Ltr950 Cmt420]

   Response: The curve fitting was done with the weighted average column test data using the actual pore volume concentrations as initial input data. None of the individual pore volume chemistries were averaged together before the curve fitting was done.

8. Comment: Better estimates of the water quality for seepage through the backfill must be obtained than were obtained from the column tests. The recommended chemistry would be that of the well drilled in the backfill in Panel A of the existing mine. [Ltr950 Cmt428]

   Responses: We disagree that the seepage chemistry used in the modeling should be replaced with the chemistry of the monitoring GW-11 for the reasons detailed in our responses to PC 139 Comment 14. The water chemistry of GW-11 is arguably not representative of the entire Panel A backfill much less the chemistry of Panels F and G. We believe the leachate chemistry work derived from the column testing and the hundreds of rock samples obtained for the Panels F and G overburden is an improvement compared to similar work conducted for all the previous phosphate mine

EISs in Southeast Idaho and should not be replaced with three water chemistry results for GW-11.

Public Concern ID 144

The BLM/FS should implement effective mitigation technology to protect streams from selenium contamination

A group of conservation organizations provided the following concerns and recommendations in their comment letter related to the mitigation of water resources.

1. Comment: The cover design should be redone considering the uncertainty inherent in the models' predictive capacity. Uncertainty should be addressed by using stochastic modeling to provide a confidence band around the prediction. [Ltr950 Cmt164, 433]

   Response: The design of the cover has been refined and described in more detail in **Section 2.6** of the FEIS. The estimated infiltration rate through the cover for this FEIS has been determined and is significantly less than that included in the DEIS to deal with the uncertainties in the analysis. Also see the response to PC 140 Comment 32.

2. Comment: The agencies should consider requiring the installation of a pumpback system in order to capture selenium loads before Sage Creek. This appears to be the only intervention that would allow selenium loading in that creek to be decreased over the short term (10-40 years). Absent this intervention, contamination from the existing mine reaching Sage Creek will actually get worse, not better, during the projected duration of mining under the Proposed Action. [Ltr950 Cmt168]

   Response: As described in the new **Appendix 2A** to the FEIS, remedial actions planned for the Smoky Canyon Mine, and implemented in the near future, would reduce selenium loading to Sage Creek, well before the project water quality impacts occur from the Panels F and G operations.

3. Comment: A more effective method of protecting ground and surface waters from selenium contamination should be included in the next draft EIS as an alternative. Specifically the document should analyze the use of low permeability liners on the sides and bottom of the backfilled pits to limit infiltration of contaminated water into the Wells Formation, and/or as a barrier to migration so that water contaminated by the seleniferous waste can be collected and treated before discharge. This option should be included because none of the mining alternatives considered in the current DEIS are likely to meet water quality standards. [Ltr950 Cmt171]

   Response: The information added to **Section 4.3.1** of the FEIS demonstrates the conservative nature of the groundwater impact analysis included in the DEIS and that the water quality impacts described are likely worse than would actually be experienced. The revised Alternative D cover design described in **Section 2.6.1** of the FEIS shows that the proposed cover would perform to a level even more protective than is required by the impact analysis in the DEIS, and thus is a conservative design, which should reduce groundwater impacts to less than those predicted for the Agency Preferred Alternative in the DEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in

groundwater discharged to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium. The Agencies believe the most effective way of reducing long-term contamination from the proposed mining activities is to reduce the infiltration of water into the overburden fills instead of lining the sides and bottoms of the fills as described in the reviewer's comment.

Use of man-made, low permeability liners in the phosphate mining setting of the Smoky Canyon Mine was reviewed in Appendix 2C of the Final SEIS for the Panels B and C (BLM and USFS 2002). That document, and Section 2.7.5 of the SEIS, evaluated an alternative similar to that proposed by the reviewer, placing a low permeability liner under the overburden, collecting water on top of the liner, treating the water, and discharging the water to a nearby stream. This alternative was determined to be unfeasible and was eliminated from detailed analysis. These reasons are still valid for the Panels F and G proposed operations thus this type of liner under the overburden fills at Panels F and G is considered not feasible. Review of use of impermeable liners has been added to **Sections 2.6 and 2.7** of this FEIS.

An alternative cover design has been considered in the FEIS to address the reviewer's comment that incorporates the maximum level of infiltration reduction economically feasible under the anticipated conditions for Panels F and G. This is discussed in **Section 2.6.1** of the FEIS.

4. Comment: If final cover designs are not to be specified in the next draft EIS, then cover performance specifications should be stated. Otherwise, cover design and performance could be something significantly different than what is being discussed/disclosed in the next draft EIS. [Ltr950 Cmt188]

   Response: A revised and more detailed description of the proposed cover design has been added to **Section 2.6** of the FEIS. This design is more protective than the required infiltration rates calculated by the groundwater impact analysis in **Section 4.3.1** of the DEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

5. Comment: Technology exists to protect these streams from selenium contamination, and the materials needed to implement this technology are present onsite. Although implementing these protective measures would increase the cost of mining, the water and fish in Deer and Sage Creeks do not need to be, and should not be sacrificed to facilitate mining. [Ltr950 Cmt201]

   Response: As described in the new **Appendix 2A** to the FEIS, remedial actions are planned that are intended to have immediate and also long-term remedial effects on the existing contamination at the Smoky Canyon Mine. For the proposed mine expansion, the Agency Preferred Alternative includes a cover design that would limit infiltration of water into the overburden to protect water quality.

6. Comment: A more effective method of protecting ground and surface waters from selenium contamination would be to use low permeability liners on the sides and bottom of the backfilled pits to limit infiltration of contaminated water into the Wells formation, and/or as a barrier to migration so that water contaminated by the seleniferous waste can be collected and treated before discharge. Since none of the proposed alternatives in the DEIS are likely to meet water quality standards, this approach should be evaluated as an additional alternative in the EIS. [Ltr950 Cmt202]

   Response: See the response to PC 144 Comment 3.

7. Comment: The backfill could be encased with an impervious liner, either clay or synthetic, that would prevent seepage from leaving the backfill and reaching the groundwater. To prevent the pit from filling with water, there would be pumping and monitoring wells placed in the backfill with a plan to keep the backfill dry by pumping the seepage whenever it starts to accumulate. This design would still have a cover designed to minimize seepage but with the recognition that seepage will occur and that it must be captured, treated, and discharged in an acceptable manner. This scenario - which is essentially that proposed at the golden Sunlight mine in Montana to keep its acid producing waste rock from contaminating groundwater with seepage through the backfilled pit - would essentially require. [Ltr950 Cmt424]

   Response: See the response to PC 144 Comment 3.

8. Comment: The cover design should be redone considering the uncertainty inherent in the model's predictive capacity. Uncertainty should be included by using stochastic modeling to provide a confidence band around the prediction. The following parameters should be considered as variables with a specified probability distribution during the modeling.
   - hydraulic conductivity
   - dispersivity
   - storage coefficients
   - porosity
   - recharge from the pits (the variability determined from a sensitivity analysis of the recharge model). [Ltr950 Cmt432]

   Response: The potential uncertainty related to the model inputs and results is disclosed in the DEIS. The apparent conservative nature of the groundwater impact analysis is described by additional groundwater modeling information included in **Section 4.3.1** of the FEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are now well below the State and federal surface water standards for selenium. Instead of further defining the uncertainty of the groundwater modeling results, the Agencies prefer to deal with the uncertainty through a reasonable degree of conservatism in the cover design. By improving the effectiveness of the Alternative D cover, compared to that evaluated in the DEIS, the predicted releases of selenium in groundwater to the surface streams are below the applicable water standards by a wide margin. The Agencies believe this margin is enough to deal with the uncertainty of the analysis.

9. Comment: Phosphate mining has been and is the major source of water pollution in southeast Idaho. The DEIS admits as much, "Phosphate mining throughout southeast Idaho, including Simplot's existing operations, has impacted, and continues to impact, surface water quality by contributing various COPCs primarily selenium." (DEIS page 4-66). But the agency is ever optimistic that the industry will not just continue doing what it has done in the past. "In recent years, focus on this issue has resulted in various environmental protection strategies and BMPs to reduce or eliminate such contributions (DEIS 4-69). As the following passage indicates, the BLM apparently assumes that Simplot will not do it again here if it is just given another chance.

   "The Proposed Action and Alternatives incorporate several of these strategies. As such, past or current examples of mining-impacted surface water quality cannot necessarily be cited to predict similar impacts from the proposed mining. These strategies and BMPs have not yet been monitored over any extended period of time, so their effectiveness is assumed through general experience to be sufficient at this time." (DEIS page 4-69)

   It is very unclear what "general experience" means in this context. The BLMs prior reliance on such experience seems to have lead to CERCLA orders at every phosphate mine in southeast Idaho. The BLM, relying on untested and unverified methods, assumes that Simplot's strategies will work and declares there will be negligible impacts from surface runoff. "Assuming that the environmental protection strategies called for in Chapter 2 are effective in reducing overburden seeps and eliminating surface exposure of selenium-bearing materials that runoff can contact, related impacts from the proposed mining on surface water quality should be negligible." (DEIS page 4-69) [Ltr950 Cmt456]

   Response: The DEIS narrative quoted from page 4-69 was referring to "general experience" with existing environmental protection measures used to control contact of surface water with seleniferous overburden and seeps on external overburden fills. These environmental protection measures are included in the BMPs discussed in **Section 2.5** for erosion, sedimentation, and selenium control. These environmental protection measures include covering seleniferous overburden with chert and topsoil covers and controlling runoff and sediment transport from mining areas with ditches, sediment ponds, and standard erosion control measures such as vegetation. All of these measures have been recently employed at the Smoky Canyon Mine and elsewhere in the phosphate mining industry of Southeastern Idaho, and have been shown to be effective (**Appendix 2D** of DEIS). This pre-existing knowledge has been included into this EIS via the appendix. Therefore, there is no need to conduct more site-specific analyses of these protection measures within this EIS and the statement on page 4-69 that these measures are assumed to also be effective for the proposed Panels F and G is reasonable.

   The current CERCLA status of the existing phosphate mines in Southeastern Idaho is almost entirely due to the selenium contamination source in ROM phosphate mine overburden where such overburden is exposed on the surface and/or in contact with surface water or near-surface groundwater. The intense investigative efforts completed in the area since about 1997 have clearly explained the sources and pathways for the selenium contamination from the overburden into the environment (**Sections 3.1.5** and **3.1.6**). The Agencies and mining industry have identified a number of robust environmental protection measures that can address the selenium concerns to reduce the potential for contamination of soil, vegetation, surface water, and groundwater

(**Appendix 2D**). These measures have been employed at phosphate mines in the area within the last 5 years and have been shown to be effective over this time frame. As the quoted section of the DEIS on page 4-69 indicates, these practices have not been monitored "over any extended period of time". However, the selenium control BMPs that are referred to for control of selenium releases are: 1) not placing seleniferous overburden in direct contact with perennial or ephemeral streams; 2) covering seleniferous overburden with enough chert and soil to minimize uptake of selenium in reclamation vegetation and eliminate contact of the overburden with surface runoff; 3) eliminating known selenium accumulator plants from reclamation seed mixes; 4) grading and covering overburden to reduce infiltration of snowmelt and precipitation to reduce potential for overburden seeps; and 5) controlling erosion and discharge of sediment from seleniferous overburden to surface streams. None of these BMPs are highly technical or experimental in nature and the potential effectiveness of following them to reduce the reoccurrence of past selenium releases is practically obvious. Hence it is not unreasonable for the Agencies to have confidence in their effectiveness in reducing selenium releases from future mining operations.

10. Comment: The chert cover over backfilled overburden should decrease movement in some of the pathways but certainly not others. Prior to approving this design, the BLM should require proof that it will work. Because of the sensitivity of the site, it is not appropriate to test a design here. Therefore, the project should not be approved until another site has been constructed and monitored for a sufficient time to prove that the cover will work after reclamation. [Ltr950 Cmt457]

    Response: The cover design detail for Alternative D has been improved between the DEIS and the FEIS and this additional information is included in **Section 2.6.1**. The store and release cover includes from top to bottom: 1 to 2 feet of topsoil, 3 feet of Dinwoody shale, and 2 feet of Rex chert. This 6 to 7 foot thick cover would be placed over all areas of seleniferous overburden. The ability of this cover to reduce infiltration into the ROM overburden through the combined effects of runoff, evaporation, and transpiration has been shown through extensive unsaturated flow modeling using accepted modeling approaches. The cover design being proposed for this application is not unusual or unique and similar cover designs have been widely used. Thus, the Agencies would not be experimenting with the design at Panels F and G. Regardless, the monitoring requirements for the cover design include construction of highly monitored test pads at the Smoky Canyon Mine that would provide data on the effectiveness of the cover design early enough in the process so any necessary modifications could be made during reclamation of Panels F and G (see **Appendix 2E**). Finally, the reclamation (and covering) of Panels F and G would be concurrent with mining so experience would be gained with construction and operational monitoring of the cover during the life of the project and any lessons learned early in this time frame would be used to improve later versions of the cover.

11. Comment: The only intervention that would allow the agencies and Simplot to decrease selenium loading to Sage Creek over the short term (10 to 40 years) would be to install a pumpback system to capture the load before it reaches the stream. Absent this intervention, contamination from the existing mine reaching Sage Creek will actually be getting worse, not better, during the projected duration of mining under the Proposed Action. The mining will eliminate numerous springs as the following passage indicates:

"Within the South Fork Sage Creek basin, two springs (SP-UTSFC-200 and SP-UTSFSC-100) would likely be eliminated during Panel F mining, ...In the late summer and early fall, when baseflow conditions dominate, these springs averaged a combined flow of about 0.01 cfs (Maxim 2004d)... These springs could provide subsurface flow channel flow to South Fork Sage Creek. The USFS has stock-watering rights (No. 4054) to SP-UTSFSC-100. While this right would be affected by mining due to the loss of the spring, its minimal flow contribution meant that rights to stream flows downstream should not be measurably affected. ...Several discrete springs in the Deer Creek basin would be disrupted, or diminished (SP-UTNFDC-400, SPUTNFDC-600, SP-UTNFDC-530, and SPUTNFDC-540) during Panel F mining. Not including SP-UTNFDC-530 (for which no flow information was collected during baseline studies), these springs were supplying a combined flow of about 0.0007 to 0.0033 cfs during the base flow monitoring events (Maxim 2004). [Ltr950 Cmt463]

Response: See response to PC 144 Comment 2 above for the pump back system.

12. Comment: These springs will not likely return after backfill or reclamation because they depend on the unique geology of the Meade peak formation. The mining will breach that aquitard and allow the water to seep deeper to the Wells formation. Under federal public land law, BLM must ensure that springs and waterholes, which are reserved for public use, must be protected. Springs and waterholes on public land in the West are reserved for public use by Public Water Reserve No. 107, which was created by Executive Order by President Calvin Coolidge in 1926. [Ltr950 Cmt464]

    Response: Public Water Reserve No. 107 is a Presidential Order from 1926. This order reserves all springs and water holes on public land for public use. It also withdraws these areas from settlement, location, and sale. The order does not protect springs from disturbance or development, but it does reserve them for public use. Thus, these lands are managed under the local land use plans; the 1988 Pocatello BLM RMP, and the 2003 CNF RFP. According to these plans, development of phosphate reserves is a recognized appropriate and important use of resources.

13. Comment: The DEIS predicts selenium leaching from the proposed mine expansion will degrade downstream surface water. Concentrations on groundwater discharge at South Fork Sage Creek spring and Deer Creek will equal 0.010 mg/l (DEIS, page 4-40). The predicted concentration for Crow Creek is 0.004 mg/l, which is just below the surface water aquatic standard (0.005mg/l). Table 4.3-15 shows that Se concentrations on Crow Creek downstream of the confluence with Sage Creek will be 0.0048 mg/l.

    As discussed above, these predicted concentrations ignore the uncertainty inherent in the analysis. They also depend on concentrations in the receiving water, the stream into which the groundwater discharges, being low enough to dilute the groundwater. In Crow Creek, the baseline Se concentration is 0.002 mg/l (Maxim 2004), therefore the added groundwater discharge will more than double the baseline concentration. This violates anti-degradation standards regardless of whether the final concentration violates the surface water standard. Because of the inherent variability in the concentration and flow rates in Crow Creek, the surface water standard will likely be exceeded often. This is because as flows less than those occurring at the same time of the observation the groundwater discharge will make up a higher proportion of the flow rate and the

selenium concentration will become higher. Also, the Se concentration in Maxim (2004) is one-time observation; there is no indication or its variability and even assuming that it is representative of the mean concentration, there is still a 50% chance at any given time that the baseline concentration will exceed this mean. [Ltr950 Cmt465]

Response: The reviewer is citing the predicted concentrations at these locations for the Proposed Action, which is not part of the Agency Preferred Alternative. As shown in **Section 4.3.1 and 4.3.2** of this FEIS, for the Agency Preferred Alternative (Alternative D) the peak concentrations in groundwater at the discharge locations at South Fork Sage Creek and Deer Creek are approximately 50 percent of the surface water standard.

The reviewer's statement about Crow Creek is incorrect. The baseline data in **Appendix 3A** of the DEIS for Crow Creek above Deer Creek (SW-CC-100) shows the average total selenium concentration is 0.00079 mg/L and not 0.002 mg/L as indicated by the reviewer. When the selenium load from the Agency Preferred Alternative is added to Deer Creek, the calculated selenium concentration in Crow Creek downstream of Deer Creek in the DEIS would be so low that this discharge would not have a substantial impact on the aquatic biota in the stream.

14. Comment: Thus, there is a very good chance that the surface water selenium concentration will exceed 0.005 during the times that the baseline concentration exceeds 0.002 and during times when the flows are substantially less than that occurring when the observation was taken. The fact, however, that groundwater discharge will have a substantial impact on the aquatic biota in the stream.

    The addition of selenium to aquatic ecosystem is important due to its propensity to bioaccumulate. Over time, microorganisms either eat most of the selenium or it adheres to sediment (Lemly 1999). Above 0.002 mg/l, this selenium bioaccumulation becomes toxicologically important. Yet, the DEIS ignores bioaccumulation which will occur throughout the project area and downstream through Crow Creek and the Salt River. During the NEPA process, all impacts must be considered. Because of the toxicity of selenium to aquatic life, it is essential that the DEIS continue to the point where the additional increase due to this proposed project becomes negligible. It must also account for bioaccumulation using the methods suggested by Lemly (2005) or an equally appropriate scientific methodology.

    As part of the downstream analysis, the total selenium load on streams downstream from this project, specifically the Salt River which will ultimately receive selenium from this proposed project, should also be calculated. As part of this calculation, the contribution of this project should be determined. The calculation should continue downstream until the additional load caused by this project becomes negligible. [Ltr950 Cmt466]

    Response: Additional information on the potential bioaccumulation and toxicity of selenium in Project Area streams has been added to the fisheries sections of the FEIS. A new appendix describing bioaccumulation of selenium and its effects in aquatic habitats has also been added to the FEIS (**Appendix 3C**). The calculated selenium concentrations in Crow Creek downstream of the proposed operations and upstream of

the Salt River are included in the EIS and are shown to be less than the State surface water quality criteria.

Public Concern ID 146

The BLM/FS should recognize that the draft EIS fails to disclose and correctly analyze the effect the mine expansion would have on springs in the affected project area

A group of conservation organizations provided the following concerns in their comment letter regarding springs.

1. Comment: The DEIS acknowledges that the proposed mine expansion will eliminate 13 springs, including seven springs in Panel F and two more in Panel G. As high as this number is, it does not approach the actual number of springs and seeps that will be lost: many more small seeps in the study area were not included in the DEIS analysis simply because they were just that, "small". Moreover, according to the DEIS, "[[s]]prings currently in use that are disrupted by mining or covered by road building would be replaced with alternate, permanent and generally equivalent water sources by Simplot" It is not clear what "currently in use" means, but beneficial uses do not typically include fish and wildlife habitat for us. Since the agencies are only requiring Simplot to replace springs currently in use, it seems fair to conclude that many, if not most, of the springs in the expansion area will be permanently lost or impaired. Seven of the springs that will be lost are in the Deer Creek drainage: four feed the North Fork Deer Creek and three feed Deer or South Fork Deer Creek. Flow reduction due to loss of springs leads to degradation and loss of habitat for trout and other fish, which may be particularly serious in the Deer Creek system because portions of that system are already 303(d)-listed as impaired due to habitat degradation. The DEIS fails to disclose and analyze this impact either for the Deer Creek system and its cutthroat trout, or for any of the other tributaries and their fish that will be affected. Finally, most of the springs and seeps that are not eliminated by the mine will suffer a reduction of flow rate and selenium contamination, as noted in the groundwater and surface water sections of these comments. [Ltr950 Cmt38]

   Response: All the springs identified in the Project Study Area that would be impacted by the proposed operations are listed in **Table 4.3-10** of the FEIS. Springs other than these would not likely be affected. Of the springs feeding North Fork Deer Creek, two springs would be disrupted with a combined flow of 0. 012 cfs and two with a combined flow of 0.014 cfs could have their flows decreased. When compared to the flow in North Fork Deer Creek, 0.3 to 2.5 cfs, the potential loss of spring flow accounts for less than 0.5 to 4 percent of the flow in the creek. One spring in South Fork Deer Creek watershed would be covered with chert overburden and the DEIS indicates that this flow may not be lost but would exit the aquifer under the overburden. This is also the case for two small springs in the Deer Creek watershed. Two other springs in an unnamed tributary to Deer Creek would also be affected, one with a flow of 0.002 cfs would be disrupted and the other with a flow of 0.003 cfs could have a decrease in flow. The Deer Creek channel at this point in the watershed is intermittent so these flow reductions would have minimal impact on low flows in the Creek. **Section 4.3.2** Baseflow Reductions of the EIS characterizes the effects of decreased flows of these springs on the nearby streams as “minor, local, and long-term”.

It is important to understand that North Fork Deer Creek and South Fork Deer Creek were added to the 303(d) list after the DEIS was written because of sediment impairment. The reviewers do not explain how minor flow reductions in spring flows within the watersheds of these impaired streams would further contribute to this impairment. A discussion of the effects of these minor reductions in water flow may have on fish has been added to **Section 4.8.1** of the FEIS.

2. Comment: Yet another negative impact that would result from this proposal is its effect on springs and seeps, and the subsequent effects on fish and other aquatic resources. As noted in our comments on surface waters, the proposal's effects on springs include expected reductions in flow and elimination owing to disruption of groundwater flow, as well as degradation and contamination of water quality as the result of the mining operations. We know that the DEIS' failed to adequately describe the importance of these springs in its discussion on surface waters. We also know the permanent loss and/or impairment of these springs and seeps will have consequences for YCT [Yellowstone Cutthroat Trout]. Unfortunately, the DEIS does not provide adequate information about or a clear picture of the magnitude of those impacts. We do know that at least four of the springs that will be lost or have their flows altered provide water to Sage or South Fork Sage Creek. Another provides surface flows into Manning Creek while one more feeds Wells Canyon. Four others make up a significant part of the flow in the North Fork Deer Creek, and three provide water to Deer or South Fork Deer Creek. As Trotter notes, the consequences of these impacts could be significant, but the DEIS fails to assess them. [[T]]he Deer Creek tributary system is the one remaining bastion of cutthroat trout within the affected area of the Crow Creek drainage. Flow reduction due to loss of springs leads to degradation and loss of habitat for trout and other fishes, which may be particularly serious in the Deer Creek system where portions of the system are already 303 (d)-listed as impaired due to habitat degradation. The DEIS fails to disclose and analyze this impact either for the Deer Creek system and its cutthroat trout, or for any of the other tributaries and their fishes that will be affected. [Ltr950 Cmt64]

   Response: See response to PC 146 Comment 1 above.

3. Comment: Given that: (1) parts of the Deer Creek system are already on the Idaho 303(d) list as impaired due to sediment and habitat degradation; (2) the loss of springs feeding into the Deer Creek system is likely to lead to further habitat degradation and loss; and (3) the increased selenium inputs to Deer Creek resulting from mining operations Panels F and G are likely to adversely effect the system's trout population and other fish, it is likely that mine expansion as now proposed under any of the mining alternatives will have both short and long-term, major, and both local and regional impacts on Deer Creek's cutthroat trout. These impacts are significant and are likely to be irreversible. The DEIS' failure to disclose and analyze these impacts violates NEPA. [Ltr950 Cmt65]

   Response: The 303(d) listing of Project Area streams occurred after the DEIS was written and information on this change and how it affects the alternatives has been added to the FEIS. The potential impact of loss of springs feeding Deer Creek was evaluated in **Section 4.3.2** of the DEIS and determined to be “minor, local, and long-term”. Additional evaluation of this flow reduction impact on fisheries has been added to

Section 4.8.1 of the FEIS. Impacts of selenium inputs to trout in Project Area streams were evaluated in **Section 4.8.1** of the DEIS and described as being: “long-term, site-specific (within various reaches) and moderate to major”. The DEIS did disclose these impacts in full compliance with NEPA. Additional information on bioaccumulation of selenium has been added to the fisheries sections of the FEIS and a new **Appendix 3C** has been added with comprehensive information on this topic.

4. Comment: Regarding the proposed action effect on springs, Table 4.3-8 of Subsection 4.3.1 lists twenty springs that will be affected by the proposed action and alternatives (these are also shown in DEIS **Figure 3.3.-3**). According to the DEIS, ten of these springs will be eliminated altogether because of mining in Panels F and G and disturbances in the South Lease Modification area, or because they will be covered by road building. Three more will have their flows reduced or eliminated owing to disruption of groundwater flow by these disturbances, and the remaining seven will be affected by see page from overburden and will suffer water quality reductions. Under mitigation Measures in Subsection 4.3.3, the DEIS states that "Springs currently in use [[emphasis mine]] that are disrupted by mining or covered by road building would be replaced with alternate, permanent and generally equivalent water sources by Simplot..." It is not made clear just what "currently in use" means, but beneficial uses do not typically include leaving water in streams for fish. Therefore, I conclude that these springs will be permanently lost or impaired, and that this environmental impact will go without mitigation. [Ltr950 Cmt352]

   Response: Mitigation for the loss of existing springs used for wildlife or livestock purposes would be required by the USFS under the CNF RFP and the potential mitigation measures are described in **Section 2.10** of the FEIS.

5. Comment: Of the springs that will be eliminated or suffer flow reduction or loss, four feed Sage or South Fork Sage Creek, one feeds Manning Creek, one feeds Wells Canyon, four feed North Fork Deer Creek (a stream known to hold cutthroat trout, a sensitive species, according to a Forest Service report cited in the DEIS as USFS 2003b), and three feed Deer or South Fork Deer Creek. Later, in my comment on Section 4.8 Fisheries and Aquatics, I point out that the Deer Creek tributary system is the one remaining bastion of cutthroat trout within the affected area of the Crow Creek drainage. Flow reduction due to loss of springs leads to degradation and loss of habitat for trout and other fishes, which may be particularly serious in the Deer Creek system where portions of the system are already 303(d)-listed as impaired due to habitat degradation. The DEIS fails to disclose and analyze this impact either for the Deer Creek system and its cutthroat trout, or for any of the other tributaries. [Ltr950 Cmt353]

   Response: The impacts to springs in the North Fork of Deer Creek are described in **Section 4.3.1** of the EIS. The impacts of the loss of these springs on stream flows are disclosed and discussed in **Section 4.3.2** of the EIS. Reduction in flow to Deer Creek from these springs was calculated in the EIS as being from 0.5 to 1 percent of the flow in the creek, which was described as a minor impact. **Section 4.3.3** also describes that loss of available surface water sources for uses such as wildlife or grazing, as a consequence of mining operations shall be replaced or mitigated by Simplot in accordance with the CNF RFP requirements. The ecological functions and values of the spring replacements would likely be different than the original springs.

6. Comment: With regard to Se effects, the DEIS states that if nothing were done to prevent it, the concentrations of Se in groundwater reaching South Fork Sage Creek Spring and lower Deer Creek would exceed the surface water standard. Since Sage Creek is already 303(d)-listed as impaired for Se and its fish already far exceed the whole-tissue Se standard, and Deer Creek already carries enough Se that its fish are also approaching the whole-tissue Se threshold, this would be a major impact that, in addition, would endure for 50 years or more in Deer Creek and 100 years or more in Sage Creek. To prevent this from happening, the proposed action and alternatives rely on the application of BMPs for erosion, sediment, and selenium control during mining and a program of reclamation afterward. It is imperative for the DEIS writers to get into detail about how BMPs would be applied and the likelihood that they would be successful. Although probably not as serious in its consequences as the Se concern, how the mine operators would apply BMPs to control sediment inputs to streams also needs amplification. [Ltr950 Cmt354]

   Response: It is important to note that the Agency Preferred Alternative contains design features to maintain selenium concentrations in South Fork Sage Creek and Deer Creek within current State aquatic criterion for selenium. There is no whole-tissue standard for selenium in fish tissue that is applicable for regulating discharge of selenium to Sage Creek and Deer Creek. Additional information on the application of sediment controls for the disturbed areas and infiltration control for the cover has been added to **Sections 2.5** and **2.6** of the FEIS.

7. Comment: The mitigation section proposes that Simplot will replace depleted or destroyed springs "with alternate, permanent and generally equivalent water sources...in accordance with the RFP requirements" (DEIS, page 4-84). The DEIS fails to analyze the replacement sources as required by NEPA. It is not known whether water is available or what the impacts of acquiring that water will be. There is also no provision for the replacement source to be available in perpetuity as will be required if the original source is buried or dug up by mining. [Ltr950 Cmt474]

   Response: Descriptions of available mitigation techniques that will be considered for compliance with the RFP have been included in **Section 2.10** of the FEIS.

Public Concern ID 153

The BLM/FS should acknowledge that the designated cover material would be quite porous, is readily leached, and generates once-through column leachate selenium concentration which exceed toxic thresholds for fish and wildlife

1. Comment: A commenting group stated that the Agency Preferred Alternative (pages ES-5) selects Alternative D (placement of an infiltration barrier cap over areas of seleniferous overburden disposal) as a way to reduce selenium releases. Is this "low selenium chert" Cap material referred to on page 2-44 the same as the chert used to generate the pore water chemistry table on page 4-36? If so, it should be noted that the designated cap material will be quite porous (i.e., coarse texture, page 2-33), is readily leached (page 4-36), and generates once-through column leachate selenium concentrations of 3-36 ug/L, which are some 10 times the toxic threshold for fish and wildlife when food-chain bioaccumulation is factored in (see Lemly 2002). These numbers indicate that the proposed cap material is certainly not "low selenium" from the

standpoint of fish and wildlife health, and will likely make a significant contribution to the total amount of selenium released from the mine site in addition to that released from the ROM [Run of Mine] overburden. If this is not the chert intended for use as a cap material, then the proposed material needs to be analyzed for selenium via dry weight analysis, static leaching test, etc. (See Lemly 2006 for guidance). [Ltr950 Cmt382]

Response: As described in **Section 4.3.1** of the EIS the chert thickness in the cover would be such that it would be leached relatively rapidly compared to the ROM overburden thus the average pore volume chemistry is more representative of the chert leachate. For Panel G this is 0.003 mg/L and for Panel F 0.012 mg/L. These concentrations are much lower than the toxicity thresholds for terrestrial wildlife and 0.6 to 2.4 times the selenium surface water standard (0.005 mg/L) as opposed to the reviewer's estimate of up to 10 times the toxic threshold. In addition, water in the chert portion of the cover would not be discharged to surface streams but would infiltrate the overburden and underlying Wells formation rock so would not present any direct risk of contamination to aquatic habitat.

Public Concern ID 158

The BLM/FS should recognize that to permit the proposed expansion would cause residual selenium toxicity problems for over 100 years

1. Comment: A commenting group stated that even with the limited groundwater models used to prepare the DEIS, predictions indicate that waterborne selenium discharges at 85 to 100 years post-mining (pages 4-70) will have concentrations that can easily bio-accumulate to toxic levels in aquatic food chains (5-10 ug/L, Lemly 2002). The Secretary of Agriculture and the Bureau of Land Management should not permit a process that could cause residual toxicity and place trust resources (and future land managers) in jeopardy for 100+ years. [Ltr950 Cmt392]

   Response: The modeling of the Agency Preferred Alternative in this FEIS indicates the selenium concentration in groundwater discharges to surface waters from the proposed operations would be well below applicable surface water standards. The Agencies' responses to Dr. Lemly's concerns about impacts to aquatic resources are addressed in **Section 7.3.11** of this document.

Public Concern ID 160

The BLM/FS should acknowledge problems with the recharge model's estimates of potential recharge and rerun the Hydrologic Evaluation of Landfill Performance model

A group of conservation organizations provided the following concerns and comments.

1. Comment: An additional observation/concern on the HELP [Hydrologic Evaluation of Landfill Performance] modeling is that the modelers used precipitation data from Pocatello, ID, in the model because site precipitation data was not available. The elevation of Pocatello is 4463', while the mine elevation is 7600'. Increases in elevation typically lead to significant increases in precipitation. No calibration to compensate for elevation difference was performed for precipitation as was done for temperature data. Since precipitation at the mine-site is likely to be higher than that in Pocatello, leading to

higher infiltration rates into the mine waste, the HELP [Hydrologic Evaluation of Landfill Performance] modeling should be rerun to account for this discrepancy. [Ltr950 Cmt208]

Response: The HELP modeling did not use precipitation values from Pocatello but utilized the annual precipitation values from the most representative Snotel monitoring site (Slug Creek Divide) and the stochastic coefficients for Pocatello, Idaho. These data were used within the HELP model to stochastically generate the 100-year precipitation time series for the site. This is the same approach as has been used for all three previous phosphate mine EISs completed in Idaho since 1999. HELP tends to overestimate net percolation in semi-arid environments (like late summer and south and west slopes at the Smoky Canyon site) because it does not accurately simulate the upward movement and removal of moisture in the near-surface environment due to matric potential, which can be an important means of removing water from the water balance (Scanlon et al 2002). Its application at the Smoky Canyon site is expected to result in generally conservative estimates of net percolation. Adjusting the precipitation input values to a more conservative condition as suggested by the reviewer was not considered necessary.

2. Comment: The recharge model, which estimates recharge through the backfilled pits, grossly underestimates the potential recharge and its leaching capabilities. The model underestimates annual precipitation during wet years because it inappropriately uses statistics from Pocatello, ID. This decreases the transient recharge fluxes that would occur during very wet years. [Ltr950 Cmt409]

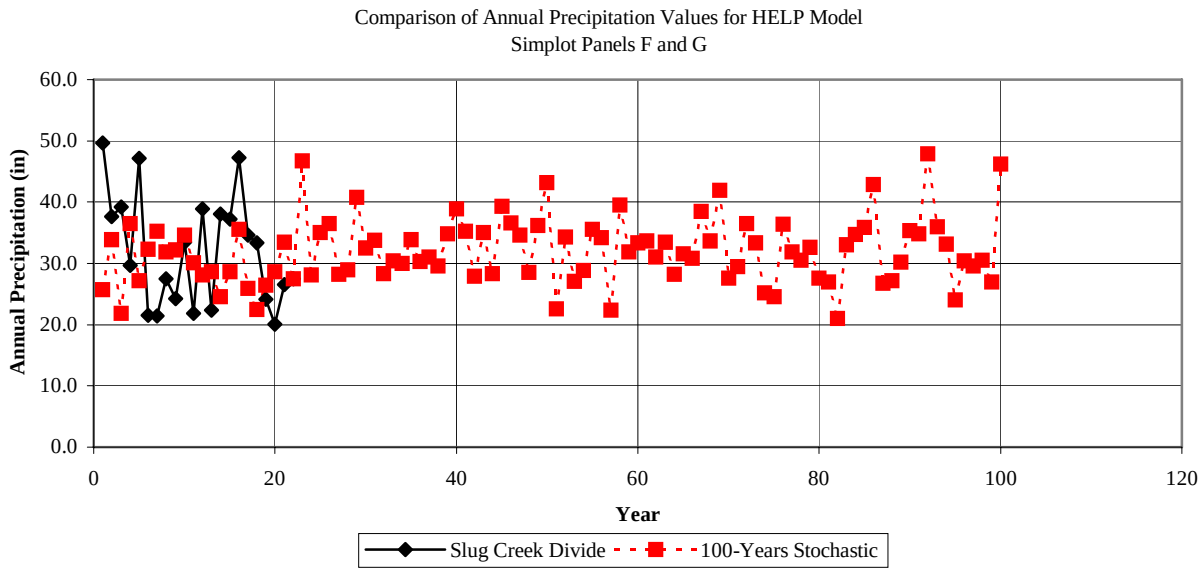
   Response: The reviewer does not offer an alternative approach to calculating a long-term precipitation time series for use in HELP. The Agencies have used the best tools available to acquire a 100-year series of climate data. One alternative could have been to utilize the 22-year daily precipitation record at the Slug Creek Divide site to calculate station-specific stochastic coefficients using EPIC or a similar model. As will be shown below, the Pocatello coefficients appear to give an acceptable estimate of the long-term precipitation at the site by utilizing the Slug Creek Divide monthly data.

   The Agencies disagree with the reviewer's characterization that the differences in the variance between the Slug Creek Divide and the stochastic time series used in the HELP modeling mean the stochastic results "grossly" under predict moisture moving through the overburden. The Slug Creek Divide data are only 22 years of record compared to the 100-year time series for the stochastic data. The fact that the standard deviation is lower for a population that is almost five times larger than the Slug Creek Divide is not surprising and does not automatically invalidate the usefulness of the longer time series. However, focusing on the standard deviation alone does not adequately describe the relative comparability of the two data sets, shown in the table below:

Statistic	Slug Creek Divide	HELP Model	% Difference in Precipitation
Mean (inches)	32.0	32.0	0
Median (inches)	31.5	31.9	-1.3
Standard Deviation	9.09	5.34	NA
Sample Variance	82.5	28.5	NA
Skewness	0.42	0.56	NA
Range	29.6	26.9	9.1
Minimum (inches)	20.1	21.1	-5.0
Maximum (inches)	49.7	47.9	3.6

The mean and median precipitation values for the two datasets are essentially the same. With regard to the minimum and maximum precipitation values, the two data sets are less than 5 percent different from each other. We conclude from this that the important precipitation values of the two datasets are actually quite similar and the maximum precipitation value in the HELP model dataset is only 3.6 percent lower than that for the Slug Creek Divide dataset; certainly not a “gross underprediction” as indicated by the reviewer.

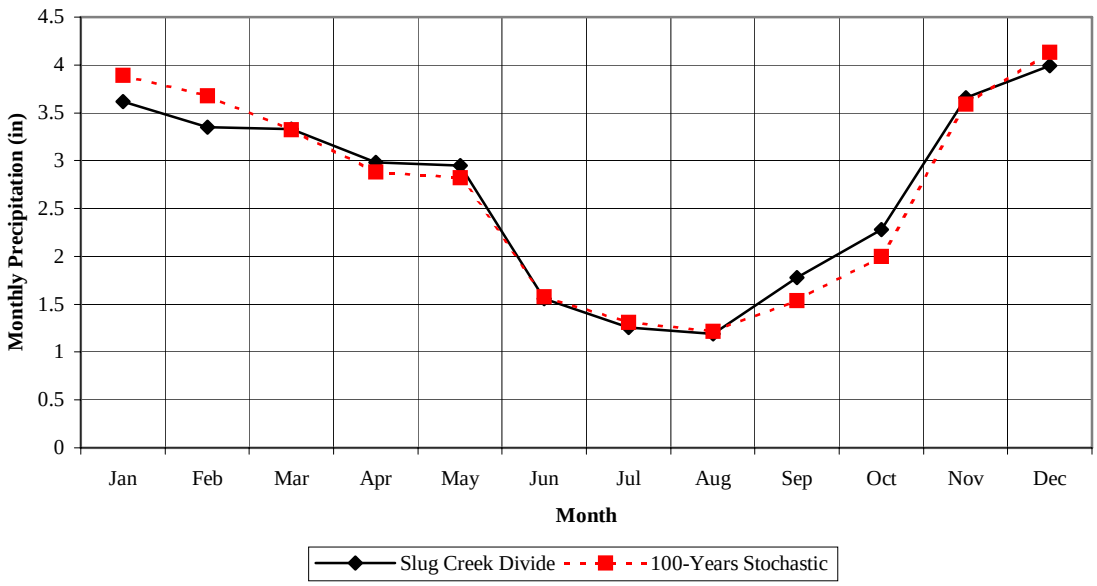
The Agencies have also evaluated the relative frequency of the annual precipitation values within the two datasets. The annual precipitation values for Slug Creek Divide and the 100-year stochastic time series used in the HELP modeling were divided into classes of 5-inches each with the percentage of the total record for each station for each precipitation class calculated and plotted in the following figure. Seven percent of the annual precipitation values in the stochastic time series are greater than 40 inches versus 14 percent for the Slug Creek Divide time series. The two data sets are approximately equal in the percentages of slightly above average precipitation years (35 to 39 inches per year), but the percentage of average (30 to 34 inches per year) precipitation years in the stochastic time series is more than 2.5 times that of the Slug Creek Divide data. The stochastic time series has about 1.5 times more of the slightly less than average (25 to 29 inches per year) precipitation years than the Slug Creek Divide Data but it also has 4 times fewer low precipitation years (8 percent) than the Slug Creek Divide time series (32 percent). In general, the stochastic time series has a greater percentage of years with average to above average precipitation than Slug Creek Divide and a smaller percentage of dry years than Slug Creek Divide.



The Slug Creek Divide dataset is more strongly skewed to drier years compared to the HELP dataset used in the modeling. We conclude from this that the HELP dataset used in the modeling actually describes an overall wetter climate for the Smoky Canyon Site than is indicated from the available data at Slug Creek Divide alone. The cover at Panels F and G would remain wetter with the HELP model stochastic time series than for the Slug Creek Divide time series. Therefore, the net percolation at the site is not grossly under predicted.

The Agencies have also analyzed the monthly distribution of precipitation between the 22-year Slug Creek Divide time series and the 100-year stochastic time series used in the HELP modeling. The following figure shows the plot of average monthly precipitation for both time series. This shows that precipitation during the months of December through February is higher in the HELP stochastic time series than in the Slug Creek Divide data. This is important because most of the annual recharge in this portion of Idaho is the result of snowmelt. The December through February precipitation nearly always falls in the form of snow, resulting in a large snowmelt in the spring. The modeled snowmelt, in our opinion, will result in more recharge using the current HELP model precipitation data than if only the Slug Creek Divide data were used. We conclude that the recharge as a result of using the 100-year stochastic time series is likely more conservative (more recharge) when compared to the Slug Creek Divide dataset rather than under predicted as claimed by the reviewer.

Comparison of Monthly Precipitation Values for HELP Model
Simplot Panels F and G



Based on all the above, the 100-year stochastic precipitation used in the HELP model is not grossly under predicted as indicated by the reviewer but most likely is slightly over predicted, compared to the Slug Creek Divide dataset.

Variable net percolation fluxes through the surface of an overburden fill do not result in equally variable recharge fluxes at the water table, which is what is used to estimate contaminant load for the groundwater modeling. This is because the long-term, net percolation rate at the bottom of over 200 feet of overburden material and 200 to 500 feet of underlying Wells Formation is not as sensitive to occasional extremes in precipitation as are the descriptive statistics of the precipitation datasets. Increased amounts of net percolation that occur in wet years are balanced by decreased amounts of net percolation in dry years. The dampening effect of unsaturated flow through hundreds of feet of material evens out the annual seepage flux at the base of the unsaturated flow path so it more closely approximates the average net percolation value through the cover than the extremes. This is true for the Proposed Action condition and even more so for Alternative D where substantial removal of precipitation infiltration peaks would occur through designed storage and release within the cover.

3. Comment: The recharge model, which estimates recharge through the backfilled pits, incorrectly underestimates the potential recharge and its leaching capabilities. The model overestimates average temperature, which dries the model layers quicker than would occur at the mine. [Ltr950 Cmt410]

   Response: The HELP modeling utilized the regional air temperature data available. The lapse rate utilized for generation of the 100-year daily stochastic air temperature time

series, while extrapolated outside the available data, is the only available information with which to predict long-term site air temperature.

The reviewer also alludes to dry versus moist (saturated) adiabatic lapse rate and how they are different. The HELP modeling utilized the "environmental" lapse rate, which for the data analyzed, falls between the generally accepted values of the day and moist adiabatic lapse rates for the climatological stations used. The generally accepted typical dry adiabatic lapse rate is 5.37 ^{o}F/1000 feet of elevation change. The generally accepted moist adiabatic lapse rate is 2.7 ^{o}F/1000 feet of elevation change. The average generally accepted environmental lapse rate is typically defined as 3.57 ^{o}F/1000 feet of elevation change (International Civil Aviation Organization 2006). The data from the eight nearby climatological stations used to calculate the environmental lapse rate used in the HELP modeling gave an environmental lapse rate of 3.36 ^{o}F/1000 feet of elevation change. This lapse rate is closer to the moist adiabatic lapse rate and, in fact, does produce a lower air temperature than if the dry adiabatic lapse rate were used as alluded to by the reviewer. Therefore, the environmental lapse rate used to calculate air temperatures at the Smoky Canyon mine site is realistic and gives a 40 percent cooler air temperature than if the dry adiabatic lapse rates were utilized.

It is believed that the approach used is scientifically sound and is based on actual data and not speculation as are the comments of the reviewer related to cloud cover and lapse rate at higher elevations. The effects of cloud cover in air temperatures and solar radiation are poorly understood as noted in global circulation models. Our judgments for the Smoky Canyon Mine site related to cloud cover and its impact on temperature and solar radiation are that the effect of cloud cover in the mountains on temperature is different than what the reviewer claims. Cloud cover during the winter tends to cause increased temperatures in the mountains compared to clear skies, which are colder. During the summer, cloud cover during the day might reduce temperatures but would also tend to increase temperatures at night. It should be noted that the solar radiation values calculated in the HELP model include the effects of cloud cover based on a regression relationship between cloud cover and daily precipitation (more precipitation means more clouds and less incident solar radiation).

4. Comment: The recharge model, which estimates recharge through the backfilled pits, incorrectly underestimates the potential recharge and its leaching capabilities. The model does not consider all sources of inflow. In addition to the precipitation, interflow to the pit backfill from the pit walls and surface runoff into the pits will add to the inflow. [Ltr950 Cmt411]

   Response: The overall issue of whether or not the recharge rate in the pit backfills predicted by the HELP model should be adjusted outside the model by some groundwater interflow amount was discussed in the EIS. It is explained that the proposed mine panels will remove all the Phosphoria formation rocks up-dip (east) of the final highwall. Therefore, there will be no up-dip, in-place Meade Peak and Rex Chert members to host groundwater interflow into the pit backfill. These same rocks located behind the highwall are known to dip to the west and northwest, which is also the direction of groundwater flow in the area. Thus, it is considered very unlikely that noticeable interflow of groundwater from the pit highwall into the backfill will occur. This is borne out by observations at the Smoky Canyon Mine over 20 years of mining in the

same rocks and structural regime; i.e. groundwater flow from the highwalls into the pits is minimal.

There is no uphill watershed for the Panel G pit backfill (it is on the top of a hill) so the HELP modeling did not need to include any runon into the pit backfill area. The HELP modeling of Panel F also considered runon. The topographic map for that reclaimed panel shows that the higher elevation terrain to the west of the future highwall and the reclaimed topography of the pit backfill meet to form a local low point along the top of the highwall. Thus, drainage channels built along this alignment should be effective for the long term, particularly, if they are excavated in solid rock behind the highwall. This is a much different situation than the reviewer cites with regard to some of the runoff containment ponds at the Smoky Canyon Mine. In addition, the HELP modeling considered the requirements of the applicable BMP for any drainage channels built over overburden fills (DEIS **Appendix 2D**). This calls for such channels to be designed for the 100-year, 24-hour peak runoff event so they should be stable. These would also be clay lined under the channel riprap to prevent seepage into the underlying overburden. Hence, there is no need to include seepage from these channels into the backfill HELP modeling.

5. Comment: The estimates of infiltration into the groundwater from seepage through the backfill must be improved by changing several things that caused the HELP [Hydrological Evaluation of Landfill Performance] model to underestimate the recharge.- the precipitation statistics should be updated with a high standard deviation so that wet years are better simulated. -the air temperature should be better estimated because the estimate is too high which causes too much evaporation. -the recharge should include interflow and run-on that reaches the backfill as well. -recharge should be estimated on a seasonal basis to provide seasonal transient flow to the transport modeling. [Ltr950 Cmt427]

   Response: See responses to Comments 2, 3, and 4 above.

6. Comment: The recharge rate controls the rate of inflow from the backfill to the groundwater. This flow will drive the chemistry input to the solute transport model through the model. The seepage rate had been determined with HELP3 modeling to vary from 2 to 21 inches per year (Knight Piesold 2005). This report reviews the HELP3 modeling below and finds that the seepage rates used herein are too low. The fate and transport analysis required a series of assumptions (JBR 2005, page 35-36), two of which render the ultimate results, the prediction of contaminant concentrations at various discharge points, incorrect. First, the most problematic assumption with the model is that contaminants instantaneously mix through the entire thickness of layer 1 or up to as much as 200 feet in depth. As the contaminated infiltration seeps through the unsaturated portion of the Wells Formation, its concentration results from leaching, but he model assumes that when it reaches the groundwater the contaminants immediately disperse vertically through the layer. This decreases the concentration in the groundwater substantially prior to the commencement of transport in the saturated aquifer. In reality, the highly concentrated seepage reaches the saturated zone and then dispersion does not occur for a period of time as the groundwater and contaminant slug advects in the downgradient direction. Observations by NewFields (2005b, page 10-2) confirm that there is substantial stratification of selenium concentrations in the aquifer. [Ltr950 Cmt493]

Response: This argument is incorrect because it fails to recognize the difference between total mass loading of selenium per volume of water reaching a discharge location with total mass loading due to piston flow containing a set concentration. In the flow model, all of the water at the discharge points such as Lower Deer Creek and South Fork Sage Creek comes from the entire thickness of Layer 1 thus the contamination throughout the entire thickness of the layer contributes to the concentration at the discharge point. In the steady-state model the volume of water reaching each discharge location remains constant with time. The volume would be essentially steady with time even if a transient model were constructed because the volume of discharge is small relative to the total volume of water in storage. This idea is supported by the relatively constant total measured discharges over time at several springs in the Project Area. The mass of selenium released each year is also a set amount, and decreases gradually from year to year. Thus, the concentration in the layer(s) carrying the contaminant does not alter the total mass of contaminant traveling to the discharge location. Differences in travel times between shallow and deeper groundwater, which may travel more rapidly than deeper groundwater, will not alter the contaminant mass reaching the discharge location or change the volume of water reaching the discharge location. An example should help clarify this.

Assuming the total mass of selenium released from an overburden waste pile is 1000 Kg/year and the total volume of water reaching a discharge location is 10,000 l/sec, the total mass of selenium reaching the discharge location would be 31.7 mg/sec or 0.003 mg/l. All of the selenium could be carried in a layer 1 foot thick with a discharge rate of 1,000 l/sec or in 2000-foot thick layer with a discharge rate of 10,000 l/sec. The concentration in the 1-foot thick layer would be 10 times as great as the concentration in the 2000-foot layer, but the concentration at the discharge point would be the same for either case (i.e., 0.003 mg/l).

7. Comment: Because springs and discharges to surface waters would tend to draw more from the upper layers of the aquifer, this assumption substantially decrease the estimated concentrations. Detailed estimates are difficult outside of the model, but if a plume of groundwater with a concentration of 0.5 mg/l disperses across 200 foot thick aquifer layers while it would naturally only disperse across 20 feet, this model assumption would decrease the concentration to 10 percent of its actual value. Second, the solute transport modeling also assumes that ambient groundwater concentrations are zero. The model calculates downgradient concentrations based solely on the transport of contaminants from the site. However, the changing groundwater flow due to the new recharge will also change the direction and possibly enhance the flow of existing groundwater. As documented by Maxim (2004) and discussed in another section of this review, existing groundwater under proposed Panels F and G has high Se and Mn concentrations. The new recharge may push existing contaminants toward water discharge sites quicker than without the proposed mine. This is additional degradation that the DEIS does not consider. Because it is required to consider the impacts of all aspects of this project, the DEIS must consider how the project will move existing mass around the aquifers and to the streams and springs. Therefore, the solute transport model should be redone to determine whether changing fluxes also change the movement of ambient [Ltr950 Cmt494]

Response: See the response to PC 160 Comment 6 above for the response to the first part of this comment. For the second part, as described in the EIS, the concentrations of manganese and selenium in monitoring well DC-MW-5 are considered to be artificially high due to problems with developing this deep, low-yield well. Therefore, they are not considered to be indicative of natural groundwater chemistry. Groundwater chemistries in various shallow monitoring wells installed in the Meade Peak member are representative of localized, fracture-controlled groundwater occurrences not connected with the regional, Wells formation aquifer. We believe the existing water chemistries of the Wells formation water at lower Deer Creek, Books Spring, and MC-MW-1 are representative of the Wells formation as a whole, including where it underlies the proposed mine panels. The water chemistry at these locations is described in the EIS. The average dissolved manganese concentrations for all these locations was less than 0.01 mg/L and dissolved selenium was approximately 0.001 mg/L. These indicate essentially non-detectable concentrations of both solutes in baseline Wells formation aquifer groundwater.

8. Comment: Knight Piesold (2005) used the HELP model to simulate seepage through pit backfill. This section documents the several ways in which the model underestimates that seepage. The model performs a water balance of each layer to determine how much water infiltrates to the next layer. Basically, precipitation either infiltrates through the surface or runs off to surface water. That which infiltrates is either stored as soil moisture for later evapotranspiration, flow laterally downgradient as interflow, or infiltrates further into the ground to become recharge. The model may simulate more than one layer prior to determining the amount of recharge. Seepage moves downward through the layers as the moisture content is exceeded. Once the infiltration gets past the lowest layer in the unsaturated zone, Knight Piesold appropriately assumes it moves toward the groundwater as recharge. The precipitation used by Knight Piesold in their 100-year duration modeling substantially underestimates the available seepage. Knight Piesold appropriately used the Slug Creek Divide Snotel site to determine the average precipitation, but inappropriately used Pocatello ID for the other statistics. The simulated annual standard deviation was much less than that at the Slug Creek site (5.3 compared to 9.1). This is wrong because it is not just the mean that describes a data set but also the higher moments including variance. For a time series, it is also important to simulate autocorrelation. Although the simulated and observed annual averages are the same, the simulation under-predicts precipitation during wet years. [Ltr950 Cmt495]

   Response: See response to PC 160, Comment 2 above.

9. Comment: The highest precipitation year in 100 years of simulated data is about 2 inches less than the highest observed in the 23 year observed data set. The simulated data is biased not just in terms of it maximum values, but also in terms of its frequency of high values. For example, the observed data set from Slug Creek Divide has three years with precipitation exceeding 47 inches and the simulated data exceeds 47 inches during just one year; one other year is just less than 47 inches. This is because the simulation does not utilize the correct variance describing variation around the mean. The gross under prediction of precipitation during wet flow years will cause an under prediction of moisture slugs moving through the cover. It will also allow the backfill to dry out quicker, making more soil moisture deficit available to store infiltration during subsequent years. Back-to-back wet years will infiltrate and recharge more because of

year-to-year residual moisture storage. This is known as antecedent moisture conditions. By underestimating annual precipitation, the model allows the layers to dry more and store more during the following years. The annual precipitation value show three to five years in a row of above normal precipitation, therefore seepage predictions for subsequent years may be lower than they would be if the backfill (in the model) was not too dry. By underestimating the excess moisture during wet years, Knight Piesold has underestimated the quantity of the downward moving slugs. During dry normal years, the cover may capture most of the precipitation, but his failure to adequately consider the high precipitation year causes the average seepage to be substantially underestimated. As a result, the recharge used by JBR (2005) for designing the cover and predicting contaminant plumes and discharges to the streams is too low. [Ltr950 Cmt496]

Response: See response to PC 160, Comment 2 above.

10. Comment: Similar problems may bias the temperature data. Knight Piesold used a monthly lapse rate derived from eight stations to adjust the monthly average temperature recorded at Afton, WY downwards to obtain an estimate of monthly average at the site. The site is about 800 feet above any of the sites used in the lapse-rate model therefore this analysis extended the relationship outside the range for which it was developed. Statistically, this is inappropriate because it essentially extends the relationship into a new population. It is unknown whether the linear relationship continues because it depends on humidity and cloud cover. The dry adiabatic lapse rate differs substantially from the west adiabatic lapse rate. Additionally, cloud cover could affect the temperature data; if there is more cover at high elevations, the lapse rate would be different. Because of the propensity for higher elevation to develop more clouds, especially during wet years, it is possible this site has substantially less sunshine which results in a much lower average temperature than estimated here. This assumption which probably overestimates the temperature also leads to more evapotranspiration from the model layers. During dry months, the layers dry too much thereby making too much storage available; this decreases the recharge just as does the underprediction of precipitation during wet years. [Ltr950 Cmt497]

    Response: See response to PC 160, Comment 3 above.

11. Comment: The model also incorrectly assumes there is no inflow other than precipitation; this includes both interflow from upgradient and overland flow from upstream on the hillside. Maxim notes that in part of both Panel F and G, groundwater was noted in boreholes above the bottom of the pit. "Depth to groundwater … in the Panel F area show that relatively shallow groundwater is present in the Meade Peak and Rex Chert Members of the Phosphoria Formation in the vicinity of upper Manning creek where several local faults are mapped" (Maxim 2004, page 50). The report notes that this inflow is 100 to 200 feet above the bottom of the pits. "In the Panel G area, groundwater is also present in the Meade Peak and Rex Chert Members of the Phosphoria Formation along the west side of the proposed mine pit area" (Maxim 2004, page 50). This flow will continue after backfill, therefore the HELP [Hydrological Evaluation of Landfill Performance] modeling must be redone to include this. [Ltr950 Cmt498]

Response: See response to PC 160, Comment 4 above.

12. Comment: The model also ignores surface water runoff reaching the site because it assumes the diversions will remain effectively in perpetuity. As documented in the DEIS for stormwater runoff, the containment designed by Simplot at the existing mine has not operated as it was supposed to, therefore the planning for this project should not assume it will work into the future either. The HELP modeling should include runoff from upstream drainage areas into the pits that do not have a finish elevation higher than surrounding ground surface. [Ltr950 Cmt499]

    Response: See response to PC 160, Comment 4 above.

13. Comment: Other data used in the HELP modeling, reported in section 4, including leaf area index evaporation depth, and length of growing season appear reasonable. The soil properties and the method for determining curve numbers appear reasonable as well. However, it is inappropriate to base the properties for the run of mine material on previous HELP analysis unless those analyses have been verified in the field to have been correct (Knight Piesold 2003, page 14). If they are not correct, using them herein merely perpetuates an error. Appendix F (Knight Piesold 2005) contains output from all of the model runs. There is a separate run for each panel for each of the three cover types, (1) chert only, (2) chert with growth medium, and (3) chert, growth medium, and a foot of barrier soil. Thus, there are many sets of output, but all of the output provides just the average seepage through the panel that is then used as the recharge in the transport model. It is not possible to assess with this output how the seepage changes with precipitation. If the seepage value in the higher precipitation years causes an additional 1 inch per year of seepage and assuming that that applies to 20 years of the 100 year data set, the average seepage would increase by 0.4 inches/year. This would not be a substantial increase to alternative 1, but it would completely ruin the design of the cover as analyzed in alternative 3 (alternative 1 and 3 and analyzed by Knight Piesold roughly correspond to the proposed action, alternative A, and the preferred action, alternative d, in the DEIS. [Ltr950 Cmt500]

    Response: The reviewer has provided no information that the previous ROM material characterization data for the Smoky Canyon Mine overburden are incorrect. These data were prepared by experienced, geotechnical professionals who sampled Smoky Canyon Mine ROM overburden and tested it with accepted methods. Because the Panels F and G mine is not yet operational, ROM overburden samples are not available for testing. The only site-specific samples that are available are drill cuttings, which are much finer grained than ROM overburden and thus not suitable for material testing of this sort. Therefore, ROM material properties from previous testing of exactly the same types of materials at the nearby Smoky Canyon Mine are the best data available and were used in the HELP modeling. The Agencies believe this approach is entirely reasonable. In addition, because the ROM is not part of the cover and no evapotranspiration can occur from the ROM after being covered, its material properties are not important to the percolation results predicted by the HELP model for the cover. Thus, a change in ROM material properties in the HELP modeling would not change the net percolation rate through the cover calculated by the model.

Public Concern ID 169

The BLM/FS should acknowledge that a large proportion of selenite could partition from solution to solids at the pH and redox conditions that exist within overburden disposal areas

Simplot provided the following concerns and comments.

1. Comment: Selenium Partitioning to Solids is Documented by Scientific Literature Dissolved selenium exists as oxyanions of the selenite (SeO32-) or selenate (SeO42-) forms at the pH and redox conditions typical of surface and near surface environments. Adsorption to the surfaces of solids is an important process regulating the concentration and mobility of dissolved selenium. The most oxidized form of dissolved selenium, selenate, is generally the most mobile in the environment due to higher solubility and lower affinity for sorption to solids relative to selenite forms. A number of previous studies have used bench scale tests to measure selenium sorption to various different types of solids. -Balistrieri and Chao (1990) describe sorption of selenite and selenate on iron oxyhydroxide and manganese dioxide surfaces under a range of pH conditions and for different ratios of solution to surface sorption sites. At the pH range typical for overburden leach and local groundwaters (6.5 to 7.5), a greater percentage of the selenite is adsorbed than the selenate. For example, when surface sorption sites were abundant, nearly 100 percent of the selenite and approximately 20 percent of the 50 ug/L of selenate in solution was adsorbed to iron oxyhydroxide (pH = 7).-Cowan et al. (1990) tested selenite adsorption by calcite and observed 50 percent adsorption of selenite from a 0.079 mg/L solution at pH of 7. The percent absorbed decreased to 40 percent when a competing anion, phosphate, was added to the solution, but the presence of phosphate (9.5 g/L) did not prevent selenite absorption. -Bar-Yosef and Meek (1987) measured sorption of selenite and selenate by montmorillonite and kaolinite. At a pH of 6.7, both selenite and selenate were adsorbed by clays from solutions containing approximately 0.1 to 1.0 mg/L selenium. Selenite was more strongly sorbed by both clays than selenate, and the percentage selenium adsorbed decreased with increasing pH. [Ltr475 Cmt65]

   Response: Balistieri and Chao (1990) tested adsorption of selenite and selenate on amorphous iron hydroxide and manganese dioxide as a function of pH. They found that increase in pH should cause a decrease in the amount of selenium adsorbed. At a given pH, selenite was found to adsorb more strongly than selenate on iron oxides and selenate did not adsorb at all on manganese dioxide. Amorphous iron oxyhydroxide had a stronger affinity for both selenium species than did manganese dioxide. At an iron hydroxide concentration of 4.4 mg/L about 40 percent of the selenite was adsorbed from solution**.** The pH of unsaturated column leach solutions for Center Waste Shale tested for this EIS generally ranged from about 6.7 to about 8.5, averaging from about 7.3 to 7.6 or within the upper end of the range of pHs tested by Balistieri and Chao. The pH of the Wells formation waters sampled for this EIS was typically about 7.3 to 7.5.

   Cowan et al. (1990) studied adsorption of selenite on calcite. They did not test calcite sorption on selenate. They found that calcite could be an important adsorbent phase for selenite in calcareous and calcareous/gypsiferous geochemical systems. They said that oxides and clays are expected to be the primary sorbents for selenite in most situations but calcite may be an important sorbent in calcareous and limestone dominated aquifer

material. They measured selenite sorption from solution to calcite of from 25 to 29 percent at a solution pH of about 7.8 (similar to Wells formation aquifer).

Bar-Yosef and Meek (1987) tested the adsorption of selenite and selenate to kaolinite and montmorillonite clay under pH levels ranging from 4 to 8. The adsorption decreased with increasing pH values and became negligible above pH 8. At the pH levels expected in the Wells formation (7.3 – 7.8) selenite adsorption to clays was about 13 percent and for selenate about 11 percent, respectively.

2. Comment: Singh et al. (1981) studied adsorption of selenite and selenate to five different types of soil. All of the soils adsorbed selenite and selenate, and the high organic content soil and calcareous soil adsorbed more selenite and selenate than saline and alkaline soils. In this study, selenate was always sorbed in higher amounts than selenite. These examples all demonstrate that sorption of selenite and selenate to common rock and soil forming minerals takes place at the pH and redox conditions present within and below overburden disposal areas. Each of these examples also concludes that sorption is an important mechanism controlling selenium concentrations in water. Evaluation of the available literature also provides some insight as to why selenite forms (i.e., the more reduced aqueous form) have not been observed in water collected from pit backfill overburden (e.g., Panel A monitoring well). Setting aside the numerous challenges associated with sampling and analysis to accurately measure reduced forms of selenium in water, the lack of observed selenite may be explained by partitioning. The results of the studies cited above indicate that a large proportion of selenite can partition from solution to solids at the pH and redox conditions that exist within overburden disposal areas. This is an especially important consideration for evaluating selenium concentrations in leachate from the pit backfill setting because selenite generated by overburden weathering will be less mobile, and less likely to be transported from the overburden, than selenate. [Ltr475 Cmt66]

   Response: Singh et al. (1981) studied adsorption of selenite and selenate to different soils including: normal, calcareous, high organic carbon, saline, and alkaline types. They found that adsorption of both selenite and selenate was influenced positively by organic carbon, clay content, calcite, and cation exchange capacity. Adsorption was negatively influenced by high salt content, alkalinity and pH. The highest amount of selenium was retained by the soil that had the high organic carbon content followed by the calcareous, normal, saline and alkaline soils. The amount of selenate sorbed per gram of soil was higher than selenite. At the highest level of selenium added, the normal soil adsorbed 23.7 to 40 percent of the selenium and the calcareous soil adsorbed 32 to 46 percent.

   An important point related to these and other studies on selenium attenuation in the literature is that most of the studies indicated stronger attenuation for selenite compared to selenate. Selenium speciation from the unsaturated test columns used to produce the seepage chemistry for the Panels F and G groundwater modeling indicates a preponderance of selenate in the column leachate. This is not unexpected given the extreme steps taken in these columns to produce oxidizing conditions in the columns and the lack of steps to preserve selenium speciation in the sample containers during the tests. In contrast, the selenium speciation measured in the saturated test column effluent was predominantly selenite and this was so even though the Eh and DO

conditions in the columns were not chemically reducing. Typical selenium stability diagrams indicate that selenite can occur in the pH and Eh range anticipated in mine overburden fills and Wells formation groundwater, but selenate can also occur. It is likely that seepage from the proposed overburden fills may be predominated by the selenite species, which the literature indicates is more likely to attenuate geochemically in the subsurface.

Public Concern ID 171

The BLM/FS should acknowledge that the Draft EIS uses highly conservative assumptions and methods to predict changes in water quality resulting from Panels F and G

Simplot, individuals, and other mining companies provided the following concerns and comments.

1. Comment: The agencies in selecting the Preferred Alternative over the Proposed Action relied upon ultraconservative modeling inputs that are more representative of historic mining practices than of the Best Management Practices planned for Panels F and G development. When the modeling inputs are revised, the model does not predict groundwater or surface water exceedances in the future. [Ltr475 Cmt1]

   Response: The Agencies do not agree that the modeling inputs for the DEIS are ultraconservative because they did not include the lower infiltration rates, and leachate chemistry inputs suggested in the Simplot comments on the DEIS. The Agencies desired to be conservative in their impact analysis because of the nature of the downgradient contamination effects that could occur from the proposed mining operations. Simplot's DEIS comments have provided additional technical information on particle size adjustment and geochemical attenuation of selenium that the Agencies believe have scientific merit and demonstrate the degree to which the groundwater and surface water impact analysis in the EIS is conservative. A discussion of this new information has been added to the groundwater impact analysis and is discussed in **Section 4.3.1** of the FEIS.

2. Comment: Simplot's comments on the water resources impact analysis support a conclusion that the Proposed Action meets the purpose and need of the project. Simplot is concerned that the DEIS' use of extremely conservative assumptions about the Proposed Action, especially when compounded upon other such assumptions, may mislead reviewers and the agencies, thereby complicating a close examination of the environmental impacts essential to making a fully informed and well considered decision in selecting the Preferred Alternative. Using a groundwater model to characterize the fate and transport of selenium, the Agencies predicted that the Proposed Action would result in future exceedances of surface and groundwater standards in the DEIS. However, the model is predicated on several extremely conservative assumptions regarding the transport of selenium from the overburden disposal areas. The following adjustments to the DEIS modeling need to be made to provide a more reasonable analysis of the likely impacts associated with mining at Panels F and: (1) the particle size adjustment to the column test data should be changed from 30% to 50%, to be consistent with the preferential flow adjustment previously made in the DEIS; (2) a partitioning factor of at least 0.70 should be applied to the particle-size adjusted values,

to be consistent with recent data from the Smoky Canyon Mine, scientific literature, and Panels F and G column testing; and (3) future improvements in receiving water quality at Sage Creek and Hoopes Springs should be taken into account, consistent with Response Actions to be taken by Simplot under an existing Administrative Order on Consent (AOC) for the historic portions of the Smoky Canyon Mine. [Ltr475 Cmt7]

Response: The Agencies have evaluated recommendations (1) and (2) in the Simplot comment and have shown the effects of these changes to the modeling results in **Section 4.3.1** of the FEIS. For recommendation (3) see the responses to PC 258. The Agencies believe that while the suggested particle size adjustment has some technical merit, we prefer not to make the change so that the resultant chemistries more closely match field data from Smoky Canyon Mine. Regarding attenuation, the Agencies have looked at empirical data presented by the commenter and laboratory data supplied by the commenter that has lead the Agencies to apply a range of attenuation from 15 to 25 percent in the FEIS. While the CERCLA actions will likely result in reduced selenium concentrations in Sage Creek prior to mixing with peak impacts from Panels F and G, the data used in the mixing models will continue to include current empirical data and also a reduced value to reflect future conditions. This shows the public and decision makers the resultant cumulative impacts if CERCLA cleanup actions for Smoky Canyon Mine were to fail.

3. Comment: When the model inputs are adjusted as suggested in these comments, to more closely approximate the physical reality of the Proposed Action, then the model predicts that the groundwater and surface water standards are met by the Proposed Action. [Ltr475 Cmt8]

   Response: The Agencies have independently analyzed the effects of the revised particle size adjustment and selenium attenuation factor on the model results and these are presented in **Section 4.3.1** of the FEIS.

4. Comment: The Agencies used a groundwater model as the primary decision making tool to develop and support the selection of the Preferred Alternative. The model also provides the basis for evaluating the impacts of the Proposed Action. The inputs to that model stack unrealistic and conservative assumptions, such that the model represents an extreme worst case, not a reasonable projection of expected conditions. In fact, careful review of the range of model inputs indicate that the DEIS analysis of groundwater and surface water impacts most closely reflects conditions associated with historic mining practices, rather than the modern selective handling and closure designs of the Proposed Action. As a result of compounding conservative DEIS assumptions, the model predicts groundwater exceedances on the east boundary on the north side of Panel F and at the east boundary of the Panel G lease and surface water exceedances at the south fork of Sage Creek and in Deer Creek and lower Sage Creek for the Proposed Action. DEIS at 4-38, 4-40.This methodology exceeds the approaches required by CEQ and the United States Supreme Court, which direct that an "EIS focus on reasonably foreseeable impacts" to "'generate information and discussion on those consequences of greatest concern to the public and of greatest relevance to the agency's decision, 50 Fed. Reg. 32237 (1985), rather than distorting the decision making process by overemphasizing highly speculative harms, 51 Fed. Reg. 15624-15625

(1986)." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 358 (1989). [Ltr475 Cmt9]

Response: The Agencies disagree that the groundwater impact analysis in the DEIS is a worst-case analysis. Because of the concern over potential impacts to surface water quality from the project, the Agencies were conservative in their selection of inputs to the groundwater modeling. However, review of the decisions made during the development of the inputs to the groundwater modeling shows that these inputs were not worst-case as suggested by Simplot. The selection of the unsaturated column results instead of the saturated column results was consistent with the hydrogeology of the proposed mine panels where saturated conditions in the backfills were considered to be highly unlikely. This was not a worst-case decision but one that was consistent with expected field conditions.

The potential range of preferential flow adjustments supported by the literature was from 20 to 70 percent and before this adjustment was investigated by JBR, a value of 100 percent had been used in all previous groundwater modeling. The smaller the percentage of material selected for the preferential flow adjustment, the faster the seepage concentrations drop over time. As was shown in the sensitivity runs for this parameter (Buck, Mayo, and Schmiermund May 24, 2005, Table 4), the modeled selenium concentrations at South Fork Sage Creek Spring drop by about 34 percent over the range of preferential flow adjustments from 100 to 20 percent With a 50 percent preferential flow adjustment (selected for the groundwater impact analysis), the modeled concentrations were about 11 percent lower than with no adjustment at all. This adjustment decreased concentrations in the groundwater model results and therefore was not a worst-case input value. A worst-case value would be to assume no preferential flow adjustment at all.

The particle size adjustment was also a measure that was investigated by JBR and proposed for use in this groundwater impact analysis where none had been used in previous groundwater impact analyses. The effect of the particle size adjustment is to decrease the concentrations of the COPCs in the column leachate to account for the greater leaching effectiveness that occurs in the columns with fine-grained drill cuttings as opposed to what is expected to occur in the field with ROM overburden gradations. Simplot is correct that the “cutoff” value of gradation selected in this adjustment is open to professional judgment, and the resulting pore volume concentrations are sensitive to the cutoff value used. Table 7 of (Buck, Mayo and Schmiermund 2005) shows the effect of the particle size adjustments on the pore volume chemistries that were considered. That table shows that selecting the ½-inch cutoff used in the groundwater impact analysis had the effect of reducing selenium concentrations in the model inputs for Center Waste Shale by up to 39 percent compared to no adjustment at all. This is not a worst-case input value; worst-case would be utilizing a column test value with no particle size adjustment at all.

5. Comment: Simplot fully understands and anticipates the need for "a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment," but this summary must include "the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community." 40 CFR 1502.22 (b)(3) and (4)

(2006). Simplot's comments first briefly address how the model was used in predicting these potential future groundwater and surface water impacts. The model provides a description of groundwater flow direction and rate under existing baseline conditions at Panels F and G. Generally the model predicts that the majority of water in the Upper Wells Formation aquifer moves eastward to the Meade Thrust fault or intermediate lateral faults, and then along the faults to the nearest groundwater discharge area (spring or gaining stream reach). The transport component of the model was used to predict potential changes in groundwater chemistry at points along these flow paths, due to the addition of water influenced by Panels F and G overburden disposal areas. The key input parameter to the fate and transport model is the selenium mass-loading rate. The model mass-loading rate is an estimate of the selenium mass released annually from an overburden disposal area to infiltrating precipitation. The model applies a mass-loading rate evenly to the Wells Formation aquifer underlying the entire footprint of an overburden disposal area. [Ltr475 Cmt10]

Response: The Agencies agree with this comment.

6. Comment: To arrive at the selenium mass loading rate, two inputs were required: (1) the amount of infiltration migrating to the Wells Formation aquifer; and (2) the concentration of selenium in that water. The amount of water infiltrating into overburden was estimated to range from 0.7 to 5.3 inches per year, depending on the overburden surface conditions, with a calculated numeric average of 2.8 to 3 inches per year by the EPA HELP3 model. To estimate the concentration of selenium in the water, column leach testing was used, with adjustments of the results made to attempt to improve the comparability of the column test conditions with anticipated field conditions for Panels F and G. These inputs provide an estimated selenium mass-loading rate directly under the Panels F and G overburden disposal areas. Based on these inputs, the groundwater transport model then predicts selenium concentrations many years into the future at various locations within the Wells Formation aquifer. The DEIS predicted exceedances of groundwater and surface water standards are born of the misapplication of several of the model inputs. [Ltr475 Cmt11]

   Response: The different particle size adjustment suggested by Simplot in its comments is a reasonable difference of opinion in how to apply this factor, not a misapplication. The selenium attenuation information provided by Simplot was not available to the Agencies in this form before the DEIS was prepared. The effects of both these adjustments have been shown in the groundwater modeling discussed in **Section 4.3.1** of the FEIS.

7. Comment: The DEIS offers, as an explanation to support the 30% particle size adjustment to the column test data, that the adjusted concentrations "compared well" to selenium concentrations measured from overburden seeps across the area. However, this is not the case. First, the statistical analyses supporting that conclusion are biased high because: (1) the lowest values of the data set were censored from the data set without balanced censoring of the highest values; and (2) an arithmetic average is used to describe the central tendency even though the data are not symmetrically distributed. Therefore the regional seep data do not provide independent confirmation of the particle size adjustment method applied to the column leach data by the DEIS. Second, and most importantly, the DEIS comparison of the model input values to the seep data base

is inappropriate at the most fundamental level for the following reasons:1. The seep database primarily reflects the concentrations of small flows of surface seepage from fully exposed seleniferous external overburden disposal areas include cross-valley fill and other disposal settings that have not been subject to any BMPs. These historic conditions are not at all reflective of the selectively handled, backfilled and covered overburden disposal of the Proposed Action.2.The DEIS model input parameter for the average selenium concentration in infiltration determines the mass of selenium reaching the Wells Formation aquifer under the entire footprint of a disposal area over many decades. This model input parameter has no relationship to the discrete points of surface seepage that comprise the seep data base.3. The selenium value identified for comparison in the EIS is roughly four times the concentration that would most likely represent seepage from a historic fully-exposed external overburden feature and therefore is conservative even within the range of concentrations from these external disposal areas. [Ltr475 Cmt21]

Response: See the responses to PC 184 Comments 14, 15, and 16.

8. Comment: When these factors are fairly considered, the net result of the DEIS comparison is to highlight that the DEIS impact analysis is equating the carefully planned Proposed Action with historic, fully-exposed external overburden disposal features now being addressed under the AOC process. This equation of the Proposed Action with practices that are no longer being used misleads reviewers and creates gross inaccuracies. For example, the model input values for selenium concentrations in infiltration are consistent with the concentrations observed in the Wells Formation Aquifer directly below the Pole Canyon overburden disposal area. The Pole Canyon overburden disposal area has seleniferous shales distributed throughout and was placed as a cross valley fill with up to 10 cfs of highly oxygenated Pole Canyon Creek flow transported along the base of the disposal area seasonally, in conjunction with uncontrolled runon and direct infiltration through the surface of the overburden disposal area. Under the AOC process, isolating the overburden materials from Pole Canyon Creek is the highest priority, and action is planned for the summer/fall of 2006. This comparison underscores how far the DEIS wanders from a reasonable groundwater/surface water analysis by presenting an extreme worst-case scenario for the Proposed Action at Panels F and G. [Ltr475 Cmt22]

   Response: The Proposed Action cover did not provide any more reduction in infiltration of water than the historic mining operations at Smoky Canyon Mine so the effects of percolating water through the overburden would be expected to be similar to historic overburden fills. This is not misleading or a gross inaccuracy as the comment indicates. The concentration of selenium in net recharge to the water table at depth used in the impact analysis is similar to that observed at the Pole Canyon overburden disposal area but is also similar to that observed at the Panel D overburden fill which is not flushed seasonally by Pole Canyon Creek. The selenium concentration used in the impact analysis is arguably not worst-case when compared against the significantly higher concentrations measured in certain other specific water samples obtained from existing overburden fill at Smoky Canyon Mine. The location of the Panels F and G upgradient from the major groundwater discharges to the Crow Creek basin is ample reason for the Agencies to adopt a conservative approach to the water quality impact analysis. The water resources sections of the FEIS have been revised with the information provided by

Simplot in its comments on the DEIS to better demonstrate the conservative nature of the agency impact analysis.

9. Comment: Three specific recommendations regarding the modeling inputs used by the DEIS to predict ground and surface water impacts: (1) use a particle size adjustment to column test data based on 50% of overburden particle sizes, rather than 30%, to be consistent with the preferential flow adjustment; (2) reduce the particle-size-adjusted values to account for at least a 0.70 partitioning factor; and (3) account for expected changes in receiving water quality at Sage Creek and Hoopes Springs consistent with the action to be taken by Simplot under the existing AOC process. [Ltr475 Cmt24]

   Response: The water resources sections of the FEIS have been revised with the information provided by Simplot in its comments on these three topics in the DEIS to better demonstrate the conservative nature of the Agencies' impact analysis. See the responses to PC 184, 255, and 258 for further details.

10. Comment: Selenium transport from the overburden was modeled as conservative; that is, no dissolved selenium released from the overburden was removed in the unsaturated Wells Formation above the aquifer or in the Wells Formation aquifer by chemical reactions or sorption to aquifer solids at any point along the transport pathway. This is an important consideration given that the transport model predicts the selenium concentrations in groundwater hundreds of feet below the mine pits and at downgradient locations quite distant from Panels F and G, including springs where water discharges naturally from the upper Wells Formation aquifer to local surface drainages. As a point of reference, the Panels F and G approach is essentially the same as the general flow and transport modeling approach used previously for the Panels B and C Supplemental EIS (BLM and USFS, 2002). However, a different, but still conservative, application of the column test results was used for the Panels F & G analysis. As noted in the final Panels B and C SEIS, the modeling approach is based on a series of assumptions, all conservative, that have a compounding effect on the level of conservatism associated with resultant predictions of impacts to groundwater and surface water quality (e.g., selenium in leachate at the initial, and highest, concentrations observed during column test; no chemical attenuation of leachate). Of specific importance are the conservative DEIS assumptions upon which the predicted selenium concentrations in water migrating from overburden to the Wells Formation aquifer are based. When coupled with other conservative assumptions, they significantly influence the groundwater flow and transport model impact predictions developed for Panels F and G. [Ltr475 Cmt52]

    Response: The comment is incorrect in asserting that the approach to modeling impacts for Panels F and G is essentially the same as for Panels B and C. The Panels F and G modeling incorporated a different approach to the time frame for each pore volume to penetrate the overburden fills (preferential flow adjustment) and the concentration of leachate (particle size adjustment). Each of these adjustments had the effect of reducing the calculated water quality impact compared to what would have occurred without the adjustments. Also see the response to PC 171 Comment 8 above and responses to PC 255.

11. Comment: Simplot has adhered to the schedule and requirements of the AOC. Simplot is required to put in place removal actions as needed to meet the Removal Action Goals, including meeting the cold water biota criteria for Sage Creek. The removal action work, along with the engineering controls and practices described in the DEIS Alternative D will ensure that the cold water biota standard is met in Sage Creek and in the South Fork of Sage Creek. Therefore, Simplot agrees with the statement in the DEIS that: Mitigation measures that would be employed at the Smoky Canyon Mine to reduce the selenium in Hoopes Spring are expected to reduce the estimated cumulative effects to Sage Creek from the Proposed Action and Alternatives. DEIS at 5-37. Although this statement is made, the DEIS analysis inappropriately assumes that current water quality conditions will persist for hundreds of years into the future. As explained in comments on the DEIS water resources impact analysis, highly conservative assumptions and methods were used to predict changes in water quality resulting from Panels F and G; therefore, the assumption that water quality will not improve in the Sage Creek drainage only compounds the overall conservatism of the surface water impact analysis and leads to a misleading summary of long-term effects on surface water quality. [Ltr475 Cmt102]

    Response: The DEIS does not assume that current water quality conditions will persist for hundreds of years. In fact the DEIS says that the current contamination levels in lower Sage Creek are expected to be remediated before the peak selenium concentrations from the proposed mining activities occur in the next 50 to 100 years. Additional information has been added to the new **Appendix 2A** of FEIS explaining the remedial measures, timing and anticipated effectiveness proposed for the Smoky Canyon Mine under the AOC.

12. Comment: The use of 3 inches of annual infiltration through the cover layer entering the ROM [Run of Mine] overburden would appear to be an overly conservative assumption. [Ltr547 Cmt7]

    Response: This was the approximate infiltration rate calculated by the HELP modeling for the Proposed Action and Alternatives A, B, and C, which did not include a cover to limit infiltration of water. This is approximately 10% of the annual precipitation at this location and a natural infiltration rate of about 10% of local precipitation is what has been used for infiltration rates in previous phosphate mine EISs in the area.

13. Comment: NEPA Requirements and Environmental Impacts: The key environmental issue dealt with in the DEIS is the protection of groundwater. The methodology of this analysis needs to be compared with the requirements of NEPA, which describe the framework for such an analysis. The analysis determines reasonably foreseeable impacts. The analysis of impacts is supported by credible scientific evidence, not based on pure conjecture. The analysis of impacts is within the rule of reason. It is important to note that NEPA does not require a "worst case" analysis; rather what is reasonably foreseeable. The methodology described in the DEIS to determine groundwater impacts is a "worst case" analysis rather than a determination of what is reasonably foreseeable. Examples include the following. Model inputs and assumptions reflect conditions from historic mining practices rather than mining practices that will be used in this project. Analysis assumes the same high rate of leaching of selenium throughout the entire footprint of each overburden disposal area. Selective use was made of column leach data that results in ultra conservative information which was then used in modeling and

other calculations. The Agencies failed to use other column leach information and data such as run-of-mine and fate and transport columns, which provide information more realistic to actual field conditions. Thus, the Agencies have chosen "worst-case" instead of, "reasonably foreseeable." The groundwater analysis needs to be adjusted to fit the requirements of NEPA, which is a reasonably forecast impact analysis rather than a "worst case" impact analysis. [Ltr560 Cmt2]

Response: The Agencies disagree that the impact analysis in the DEIS is a worst-case analysis. The impact analysis may be conservative but this is warranted due to the importance of the potential groundwater impacts of this specific project. As described in responses to previous comments in this PC, as well as responses to PCs 171, 184, 255, and 258, the Agencies have good reasons for selecting the input values used in the groundwater modeling and are demonstrating how conservative this analysis is by incorporating specific recommendations by Simplot into the groundwater impact discussion of the FEIS (**Section 4.3.1**).

14. Comment: The methods used by the agencies to predict groundwater concentrations of potential contaminants are overly conservative and incorrect. It is my understanding that all modeled results require contaminated water to enter either the underlying Wells Limestone or overlying Rex Chert for migration to occur down dip to lease boundaries or other artificial compliance points. It is also my understanding that the agencies in preparing the DEIS have failed to take into consideration measured attenuation of certain contaminates measured in laboratory tests where test solutions were run through a limestone strata. Therefore, how can the agencies defend their comment that "estimated peak concentrations of selenium in the groundwater at two of the downgradient lease boundaries would exceed the State groundwater quality standard." (Executive Summary Page ES-6)?

    Further, I hold that the tests conducted fail to accurately represent the real conditions encountered in the field. The Phosphoria Formation is widely accepted as an aquaclude, with very low permeability and conductivity. I believe that the agencies have failed to properly account for the difficulty in getting water into the Wells Formation in their modeling. Even what limited modeling that has occurred which included limestone, has included crushed limestone, a condition that isn't widely encountered in the field. The typical field condition is that the top of the Wells is composed of the Park City Grandeur Tongue, a very strong, competent limestone. So in typical backfill situations water in the backfill must migrate through the fill, picking up contaminants until in encounters either a zone of highly fractured limestone or fault structure that allows movement into the underlying Wells formation where it can proceed down dip to the compliance point. My experience is that most faults encountered are filled with very fine materials that inhibit water movement, not enhance it. [Ltr554 Cmt8]

    Response: See the other responses to comments above for reasons why the Agencies believe the selection of inputs to the groundwater modeling may be conservative but not overly so or incorrect. Using these inputs the groundwater modeling results predicted exceedances of the groundwater standards at downgradient lease boundaries for the mining alternatives other than the Agency Preferred Alternative. See the responses to comments under PC 255 for consideration of attenuation of selenium in the flow path through the Wells formation materials. The modeling did consider the local

hydrogeology and the nature of the Phosphoria formation aquitard and major faulting (see **Section 4.3.1** of the DEIS and JBR 2005). When the open pits are developed and the Phosphoria formation is removed from the top of the Grandeur limestone, seepage through the backfilled overburden will have a seepage path downward into the Wells formation. The modeling of the faults in the Wells formation included lower permeabilities across the faults and higher permeabilities along the faults, compared to unfaulted Wells formation rock. This is consistent with field observations from past regional studies by previous workers in the area as described in **Section 3.3.5** of the DEIS.

15. Comment: Natural processes will result in precipitation, snow melt, and other meteoric waters that come into contact with overburden from the proposed mining operation changing the chemical composition of these waters, just as has and is occurring in the natural environment. There is always a risk that these activities may adversely affect the environment in a manner that wouldn't otherwise occur. However, the DEIS has failed to properly assess risk. Risk is the sum of many actions or activities each of which has an independent risk or probability of occurrence. The models used to predict groundwater impacts for the proposed F & G Panels are too simplistic to accurately measure the risk. In the case of leaching of contaminants from backfilled pits for the level of these naturally occurring elements or compounds to be at levels of concern at arbitrary monitoring points a number of events must occur. First, the bench scale laboratory tests results of leaching must accurately represent field conditions. Next there needs to be a pathway for cross over from the backfill to a more permeable strata. Third, no further change in water chemistry due to chemical, biological, or other attenuation can occur as the water moves to the compliance point. Lastly, there needs to be a receptor at that point that is impacted. Each component has an associated risk and probably, the product of which is that of the total chain. Based upon the results of area wide monitoring and assessments for almost 100 years of mining in the areas, I believe the ultimate risk is very low. [Ltr554 Cmt9]

    Response: There is no question that mining the Phosphoria formation overburden, therefore breaking it up, exposing it to atmosphere and precipitation, and increasing the ability of COPCs to be leached from it causes increased potential for release of dissolved forms of the COPCs to groundwater. The models used in the groundwater modeling used state-of-the-art codes and conceptual hydrogeological models that are not too simplistic and are actually more complex than any other such model used in the Southeastern Idaho phosphate district to date. The chemical inputs to the groundwater model do compare favorably with field conditions at the Smoky Canyon Mine that are representative of leaching large volumes of overburden. There clearly would be a pathway for movement of the leachate from the pit backfills through the Grandeur limestone into the Wells formation. Change in chemistry of the leachate as it moves through the Wells formation aquifer is a hotly debated question, for which applicable empirical data was missing when the DEIS was written. More such data has been provided since then and has been incorporated into the groundwater impact analysis of the FEIS. Even so, such attenuation is not predicted to eliminate the transfer of dissolved selenium from the proposed mining operations to downgradient groundwater discharges to the surface. Finally, there is no question that most of the groundwater moving under the proposed Panels F and G mine panels discharges to the surface environment within a relatively short distance compared to other phosphate mine sites in

Southeastern Idaho. This discharge of groundwater to the surface streams and springs is the primary concern because aquatic habitats contain biological receptors that can be affected by selenium. This hydrogeological setting is different than other NEPA analyses to date for phosphate mines in Southeastern Idaho and is the reason why the Agencies have taken a conservative approach to the impact analyses.

16. Comment: A similar case can be made for surface overburden piles. Much has been made of questions concerning the ability of proposed simple capping methods to prevent a future catastrophic event. One needs to assess the cumulative risk of 1) a major geological or weather event (earthquake) combined with 2) failure of the cap, 3) infiltration of water, 4) that water encounters the selenium rich overburden stored there, 5) outflow occurs and 6) a sensitive receptor is present. Again I believe if estimated using proper scientific methods, it should [be] an extremely low probably or risk of such a combination of events. However, in the case where both industry and agencies have learned how to mitigate or minimize exposure, I believe the best management practices should be utilized. These include such techniques as maximizing backfilling of pits, simple caps to minimize infiltration, directing run-off around pits and overburden piles, etc. There is no demonstrated need for the complete elimination of surface piles as simple caps can yield the same results. A reasonable person would make their teenager wear a seat belt but wouldn't put the seat belt on and then trigger the airbag before allowing them out in the new car. Further, in the case where the area of disturbance can be minimized such as the selection of the transportation corridor without adversely affecting the optimal recovery of the resource, it is proper to do so. [Ltr554 Cmt10]

    Response: The Agencies agree with the commenter that appropriate mitigation measures should include BMPs including maximizing backfilling of pits, simple cover design to minimize infiltration, directing run-off around pits and overburden fills and others. The Agencies have modified the Agency Preferred Alternative to remove the requirement for double handling overburden as part of Alternative B and apply a store and release cover instead to the external overburden fills.

17. Comment: A commenter asked, is increased recharge of the Wells Formation aquifer a bad thing? Expected impacts to the Wells Formation aquifer ignores some of the test data that show that impacts would be considerable less or non-existent, by as much as 5x if limestone were present at the base of the overburden pile. Why was this data ignored in the risk assessment? [Ltr973 Cmt7]

    Response: The Agencies have considered the new information provided by Simplot in response to the DEIS regarding the potential chemical attenuation of selenium and have incorporate these ideas into the groundwater impact analysis included in **Section 4.3.1** of the FEIS. See responses to PC 255 for more details.

18. Comment: Has there been any test data that indicates that selenium concentrations at the reporting limit are harmful to wildlife or humans? And how far above background is 0.05 mg/L? Does this take into consideration that test data that registered below detection and then arbitrarily increased to half the detection limit, just to add conservatism to the result, were used in modeling. [Ltr973 Cmt8]

Response: As discussed in the new **Appendix 3C** to the Fisheries and Aquatics **Section 4.8** of the FEIS, there is some scientific evidence that selenium concentrations over very low levels (0.002 mg/L) may be harmful to aquatic habitats. Background selenium concentrations in the Wells formation aquifer are near or below the detection limit (0.001 mg/l). The State groundwater standard for selenium of 0.050 mg/L is approximately 50 times higher than the detection limit.

19. Comment: Agrium is concerned that the BLM has taken an overly conservative approach in developing this DEIS. As this is a NEPA action it becomes important to recall the direction given in the Act that requires evaluation of "Reasonable and Foreseeable" impacts. It is apparent in the DEIS that the BLM tends to accept more conservative assumptions when data is unavailable to substantiate all or portions of the impact analysis. This rational leads the impact analysis outside the realm of "Reasonable and Foreseeable" to a worst-case scenarios which is prohibited in the NEPA. [Ltr977 Cmt1]

    Response: The reason why the Agencies have chosen to be conservative in the groundwater impact analyses for this project is not because data was unavailable; adequate data was available to conduct the analyses. Rather, the Agencies have taken a conservative approach to analyzing the groundwater impacts from the proposed operations because of the unique hydrogeologic setting where the groundwater moving under the proposed mine panels is discharged to the surface environment a relatively short distance downgradient. As described in responses to comments under PC 255, the Agencies disagree that the impact analyses can be considered worst-case.

Public Concern ID 172

The BLM/FS should update and reinforce the information in the Final EIS regarding the AOC (Administrative Order on Consent) process

1. Comment: One commenter stated that the status of the AOC process needs to be updated and reinforced in the final EIS. [Ltr499 Cmt1 and 8]

   Response: The water resources sections of the FEIS have been updated with the latest information on the AOC process and a new **Appendix 2A** was added that describes the AOC process and results to date for the mine.

2. Comment: A commenter stated that the last paragraph on page 5-15 describing events related to the AOC process can be updated with more current information: Simplot has met all scheduled deadlines for all deliverables identified in the AOC statement of work. The Draft EE/CA for Area A, (Mining Lease Areas) was released in November of 2005 and Simplot received comments on the Draft EE/CA in March of 2006. The Consent Order for the removal action alternatives chosen by the Federal Agencies is currently being negotiated. The major removal action that was identified for remedial work is redirecting Pole Creek around the overburden disposal area (ODA) at Pole Canyon. Ancillary actions include redirecting and infiltrating run-on of storm water to prevent contact with the overburden and adding an organic surface amendment to the ODA to increase evaporation of storm water, which falls directly on the ODA. If the agencies continue to keep the current schedule, the work at Pole Canyon will begin in late summer 2006 and be completed before year's end. The sum total of these remedial

actions will result in virtual elimination of selenium bearing water moving through the ODA at Pole Canyon. The redirected water will infiltrate into the Wells formation without contacting any seleniferous materials. These actions will immediately eliminate the bulk of the selenium mass loading currently finding its way into the Wells formation aquifer through Pole Canyon. Monitoring wells at the mouth of Pole Canyon will show the results of these actions in a relatively short time period. Levels of contamination at Hoops Springs are expected to remain stable and being dropping in a few years as the aquifer clears itself of the selenium that has been entering at Pole Canyon. Selenium levels in Hoops Springs will be below regulatory levels well before the minor effects of mining from Panel F would be predicted to show up. [Ltr499 Cmt4]

Response: The water resources sections of the FEIS have been updated with the latest information on the AOC process and a new **Appendix 2A** was added that describes the AOC process and results to date for the mine.

3. Comment: While Simplot appreciates the glancing reference to the Administrative Order on Consent (AOC) process in the cumulative effects section of the DEIS, the AOC and related processes and their effects will create significant short-, medium-, and long-term benefits in the cumulative effects area (CEA) that are not fully discussed in this chapter. See DEIS at 5-6. These benefits must be considered and discussed throughout the cumulative effects chapter in greater detail. Failing to do so results in an understatement of positive developments within the CEA that are reasonably foreseeable. This failure also results in an overstatement of potentially negative cumulative effects that are unlikely to occur. Current impacts to groundwater, from the existing Smoky Canyon Mine, are not expected to continue in perpetuity. Simplot has entered into an AOC with the State and federal regulatory agencies. The AOC implements measures to determine the nature and extent of constituents of potential concern (COPC) releases. A response action will be developed by the regulatory agencies and implemented by Simplot. As mentioned previously, the Site Investigations for Area A (historic mining on federal lands) and Area B (the tailings impoundment on private ground) have been completed. The draft Engineering Evaluation/Cost Analysis (EE/CA) submitted to the review agencies in November 2005 is scheduled to be released for public review and comment in early 2006 and an agency decision document is expected in the fall of 2006. [Ltr475 Cmt130]

   Response: The water resources sections of the FEIS have been updated with the latest information on the AOC process and a new **Appendix 2A** was added that describes the AOC process and results to date for the mine. Also see responses to PC 258.

4. Comment: A commenter stated that the last paragraph on DEIS page 5-15 describing events related to the AOC process can be updated with more current information: Simplot has been ahead of all scheduled deadlines for deliverables identified in the AOC statement of work. The Draft EE/CA was released in November 2005. Simplot received comments on the Draft in March 2006. A Consent Order for the removal actions anticipated at the Mine is currently being negotiated. The major removal action that was identified for remedial work is redirecting Pole Creek around the overburden disposal area (ODA) at Pole Canyon. Ancillary actions include redirecting and infiltrating run-on of storm water to prevent contact with the overburden and adding an organic surface amendment to the ODA to increase evaporation of meteoric water, which falls directly on

the ODA. If the agencies keep the current schedule, the work at Pole Canyon will begin in late summer 2006 and be completed before year's end. The sum total of these actions will result in virtual elimination of selenium bearing water leaving the Pole Canyon ODA. The redirected water will infiltrate into the Wells formation, or pass on to Sage Valley, without contacting any seleniferous materials. These actions will immediately eliminate the bulk of the selenium mass loading currently finding its way into the Wells formation aquifer. Monitoring wells at the mouth of Pole Canyon will show the results of these actions in a relatively short time period. Levels of contamination at Hoopes Springs are expected to remain stable and begin dropping in a few years as the Pole Canyon source is controlled. Selenium levels in Hoopes Springs will be below regulatory levels well before the minor effects of mining from Panel F would be predicted to show up. [Ltr475 Cmt131]

Response: The water resources sections of the FEIS have been updated with the latest information on the AOC process and a new **Appendix 2A** was added that describes the AOC process and results to date for the mine. Also see responses to PC 258 Comments 1, 2 and 3.

5. Comment: This commenter also stated, that the DEIS predictions fail to take into account expected changes in receiving water quality prior to the time the model predicts the impacts will occur. Isolation of Pole Creek from the Pole Canyon overburden disposal area is slated for the summer/fall of 2006. The DEIS predicts the maximum impact for Sage Creek and Crow Creek below Sage Creek for 97 years and 81 years from now, respectively. By this time (and well before), the effects of isolating Pole Creek from the overburden disposal area as well as other remedial actions will be realized, and surface water quality improved. In addition, a site-specific selenium standard for Hoopes Springs and Sage Creek may well be in effect. [Ltr475 Cmt23]

   Response: See responses to PC 258 Comments 1, 2 and 3.

Public Concern ID 174

The BLM/FS should acknowledge that the draft EIS analysis of selenium impacts, seepage, and monitoring is inadequate

A group of conservation organizations provided most of the following concerns and comments.

1. Comment: Since the overriding issue in this DEIS is the unavoidable accumulation of selenium in streams and the impacts on water quality, beneficial uses, and native fish populations that will result, the measures that Simplot-and the land and resource management agencies-propose to take to make right these unavoidable impacts must be disclosed in the next draft. The new DEIS should present an active discussion of these options in a subsection on mitigation that is properly located to follow Subsection 4.8.3. [Ltr950 Cmt182 and Cmt364]

   Response: A new DEIS is not considered to be necessary and the Agencies have made changes to the information in the FEIS to respond to comments on the draft. Additional information has been added to the Fisheries sections in the FEIS related to bioaccumulation of selenium in fish and the potential for this to occur in the Project Area streams. Additional information has also been added to the groundwater impact

analysis in **Section 4.3.1** of the FEIS to better describe the conservative nature of the groundwater impact analyses. Finally, more information on the cover design, and its consideration of the uncertainties inherent in the impact analysis has been added to **Section 2.6.1** of the FEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

2. Comment: When the environmental impacts of the alternatives are described in the current DEIS, there is no discussion of the health hazards that are associated with increased water concentrations of selenium or with the accumulation of selenium in fish living in impacted streams. Therefore, the potential for health effects is not fully acknowledged by the current DEIS. The next version must correct this flaw. [Ltr950 Cmt197]

   Response: The Agencies are not aware that any downstream residents in the Crow Creek watershed obtain their drinking water from surface streams. However, the **Section 4.3.2** of the EIS indicates the calculated maximum selenium concentrations in Crow Creek from the proposed mining activities as being 10 times less than the drinking water standard. The potential human health effects from selenium in streams is arguably most critical for subsistence lifestyle users of these resources and discussion of the human health effects of the selenium concentrations is discussed in **Section 5.15** of the EIS. These are described as being minimal. Additional discussion on the potential human health effects of drinking surface water and eating fish affected by bioaccumulation of selenium in fish within Crow Creek has been added to **Sections 4.3** and **4.8** of the FEIS.

3. Comment: Ground water discharges from the mine, which clearly have a hydrologic link with surface waters, contributing selenium contamination to Deer and Sage Creeks. The Agencies' Preferred Alternative will permit the new mining to contaminate the lower portion of Deer Creek, which presently has a low background level of selenium, and to further contaminate the lower section of Sage Creek, which has already been placed on the Idaho 303(d) list. These streams are also have resident populations of Yellowstone cutthroat trout, dace, shiners, sculpin, whitefish, and brown trout which could be threatened because of the increase in selenium in these streams, especially if the levels of selenium should exceed Idaho water quality standards. [Ltr950 Cmt199]

   Response: As described in **Sections 4.3.1** and **4.3.2** of the EIS, groundwater discharges to lower Deer Creek and South Fork Sage Creek are not anticipated to exceed Idaho water quality standards for selenium as a consequence of implementing the Preferred Alternative. Impacts to fisheries from the proposed operations are described in **Section 4.8** of the EIS.

4. Comment: Page 3-22: statement: "According to the Site Investigation Report (NewFields 2005), EPA has identified protective concentrations ranging from 9.5 to 15 mg/kg dw for salmonid species including rainbow and cutthroat trout" [[emphasis added as italic]]. Unfortunately, NewFields (2005) cites EPA (2002) in their statement on pages 9-6 and 9-7 of their report, but do not include the EPA (2002) citation in their reference section

(Section 12 of their report). I believe the range of values in NewFields (2005) comes from Table 4 in GLEC (2002), which is the draft document of the draft aquatic life water quality for selenium prepared by the Great Lakes Environmental Center for the U.S. Environmental Protection Agency. GLEC (2002) is cited in the DEIS on page 3-144. The range of chronic values from acceptable tests for five salmonid studies in Table 4 in GLEC (2002) range from 9.659 to 15.74 ug/g dw, and not 9.5 to 15 ug/g as given in the NewFields (2005) or in the DEIS on page 3-22. More importantly, the range of values are the whole-body selenium residues where adverse effects occurred in those studies; consequently, the range of protective concentrations would be below that range. [Ltr950 Cmt239]

Response: The Fisheries sections of the FEIS have been revised with additional information on selenium toxicity and a new **Appendix 3C** on selenium was added to the FEIS.

5. Comment: Pages 4-148, Unavoidable (Residual) Adverse Impacts: I agree that impacts related to selenium accumulation would be unavoidable. This paragraph emphasizes that the current water quality criterion for selenium of 5 ug/liter would be exceeded during summer/fall in some streams and in summer/fall/winter in other streams. However, selenium bio-accumulation becomes toxicologically important above waterborne selenium concentrations of 2 ug/liter based on a review of federal, state, university, and international sources, and consequently, has been proposed as a national water quality criterion for selenium (reviewed in Hamilton and Lemly1999). Selenium concentrations above 2 ug/liter result in bio-accumulation in sediment, aquatic plants, aquatic invertebrates, fish, and predators feeding on lower trophic levels. Selenium impacts on fishery and aquatic resources would be substantially higher than alluded to on pages 4-138 to 4-149. [Ltr950 Cmt253]

   Response: The DEIS states that the exceedance would occur for all action alternatives except Alternative D, the Agency Preferred Alternative. The 0.002 mg/L threshold stated by the reviewer is not an accepted regulatory threshold by the State and is not enforceable in surface waters of the State. The 0.005 mg/L water quality criteria is the current regulatory standard that was used in the DEIS to determine compliance status of the proposed operations with applicable water quality regulations. Additional information on selenium toxicity has been added to the Fisheries sections of the FEIS and a new **Appendix 3C** on this topic has also been added. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

6. Comment: Using the results of the load transport analysis, there should be a selenium hazard analysis completed to show whether this project will have deleterious effects and to quantify those effects. The analysis can also show how much the load will have to be decreased overcome the concerns. [Ltr950 Cmt435]

   Response: An impact analysis of selenium has been included in the DEIS water resources and fisheries sections. This analysis has been augmented with additional information in the FEIS to better place the selenium impact analysis in perspective. A

selenium hazard analysis as proposed in Lemly (2006) has not been conducted because this reference is not approved or accepted by the Agencies as guidance and is contrary to the requirements of NEPA because it promotes a worst-case approach. Worst-case analysis under NEPA was withdrawn in 1986 [51 FR 15618, 4/24/86].

7. Comment: A conservation group stated that the reclamation monitoring is designed to last a few years to ensure that reclamation meets agency requirements. However, due to the slow rate of groundwater flow, the success of reclamation activities may not be known for 50-250 years or more. The agencies need to design a monitoring plan for this timescale and hold on to the reclamation bond for this time period. We are especially concerned that the infiltration barriers will degrade over time with root penetration and geotechnical shifting. [Ltr978 Cmt10]

   Response: The Agencies have included information on the monitoring plan for the project in the new **Appendix 2E** to the FEIS. In addition, the IDEQ will require inclusion of a contingency plan in any Consent Order for Panels F and G that will propose actions that could be applied if monitoring indicates that additional mitigative measures are required.

8. Comment: It is interesting to note in this section that it is predicted that with a recharge rate of 3 inches per year (for the Simplot Proposed Action, with only 4 feet of chert cover and no Dinwoody infiltration barrier), it will take 146 years for one pore volume to "flush" through the waste. (DEIS, p.4-36). According to **Figure 4.3-1** - Weighted Average Panel G Backfill Selenium Concentration, it will take a flush of approximately 3 pore volumes until the rate of selenium discharge from the waste reaches a steady state - approximately 300 to 450 years after mine closure. Since the 3 in/yr recharge rate is at least twice that of what was calculated for Mining Alternative D (see the paragraphs below), this means that contamination from the seleniferous waste will be present for a very long time - in the neighborhood of 500 to 1,000 years. It would be more appropriate to discuss the selenium contamination in the EIS in terms of the time, in years, that ground and surface waters would be impacted, rather than in terms of "pore volumes," as it is presently presented in **Figure 4.3-1**. [Ltr950 Cmt216]

   Response: **Chapter 4** of the DEIS shows that the Proposed Action would not comply with surface and groundwater standards. Thus, the Agencies have included Alternative D in the Agency Preferred Alternative. The Agencies have no indication that percolation into the backfill would be greater than that calculated for Alternative D. In order to determine compliance with applicable standards, the EIS describes impacts to ground water in terms of peak impacts and time until those impacts occur. Generally, beyond the peak, impacts would be less. The long-term concentration of selenium in the leachate from the overburden may be overstated by the impact analysis in the EIS. The pit backfills may become less oxidizing over time through the combined effects of chemical and biological changes. Not enough information is currently available to quantify and incorporate these effects so they were not included in the impact analysis. The concentrations shown in **Figure 4.3-1** of the DEIS are not expected to reflect conditions over the next 500 to 1,000 years as suggested by the reviewer.

9. Comment: The 'iterative process' referred to in the DEIS refers to a process in which variables in the model are changed until a desired infiltration rate is obtained. However, the DEIS does not explain what cover variables were changed in the 'iterative process' to determine the DEIS target recharge rates of 1.5 in/yr in the southern portion of Panel F and 1.2 in/yr in Panel G. If the change in infiltration rates is due to a change in the thickness of chert, the difference in the results could be significant in that a thicker cover would yield lower infiltration rates for those portions of Panels F and G where infiltration rates were allowed to be greater than 0.75 inches per year. [Ltr950 Cmt221]

   Response: The reviewer is mistaken that the iterative process used in the DEIS was based on changing the cover variables. Rather, the groundwater model was run multiple times with decreasing percolation rates at the mine panels to determine at which percolation rate the applicable water quality standards were complied with in the Project Area groundwater and surface streams. This then established the maximum allowable percolation rates through the cover that would be approved by the Agencies as being compliant with the Agency Preferred Alternative. The detailed design of the cover has since followed the cover percolation targets established by the DEIS. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

10. Comment: The types of tests used to determine the selenium content of mine waste, and the frequency of the testing, should be specified in the new draft EIS. [Ltr950 Cmt189]

    Response: The chemistry of the topsoil used in the reclamation has already been determined from the baseline studies. The Dinwoody formation is not known to host seleniferous shale units and the non-seleniferous nature of this material has been confirmed with assays during the design phase of the store and release cover. The chert used in construction of the cover would be assayed in compliance with the Construction Quality Assurance/Quality Control Section of the existing Smoky Canyon Mine Environmental Monitoring Program, which specifies 4 samples for assay from each mine lift.

11. Comment: In this section the Best Management Practices (BMPs) that will be utilized during mine operation are described. In the discussion of testing and placement of the seleniferous waste, it is stated: "Production staff shall track the origin and placement of overburden materials. Environmental staff shall verify with periodic testing or visual inspections during mining that overburden materials have been properly handled." DEIS, **Appendix 2C**. However, there is no further explanation as to what tests will be performed, or how frequently these tests will be performed. The types of tests used to determine the selenium content of mine waste, and the frequency of the testing, should be specified. [Ltr950 Cmt225]

    Response: See the response to PC 174 Comment 10 above.

12. Comment: The Forest Service and its contractors have been unable to conduct a thorough and complete EIS and decisions are made without knowing if selenium could become a problem. Thus, mining permits are issued without understanding the potential for selenium pollution. These oversights result in violations of NEPA as well as other federal acts that pertain to water quality and wildlife health; for example, the Clean Water Act, Endangered Species Act, and Migratory Bird Treaty Act. The Forest Service is liable for environmental damage that occurs as a result of violations and the agency and/or specific individuals can be held accountable through legal actions. Indeed, selenium-related lawsuits and environmental appeals have been brought against the Forest Service repeatedly in the past decade. [Ltr950 Cmt378]

    Response: Each of the recent mining permits has followed an intense analysis of potential environmental impacts of selenium following complete NEPA analyses that have indicated anticipated compliance of the proposed operations with all applicable federal statutes.

13. Comment: Additional work is needed to adequately characterize selenium discharges from the Agency Preferred Alternative and the associated toxic threats to fish and wildlife. There are serious technical flaws that undermine the scientific credibility of the document with respect to fish and wildlife health issues. [Ltr604 Cmt2, Ltr950 Cmt379]

    Response: Additional information has been added to the Fisheries sections of the FEIS and a review of selenium toxicity to fish has been added to the FEIS in a new **Appendix 3C**. The Agencies disagree that the EIS is technically flawed with regard to scientific credibility of the impact analyses.

14. Comment: Eleven core drillings (page 4-31) is inadequate to characterize selenium concentrations over the 1,300+ acres to be disturbed. Given the high spatial variability of selenium in phosphate deposits and associated strata (a factor of 1000 or more over a distance of a few feet), about 10 times this amount (one core per five acres) is needed (see Lemly 2006 for guidance on core sampling and analysis).

    The use of once-through column leaching (page 4-31) of core drillings is inappropriate and will substantially underestimate selenium concentrations in environmental leachate. Pore and interstitial residence times of days, weeks, months, or years may take place before leachate reaches surface waters, in combination with other biogeochemical interactions that may affect the final selenium concentration. All calculations that stem from the results of these column leach tests are inaccurate. New leach tests are needed, using a minimum of 48 hr residence time and other sample preparation steps to ensure that maximum leachate selenium concentrations are obtained and used in calculations (see Lemly 2006 for guidance on proper leaching tests).

    Items 1 and 2 above are fatal flaws that essentially negate all calculations, estimates, and predictions of selenium concentrations, e.g. the projected concentrations in the streams of the study area (page 4-70). [Ltr604 Cmt3, Ltr950 Cmt380]

    Response: Lemly (2006) is not recognized or approved by the Agencies as binding guidance on this or any other phosphate mine environmental analysis. Generally, the analysis preformed for this EIS was more rigorous than that proposed by Dr. Lemly.

With regard to the sufficiency of the field sampling effort for the geochemistry investigation of the project, the Agencies disagree with the reviewer's opinion. The Agencies believe that the overburden chemistry and lithology of the proposed Panels F and G has been professionally characterized through the use of 225 individual rock samples obtained from 52 separate borings in the mine panels, which spatially represent the deposit.

The column testing performed was not once-through leaching. The columns were leached repeatedly 10 to 20 times with each pore volume taking approximately 96 to 120 hours to pass through each column. Column leaching is a standard approach that is similar to metallurgical testing that has occurred for decades throughout the mining industry in the U.S.

The testing approach proposed by the reviewer is contrary to NEPA in that it is clearly a worst-case analysis, which is not required under NEPA.

15. Comment: Here are fatal flaws that essentially negate all calculations, estimates, and predictions of selenium concentrations, e.g., the projected concentrations in the streams of the study area (page 4-70). The use of once-through column leaching (page 4-31) of core drillings is inappropriate and will substantially underestimate selenium concentrations in environmental leachate. Pore and interstitial residence times of days, weeks, months, or years may take place before leachate reaches surface waters, in combination with other biogeochemical interactions that may affect the final selenium concentration. All calculations that stem from the results of these column leach tests are inaccurate. New leach tests are needed, using a minimum of 48 hr residence time and other sample preparation steps to ensure that maximum leachate selenium concentrations are obtained and used in calculations. [Ltr950 Cmt381]

    Response: See response to PC 174 Comment 14 above.

16. Comment: The Agency Preferred Alternative (page ES-4) selects Alternative D (placement of an infiltration barrier cap over areas of seleniferous overburden disposal) as a way to reduce selenium releases. Is this "low selenium chert" cap material referred to on page 2-33 the same as the chert used to generate the pore water chemistry table on page 4-36? If so, it should be noted that the designated cap material will be quite porous (i.e., coarse texture, page 2-33), is readily leached (page 4-36), and generates once-through column leachate selenium concentrations of 3-36 ug/L, which are some 10 times the toxic threshold for fish and wildlife when food-chain bioaccumulation is factored in (see Lemly 2002). These numbers indicate that the proposed cap material is certainly not "low selenium" from the standpoint of fish and wildlife health, and will likely make a significant contribution to the total amount of selenium released from the mine site in addition to that released from the ROM overburden. If this is not the chert intended for use as a cap material, then the proposed material needs to be analyzed for selenium via dry weight analysis, static leaching test, etc. (see Lemly 2006 for guidance). [Ltr604 Cmt4]

    Response: See response to PC 153 Comment 1.

17. Comment: No attempt is made to derive a daily selenium load for each mining alternative and, through an analysis of assimilation capacity and other site-specific biogeochemical conditions, determine a maximum acceptable daily load (TMDL) for each major receiving water of the Project Area. Without this information, the potential impact of mining operations on the aquatic ecosystem cannot be accurately or thoroughly assessed. The legal purpose of the EIS is not fulfilled until this is done. It is essential to project the quantity of selenium the mine is likely to release, what the surrounding ecosystem can safely absorb and process, and identify selenium reductions that may be needed to meet TMDLs using aquatic cycling/bioaccumulation models to predict effects for each of the mining alternatives. The results of this analysis need to be presented in the body of the document and in the Executive Summary. None of this has been done yet (see Lemly 2006 for guidance on how to do this.) [Ltr604 Cmt5]

    Response: Lemly (2006) is not recognized or approved by the Agencies as binding guidance on this or any other phosphate mine environmental analysis. The Agencies have conducted the impact analysis with the intent of determining compliance with applicable State water quality standards for selenium in groundwater and surface water resources of the Project Area. The reviewer's opinion that a maximum acceptable daily load must be determined according to Lemly (2006) is not accepted by the Agencies as providing any legal direction for the EIS. The impact analysis of the Agency Preferred Alternative in this FEIS has shown that it would comply with applicable State water quality standards.

18. Comment: The data from column leachate selenium concentrations are reported as averages (page 4-34). It is essential to report and use maximum selenium concentrations that fuel the "bioaccumulation engine" which leads to selenium impacts in aquatic ecosystems (see Lemly 2002). [Ltr604 Cmt7]

    Response: NEPA does not require a worst-case analysis, which would result from using the maximum selenium concentrations of the column leachate. The Agencies have attempted to produce a conservative yet realistic impact analysis using adjusted weighted average leachate concentrations for the groundwater model inputs.

19. Comment: While "conservative" assumptions were used to model the maximum selenium concentrations predicted in the DEIS, actual field data from seeps at below the existing Smoky Canyon mine waste dumps are yielding higher values for selenium than those predicted in the DEIS. Infiltration through the cover on the new waste dumps would be expected to leach selenium at roughly the same concentration as with existing dumps, but a lower volume/rate of discharge. Data from the overburden seeps, as presented in the Smoky Canyon SIR [Site Investigation Report], records selenium values that are several times higher than those predicted in the DEIS modeling, as shown in the weighted average pore water chemistries for ROM [Run of Mine] overburden (DEIS, Table 4.3-4).This suggests that selenium concentrations in the waste could be higher than those assumed for the ground water modeling, at least on a localized basis. If this is so, then the contamination in the streams below the mine could be worse than predicted by the ground water model. [Ltr950 Cmt205]

Response: Generally, seeps and mine effluent at the existing Smoky Canyon Mine represent possible leachate chemistry, but because they were formed under different conditions (i.e. overburden fill construction, flow paths, lithologies), they do not precisely represent the expected leachate chemistries from the Panels F and G Agency Preferred Alternative. As adjustments (particle size, and flow path) were made to the column leach tests, results were compared to local empirical data to ensure consistency with local field observations. Also, see the response to PC 271 Comment 1.

20. Comment: In the DEIS there is no detailed discussion of the monitoring that will be required for the new mine. "Due to the multiple alternatives under consideration in this Draft EIS, preparing detailed monitoring plans for each resource, as necessary, would be excessive at this time. Therefore, the Agencies have determined that a detailed monitoring plan would be prepared for the agency-preferred alternative as a condition of the Record of Decision." DEIS, p. 2-66. Since selenium contamination is already a significant problem that is impacting the public, failure to discuss monitoring is a glaring omission in the EIS. (Also see the comments in this document on section **Appendix 2C** - BMPs for erosion, Sedimentation, and Selenium Control). It is important to let the public know how carefully the selenium problem will be monitored by Simplot and the permitting agencies. Critical information on site monitoring must be included in the EIS. The basic details of this monitoring - e.g. things to be sampled (surface and ground water, selenium content of the backfilled waste and "clean" overburden, in-situ densities of the Dinwoody material placed as a infiltration barrier) sampling frequency and constituents to be monitored - should be disclosed in the EIS so that the public can comment on the adequacy of the monitoring approach being proposed for the operation. This should also include sampling site locations, data collection and quality assurance procedures, trigger values, and first-step responses to exceedances of trigger and compliance level exceedances. [Ltr950 Cmt212]

    Response: Additional details of the proposed monitoring have been added to the FEIS in a new **Appendix 2E** and also in **Section 2.10** of the FEIS.

21. Comment: Page 4-85, 4.3.4 Unavoidable (Residual) Adverse Impacts: I agree with the statements that adverse effects of selenium contamination of groundwater, and subsequently surface waters, would be unavoidable under the proposed action and also the alternatives. The effects of selenium contamination would not be limited to the local streams, but would also extend down stream to the Salt River because of selenium loading. The DEIS fails to assess the geographical extent or severity of the selenium contamination of the upper Salt River. [Ltr950 Cmt246]

    Response: See the response to PC 176 Comment 1.

22. Comment: The assumption that all groundwater from the model area expresses itself in surface springs in the flow model is inappropriate. [Ltr547 Cmt4]

    Response: This assumption is based on conclusions from past hydrogeology workers in the same area as is described in **Section 3.3.5** of the DEIS.

Public Concern ID 176

The BLM/FS should acknowledge that the draft EIS analysis of potential impacts to surface water resources is inadequate

A group of conservation organizations provided the following concerns and comments.

1. Comment: In addition to onsite streams, streams downstream from the site including Crow Creek and the Salt River should be analyzed for selenium concentrations. The load from this proposed mine should be added to the load on Crow Creek and in the Salt River to determine the periods over which selenium concentrations will exceed standards. This analysis should use probability distributions of low flows and concurrent concentrations rather than averages. [Ltr950 Cmt434]
2.

   Response: The selenium load analysis in the DEIS was carried as far downstream as feasible based upon available data. There simply are not data upon which to base any analysis further downstream (neither flow data nor background selenium data). That being said, however, it would be logical to assume that as a selenium-containing flow, at a given quantity and concentration, moves downstream into larger water bodies with presumably no outside sources of selenium, concentrations would be become further diluted. The impact analyses conducted in **Section 4.3.2** of the DEIS indicated that selenium concentrations in Crow Creek downgradient of the proposed mining activities would remain within State water quality criteria for selenium, thus water quality downstream in the Salt River is not expected to exceed the water quality criteria.

2. Comment: Page 4-86, 4.3.6 Irreversible and Irretrievable Commitments of Resources: I agree with the statements that there would be irretrievable changes in groundwater quality, and subsequently surface waters, would be unavoidable under the proposed action and also extend down stream to the Salt River because of selenium loading. The DEIS fails to assess the geographical extent or severity of the selenium contamination of the upper Salt River. [Ltr950 Cmt247]

   Response: See response to PC 176 Comment 1 above.

3. Comment: Page 4-109 Proposed Action: Increased metal and sediment loading of wetlands and streams are described in this section, and include disturbing several thousand feet of ephemeral and perennial stream channels and numerous wetlands - which supports the rewording of the statement on page 4-108 section 4.6. Installing three very long culverts of 230 feet, 260 feet, and 280 feet in streams would result in disturbances of potentially selenium-laden sediments, aquatic plants, and aquatic invertebrates that would reach downstream areas. Later removal of the culverts would also cause down-stream loading of selenium. [Ltr950 Cmt249]

   Response: Impacts due to stream channel disturbance by culvert construction is described in **Section 4.8.1** of the DEIS. The Agency Preferred Alternative would involve installation of one culvert in South Fork Sage Creek and one in lower Deer Creek. **Section 3.3.3** of the DEIS discloses that sediment sampling in Study Area streams showed selenium concentrations that were below IDEQ benchmark and removal action levels. The low selenium concentrations and the environmental protection measures

included in **Appendix 2C** for culvert installation should reduce the potential impact of selenium loading downstream of culvert installation.

4. Comment: Page 4-117, 4.6.2 Mitigation Measures: Erosion of soils along roads culverts, road cuts and fills would increase metal concentrations in streams and result in toxicological impacts. Reclaiming roads, cuts, fills, and removing culverts would result in erosion-caused metal and sediment loading of downgradient wetlands and streams. [Ltr950 Cmt250]

   Response: As described in the EIS, sediments from the mining disturbances would be retained onsite, and thus not contribute to metal or sediment loading. The EIS describes the increased metals loading from other aspects of the mining activities (groundwater contamination). Predictions for sediment loading from roads are included in the EIS, and their low selenium component is described in response to PC 176 Comment 12 below.
5. Comment: Page 4-118, 4.6.3 Unavoidable (Residual) Adverse Impacts: There is little doubt that the proposed action will result in increased metal and sediment loading, and subsequently, adverse toxicological impacts on organisms living in or dependent on wetlands and streams. [Ltr950 Cmt251]

   Response: The effects on aquatic habitats from selenium and sediment released by the Preferred Alternative are described in **Section 4.8.1** of the EIS.

6. Comment: Protection of Intermittent Water Courses: In the Area Wide Risk Management Plan, the following statement has the effect of underrating the importance of intermittent streams. There are a limited number of streams with persistent concentrations [[of selenium]] above acute criteria [[0.020 mg/L]] for aquatic receptors such as...Pole Canyon Creek, however, these 1st order streams represent a small percentage of the associated watersheds and are not expected to produce population-level effects...This downgrading of the importance of intermittent streams in the Smoky Canyon Mine area cannot be justified with science. Scientists have determined that the importance of a watershed cannot be gauged by its size. Much of the food and water flow on which organisms in the big streams depend originates on a small percentage of the total watershed. High slugs of selenium discharged from head-of-hollow fills, like the one in Pole Canyon, can enter the ecosystem and, as the selenium is transported downstream, will move upward in trophic levels through bioaccumulation. Intermittent flows of snowmelt or storm water act as pulses of input to the biological systems downstream. And pulse loadings, which often go undetected in seldom-sampled intermittent streams, are very important. [Ltr950 Cmt285]

   Response: This is a comment on the Area Wide Risk Assessment not the DEIS.

7. Comment: More than four miles of intermittent streams are to be disturbed in the proposals in the DEIS for mining Panels F and G. This plan needs to be modified to lessen that order of impact. [Ltr950 Cmt286]

   Response: Impacts to intermittent drainage channels are disclosed in the EIS, the majority of these impacts would occur within the planned footprint of the mine pits and overburden fills. It is very difficult to modify these impacts because these ground disturbing activities cannot avoid the channels.

8. Comment: What is not made clear is when and how the contributions of any of these (ephemeral) channels to the environment resources of their parent drainages would be mitigated or replaced. These items should be clarified in the next DEIS. [Ltr950 Cmt180]

   Response: Most of these ephemeral channels would not be replaced in their original locations because topography will not allow for channel reestablishment in all cases. However, runoff from these watersheds would eventually be restored to the downstream basins following reclamation of the disturbed areas. Major ephemeral drainage ways would be re-established through the reclaimed areas, particularly the major channels disturbed in Panel F. This is addressed in **Appendix 2D** of the DEIS. Sediment ponds would be decommissioned when no longer needed and would allow for flows from some of these watershed areas to once again enter downstream surface water DEIS. Additional information has been added to **Section 2.5** of the FEIS to better describe re-establishment of ephemeral channels during reclamation.

9. Comment: In Subsection 4.3.2 (as well as earlier in Chapter 3 Subsection 3.3.1) the DEIS states that the entire length of an un-named ephemeral tributary entering South Fork Sage Creek from the south lies within the footprint of the proposed operations at Panel F. An ephemeral headwater channel of Manning Creek also lies within this footprint, and the obliteration of both channels by the proposed action and alternatives would be permanent. And later, in Subsection 4.6, it is disclosed that approximately 2,775 linear feet of an intermittent tributary to South Fork Deer Creek, about 75 feet of a second channel tributary to Deer Creek, and the uppermost reaches of the Wells Canyon drainage would be excavated or covered permanently during operations at Panel G. What is not made clear is when and how the contributions of any of these channels to the environmental resources of their parent drainages to the environmental resources of their parent drainages would be mitigated or replaced. These items should be clarified in the DEIS. [Ltr950 Cmt355]

   Response: See the response to PC 176 Comment 8.

10. Comment: Over an approximately 16 year period, 475 feet of perennial stream channel, approximately 20,000 feet of intermittent stream channel, 65 acres of Forest Service-designated Aquatic Influence Zones (includes riparian buffers), and numerous seeps and springs will be directly disturbed by the proposed action and alternatives. Some alternatives would disturb slightly more, some slightly less, and some about the same. Alternative D (specified as a component of the Agency-Preferred alternative) would disturb slightly more, according to the DEIS assessment, but is the one action alternative proposed to date that purports to significantly reduce the risk of Se discharges to groundwater and surface waters including stream channels. Only the No Action alternative would keep these disturbances from happening altogether. Given the inadequacies in describing the true picture of the Fisheries and Aquatics resources that I commented on in Chapter 3 above, Section 4.8 of the DEIS likewise needs to be reassessed to properly describe direct and indirect impacts and environmental consequences of the proposed action and alternatives. [Ltr950 Cmt356]

    Response: Changes have been made to **Section 4.8** of the FEIS to incorporate more information on sediment and selenium impacts to aquatic resources from the proposed mining operations.

11. Comment: The current mine has also violated its storm water permit. "The March 15, 2004 SWPPP [Storm Water Pollution Prevention Plan] (Simplot AgriBusiness, 2004) indicates that 0.88 inch of rainfall occurred in April 2004, with resultant discharges from two ponds at the D and E Panels. It is not clear whether the discharge or runoff water was due to problems with design, maintenance, or the ponds having insufficient storm capacity due to inflow from dump seeps. However, it is clear that the precipitation event was less than the design precipitation event (3.0 inches), and there is no mention of excessive snowmelt during this period, so it is apparent that the system did not work as intended. The SEIS for Simplot's B & C Panel states that there were six instances of pond overflow between the fourth quarter of 1998 and the second quarter of 1999. Again, there is no indication that design precipitation was exceeded during this time. This is relevant to the current impact analysis because it suggests that there is, in reality, a greater potential than the calculated theoretical chance that discharge from disturbed areas could enter stream channels. However, the impact of these occasional discharges would not have a great effect on flow regimes; the impact to water quality from these occurrences is discussed below." (DEIS, page 4-62) This history of overflows and sediment basin failures indicates that runoff will likely occur from the proposed expansion as well. Runoff from a disturbed area usually exceeds that which occurred prior to disturbance and therefore has a better chance of causing erosion downstream. Even if overtopped, the ponds should retain some sediment from the site, but if the ponds fail, there will be a release of sediment to downstream locations. [Ltr950 Cmt451]

    Response: The discussion quoted by the reviewer was added to the DEIS to disclose that runoff and sediment controls for the mining areas, although designed to contain most sediment, are not foolproof and have been known to discharge water at the Smoky Canyon Mine. The effects of these discharges are discussed in **Section 4.3.2** of the DEIS. It is also important to note that the Final SEIS for the Smoky Canyon Panels B and C indicated, that suspended sediment in Pole Canyon and Sage Creeks downstream of the mining area had not changed since mining began in their watersheds. This would suggest that even though unplanned water discharges may occur from time to time at the mine from the sediment ponds they do not discharge enough sediment to affect downstream water quality in a significant manner. There is no indication that sediment ponds at the mine have failed structurally and the ponds for Panels F and G would also be designed with stable overflows to avoid structural failure during any unplanned water discharges.

12. Comment: The disturbed areas and roads are not proposed to be covered with seleniferous waste rock, however, because all of the overburden contains some selenium, to the extent that erosion exceeds that which occurs naturally, erosion from the site will increase selenium loading. The DEIS has not and should quantify this additional load. The additional runoff from the site could cause natural flows in the streams to be exceeded but because of the relatively small watershed areas, any stream erosion should be localized to reaches above Sage Creek. [Ltr950 Cmt452]

    Response: Using an average selenium component in the road sediments of 2.4 ppm, the following selenium loadings to downstream channels were calculated. The 2.4 ppm is based upon an average of the selenium concentration data for the chert that will cover the road surfaces. Use of this number is conservative because in reality, some of the road-related erosion will be of other native soil or fill material that is likely less rich in

selenium. Applying this selenium concentration to the total sediment loads shown in **Table 4.3-20** in the DEIS resulted in the following annual particulate selenium contribution to Crow Creek basin from the various action alternatives. This is considered to be a minor water quality impact.

Component/Alternative	Lb/year Particulate Se
Proposed Action F Haul	0.0024
Proposed Action G Haul	0.0406
Alternative 1	0.0034
Alternative 2	0.0216
Alternative 3	0.0242
Alternative 4	0.0372
Alternative 5	0.0511
Alternative 6	0.0019
Alternative 7	0.0046
Alternative 8	0.0101

Public Concern ID 184

The BLM/FS should acknowledge that changes in the particle size adjustment should be made

The proponent provided the following concerns and comments.

1. Comment: The DEIS incorporates a particle size adjustment to the column test data in an attempt to address inaccuracies of the selected column test data in predicting actual field conditions. Because the column tests used fine grained drill cuttings, which increases the surface area available for leaching, and not the full range of particle sizes that would be found in overburden in the field, the column tests over predict the leaching potential. The DEIS adjusts most of the monolithologic column test results for particle size based on the assumption that infiltration in an overburden disposal area moves primarily through the finest grained materials (less than 1/2 inch in diameter). The column test results were proportionately adjusted to reflect the smaller total surface area of the sub-1/2 inch materials versus the finer drill cuttings. However, materials less than 1/2 inch in size make up less than 30% of the overburden. The coarser overburden materials, which make up greater than 70% of the overburden by mass, were ignored when the particle size adjustment was made. As a result, the overburden surface area value used to adjust the column test data reflects only the most leachable portion of the overburden that will be present in a disposal setting. When the full range of particle sizes is considered, the calculated surface area is lower by a factor of four. This would result in larger adjustments to the column test results and lower predicted selenium concentrations. In addition, the 30% adjustment factor adopted for the DEIS model is inconsistent with a preferential flow path adjustment already made by the DEIS. The DEIS evaluated a number of studies that provided quantitative information on the portion of waste rock materials likely to come in contact with infiltration water that comprise preferential flow paths, determining that 20% to 70% of the materials make up preferential flow paths. The DEIS conservatively selected 50%. [Ltr475 Cmt19]

   Response: The Agencies agree with this comment.

2. Comment: Given that a conservative assumption of 50% is used for preferential flow, the particle size adjustment also should be correspondingly based on the 50% particle size fraction, not on 30% (as the DEIS does). Moreover, field data from the Smoky Canyon Mine shows that even a 50% particle size cutoff is conservative. As the EPA HELP3 model runs correctly predict, the majority of total annual infiltration into an overburden disposal area occurs during a few days of spring snowmelt. Given these field conditions, the entire particle size range likely is involved along preferential flow paths with varying degrees of saturation. [Ltr475 Cmt20]

   Response: The Agencies agree that the reason provided for making the particle size adjustment may have technical merit; however, this change has not been made such that the input leachate chemistry will more closely match local field conditions.

3. Comment: Column tests can be designed to reflect field conditions that could influence the rate of leaching (e.g., large rates of infiltration, low or high oxygen levels) and also examine transport through the interaction of leachate with underlying native materials (e.g., passing leachate through soil or rock expected along the seepage or groundwater flow path). However, because of practical limitations on their size and duration, column tests only provide a rough, and often very conservative, estimate of what would happen at a larger scale in the field (Runnells et al., 2005). [Ltr475 Cmt54]

   Response: The Agencies agree with this comment.

4. Comment: An adjustment to the monolithologic leachate chemistry results was made to account for the higher surface area of the fine-grained column test materials, relative to the very coarse mined overburden materials. The surface area of drill cuttings is much higher than the surface area of mined overburden materials, making them more susceptible to leaching. As a result, water migrating through the drill cuttings in the column leach tests interacts with a proportionally larger surface area than water migrating through overburden disposed at mine sites. Interaction with a larger surface area results in more rapid and greater levels of leaching from solids. This general relationship is well accepted outside the DEIS and specific relationships have been developed for the increase in leaching as the range of particle size decreases for a variety of materials. For example, there are numerous industrial activities where the reactivity of material (e.g., leaching rate) is increased by grinding or crushing. For the column tests, 85 percent of the mass included in each column was finer than a ½ inch mesh size. The remaining 15 percent was less than 2 inches in diameter. For comparison, the grain-size analysis of a large sample (55 gallons) of center waste shale (CWS) collected from the E Panel overburden disposal area indicated that less than 50 percent of the overburden mass generated by mining is finer than 1/2 inch. The full particle-size distributions for two bulk overburden samples, one center waste shale and one chert, were measured and are reported below on Figure 2. [Figure omitted] These data, though part of the administrative record, were not presented in the DEIS. Although the two bulk samples were collected from the surface of an existing, active overburden disposal area, the materials in these samples represent overburden that is permanently disposed at any depth. [Ltr475 Cmt56]

   Response: The Agencies agree with this comment.

5. Comment: Permanently disposed overburden may undergo some compaction upon burial that reduces the void space around particles; the particle sizes do not change when these materials are buried in pits or at the base of an external pile. [Ltr475 Cmt57]

   Response: To the degree the overburden particles are resistant to softening due to alteration, the Agencies agree with this comment. A slight to moderate reduction in void space caused by consolidation of the overburden could change unsaturated permeability over time.

6. Comment: The specific infiltration rate applied in the groundwater flow and transport model is based on an interpretation of the column leach tests that equates one pore volume of leaching with a unit of time. That unit of time is the calculated time required for the water that infiltrates overburden from the surface to fill the overburden pore spaces. Using the estimate of annual infiltration from the HELP model (approximately 3 inches) and considering the thickness of overburden planned in each area and an assumed overburden porosity of 36.5 percent, the DEIS calculates a unit of time equated to movement of one pore volume of leachate through disposed overburden. For the Panels F and G pit-backfill areas under the proposed action, the estimate made for infiltration of a volume equivalent to one pore volume was approximately 290 years. Observations of much more rapid flow through waste rock materials, including overburden, at other mining sites led to recommendations for an adjustment to this infiltration rate to account for the effects of infiltration along preferential pathways. If water flows only along preferential flow paths, then the pore space available along those flow paths is smaller than the total pore space available in the entire overburden disposal area and rate of water movement along the preferential flow paths would be faster than previously estimated. Correspondingly, the unit time required for one pore volume of leachate migration along preferential flow paths would be less than calculated assuming uniform flow through the entire volume of overburden. [Ltr475 Cmt58]

   Response: The Agencies agree with this comment.

7. Comment: An assumption was made for the DEIS that preferential flow paths involve 50 percent of the overburden present. The assumption was based on a range, given as 20 to 70 percent, that was considered probable for overburden materials based on a number of literature references cited (JBR, May 2005). The result of the preferential flow path adjustment is more rapid infiltration through overburden and a more rapid change in leachate chemistry over time. With the DEIS preferential flow adjustment of 50 percent, the time calculated for infiltration of one pore volume of leachate through overburden in the Panel F and G disposal areas is cut in half and therefore reduced from 290 to 145 years. The effect of this adjustment on the model is more rapid selenium transport to the Wells Formation. There is no change in the footprint or the total amount of infiltration water (volume remains constant) and there is no change to the selenium concentration in that infiltration water. However, the mass flux, or rate, that selenium is delivered, increases by a factor of two. The higher seepage results in greater selenium loading to the aquifer early in the modeled time frame, but later there is a more rapid reduction in the mass flux. [Ltr475 Cmt59]

   Response: The Agencies agree with this comment.

8. Comment: The materials used in the column leach tests were drill cuttings. The fine-grained drill cuttings did not include the full range of particle sizes found in the overburden generated and disposed during surface mining. The finer grain size of the column test materials increases their surface area relative to the surface area of overburden placed in a permanent disposal setting. Therefore, the water infiltrating through the drill cuttings in the columns has contact with a larger surface area for a given mass of overburden than water that infiltrates through the footprint of an overburden disposal area. As a result, the column leach tests are expected to over predict the leaching potential of the field scale overburden. The DEIS acknowledges the effect of using finer grained particles in the column testing and attempts to adjust the column test results to account for the lower expected leachability of the coarse overburden materials to be disposed of at Panels F and G. As noted previously, the adjustment is developed from the ratio of the surface area of drill cuttings to the surface area associated with an equivalent mass of overburden. The mathematical adjustment that was ultimately made for the DEIS to address the issue of particle size was based on the assumption that infiltration primarily moves through the finest grained materials in an overburden disposal area. More specifically, the assumption is that movement of infiltration through overburden occurs in materials that are less than 1/2 inch in diameter. Correspondingly, the surface area adjustment calculated for the DEIS for ROM overburden, as disposed, was based on particle size measurements for the portion of overburden sized less than 1/2 inch. [Ltr475 Cmt76]

   Response: The results of the column tests used to determine seepage chemistry for the overburden samples were adjusted to account for the fact that the rock samples in the columns were ground significantly finer than the material that would eventually be placed in the overburden fills. It is well known that materials will leach more solutes when they are ground to finer grain sizes so it was recognized that the raw column test leachate concentrations are probably overly conservative and should be reduced for use as inputs to the fate and transport modeling. In order to make the necessary comparisons, gradation data was obtained from samples of material from the column tests and a run of mine overburden sample from the Smoky Canyon Mine. The rationale and methods used to make this particle size adjustment are contained in a May 24, 2005 memo from JBR (Buck, Mayo, and Schmiermund).

9. Comment: The coarser overburden materials, which make up more than 70 percent by mass of CWS from E Panel, were not considered when the surface area used in the DEIS was calculated. As a result, the overburden surface area value used to adjust column test concentration data reflects only the finest, and most leachable, portion of the overburden that will be present in a disposal setting. Conservatively basing the particle size adjustment on only the finer 30 percent of material that will be present in a backfilled pit or external overburden disposal area is not reasonable given the available information. When the full range of particle sizes measured for the bulk CWS sample are considered, the calculated surface area is lower by a factor of four (surface area = 21.2 m2/Kg instead of 83.7 m2/Kg) than estimated for the DEIS. As a result, the adjustments that are made to column test concentration results would be larger than those made for the DEIS (i.e., lower adjusted selenium concentrations). The underlying assumption for the approach taken in the DEIS to adjust column leach test results for particle size is that water preferentially infiltrates through fine grained overburden, more specifically materials finer than 1/2 inch in diameter. Any assumption made regarding

size of materials that may preferentially interact with infiltrating water should consider the actual size distribution of mined overburden. In this case, all of the CWS in the bulk sample was less than 8 inches in diameter, 49 percent (by mass) of the sample material was less than 2 inches diameter, and 28 percent was less than 1/2 inch in diameter. If an assumption is made that at least 50 percent of the CWS, by mass, has contact with infiltrating water along preferential flow paths, then the adjustment factor for surface area would be calculated at approximately 0.4 in contrast to the factor currently applied of approximately 0.6. [Ltr475 Cmt77]

Response: Simplot correctly comments that the particle size adjustment did not include the mass of material from the run of mine sample that was greater than ½-inch size and that this means the particle size adjustment assumes flow will be primarily contained in the finest 30 percent of the overburden. They point out that this is inconsistent with the preferential flow adjustment, made independently of the particle size adjustment, which concluded that flow through the overburden would be contained in the finest 50 percent of the overburden. The preferential flow adjustment is used to calculate the time it takes for each pore volume to pass through the overburden in the field, whereas the particle size adjustment is used to calculate the concentration of the dissolved solutes in the seepage passing through the overburden in the field. Simplot suggests that the inconsistency between the two adjustments should be corrected by changing the particle size adjustment to include all material from the run of mine sample less than 2 inches in size, which is approximately the 50th percentile for the run of mine material. They show that using the 2-inch cutoff value would change the adjusted PV1 selenium concentrations for Panel F from 0.532 mg/L to 0.295 mg/L and for Panel G from 0.640 mg/L to 0.343 mg/L. The Agencies agree that the reason provided for making the particle size adjustment may have technical merit and show this effect in the FEIS to demonstrate the conservative nature of the analysis that does not include this change such that the input leachate chemistry will more closely match local field conditions. See responses to PC 184 Comments 15 and 16 below.

10. Comment: An adjustment factor based on 50 percent of the material being in contact with infiltration is consistent with and supported by the DEIS assumptions regarding preferential flow paths. [Ltr475 Cmt78]

    Response: The preferential flow adjustment used was not calculated like the particle size adjustment. It was determined from a review of the literature, which indicated that flow of water under unsaturated conditions in typical mine overburden can be expected to involve from 20 to 70 percent of the material. Without knowing how the Smoky Canyon Mine overburden compared to the materials described in the literature, the Agencies used professional judgment in selecting the approximate mid-point of the range of percentages in the literature and decided to use the 50 percentile.

    When calculating the particle size adjustment, the Agencies looked at a range of adjustments up to using the full mass of the run of mine sample. It appeared that a particle size adjustment involving only the minus ½-inch material from the ROM bulk sample gradation would result in adjusted PV1 selenium concentrations of 0.532 mg/L for Panel F and 0.640 mg/L for Panel G. We then compared the results of this particle size adjustment to field data on overburden seeps from the Smoky Canyon Mine and the average selenium concentration for seeps in the Southeast Idaho Selenium Database.

As described in other comments and our responses, it appeared to the Agencies that the ½-inch cutoff results provided an acceptable match to the field data so we used those results for the input values in the groundwater modeling.

As described below in our responses to Simplot's comments on the use of the field data in making this comparison, we agree that use of these specific field data results for comparing to the adjusted column test results can be considered to be conservative. This is especially so if the median value (0.148 mg/L) for the overburden seeps in the Southeast Idaho Selenium Database is used instead of the average value (0.608 mg/L).

11. Comment: The preferential flow path adjustment is inconsistent with the particle-size adjustment. The DEIS acknowledges that preferential flow paths within the overburden are likely to exist and that the presence of these flow paths will speed the rate at which infiltration passes through the overburden. This view is supported by observations at the existing overburden areas of the Smoky Canyon Mine and many other sites where water has been observed to seep from the base of mine waste rock deposits/overburden after only a small amount of infiltration (i.e., a fraction of a pore volume) has occurred. The DEIS evaluated a number of studies that provided relevant quantitative information on the portion of waste rock materials that is likely to come in contact with infiltrating water and comprise the preferential flow paths. Based on a range that 20 to 70 percent of the materials would make up the preferential flow paths, the DEIS conservatively selected 50 percent. The mathematical adjustment that was ultimately made to consider the effects of preferential flow paths on infiltration rates was based on the assumption that 50 percent of the overburden materials interact with infiltrating water. In other words, preferential flow paths within the overburden materials direct infiltrating water through half of the overburden present. Although not specifically discussed in the DEIS, another related assumption about the preferential flow paths was made to adjust column test data for particle size effects. Preferential flow was assumed to take place in fine-grained materials (see JBR memo dated April 4, 2005) when recharge rates are low. In this case, the fine-grained materials are defined as those less than 1/2 inch in diameter. However, as noted above, these two assumptions are inconsistent. [Ltr475 Cmt79]

    Response: The Agencies agree with this comment. The Agencies agree that the reason provided for making the particle size adjustment may have technical merit and the effects of this change can be used to show the conservative nature of not using this adjustment such that the input leachate chemistry will more closely match local field conditions. The effect of making this change on the groundwater modeling results is described in **Section 4.3.1** of the FEIS.

12. Comment: If a conservative assumption of 50 percent is to be used for the preferential flow adjustment, then the particle-size adjustment should be based on the 50 percent particle-size fraction and not the 30-percent fraction utilized in the DEIS. The assumption of preferential flow paths is supported by observations made at the Smoky Canyon Mine and other mine sites during the wet, spring season when infiltration into overburden is highest and seep flow from external overburden areas increases rapidly. For example, at the seep originating from the Panel D overburden, the flow in May 2003 was more than 5 gpm and the flow in October 2003 was less than 1 gpm; similarly, at one of the seeps from the Panel E external disposal area, wet season flows are approximately 6 gpm and dry season flows are approximately 2 gpm. The observed

variations in seep flows at Smoky Canyon Mine were presented in the DEIS but not in the context of the preferential flow path discussion. These observations confirm that preferential flow occurs, but water flow through overburden is more rapid than possible if flow takes place solely within fine-grained materials, as assumed by the DEIS (see **Section 4.3.1**, p.34). Detailed studies of flow through poorly sorted (very fine to very coarse grained), unconsolidated, and unsaturated ore and waste rock materials have concluded that preferential flow takes place within the large, open spaces between coarser grained materials when infiltration rates are high (i.e., higher than the saturated permeability of the fine-grained materials), such as during spring snowmelt and large rainfall events (e.g., Vogel et al. 1991; O'Kane et al. 1999). When infiltration rates are low, preferential flow takes place in the fine-grained materials. [Ltr475 Cmt80]

Response: The field observations provided suggest certain seeps monitored at the Smoky Canyon Mine appear to be the results of preferential flows occurring through relatively permeable materials that support significant seasonal swings in flow rates. This supports the conclusion that water flowing through the overburden likely occurs through coarser grained materials during higher flows that could occur seasonally or during high moisture conditions. This supports Simplot's request of the coarser cutoff value of 2 inches in the particle size adjustment.

13. Comment: The position that the 50 percent assumption utilized for preferential flow is conservative is further supported by careful examination of the DEIS HELP modeling. HELP modeling conducted for the DEIS analysis predicts that the majority of the total annual infiltration into an overburden disposal area occurs during a few days of spring snowmelt (2 to 3 days per year on average). During spring snowmelt conditions, preferential flow paths will exist in the coarser grained materials. [Ltr475 Cmt81]

    Response: The Agencies agree that field observations at the Smoky Canyon Mine suggest that short-term, high infiltration rates would tend to cause flow in coarser materials within the overburden.

14. Comment: Careful examination of the seep data utilized as justification for the particle-size adjustment and the settings from which those data are generated indicates that these data do not provide unqualified support for the DEIS estimated overburden infiltration concentrations, especially considering that under the DEIS these concentrations are applied over an entire footprint for roughly a 100-year period. First, the statistical analyses used to evaluate the seep data are incorrectly explained. Second, the seep database reflects specific points of seepage discharge from settings that are far different from the BMP closure plan for Panels F and G and includes data from recently placed overburden. The values selected from the larger seep database, which includes other phosphate mines, are primarily from external overburden disposal areas, including cross-valley fills that reflect the addition of non-infiltration water to the overburden, and settings that also promote air movement through the overburden material. Although different explanations for the origin and basis of this comparison could be provided, as explained below, in combination these two aspects of the DEIS result in the extremely conservative assumption that future mining at Panels F and G will result in long term environmental conditions worse than those associated with typical historic mining practices. The DEIS selection of model input chemistry values that reflect these historic mining conditions ignores the substantial improvement in

overburden disposal practices of the proposed action over the historic external disposal settings that make up the seep database. Although this comparison is presented from a different perspective in the DEIS, the comparison to the Area-Wide seep database confirms the unreasonableness of the DEIS assumption. [Ltr475 Cmt82]

Response: The Agencies responses to the concerns over the statistical interpretation of the regional seep database are shown below for PC 184 Comments 15 and 16. With regard to the issue of non-applicability of the seep database to the Panels F and G case, the Agencies note that results from the unsaturated, fully oxygenated column tests were used in the groundwater impact analyses. These drained and oxygenated conditions are similar to the external overburden fills that are included in the Southeast Idaho Selenium Database thus these two sources of data are comparable. We acknowledge that actual conditions at depth in the pit backfills may be less likely to produce leachates with selenium concentrations as high as were used in the impact analyses in the DEIS but, at the time the DEIS was prepared, there was insufficient laboratory and field data to quantify the expected reduction in concentrations so they could be used in the analyses. The Agencies have disclosed that the resulting impact analyses are conservative in **Section 4.3.1** of the FEIS. If future studies produce reliable information on the reduction in concentrations that can be expected to occur in seepage from the base of pit backfills compared to the unsaturated test columns, the Agencies would consider this in future impact analyses.

15. Comment: The statistical methods used to describe the regional seep data were applied incorrectly and are misleading. As an initial step, the data set was culled to eliminate results less than 0.005 mg/L. There is no basis for censoring the data in this manner prior to statistical analysis. Unless an equivalent number of the highest values are also removed, statistics calculated from the censored data are necessarily biased high. Second, the statistic selected to describe the remaining values in the data set, the average value, is an improper choice for this data set. The remaining values in the data set are not distributed symmetrically around the average value; there are a few values that are much higher than the others (i.e., the data distribution is positively skewed). This is the most typical distribution for environmental data sets. The average indicates the central tendency of a data set only when the data distribution is symmetrical. An average value computed for an asymmetrical data set is most heavily influenced by extreme values, in this case the higher values, and therefore does not accurately describe the central tendency of the data. When only the average value computed for a positively skewed data set is presented, without the entire data set, that statistic is highly misleading. In this case, the average reported in the DEIS is biased high for two reasons: (1) the lowest values were censored from the data set without balanced censoring of the highest values and (2) an arithmetic average is used to describe the central tendency even though the data are not symmetrically distributed. [Ltr475 Cmt83]

    Response: Simplot objects to culling the results from the raw data in the database that have concentrations less than 0.005 mg//L. As described in the January 2005 memo on the database (v8), the values less than 0.005 mg/L in the raw data were removed before statistics were generated because we were not personally familiar with each sample site and some of the sites with very low selenium concentrations may not be physically connected to selenium sources. To be conservative, we eliminated these low concentration values assuming they were not representative of water that had been

impacted by selenium sources. However, in response to Simplot's concerns over this, BLM has looked into each of the eight low data values removed from the database to obtain better descriptions of the physical settings of the sample points. If the sample points were located where the water could realistically be in contact with seleniferous overburden, the low value was replaced into the database. Where the water is apparently not in contact with seleniferous overburden, the low value was left out of the database. The BLM also took this opportunity to update the database with new information received since the last time it was updated (January 2005). The new statistics were calculated and are discussed in **Section 4.3.1** of the FEIS.

Simplot comments that using the arithmetic mean (average) from the overburden seep data in the database to compare to the column test values is overly conservative and the nature of this conservatism should have been disclosed in the DEIS. The average value for the overburden seeps (v8) of the database is 0.608 mg/L, the median is 0.148 mg/L and the geometric mean is 0.147 mg/L. The skewness value is 3.38. Skewness values greater than 1 indicate a data set is positively skewed and not normally distributed.

A discussion has been added to the FEIS describing that the median value of the regional selenium database shows that the PV1 values used in the groundwater modeling for the DEIS are conservative when compared to this regional data.

16. Comment: The median is the statistic that describes the central tendency of an asymmetrical data set. Half the values are higher and half the values are lower than the median, and there is a 50 percent probability that another value selected at random from the data set will be less than the median and 50 percent probability that another value will be greater than the median. The median value for the seep data is 0.148 mg/L (note that the geometric mean for this data set is 0.147 mg/L, a close match for the median value and an indicator that the data are log-normally distributed). If the trimmed data are the data considered most representative of the range and frequency of selenium concentrations that exist in seep waters regionally, then technically valid methods that follow the standard practice for environmental data analysis should be applied. The median value of 0.148 mg/L is the selenium concentration that most accurately represents the "typical" selenium concentration in seep waters regionally. As such, the regional seep data do not provide independent confirmation of the accuracy of the particle-size adjustment method that was applied to the column leach data, as claimed in the DEIS. Rather, as outlined below, the seep database statistical analysis presented in the DEIS demonstrates that the selected infiltration chemistry model inputs conservatively reflect historic mining conditions and not the planned actions for Panels F and G. [Ltr475 Cmt84]

    Response: Simplot's plots of the log-transformed data illustrate the relative fit of the average and median to the distribution of the data. Simplot comments that the use of the average value is incorrect for this data and a better statistic to describe the overburden seep population would be the median value (0.148 mg/L). We agree with Simplot's comments that the median value represents the "typical" selenium concentration in the regional overburden seep data better than the average value. The use of the average value for comparison with the column test data is therefore conservative, but does reflect field data from the adjacent Smoky Canyon Mine. The text of **Section 4.3.1** of the FEIS has been changed to include reference to the median

value in addition to the average value to compare with the chemical inputs to the groundwater model. This helps demonstrate the conservative nature of the chemistry inputs and the groundwater impact analysis in the EIS.

The average value for the overburden seep data is a better fit with the Smoky Canyon Mine data that were used to compare with the column test PV1 values. There are also other overburden seep and backfill water concentrations greater than the average value.

17. Comment: In a May 24, 2005 JBR memo referenced in the DEIS and in **Section 4.3.1** (p. 34) of the DEIS, the rationale for use of the sub 1/2'" particle size adjustment for the calculated monolithologic values for Panels F and G is based on comparisons to a mining-district-wide seep database and data from the Smoky Canyon Mine. Of particular concern is the memo's comparison of the monolithologic-based values calculated to reflect seepage from an entire footprint to Pole Canyon data. The setting of Pole Canyon is grossly different than the planned disposal scenarios for Panels F and G. The Pole Canyon disposal area reflects a cross-valley fill that seasonally can have more than 10 cfs of highly oxygenated Pole Canyon Creek flow transported along the base of the disposal area seasonally in conjunction with uncontrolled run on and direct infiltration through the surface of the dump. The cross-valley fill setting also encourages oxygen movement through the unsaturated portion of the dump. The Pole Canyon cross-valley fill is currently being addressed under an Administrative Order on Consent (AOC) and an Engineering Evaluation/Cost Analysis (EE/CA) has identified isolation of the overburden materials from Pole Canyon Creek as the highest priority action. It is anticipated that actions to isolate the Pole Canyon overburden from Pole Canyon Creek and to reduce infiltration will occur as early as summer/fall of 2006. [Ltr475 Cmt85]

    Response: The March 24, 2005 memo describing JBR's recommendations for seepage characterization to be used in the groundwater modeling for Panels F and G discusses a variety of field observations from Smoky Canyon Mine and elsewhere in Southeastern Idaho. These empirical data are used to compare with the recommended PV 1 of the adjusted column test concentrations. The empirical data from that memo are shown in the following table along with the adjusted PV1 concentrations used in the groundwater modeling for the DEIS:

Site	Selenium Concentration (mg/L)
Simplot Pole Canyon Overburden Fill	Average = 0.68
Simplot Pole Canyon Overburden Fill	Geometric Mean = 0.478
Simplot Pole Canyon Overburden Fill	Loading Conc. From SIR = 0.5
SE Idaho Se Database (v8) Fr. Drains	Average = 0.5
Simplot Panel D	Average = 1.21
Simplot Panel D	Weighted Annual Average = 0.71
SE Idaho Se Database (v8) Seeps	Average = 0.6
Panel F PV1 Adjusted	0.532
Panel G PV1 Adjusted	0.641

    In general, we do not argue with Simplot over their concerns related to potential differences in conditions between existing external overburden fills at Smoky Canyon Mine and the proposed Panels F and G pit backfills. We agree that the existing

overburden fills have not benefited from the same BMPs that are proposed for Panels F and G, particularly the proposed cover, which would reduce infiltration of oxygen into the seleniferous overburden and, under Alternative D, would also reduce percolation of water. These are some of the reasons why we did not propose to use the higher selenium values from GW-11, the only observation point at Smoky Canyon Mine developed in pit backfill. We also think the GW-11 water chemistry is not representative of a large area of the Panel A backfill.

We cannot be sure that the observed selenium concentrations in seeps at Smoky Canyon Mine are representative of the entire footprints of the subject overburden fills but we only selected the D-Seep and Pole Canyon because, for the reasons explained in the JBR May 24, 2005 memo, they are possibly representative of the entire footprints of these fills and are more representative than the seeps at any of the other overburden fills. That is why we did not recommend use of higher selenium values from seeps ES-4 and ES-5.

We strived to make judgments on the groundwater model inputs that are scientifically sound and therefore recommended downward adjustments of the time for each pore volume to pass through the overburden fills (preferential flow adjustment) and leachate concentration in recognition of the differences in particle sizes between the column tests and the field conditions (particle size adjustment). We think it is important to calibrate these inputs to field conditions.

18. Comment: Use particle-size-adjusted monolithologic column test data, but use an adjustment factor that is consistent with preferential flow path assumptions identifying the size of materials through which water flows to react with overburden. The adjustment used for the DEIS relies on comparison of the column test materials to the bulk center waste shale less than 1/2 inch in diameter. Simplot recommends adjusting based on comparison to the CWS materials that make up the finer 50 percent of the CWS particles; this is the size fraction less than 2 inches in diameter. The rationale for this revision is based on the preferential-flow assumption that infiltrating water is in contact with 50 percent (by volume) of the overburden materials. The new particle size adjustment is based on an assumption that water flows through the overburden material sizes that make up approximately half of the shale materials present. Forty-nine percent of the particles making up the bulk sample of center waste shale were smaller than 2 inches in diameter (i.e., 49 percent pass the 2" mesh sieve). The same cut-off value was used for chert overburden. The new surface area calculations for center waste shale and chert are lower than the surface areas calculated for the DEIS. [Ltr475 Cmt89]

    Response: The Agencies agree that the reason provided for making the particle size adjustment may have technical merit and the affect of this is shown in the FEIS to demonstrate the conservative nature of the analysis that does not include this adjustment such that the input leachate chemistry will more closely match local field conditions. Appropriate narrative has been added to the groundwater modeling report and **Section 4.3.1** of the FEIS.

Commenters from local mining companies provided the following concerns and comments.

19. Comment: Chemical input to the fate and transport model was based on regional seep database. The use of seep data, which represent highly focused preferential flow paths through an overburden pile, in a context that represents the entire footprint of a mine external overburden pile or backfill, is inappropriate. [Ltr547 Cmt1]

    Response: Seep data can be representative of highly focused preferential flow paths or large volumes of overburden, depending on how much of the annual recharge is represented by the individual seep. A single seep that is the point of discharge for most of the annual recharge within a large volume of overburden could very well be considered representative of the seepage from that volume of rock. On the other hand, a seep that only discharges a small quantity of the annual recharge to a volume of rock would not be representative of all flow paths through that volume. When looking at individual seeps, the above analysis of water balance should be done before using data from the seep. For a large number of seeps like in the Southeast Idaho Selenium Database, this information is not known and only general comparisons can be made.

20. Comment: The use of unsaturated column tests to solely represent conditions in pit backfills is inappropriate, since pit backfills typically contain some portion of materials having moisture levels at or near maximum field capacity. [Ltr547 Cmt2]

    Response: The test columns were operated at high moisture contents apparently just over the field moisture capacity because unsaturated flow was established in the columns.

21. Comment: Particle size-preferential flow considerations - The approach for the DEIS was to adjust the concentrations to a surface area calculated for the <1/2 inch diameter component of mine generated overburden exclusively. This was performed in spite of bulk samples from Smoky Canyon E Panel Overburden that indicated less than 30% of the material was <1/2 inch. In addition, a preferential flow assumption was made that water only contacts 50% of the overburden resulting in a more rapid change in leachate chemistry over time. The fact is one cannot have it both ways, in run of mine unsaturated overburden, having a substantial variation in size distribution, surface tension effects will cause water to migrate at relatively slow rates concentrated in the fine fraction material. If, however, one is to assume that only 50% of the material is contacted by water then the resulting flow rate must proportionally increase in that local area. In reality, this resulting increase towards a saturated condition in the area of flow will cause a greater amount of water to move towards the coarser size fraction. Thus surface area adjustments made to account strictly for the <1/2 inch material compounded with the assumption that all the water only contact 50% of this size fraction is an inappropriate approach. [Ltr547 Cmt6]

    Response: The Agencies agree that the reason provided for making the particle size adjustment may have technical merit and discuss this effect in the FEIS to demonstrate the conservative nature of the impact analsysis that does not include this adjustment such that the input leachate chemistry will more closely match local field conditions.

22. Comment: The DEIS adjusts the concentrations of chemical constituents generated from column test for particle sizes less than or equal to 1/2 inch diameter. Phosphate mining operations in southeast Idaho produce rock sizes that very from greater than 24 inches to less than 1/2 inch. Bulk sampling of existing overburden at the Smoky Canyon Mine indicates that less than 30% of the rock is less than 1/2 inch in size. The adjusted column test concentrations are therefore not in alignment with the actual field conditions which they are assumed to represent. Agrium recommends that column test concentrations be adjusted to more closely represent actual field conditions. Similarly, column tests were constructed using 85% (mass) of the materials less than 1/2 inch in size with the remaining fraction less than 2 inches in size. Given that only 30% of the overburden generated at the site is less than 1/2 inch in size and 50% of the center waste is greater than 2 inches in size, the column test construction is not representative of actual field conditions. Agrium recognizes that the column work has been performed and completed and therefore recommends that numeric adjustments to column test resultant concentrations be adjusted to reflect the gap in particle size. [Ltr977 Cmt2]

    Response: See the response to the previous comment.

23. Comment: The DEIS assumes that water will contact 50% of mined overburden (preferential flow factor), presumably based on the particle size distribution used in the column studies. The particle size distribution used in the column studies is, as described in comment 1, not representative of the actual field conditions. The larger particles, that have not been considered, reduce the available surface area for water to contact. This effectively reduces the preferential flow factor. Therefore the assumed 50% preferential flow factor is not representative of actual field conditions. Agrium recommends that the preferential flow factor be reduced to better represent the actual particle size distribution that exists and has been measured at the site. [Ltr977 Cmt3]

    Response: The Agencies have no additional information to justify revising the value of the preferential flow adjustment (50 percent).

24. Comment: Agrium believes that using seep data alone to justify model inputs is inappropriate due to the potential differences in physical and geochemical characteristics in backfill as compared to external dumps. As stated in the MFG Report, "the average composition of seeps may underestimate mass loadings from well oxygen-deficient facilities." The overburden at one site may have a different mineralogy and consequent different concentrations of COPCs than other mine site. Agrium recommends that regional seep data should only be utilized to justify chemical inputs for the impact analysis of external overburden storage areas. [Ltr977 Cmt8]

    Response: The Agencies have already considered all the arguments put forth by Simplot on the changed chemistry that is theoretically supposed to happen in pit backfills compared to external fills. However, the results of lab tests conducted to demonstrate this were not accepted by the Agencies for various technical reasons and lack of empirical field data to substantiate them. Thus the chemical inputs selected by the Agencies for the impact analyses are those from the oxygenated, unsaturated test columns. The data from the Southeast Idaho Selenium Database for seeps at external fills is therefore directly comparable to the laboratory test results used in the impact analysis.

Public Concern ID 186

The BLM/FS should acknowledge that a substantial reduction in the oxidative weathering rate, and leaching potential, can be expected as the level of oxygen decreases, as is indicated in the column test results that were not used in the impact analysis

The proponent and another local mining company provided the following comments.

1. Comment: Column leach test data that are available in the record of the DEIS provide additional support for the Proposed Action, but these data were not discussed in the DEIS in a manner that allows reviewers and the agencies the best opportunity to make a close examination of the environmental impacts of the Proposed Action and alternatives to support a fully-informed and well-considered decision. Multiple pore volumes of water were collected from three different types of column tests (1) tests on monolithologic samples from fine-grained drill cuttings, under both saturated and unsaturated conditions; (2) tests on run-of-mine materials (a representative mix of drill cuttings from overburden materials) under both saturated and unsaturated conditions; and (3) fate and transport tests on the run-of-mine materials with crushed limestone from the Wells Formation packed into the bottom of the column, also under both saturated and unsaturated conditions. The discussion of column test results in the DEIS only considers the results from the monolithologic tests performed under unsaturated conditions. Sole reliance on these tests conservatively skews the input numbers and results toward an unrealistic prediction of the expected selenium concentration in the Wells Formation aquifer under Panels F and G for all of the mining alternatives. At a minimum, the DEIS' use of this ultraconservative interpretation and subjectively selective application of monolithologic unsaturated column test results should be more fully disclosed and explained in the DEIS. To facilitate informed decision making, the DEIS discussion should be expanded to provide a more realistic frame of reference. While the DEIS recognizes the limitations of column testing and makes several adjustments to attempt to scale the selected results for use in the transport modeling, the rationale for limiting consideration of the column test results to the monolithologic unsaturated results remains unclear. [Ltr475 Cmt12]

   Response: The data from the saturated column tests conducted for Panels F and G were judged by the Agencies to be non-representative of the proposed pit backfills because saturated conditions were deemed to be unlikely in the backfills. Therefore we did not use these data to prepare groundwater model inputs. See the response to PC 255 Comment 11.

2. Comment: Because the other two categories of test results identified above are at least as representative of field conditions as the monolithologic column tests that the DEIS solely relies upon, they likewise should be used in the scaling adjustment made to the column test results and fully considered during selection of leachate concentrations for model input values. [Ltr475 Cmt13]

   Response: The Agencies have considered the evidence from the columns for selenium attenuation along with empirical evidence and recent batch testing data to decide to include a 15 - 25 percent attenuation factor in the revised groundwater modeling described in **Section 4.3.1** of the FEIS.

3. Comment: Saturated column test results should be considered when developing the input parameters for modeling migration from the pit backfills and covered areas. The saturated column tests indicate a much lower rate of selenium release from overburden than in the unsaturated tests. Although the pit backfills are not expected to be saturated, the oxygen supply in a backfilled pit is expected to be reduced when compared to materials that are disposed on the surface without a low permeability cover. Comparison of the results from the aggressively aerated unsaturated column tests versus the saturated column tests indicate that the selenium concentrations adopted as input values for the DEIS transport model overpredict the selenium concentrations in leachate from overburden that will be permanently buried in backfilled pits. The decision making process will be vastly aided by consideration of these data in the DEIS. [Ltr475 Cmt14]

   Response: As described in the response to PC 255 Comment 11, the lower selenium concentrations from the saturated columns may be due to lower oxygen conditions but can also be due to differences in flow conditions that can be responsible for the reduced selenium concentrations observed from the saturated columns. It has not been adequately shown that saturated conditions would occur in the backfill.

4. Comment: The ROM control and ROM Fate and Transport column test results, and the monolithologic saturated (or low oxygen) column test results, were not used to estimate selenium concentrations in water migrating from overburden areas, and the DEIS does not directly address these results. Simplot suggests that these results be given further consideration in the DEIS based on the supporting technical reports prepared prior to the DEIS. [Ltr475 Cmt55]

   Response: Prior to writing the DEIS the Agencies reviewed the technical reports provided by Simplot on these column tests and decided not to use the data because of unanswered technical issues related to interpretation of the results and the lack of empirical data to corroborate the laboratory conclusions. In addition, the test conditions were not considered to be representative of future backfill conditions at the Panels F and G operations. The detailed reasons for rejecting these data have been communicated in writing to Simplot in the past and entered into the Project Record.

5. Comment: None of the saturated column-test data were directly considered in the DEIS, even though they provide relevant data for consideration. The reason given (BLM correspondence to Simplot dated April 7, 2004) was that there is neither expectation nor certainty that saturated conditions will exist in either the external or the pit-backfill disposal areas planned for Panels F and G, and therefore, the saturated column tests do not provide data that is representative of expected conditions for overburden leaching. While this reasoning appears valid, it overlooks the more important fundamental comparison provided by these data. The unsaturated and saturated columns reflect a range of leaching potential for two different disposal settings, one with abundant oxygen supply (uncapped and unsegregated external disposal) and the other with limited oxygen (segregated and covered pit backfill disposal). Whether or not the pit-backfill materials become saturated after their final disposal, those materials will drain more slowly and have higher moisture content, and therefore less oxygen supply, than overburden that is disposed at the surface. Thus, even though direct application of the quantitative results from the saturated column leach tests as inputs for the predictive model may not be

appropriate, qualitative comparison of results from the unsaturated and saturated tests provides valuable site-specific data regarding the effect of oxygen supply on the leaching potential of overburden. [Ltr475 Cmt70]

Response: As contained in the Agencies' comments on the technical reports on the subject column tests, the laboratory data were inconclusive with regard to the expected relationships between redox, dissolved oxygen, total selenium, and selenium speciation to explain the different selenium concentrations in the column leachates. The effects of microbiological inoculation of the various test columns were also not fully explained. The lack of empirical field data to substantiate the test column results was also a reason why the Agencies did not accept these specific column test results for use in the DEIS. In fact, the one monitoring well at the mine that monitors conditions in a pit backfill has provided water chemistry data that suggest conditions exist there that do not agree with the subject column test results. These problems with the subject column test results still exist and the Agencies do not have sufficient reason at this time to generally reconsider their previous decision on use of these column test data in the EIS. Specific data from the ROM and Fate and Transport were recently reinterpreted by Simplot and these data were included in Simplot's comments on the DEIS.

6. Comment: Although the DEIS does not consider the saturated column test results contained in the administrative record, these results provide valuable information when developing the input parameters for modeling leachate migration from the pit backfills and/or capped/covered overburden where the oxygen supply will be more limited than in external dump historic configurations. The saturated column test results indicate a lower rate of selenium release from overburden than in the unsaturated tests. In contrast to the unsaturated column tests, selenite, the more reduced form of dissolved selenium, was present at higher concentrations than selenate, the more oxidized form, in the leachate from the saturated column tests. When considered in combination, these results confirm that oxygen supply, redox conditions, and the oxidation state of selenium are significant inter-related factors that influence the rate of selenium release from overburden disposal areas. Even though fully saturated conditions may not exist within the base of the backfilled pits, deep burial of overburden limits (or potentially prevents) routine circulation of air, and movement of oxygen, into the backfill materials. In addition, the overburden disposed in the backfilled pits is likely to have higher moisture content than the overburden disposed at the surface because vertical drainage of water from the pits will be slower than the lateral drainage from external piles. Higher residual moisture content results in lower oxygen supply to subsurface disposed mine waste (O'Kane et al., 1999). [Ltr475 Cmt71]

   Response: See response to PC 186 Comment 5 above.

7. Comment: A side-by-side comparison of all of the column testing results supports the observation that lower levels of aeration result in a lower leaching potential. Comparison of the unsaturated Fate and Transport column test to the Fate and Transport test run with partially saturated overburden and saturated limestone indicates that relatively less selenium is transported to the bottom of the column in a lower oxygen environment. Comparison of the unsaturated and saturated monolithologic column tests also confirms that less selenium is transported directly from waste rock that is in a relatively lower oxygen environment. [Ltr475 Cmt72]

Response: See responses to PC 186 Comments 3, 4 and 5 above.

8. Comment: The reduced rate of selenium transport that was observed in the laboratory when less oxygen was available in the columns is consistent with the known chemical behavior of selenium in the environment. The solubility, and mobility, of selenium is dependent on pH and redox conditions. The two forms of dissolved selenium present in surface and near surface environments, selenite (Se4+) and selenate (Se6+) forms, have different behaviors in the environment, and the selenate forms present in the most oxidizing environments are typically more mobile in surface (Brookins, 1988). Therefore, the pH and redox conditions are important controls on selenium transport from the overburden to the underlying Wells Formation. [Ltr475 Cmt73]

   Response: See responses to PC 186 Comments 3, 4 and 5 above.

9. Comment: Abundant literature is available for consideration regarding the beneficial effect of a low-oxygen environment for reducing oxidative weathering, and associated leaching of metals, from mine waste (e.g., Ayers et al., 2005; Davis et al., 1999; MEND, 2004; O'Kane et al., 1999; Paul et al., 2003; Waters and O'Kane, 2003). All of these references indicate that a substantial reduction in the oxidative weathering rate, and leaching potential, can be expected as the level of oxygen decreases. Although not quantitative, the literature can be used to evaluate the ranges of selenium concentrations offered by the highly oxygenated unsaturated columns and the low oxygen levels of the saturated columns. [Ltr475 Cmt74]

   Response: See responses to PC 186 Comments 3, 4 and 5 above.

10. Comment: External overburden disposal areas have larger exposed surface areas where oxygen in the atmosphere enters overburden materials. The pit backfills have a relatively smaller surface area exposed to the atmosphere and correspondingly lower oxygen supply due to more limited air circulation through the deep-buried overburden, which represents the majority of overburden disposed by pit backfilling. Another factor that limits the permeability of unconsolidated waste rock materials to circulating air is the moisture content (O'Kane et al., 1999). The portions of the pit backfill that have higher moisture contents than the surface disposed overburden will also have relatively lower oxygen supply. These differences in the external and pit-backfill disposal settings were not considered when the results from the unsaturated column leach tests were adopted to describe selenium leaching from overburden disposed in either setting. Comparison of the saturated and unsaturated column test results provides a qualitative confirmation that lower oxygen supply correlates with lower selenium concentrations in leachate. The results from the saturated column tests combined with information from published literature indicates that selenium concentrations adopted as input values for the DEIS transport model most likely over predict the selenium concentrations in leachate from overburden that is permanently buried in the backfilled pits. The column tests and literature cited above support use of lower selenium concentrations than those adopted for the DEIS impact analysis to represent leachate migrating from the pit backfill areas. The additional column test data also reinforce how conservative the adopted concentration values are for a site where nearly all of the overburden generated will be buried in the pits and covered rather than placed on the surface and covered for permanent disposal. [Ltr475 Cmt75]

Response: See responses to PC 186 Comments 3, 4 and 5 above.

11. Comment: The DEIS uses unsaturated monolithic column test results as inputs for the groundwater fate and transport modeling. The use of monolithic columns rests results that are algebraically weighted to represent the respective quantities of each overburden type is not the best way to simulate actual field conditions. The MFG report (Idaho Phosphate Working Group Geochemical Technical Review, MFG, Inc. August 5, 2005) states, "...actual mixing of solutions rather than algebraic calculations can result in the precipitation of new minerals, possibly resulting in the removal of COPCs from solution. This chemical process will not be reflected in calculated results from the algebraic mixing of monolithologic chemistries." Column testing, in and of itself, produces low confidence results due to the inherent variable like particle size, saturation levels, column size and aeration. Algebraically weighting monolithic column test results further reduce the confidence levels and lends to non-robust impact conclusions. There were six ROM columns constructed with a variety of limestone and moisture regimes; however, this data was not considered in the impact analysis. By using data from the ROM columns, the uncertainty of the mathematical extrapolation that has been used for the monolithologic columns would be eliminated. Agrium recommends that fate and transport model data should be taken from the ROM columns and/or other columns that more closely represent the actual field conditions. [Ltr977 Cmt4]

    Response: The algebraic mixing of solutions from monolithologic test columns is considered standard practice and is appropriate for Panels F and G. To the extent this algebraic mixing does not take into account potential chemical reactions that could result in attenuation of solutes, the Agencies accept this as a conservative characteristic of the approach. There were four ROM columns that were operated during laboratory testing. Two ROM columns were run in unsaturated conditions one being devoid of microbes and the other being inoculated with microbes. The other two ROM columns were used for fate and transport testing. The inoculated ROM column test results compared favorably with the weighted concentrations from the monolithologic unsaturated columns for arsenic, nickel and to a lesser extent selenium. The pore volume 1 (PV1) selenium concentrations for the ROM unsaturated columns were 0.869 and 0.923 mg/L compared to the weighted PV1 selenium concentrations for the monolithologic columns before any particle size adjustments (0.802 and 0.874 mg/L). Cadmium concentrations also compared favorably after PV2. Greater concentrations were calculated from the monolithologic columns for chromium and zinc. The data indicates that the unsaturated ROM column results are close enough to the weighted monolithologic column results to go forward with using the weighted monolithologic column data in the impact analysis.

12. Comment: The decisions to use unsaturated column test data in the fate and transport model seems to be arbitrary. The BLM does not have the data to definitively or even speculatively decide that unsaturated columns better simulate field conditions. Currently the industry and agencies are cooperatively working on testing and monitoring the internal physical and geochemical characteristics of overburden disposals sites in an effort to answer this question. By electing to use unsaturated column test results, the BLM has taken an overly conservative approach. NEPA directs that "Reasonable and Foreseeable" impacts should be evaluated. With this in mind Agrium recommends that the BLM reconsider the use of unsaturated column test results and provided an

explanation of the logic used to make this decision that coincides with the "Reasonable and Foreseeable". [Ltr977 Cmt5]

Response: The operational information from many years of mining at Smoky Canyon Mine indicates that significant groundwater flow into the open pits is not observed. The water table in the Wells formation is well below the elevation of the pit bottoms so there is no possibility for future flooding of the pit backfills from this aquifer. The conditions observed in the only pit backfill monitoring well at the Smoky Canyon Mine, GW-11, are that essentially unsaturated conditions exist in the backfill at that location. The hydrogeology at the Panels F and G site is very similar to that at the existing Smoky Canyon Mine. Because of all this, the Agencies believe there is sufficient justification to assume the pit backfills at Panels F and G will remain unsaturated. No additional information from current testing has been provided to the contrary.

Public Concern ID 218

The BLM/FS should ensure that the final EIS describes the total costs for water treatment in perpetuity when water quality standards cannot be met

A conservation organization provided the following comments.

1. Comment: In addition, the agencies should still assume that selenium contamination will occur even with the infiltration barrier and require ground and surface water treatment facilities at the bases of these disposal sites or enhanced anoxic attenuation in pit backfills. It is far more efficient to design and plan to use these facilities now rather than try to retrofit them at some future date. [Ltr978 Cmt9]

   Response: The mitigative measures incorporated into the Agency Preferred Alternative are intended to ensure that applicable groundwater and surface water protection standards are met by the project. For the purpose of analysis, it is not necessary for the Agencies to assume a worst-case result that assumes these mitigative measures will fail. In addition, the IDEQ will require inclusion of a contingency plan in any Consent Order for Panels F and G that will propose actions that could be applied if monitoring indicated additional mitigative measures are required.

2. Comment: The FEIS described the economic costs if the mine were not constructed, but did not describe the total costs for water treatment in perpetuity when water quality standards cannot be met. [Ltr978 Cmt14]

   Response: The Agency Preferred Alternative is estimated to result in groundwater concentrations that are in compliance with the applicable water quality standards. Bonding for the worst-case of assuming the mitigation will fail is not required under NEPA or agency regulations.

Public Concern ID 238

The BLM/FS should require the Draft EIS to discuss the amount of water reaching the sediment ponds

1. Comment: The EPA requests that additional information be provided in the EIS that identifies the approximate number, location, and size ranges of anticipated catch basins

to be used, and the waste streams and contaminants that will be managed in these catch basins. An analysis that evaluates whether these unlined basins are hydraulically connected with surface waters, and an analysis of whether and how these catch basins or other best management practices (BMPs) would prevent or control the release of dissolved contaminants from entering area waters would also be helpful to have in the EIS. EPA understands that the level of detail on the final configuration of the mine plan may not be available for the final EIS. In that event, we request that additional BMP requirements be included in the EIS and /or ROD. For example, the final EIS (**Appendix 2C**, BMPs for Erosion, Sedimentation and selenium Control) should include specific management direction/design requirements to ensure that these catch basins will effectively control the release of dissolved contaminants such that hydrologically connected surface waters are protected. In the ROD, monitoring requirements should be required to allow for evaluation of the effectiveness of ponds and BMPs at controlling the release of contaminants to water resources. It would be useful to know any data/information from inspections of historical mine operations that have confirmed the catch basins are operating as designed. [Ltr553 Cmt4]

Response: Additional descriptions of the sediment ponds have been added to **Section 2.5.5** of the FEIS. The detailed design of the sediment ponds and other runoff control measures is not currently available and would be provided to the Agencies as a condition of the ROD before their construction. The design of these features would comply with the BMPs included in **Appendix 2D** of the EIS. **Appendix 2D** of the DEIS has been modified to include management direction for constructing sediment ponds to minimize the release of contaminants to hydrologically connected surface waters (new **Appendix 2D**). The monitoring plan **Appendix 2E** included with the FEIS incorporates requirements for monitoring the effectiveness of the runoff and sediment control facilities.

2. Comment: A conservation group stated that the DEIS should discuss the amount of water reaching the settling ponds, which might actually increase late-season base flow. [Ltr950 Cmt166]

   Response: The settling ponds are designed to contain all the surface water from the disturbed mine areas without discharge. Because they would have no discharge of water to surface streams, it is unlikely they will have any affect on late-season base flow of perennial streams in the area.

Public Concern 248

The BLM/Fs should acknowledge that it would be more appropriate to discuss selenium contamination in terms of years, rather than in terms of "pore volumes"

1. Comment: A conservation group stated that since the 3 in/yr recharge rate is at least twice that of what was calculated for Mining Alternative D, contamination from the seleniferous waste will be present for a very long time-in the neighborhood of 500 to 1,000 years. It would be more appropriate to discuss the selenium contamination in the next draft EIS in terms of the time, in years, that ground and surface waters would be impacted, rather than in terms of "pore volumes," as it is presently presented in **Figure 4.3-1**. [Ltr950 Cmt170]

Response: **Section 4.3.1** of the DEIS explains that the time required for each pore volume to move through the overburden fills is approximately 146 years. The calculated peak concentrations of COPCs in the groundwater and surface water that would result from the proposed activities are presented in **Section 4.3.1** of the EIS. The number of years from the beginning of addition of the contaminants to the groundwater and the time when the peak concentration will be discharged are also described. These concentrations are shown to peak about 50 to 100 years out and then they decrease. A description of this trend in selenium concentrations over time has been added to **Section 4.3.1** of the FEIS.

Public Concern 255

The BLM/FS should support adoption of a partitioning factor of 70% or less in fate and transport analysis to represent the change in selenium concentration in water that enters the aquifer relative to the concentration in water leaving the overburden

The proponent and other mining interests had the following comments on the use of a partitioning factor in groundwater modeling:

1. Comment: Comparison of the run-of-mine and fate and transport column tests provides information on selenium partitioning that should to be considered. The test results, when compared on a mass basis and adjusted to eliminate dilution effects (i.e., normalized), show that substantially less selenium mass is collected from the columns after the overburden leachate flows through the Wells Formation limestone material. These results are consistent with the scientific literature for the partitioning of dissolved selenium to solids and are further supported by field observations at existing overburden disposal settings at the Smoky Canyon Mine.

   The comparison of the results from the unsaturated run-of-mine and the unsaturated fate and transport columns indicates a 30% or greater reduction in mass recovered from the column tests as a result of passing the leachate water through Wells Formation limestone. The 30% reduction is based on the initial pore volume of water, and subsequent pore volumes indicate a greater degree of partitioning. Therefore, these results support adoption of a partitioning factor of 70% or less to represent the change in selenium concentration in water that enters the aquifer relative to the concentration in water leaving the overburden. Furthermore, the simple partitioning factor presented by these comments itself is conservative, given that the liquid to solid ratio in column tests is quite high compared with expected field conditions. (The lower the liquid to solid ratio, the greater the opportunity for partitioning to the solid phase). The partitioning of dissolved selenium that was measured in the column tests is supported by recent observations at the Smoky Canyon mine. [Ltr475 Cmt15]

   Response: See response to PC 255 Comment 11 below.

2. Comment: Under an Administrative Order on Consent (AOC) with the Forest Service and the Idaho Department of Environmental Quality (along with the Environmental Protection Agency and other federal and state entities), Simplot has collected and analyzed data from the Pole Canyon overburden disposal area and developed a mass balance model to provide an estimate of the selenium transported through the Pole Canyon overburden disposal area to the Wells Formation aquifer. Unsurprisingly, in light

of vastly different past operating practices, the Site Investigation under the AOC concluded that Pole Canyon is the largest source of selenium to groundwater at the Smoky Canyon Mine and that dissolved selenium from Panels D and E would discharge, along with Pole Canyon loading to groundwater, at Hoopes Springs. However, the annual selenium mass load discharging at Hoopes Springs is roughly half of the annual mass load estimated to originate from the Pole Canyon overburden disposal area alone. Although several possible explanations for this difference exist, the most likely one is the partitioning of dissolved selenium along the unsaturated transport pathway to the Wells Formation aquifer and within the aquifer along the groundwater flow paths, to Hoopes Springs.

Recent conditions in the vicinity of the active backfilling operations at the A Panel provide additional evidence for selenium partitioning. The open northern portion of the A Panel pit is currently being backfilled with overburden excavated from mining of the B and C Panels. The closure plan for the A Panel incorporates Runoff Recharge Areas (RRAs) to direct clean post reclamation runoff from the A Panel area to the Wells Formation. The RRAs have been constructed at the A Panel and provide a direct pathway to the Wells Formation aquifer adjacent to the mine's Culinary and Industrial Wells. [Ltr475 Cmt16]

Response: See responses to PC 255 Comments 5 and 7 below.

3. Comment: Since the earlier mining activity and backfilling (1980's and 1990's), the concentration of selenium in these wells has been consistently in the 10 to 20 ug/L range. However, during the early summer of 2005 the concentration, as measured in the Culinary Well, increased to 0.049 ug/L and then declined back to the historic range over the course of the summer. This increase in concentration can be linked to a preceding period of heavy precipitation where surface runoff from the A Panel area was directed to open areas of seleniferous overburden. Runoff and infiltration through the unreclaimed seleniferous overburden entered the newly constructed RRAs and then the Wells Formation, where the depth to groundwater is less than 200 feet.

   In addition to providing valuable information for timing and construction of future RRAs, the focused recharge of runoff and infiltration through newly placed waste shales in conjunction with the close proximity of the Culinary Well to the RRA provide further insight as to the level of partitioning that can be expected for selenium in the Wells Formation. The calculated selenium concentration in the water entering the aquifer and providing the recently observed increase in concentration at the Culinary Well is much lower than would be expected for water in contact with newly placed waste shales. This experience with the A-panel-backfill-to-culinary-well pathway again provides support for the recognition of selenium partitioning in the subsurface. Given that these worst case conditions did not result in an exceedance of the groundwater standard, these data also provide a real world confirmation that the DEIS model generates extremely conservative and unrealistic predictions of selenium transport to groundwater. [Ltr475 Cmt17]

   Response: See response to PC 255 Comment 7 below.

4. Comment: For the purpose of the fate and transport analysis, Simplot's comments suggest that a factor of 0.70 should be applied to the infiltration chemistry calculation to

account for selenium partitioning to solids. Because the DEIS model has not included any partition coefficient, thus remaining ultraconservative with respect to selenium transport (i.e., it substantially overpredicts selenium transport to and within the Wells Formation), this partition factor, based on the lowest end of the range provided by the column testing, is reasonable and appropriate. Use of the 0.70 partitioning factor remains conservative for all overburden disposal settings, and presents a far more realistic analysis than the DEIS assumption of no partitioning. [Ltr475 Cmt18]

Response: See response to PC 255 Comment 14 below.

5. Comment: The annual selenium mass load estimated to discharge at Hoopes Spring is approximately half the annual mass load to the Wells Formation estimated to originate from the Pole Canyon overburden. The historical record of selenium concentrations measured at Hoopes Spring indicates that concentrations increased from a baseline of 0.003 to 0.004 mg/L prior to 1998 to approximately 0.010 mg/L during 1999. During the last 5 years, Hoopes Spring selenium concentrations have been variable, but they do not show a consistent increase over time. The Pole Canyon overburden disposal area and D and E Panel overburden disposal areas likely are contributing selenium to groundwater discharged at Hoopes Spring. The relative contribution from these other potential source areas to the Hoopes Spring selenium mass load cannot be discerned with the existing data.

   Although there are other possible explanations for the difference between the Hoopes Spring selenium load and the estimated load contributed to the Wells Formation from the Pole Canyon source area, given these findings, the most likely explanation for the discrepancy between the load introduced at Pole Canyon and the load discharged at Hoopes Spring is partitioning of dissolved selenium along the transport pathway to the Wells Formation, or to Hoopes Spring, or both. [Ltr475 Cmt61]

   Response: As part of the Smoky Canyon Mine Site Investigation Report (SIR), water balance and selenium and sulfate mass balance calculations were performed for the Pole Canyon overburden disposal area. These calculations, based on detailed continuity equations, are summarized in Technical Memorandum No. 2 (NewFields 2004). The Agencies reviewed this work and find that the equations are well documented and applicable. Although the annual selenium load from the Pole Canyon overburden could be calculated using other continuity equations, we find the NewFields approach to be conservative.

   As described in Technical Memorandum No.2, selenium loading from the Pole Canyon overburden to the Wells Formation aquifer under Pole Canyon was calculated to range from 221 to 458 Kg/year, and sulfate loading was calculated to range from 84,490 to 174,720 Kg/year. Based on data from the Smoky Canyon Final SIR for Hoopes Spring (NewFields 2005b), we noted that recent concentrations of selenium are about 0.013 mg/L and sulfate concentrations are about 46 mg/L. Using a flow rate for Hoopes Spring of 6 cfs, we calculated the discharge load for selenium and sulfate from Hoopes Spring to be 70 Kg and 246,495 Kg/year respectively. Comparing the discharge loads at Hoopes Spring to the ranges of added loads at Pole Canyon indicates that there is a significant decrease in the selenium load between Pole Canyon and Hoopes Spring and a significant increase in sulfate.

The Agencies also recognized that the sulfate concentration at Hoopes Spring is probably higher than background. The flow at South Fork Sage Creek springs is from the Wells formation. The SIR reported that groundwater generally flows to the springs from the west. In the work that was done for the Panels F and G DEIS, it was shown that groundwater also flows to the springs from the south, along a flow path that follows the southern extension of the West Sage Valley Branch Fault. The concentration of sulfate at the springs is about 15 mg/L. Assuming this was also the background concentration at Hoopes Spring, the adjusted sulfate concentration at Hoopes Spring, that is above baseline, is 31 mg/L. Using this adjusted concentration, the calculated sulfate load in the Hoopes Spring discharge is 166,117 Kg/year. Compared to the range of sulfate loading at Pole Canyon, the adjusted sulfate discharge load at Hoopes Spring is still greater than, or essentially equal to, the Pole Canyon loading.

Between when the Technical Memorandum No.2 and the Final Site Investigation Report were completed, NewFields used additional field data to refine the mass loading balance for the Pole Canyon overburden. The results of these refined calculations for selenium are discussed in Section 8 of the SIR (NewFields 2005b). The selenium load at Pole Canyon was revised downward to a single value of 138 Kg/year. No adjusted value for sulfate was provided in the SIR but comparing the revised selenium concentration (138 Kg/year) with the lower end of the former loading rate in the Technical Memorandum No.2 (221 Kg/year) results in a ratio of 0.62. If this ratio is applied to the lower end of the sulfate load from the technical memorandum, a revised sulfate loading of about 53,000 Kg/year can be derived.

Comparing the revised selenium and sulfate loadings at Pole Canyon to the selenium load and the adjusted sulfate load at Hoopes Spring indicates that the selenium load decreases by about 50 percent and the sulfate load increases by over 3 times.

As NewFields indicates in the SIR the apparent decrease in selenium load between Pole Canyon and Hoopes Spring can be due to a variety of reasons including:

- The calculated mass loading to the Wells Formation aquifer from the Pole Canyon overburden is incorrect.
- There is a time lag between the concentrations at Pole Canyon and Hoopes Spring.
- Only a portion of the selenium load is physically transported from Pole Canyon to Hoopes Spring.
- Dissolved selenium is chemically attenuated between Pole Canyon and Hoopes Spring.

We agree that all these reasons can be applicable to explain the observed differences in selenium load between Pole Canyon and Hoops Spring. Because of these reasons, it is not appropriate to settle on any one specific value for the percent reduction in selenium load between these points. However, we think the calculated selenium and sulfate loads are still useful in considering whether or not chemical attenuation of selenium is occurring in this flow path.

With regard to the effects of potential error in the mass loading calculations for the Pole Canyon overburden fill, such error would affect the absolute values of the calculated loads, hence the difference between the loads at Pole Canyon and Hoopes spring would

also change. The sources of errors can be multiple but we think uncertainties related to the hydrology of the alluvial and Wells Formation aquifers are likely the greatest sources of error. This would affect the estimated, apparent amount of selenium attenuation derived from the difference in loads between Pole Canyon and Hoopes Spring. Because sulfate and selenium are calculated by the same equations for Pole Canyon, any error in calculating the selenium load released from the overburden would affect sulfate in the same manner. Within a realistic range of potential errors in the calculated load, we still think the observed selenium load at Hoopes Spring is likely to be smaller than that calculated for Pole Canyon and sulfate load at Hoopes Spring is likely to be greater than that at Pole Canyon.

The same could be true about the time lag effect. The load calculated recently for Pole Canyon can take years before it is discharged at Hoopes Spring. Thus it might be more realistic comparing Pole Canyon loads estimated for earlier time frames with current discharge loads at Hoopes Spring. This type of comparison would likely show a smaller difference in selenium loads between the two locations. Again the same adjustment would affect the sulfate load in a similar manner.

With regard to the question if only a portion of the Pole Canyon load is physically transported to Hoopes Spring, we reviewed the conceptual groundwater model. The difference in selenium loading between Pole Canyon and Hoopes Spring can be attributed to geochemical attenuation if one assumes that most of the Wells Formation groundwater under Pole Canyon is discharged at Hoopes Spring. This requires that most of the contaminated groundwater under Pole Canyon flow eastward to the West Sage Valley Branch Fault; be intercepted by the highly transmissive damage zone along the fault; and then flow along the fault zone to discharge at Hoopes Spring. Thus, the groundwater containing the selenium load added to the Wells Formation under Pole Canyon is transmitted primarily to Hoopes Spring and is not shared to a significant degree with other flow paths, such as flow to the north along the fault, or leakage across the fault into Sage Valley. We believe there is evidence for this general assumption.

Hoopes Spring is located along the West Sage Valley Branch Fault and is very likely connected to the fault zone hydraulically (BLM and USFS 2002). The discharge at Hoopes Spring is approximately 6 cfs, which previous workers in the area have concluded is much too large to be supplied by only local recharge and therefore must gather groundwater from along the fault trace (Ralston 1979, Mayo et al. 1985, JBR 2001, NewFields 2005b). This groundwater flow path in the Wells Formation from roughly Pole Canyon south has been considered to be from west to east (JBR 2001c, BLM and USFS 2002, NewFields 2005b). The assumption in the NewFields report that selenium contamination added to the Wells formation under Pole Canyon flows east is supported by previous work including the Smoky Canyon SEIS published by the BLM and USFS. The remaining question is whether all the groundwater under Pole Canyon flows south along the fault as suggested by NewFields. An appropriate check on this is to review groundwater modeling prepared for the Panels F and G DEIS and identify the similarities in the two flow domains north and south of South Fork Sage Creek.

Groundwater modeling conducted for the Panels F and G DEIS includes a very analogous conceptual groundwater model as has been used by NewFields for Smoky Canyon Mine. Wells formation groundwater under the Webster Range in the area

between South Fork Sage Creek and Deer Creek has been shown to flow from west to east; is gathered by the West Sage Valley Branch Fault; flows northward in the highly transmissive fault damage zone to discharge at South Fork Sage Creek Spring (JBR 2007, BLM, USFS, IDEQ 2005). As far as we currently understand, the Wells formation aquifer characteristics and patterns of recharge, are essentially the same from Deer Creek north to South Fork Sage Creek, and this likely extends to Pole Canyon. The groundwater modeling for Panels F and G showed that all eastward-flowing groundwater in the Wells formation from the south end of the proposed Panel F to South Fork Sage Creek is intercepted by the fault and flows north along the fault zone to discharge at South Fork Sage Creek Spring. This flow path along the fault zone is approximately 3.0 miles long and the discharge of this groundwater at South Fork Sage Creek Spring is estimated to be at least 4.5 cfs. This suggests that this flow pattern (recharge in Webster Range, flow east to the fault, flow along the fault to the spring) in the northern portion of the model domain produces approximately 4.5 cfs or more. The flow path along the same fault from Pole Canyon to Hoopes Spring is 2.3 miles long. Assuming the groundwater flow conditions are the same along this flow path as in the north end of the Panels F and G groundwater model domain, (recharge and flow patterns) the flow at Hoopes Spring should at least be about 3.5 cfs but it is actually about 6 cfs. We therefore think it is reasonable to assume that the flow path from Pole Canyon to Hoopes Spring along the fault could easily be collecting most of the Wells formation groundwater from this area of the aquifer. This argues against significant flow of groundwater from under Pole Canyon in a northward direction along the fault. It also suggests that there is little leakage of Wells formation groundwater across the fault into Sage Valley. It makes sense to us that there should not be significant leakage across the fault zone because the rocks east of the fault consist of the Dinwoody and Salt Lake formations, which contain significant amounts of low permeability siltstones and shales (Connor 1980). The location of large springs at the lowest elevations along the fault trace is also evidence of the lack of groundwater flow across the fault.

To test whether or not the apparent decrease in selenium loads between Pole Canyon and Hoopes spring could be due to chemical attenuation, we performed similar calculations using sulfate as a non-attenuating surrogate for selenium in the same flow path. We compared the sulfate and selenium loadings at Pole Canyon and Hoopes Spring using the same approach used by NewFields. If selenium is being attenuated along this flow path, our hypothesis was that sulfate should not be attenuated and the sulfate loadings at both ends of the flow path should be roughly equal. A significant deficit of sulfate load at Hoopes Spring compared to the calculated load at Pole Canyon would suggest that not all the load from Pole Canyon is physically transported to Hoopes Spring. However, our calculations showed that the annual sulfate load at Hoopes Springs was actually greater than the calculated sulfate load discharged from the Pole Canyon overburden. This suggests that most of the selenium load from Pole Canyon could be physically transported to Hoopes Spring. We cannot say that 100 percent of the load is actually transported because there can still be some leakage of the groundwater carrying the load to places other than Hoopes Spring. However a 50 percent leakage rate would be noticeable in the sulfate loading and this is not the case. We are not troubled that the sulfate load at Hoopes Spring may be greater than that calculated for Pole Canyon. The fact that the sulfate load discharged at Hoopes Spring is apparently greater than that contributed by the Pole Canyon overburden could be due to seepage from other overburden fills south of Pole Canyon where sulfate is being

added to the Wells formation aquifer; is transported east to the fault and then south to Hoopes Spring, but the selenium is not.

The data indicates it is reasonable to assume that the deficit in selenium load between Hoopes Spring and the Pole Canyon overburden can mostly be attributed to chemical attenuation along the flow path. For the reasons raised by NewFields in the SIR, we think the apparent 50 percent reduction in selenium load along this flow path may be the upper limit of chemical attenuation that can be expected along this flow path but this is not likely the correct, actual value. We think the correct value is more likely to be lower than 50 percent. Additional laboratory data in the form of attenuation batch tests have been used to determine the extent of attenuation in the unsaturated zone.

6. Comment: Further evidence of partitioning at a local scale is provided by comparison of the selenium concentrations in Pole Canyon Creek and the connected Pole Canyon Creek alluvial groundwater system (SI monitoring well GW-15) with the concentrations observed directly below in the Wells Formation (SI monitoring well GW-16). Concentrations observed in the Wells Formation are often one-half to one-third of the concentrations observed in the overlying Pole Canyon Creek and alluvial groundwater system. Although it is difficult to isolate the effects of partitioning from any dilution within the Wells Formation, the location of the Wells Formation at the toe of the overburden disposal area and the stacked position of the Wells Formation minimize the potential for dilution. [Ltr475 Cmt62]

   Response: It is difficult to attribute differences in selenium concentrations between monitoring wells GW-15 and GW-16 to geochemical attenuation without taking into account the dilution effect of adding the seepage from the Pole Canyon Dump to the Wells formation aquifer. The differences also vary with the season. While some geochemical attenuation may be present in this area, the Agencies do not think enough is known about these complicating factors to allow the differences in selenium concentrations between GW-15 and GW-16 to be attributed to attenuation to any significant degree.

7. Comment: The amount of selenium delivered to the [Wells Formation] aquifer under the RRA [runoff recharge areas] must be substantially less than the amount of selenium expected due to leaching of recently placed, weathering, seleniferous overburden. Therefore, it appears that an attenuation mechanism, such as partitioning to solids in the upper Wells Formation, significantly reduces the selenium loading to groundwater relative to the rate of selenium leaching from overburden. The selenium concentrations estimated for recharge water at the A Panel are at least 30 percent less than the concentration for overburden leachate that was used for the Panels B and C SEIS and at least 60 percent less than the concentration used for the Panels F and G DEIS. [Ltr475 Cmt63]

   Response: The Agencies have reviewed the information provided by Simplot that in May and June 2005, the mine received 7.4 inches of rainfall, much of which came in several storm systems. Runoff from areas of exposed shale overburden was reportedly diverted to runoff control basins in the Panel A backfill area near the runoff recharge area (RRA) that was under construction. This collected water reportedly infiltrated into the underlying shale overburden and then was collected in the RRA. The Culinary and

Industrial wells are directly downgradient of the part of Panel A in question. Because of the presence of the RRA, we think it is likely that much of the water infiltrating though the overburden in the vicinity of this RRA could reach the Wells formation in a short period of time. Shortly afterwards, the selenium concentration in the Culinary Well rose from 0.0158 mg/L in March 2005 to a peak of 0.0492 mg/L in June and then fell back to 0.0178 mg/L in October, which is consistent with a limited amount (slug) of contamination being added to the Wells formation aquifer previous to this change in selenium concentrations in the Culinary Well.

Simplot used the Summers equation to back calculate the selenium concentrations in the source (RRA water) that would result in the observed increase in Culinary Well selenium concentrations. The calculations are based on the calculated water influx from the A-panel during the high precipitation period in the spring of 2005. These calculated values were then compared with various assumed selenium concentrations in the RRA water to determine if selenium attenuation is possibly indicated. The Summers equation is:

$$Cgw = Ci * Qi/(Qi + Qgw$$

Where:
Cgw = concentration in groundwater
Ci = concentration in water entering the aquifer (i.e., A-panel)
Qi = flux of water entering the aquifer
Qgw = groundwater flux under the source area (i.e., Culinary well)

This is a very approximate analysis because the only measured characteristic is the selenium concentration in groundwater at the Culinary Well. All the other inputs to the calculations were estimated. We have reviewed the input parameters used by Simplot and find them reasonable, although alternative input assumptions could be made. Simplot found that the calculated selenium concentration in recharge water captured by the RRA could be no higher than 0.164 mg/L (assuming all 5.6×10^6 ft^3 of surface runoff reached the RRA), and 0.22 mg/L if only 70% of surface runoff reached the RRA.

These concentrations are appreciably less than the selenium concentrations in PV 1 of the Panels B and C column leaching tests (0.33 mg/L), and Panels F and G (0.6 to 0.7 mg/L), which is the concentration one might expect in this RRA water if it first percolated through some shale overburden. However, if the selenium concentration of the water entering the RRA was diluted with surface runoff, data from other phosphate mines suggests this could dilute the RRA water to a lower selenium concentration. NewFields' understanding was that most of the water in question seeped out of the runoff control basins, which supports using the PV1 chemistries. Assuming the input assumptions and calculations are correct, the calculations suggest that selenium attenuation occurred in the Wells formation and this attenuation could range from about 30 to 60 percent. Additional laboratory data in the form of attenuation batch tests have been used to determine the extent of attenuation in the unsaturated zone.

8. Comment: There is evidence for partitioning of dissolved selenium to soil at seep-discharge locations within the phosphate mining district. At the Smoky Canyon Mine, water samples collected in detention basins below surface seeps have lower selenium concentrations than the seep waters (e.g., seep Se = 0.35 mg/L and basin water Se =

0.25 mg/L at the D Panel seep), sediments in those detention basins have selenium concentrations up to an order of magnitude higher than sediments in any other detention basins at the mine (e.g., 592 mg/Kg selenium in sediments from the DP-7 basin), and the selenium concentration in soil along the surface flow path of seep water is elevated relative to soils on either side of that flow path (NewFields, 2005). Some portion of the selenium lost from seep water along its surface flow path is clearly retained by the soil and sediment in contact with the seep water.

At the Wooley Valley Mine, Stillings and Amacher (2004) found the same pattern of selenium loss from seep water along surface flow paths to a wetland. Dilution with groundwater was ruled out as the cause of lower selenium concentrations in the wetland water. Instead, iron oxides and organic matter in wetland sediments were acting as reservoirs for selenium. Although these examples are not equivalent with a backfilled pit setting, it is important to note that iron oxides are present in the Wells Formation. [Ltr475 Cmt64]

Response: The field data presented in the Simplot SIR do show that selenium concentrations in certain overburden seeps are affected by overland flow and storage in detention basins. Their interpretation of these data that selenium is chemically attenuated in these surface flow paths is consistent with information in the general literature on selenium chemistry. We agree that potential chemical attenuation mechanisms might be adsorption to iron oxides in the soils of these surface pathways and we also think that other mechanisms might be responsible such as adsorption on clays, carbonates, and organic materials. These observations support selenium attenuation when seepage water from Smoky Canyon overburden contacts native soils. Simplot's suggestion that the Wells formation rock also contains iron oxides is noted and we assume the point being made by Simplot is that these iron oxides might also be effective in attenuating selenium. We also note that assay data produced for the Wells formation rock in the Panels F and G area shows iron concentrations averaging 0.26 to 0.37 percent (Maxim 2004b). Iron analyses have not been conducted on Smoky Canyon soils but this is relatively less than the typical iron content of surface soils, 1 to 5 percent, (Hausenbuiller, 1972). This suggests that selenium attenuation due to iron oxides in the Wells formation is possible but the effectiveness of selenium attenuation to iron oxides in the Wells formation would likely be significantly less than what has been observed in the surface environment at Smoky Canyon Mine.

9. Comment: All of these studies also support recent geochemical modeling conducted as part of the EIS for the North Rassmussen Ridge Mine (BLM, 2003), which evaluated the effects of natural attenuation on the selenium concentration of water entering groundwater from overburden disposal areas. Selenium partitioning to solids was the attenuation mechanism that was considered as part of the impact analysis performed for that site, and the geochemical modeling provided a theoretical basis for acceptance that partitioning to solids would take place. [Ltr475 Cmt67]

   Response: The BLM, USFS, and Idaho Department of Lands did incorporate geochemical attenuation of selenium in the groundwater impact analysis of the North Rasmussen Ridge EIS. The main attenuating mechanism for selenium was proposed through geochemical modeling to be precipitation of selenium oxide and nickel selenide when percolation of seepage from the pit backfill entered the Wells formation water

table. These reactions depended, in part, on very low Eh conditions (-60 mV) for the groundwater at the water table. The Eh conditions measured at the Panels F and G and the Smoky Canyon Mine are all positive, and these same geochemical conditions theorized for the North Rasmussen Ridge are not evidently present at the Panels F and G project area. Lesser amounts of attenuation were proposed in the North Rasmussen EIS incorporating sorption of selenium to iron oxides and calcite in the Wells formation. These reactions can proceed in oxidizing conditions and may also be present at the Panels F and G area, although information allowing an estimation of the effectiveness of this type of attenuation was not available when the groundwater modeling the Panels F and G DEIS was completed.

10. Comment: Unsaturated column tests identical to the "monolithologic" column tests in their construction and leaching protocols were conducted using a mixture of ROM overburden. Also, "Fate and Transport" column tests were conducted by extending the column materials to include Wells Formation limestone below the ROM overburden. The Fate and Transport column tests were performed for both unsaturated and partially saturated conditions. Although there were some other minor differences in the column preparation for these different tests, including the bacterial inoculum applied to the Wells Formation limestone (it was obtained from deep Wells Formation groundwater rather than from overburden settings), test results reported in the Baseline Geochemistry Report (Maxim, 2005) indicate that inoculation with bacteria had essentially no effect on the rate of selenium release from unsaturated overburden materials in the Panels F and G column tests. Therefore, the presence of limestone between the overburden materials and the sample collection port is the fundamental column-design characteristic that distinguishes the Fate and Transport column tests from all of the others. The results from these other tests provide relevant data describing selenium leaching from overburden and subsequent transport by water. These data should be considered when developing the predictive analysis of potential impacts to water resources, and the DEIS should present the additional test results in discussion of the model input parameters and consider these data to evaluate the reasonableness of modeled predictions. [Ltr475 Cmt68]

    Response: See the response to PC 255 Comment 11below.

11. Comment: The column test results can provide valuable information on the relative leaching rates for the various overburden materials in different settings, as well as the role of leachate contact with the Wells Formation limestone for selenium transport to and by groundwater. In particular, consideration of the mass of selenium released versus the concentration of selenium in column-test samples provides a more reliable indication of the relative leachability in that it removes some of the concerns associated with scaling column test results to field conditions. The DEIS recognizes the limitations of column testing and makes several adjustments to scale the results for use in the groundwater Fate and Transport modeling. However, the column tests were not included in the DEIS analysis. The rationale for excluding the ROM and Fate and Transport column test results from the DEIS analyses is not clear. Nevertheless, these test results are at least as representative of field conditions as the monolithic column test results that the DEIS solely relies upon, and they can be used to gain valuable insight as to the effects of environmental conditions and the partitioning of selenium along the expected transport pathway for overburden infiltration. At a minimum, all of this

information and the specific mass-based calculations should be considered in the scaling adjustment made to the column test results and in the selection of leachate concentrations for model input values. [Ltr475 Cmt69]

Response: When these column tests were first proposed, they were based on the premise that the overburden in the pit backfills would be saturated or partially saturated, conditions that the Agencies considered too unsubstantiated to agree to use the column test data in the groundwater analyses. Since then, Simplot has included in their comments on the DEIS a review of the most applicable data from the test columns that relate to potential attenuation of selenium in Wells formation materials. Simplot compared the mass loading from pore volume 1 (i.e., PV1) from ROM unsaturated, ROM fate and transport unsaturated, and ROM fate and transport partially saturated column tests. In their analysis they compared the mass of selenium leached from the ROM control column in PV 1 with the mass of selenium collected from similar PV 1 concentrations collected after the pore volume of water passed through Wells Formation material in the fate and transport columns.

After normalizing the selenium mass to PV 1 they found that the control ROM column released 1.477 mg of selenium from a 5 Kg ROM mass that was leached. They calculated only 1.040 and 0.356 mg from similar 5 Kg ROM samples after the leach water passed through a fully saturated 16.8 Kg mass of Wells Formation (ROM sample unsaturated) and a partially saturated ROM sample and a fully saturated 16.8 Kg mass of Wells Formation, respectively. Based on this analysis, Simplot suggests a 31 to 51 percent attenuation (reduction) factor in the concentration of selenium for flow through the Wells formation.

At face value, these calculations provide evidence for selenium attenuation after contact with saturated and unsaturated Wells formation materials. However, there are several issues regarding the design and implementation of the column tests, which tend to complicate and possibly mask the effect of this attenuation measurement.

The design of the ROM control column test differs from the design of the fate and transport column test. Although all tests used 5 Kg of ROM, the ROM column had a 4-inch diameter, whereas the fate and transport columns had 6-inch diameters. Thus, the surface area of the ROM control column was 12.57 in^2 and the surface area of the fate and transport columns was 28.27 in^2. Water application rates were also different for the ROM control column and the fate and transport columns, 15 ml/hr and 22 ml/hr, respectively. The net effect is that water infiltration rates were different between the ROM control and fate and transport columns, 1.19 ml/hr-in^2 and 0.78 ml/hr-in^2, respectively. Thus, the water infiltration rate of the fate and transport columns is 66% of the ROM control column rate. In vadose zone conditions, the recharge rate will affect the capillary pressure and hence the rock-water ratio and wetting surface relationships, unsaturated hydraulic conductivity, flow rate, and rock contact area. Column design differences also means that the capillary lengths in the ROM control column were longer than in the fate and transport columns, which may mean longer rock-water contact time. The ROM material in one of the fate and transport columns was partially saturated, which created additional differences in the flow regime within the ROM material between the columns. It is not clear what overall affect these differences had on the dissolution of

selenium in ROM material and the mass of selenium leached from the 5 Kg ROM samples in each of the columns.

Because the ROM control column was unsaturated, selenium diffusion and dispersion had negligible affects on the PV 1 concentration. However, both fate and transport columns had a certain volume of distilled water in the Wells formation material in the bottoms of the columns prior to initiation of the tests. As the initial selenium leachate from the ROM (from water that was applied to the top of the ROM material) reached these saturated zones the concentration in the saturated Wells formation and saturated ROM material was affected by both diffusion and longitudinal dispersion. Thus, the first part of PV1 drawn from the bottoms of the fate and transport columns may have contained only part of the initial PV1 solute mass from the ROM and the last part of PV1 drawn from the column may not have contained the last part of the PV1 solute from the ROM. Because PV2 was continuously collected after PV1, some of the ROM solute from PV1 may have been incorporated into PV2. Thus, reported PV1 fate and transport selenium total loading may be less than the actual loading. However, cumulative selenium loading after numerous pore volumes (Simplot comments Figure 3) suggest that the mass of selenium in subsequent fate and transport pore volumes is still not sufficient to account for the total selenium loading from the control column, i.e. some selenium has apparently been attenuated in the fate and transport columns.

The normalized PV1 in the unsaturated fate and transport column is not just PV1. In this column test the first sample was collected after 2.4 L of water passed through the ROM sample. Because the ROM void space was 1.6 L, the sample was diluted with a portion of PV2, thus the measured concentration would be expected to be lower than the actual concentration of PV1.

Due to the above complications, the Agencies prefer referencing more recent batch attenuation tests conducted by Simplot and Agrium to support quantification of geochemical attenuation of selenium in contact with Wells formation materials.

12. Comment: Although seep values collected at recently constructed external overburden disposal areas at Smoky Canyon Mine can be higher than those in the seep database referenced by the DEIS, these values:-represent a small volume of water in contact with relatively new mine waste (i.e., a fraction of a pore volume);-do not correspond to backfilled pits;-do not reflect reclaimed closures that include all of the BMPs identified for the planned actions at Panels F and G;-do not reflect "footprint area" seepage, but rather discrete flow paths that have conditions that enhance leaching of selenium; and-do not reflect the selenium concentration that is entering the Wells Formation aquifer. Reliance on seep data will result in substantial over prediction of selenium concentrations in leachate generated in backfilled pits and/or capped areas due to differences in the chemical conditions associated with the backfill and historic external disposal settings. Comparison of column leach test results for saturated and unsaturated columns confirms that the selenium release rate is highly dependent on the oxygen supply to the overburden. Pit backfills and/or covered areas will have lower oxygen supply than external dumps (e.g., seeps from external overburden disposal areas are much different than backfilled pits), and the leachate generated in the backfill environment is not likely to match chemical characteristics of the leachate generated in the seep database external disposal settings. [Ltr475 Cmt86]

Response: The March 24, 2005 memo describing JBR's recommendations for seepage characterization to be used in the groundwater modeling for Panels F and G discusses a variety of field observations from Smoky Canyon Mine and elsewhere in Southeastern Idaho. These empirical data are used to compare with the recommended PV 1 of the adjusted column test concentrations. The empirical data from that memo are shown in the following table along with the adjusted PV1 concentrations used in the groundwater modeling for the DEIS:

Site	Selenium Concentration (mg/L)
Simplot Pole Canyon Overburden Fill	Average = 0.68
Simplot Pole Canyon Overburden Fill	Geometric Mean = 0.478
Simplot Pole Canyon Overburden Fill	Loading Conc. From SIR = 0.5
SE Idaho Se Database (v8) Fr. Drains	Average = 0.5
Simplot Panel D	Average = 1.21
Simplot Panel D	Weighted Annual Average = 0.71
SE Idaho Se Database (v8) Seeps	Average = 0.6
Panel F PV1 Adjusted	0.532
Panel G PV1 Adjusted	0.641

In general, the Agencies do not argue with Simplot over their concerns related to potential differences in conditions between existing external overburden fills at Smoky Canyon Mine and the proposed Panels F and G pit backfills. We agree that the existing overburden fills have not benefited from the same BMPs that are proposed for Panels F and G, particularly the proposed cover, which would reduce infiltration of oxygen into the seleniferous overburden and, under Alternative D, would also reduce percolation of water. These are some of the reasons why we did not propose to use the higher selenium values from GW-11, the only observation point at Smoky Canyon Mine developed in pit backfill. We also think the GW-11 water chemistry is not representative of a large area of the Panel A backfill.

We cannot be sure that the observed selenium concentrations in seeps at Smoky Canyon Mine are representative of the entire footprints of the subject overburden fills but we only selected the D-Seep and Pole Canyon because, for the reasons explained in our May 24, 2005 memo, they are possibly representative of the entire footprints of these fills and are more representative than the seeps at any of the other overburden fills. That is why we did not recommend use of higher selenium values from seeps ES-4 and ES-5.

The data from the saturated column tests conducted for Panels F and G were judged by the Agencies to be non-representative of the proposed pit backfills because saturated conditions were deemed to be unlikely in the backfills. Therefore we did not use these data to prepare groundwater model inputs. As described in our previous responses to Simplot's comments, the lower selenium concentrations from the saturated columns may be due to lower oxygen conditions but can also be due to differences in flow conditions that can be responsible for the reduced selenium concentrations observed from the saturated columns.

The Agencies strived to make judgments on the groundwater model inputs that are scientifically sound and therefore recommended downward adjustments of the time for each pore volume to pass through the overburden fills (preferential flow adjustment) and leachate concentration in recognition of the differences in particle sizes between the column tests and the field conditions (particle size adjustment). It is also important to try to calibrate these inputs to field conditions, where possible. As Simplot argues, our past judgments in selecting comparable field conditions for overburden seepage at Smoky Canyon Mine were conservative but we note the alternatives we could have selected from the available field observations were even higher.

13. Comment: Although the seep data from the existing portions of the Smoky Canyon Mine and the DEIS selected data from the Area-Wide seep database are not comparable to the values calculated for infiltration through an entire overburden disposal area footprint, other relevant data are available. In particular, groundwater data were recently collected in the immediate vicinity of the A Panel pit during the backfilling of that pit (see comment 3.2.A.2). These data reflect a reasonable worst case scenario in that the recently mined and placed overburden from Panels B and C was exposed to spring runoff/infiltration. The runoff/infiltration then traveled to Wells Formation runoff recharge areas that are designed to rapidly convey clean runoff to the Wells Formation after reclamation. As a result, impacted infiltration was rapidly delivered directly to the Wells Formation aquifer at the edge of the overburden disposal area footprint. The impact of the infiltration was detected at the nearby (800 foot distant) Culinary and Industrial Wells. Water quality data were collected from the Culinary Well on a weekly basis. These data show a rapid increase in concentration and decrease as the infiltration diminished. The maximum concentration measured was 0.049 mg/L. This value, reflecting uncontrolled runoff/infiltration through unreclaimed overburden, is greater than the concentration reasonably expected to be observed in the Wells Formation adjacent to overburden disposal areas incorporating the backfilling, waste segregation and covering prescribed for the proposed action. In contrast to the recent observations at the A Panel pit, the DEIS unreasonably predicts concentrations above the drinking water standard at locations further from overburden. [Ltr475 Cmt87]

    Response: See the responses to PC 255 Comments 7 and 12 above.

14. Comment: Adjust the selenium concentrations used in the model to account for the partitioning of selenium to solids, as observed in the unsaturated Fate and Transport column test. The partitioning of selenium from solution to limestone, or the fraction of selenium from overburden leaching that is retained by limestone, can conservatively be described as: Mass Retained on Limestone/Mass Delivered by Water In this case, the mass (mg) retained on limestone = 1.48 -1.04 = 0.44 mg, and the mass delivered to the limestone = 1.48 mg. Therefore, the partitioning can be described as 1-0.44/1.48 = 0.70. In other words, 30 percent of the selenium mass released from overburden by leaching was retained on limestone and the remaining 70 percent was transported through the limestone. A partitioning factor of 0.70 should be applied to the PV concentrations to reflect the normalized results of the Fate and Transport column test results, which were not considered for the DEIS. This factor is consistent with the Fate and Transport column tests, recent observations in the field, as well as published literature and reflects transfer of dissolved selenium to the solid phase, by various mechanisms, under varying

conditions along the transport pathway. The recommended factor is conservative in that it represents the low end of the range observed in the column testing. [Ltr475 Cmt88]

Response: The combination of new data provided in Simplot's comments, much of which is site specific, suggest that the selenium attenuation will occur as groundwater flows through the Wells formation. The chemical mechanisms for such attenuation are not well understood, but likely involve adsorption reactions with iron hydroxides and calcium carbonate. It is not critical that a complete understanding of the chemical reactions and redox conditions necessary to promote attenuation are known, in light of the empirical data presented. The critical question is how should the empirical and laboratory data be used in preparation of the Final EIS?

At face value, the newly presented data suggest selenium attenuation as great as 60 percent may occur as water flows through the Wells formation. The column test data suggest selenium attenuation of from 31 to 51 percent but there are questions related to the comparisons between the two different types of columns. The calculated reduction in selenium load between Pole Canyon overburden and Hoopes Spring is about 50 percent but this could be somewhat less due to inaccuracies in the load estimates at Pole Canyon and potential leakage of groundwater from the flow path. The apparent attenuation at the Panel A to the Culinary Well is estimated to be from 30 to 60 percent but there are input uncertainties in this analysis. Because of the uncertainties in these attenuation estimates and the absence of field documentation of selenium attenuation in the Wells formation beyond the Smoky Canyon mine environment, it is prudent to apply conservative selenium attenuation factors to the groundwater flow model. The groundwater modeling was rerun by the Agencies incorporating a range of 15 - 25% attenuation and the results of this are shown in **Section 4.3.1** of the FEIS in addition to the model results from the DEIS (no attenuation). Thus, a range of results is presented in the FEIS for this input parameter.

15. Comment: The assumption that selenium transport is 100% efficient with no attenuation whatsoever is inappropriate. In addition, Run of Mine columns were run with and without a limestone base. Results consistently showed lower selenium concentrations in ROM columns with limestone and yet none of these leachate values were considered. Since the majority of groundwater is through the Wells limestone formation, it seems as though some consideration of lower selenium concentrations from these limestone-containing columns could have been incorporated. [Ltr547 Cmt3]

    Response: See responses to PC 255 Comment 11 above.

16. Comment: No data from ROM (Run of Mine) column testing was utilized in the impact analysis. Rather, only data from monolithic column results combined algebraically was utilized. According to Runnells, August 5, 2005 Geochemical Technical Review, "The use of algebraic mixing of chemistries of leachates from monolithic testing may not be an accurate measure of the solution that would result if the leachates were actually mixed together to pack a laboratory column. The concern results from the fact that the actual mixing of solution, rather than algebraic calculations, can result in the precipitation of new minerals, possibly resulting in removal of COPCs [Chemicals of Potential Concern] from [Ltr547 Cmt5]

Response: See response to PC 255 Comment 11 above. The algebraic mixing of solutions from monolithologic test columns is standard practice and is considered appropriate for Panels F and G. To the extent this algebraic mixing does not take into account potential chemical reactions that could result in attenuation of solutes, the Agencies accept this as a conservative characteristic of the approach.

17. Comment: The DEIS considered selenium transport to be 100% efficient with no allowances for selenium attenuation in the fate and transport modeling. Agrium believes this concept to be overly conservative given the fact that there is abundant literature stating attenuation is a factor in the reduction of selenium. The Agencies contractor, JBR, recognized selenium attenuation in their memo dated January 20, 2005. The DEIS states that "although there may be some chemical attenuation of selenium in these flow paths, none has been used in the fate and transport modeling for the groundwater impact assessment." The DEIS also states that "There is abundant information in the literature supporting chemical attenuation of selenium in specific chemical and biological environments." Again, this is not using all the available data to allow for a "Reasonable and Foreseeable" impact analysis, which is directed by NEPA. Agrium therefore recommends that. [Ltr977 Cmt7]

    Response: See response to PC 255 Comment 14.

Public Concern ID 256

The BLM/FS should articulate in the final EIS why assumptions were selected, how those assumptions interact or conflict with other assumptions, literature, and data, and whether the resultant modeled predictions make sense in light of ongoing conditions

The proponent provided the following comments.

1. Comment: The FEIS needs to articulate why assumptions were selected, how those assumptions interact or conflict with other assumptions, literature, and data, and whether the resultant modeled predictions make sense in light of what we know about ongoing conditions in the field. [Ltr475 Cmt25]

    Response: Additional narrative has been added to the groundwater impact section of the FEIS to provide further clarification of the inputs and assumptions in the analysis.

2. Comment: Because the estimate of selenium concentration in water infiltrating through overburden is such a critical input parameter for the predictive model, the methods used to obtain concentration estimates should be well understood by the reviewer before the model predictions are considered. [Ltr475 Cmt53]

    Response: See the response to PC 256 Comment 1 above.

3. Comment: The DEIS discussion on the origin of the leachate concentrations ultimately used for modeling should be augmented to improve clarity; the reader must go to a May 24, 2005 memorandum from JBR for a partial explanation of the approach, and to earlier memos for actual data and calculations. Other relevant data from analyses conducted specifically for evaluation of potential leachate chemistry at Panels F and G are not highlighted in the DEIS. [Ltr475 Cmt60]

Response: See the response to PC 256 Comment 1 above.

Public Concern ID 258

The BLM/FS should acknowledge that the analyses supporting results presented in Table 4.3-15 of the draft EIS should be conducted with a maximum baseline concentration of 0.005 mg/L dissolved selenium for Sage Creek

The following comments were submitted by Simplot:

1. Comment: Simplot is working under an Administrative Order on Consent (AOC) with IDEQ and other State and Federal agencies to address conditions associated with the historic A, D, and E Panel mining operations. The EE/CA conducted under this AOC has identified a course of action that will control ongoing loading of selenium from overburden disposal areas (e.g., Pole Canyon) to acceptable levels. The primary actions involve isolating the Pole Canyon overburden from Pole Canyon Creek, introducing clean water to the Wells Formation below the overburden disposal area, and reducing runon and infiltration through the overburden surface. It is anticipated that these actions will begin in the summer/fall of 2006. This identified course of action also includes a program to develop a site-specific selenium standard for Hoopes Spring and lower Sage Creek with extensive monitoring and contingent treatment of Hoopes Spring and any remaining seeps, if source controls are not projected to be effective when reviewed at 5-year intervals. Actions taken under the AOC process will result in Hoopes Spring concentrations at or below applicable criteria (levels posing unacceptable risk to aquatic life) in a time frame consistent with projected impacts. DEIS predicted times for the maximum impact at Sage Creek and Crow Creek below Sage Creek are 97 and 81 years, respectively. The beneficial effects of the course of action under the EE/CA likely will begin to be seen in the field in the ten year period following implementation, well before the predicted effects under the DEIS model. Therefore, the surface water standard (.005 mg/L) should be a conservative starting point for Hoopes Spring to evaluate cumulative effects for lower Sage Creek and Crow Creek. Furthermore, exceedance of the 0.005 mg/L standard does not automatically translate into adverse biological impacts. See Simplot Comments: Fisheries and Aquatics. [Ltr475 Cmt90]

   Response: The impact analysis in the DEIS clearly indicates that the calculated impacts on lower Sage Creek, using the existing water quality in that stream, is not likely to occur because of the planned remedial actions at the Smoky Canyon Mine. However, in order to disclose to the public and decision makers what the impacts would be if the proposed CERCLA remedial actions are not effective, cumulative effects analysis will use current empirical data and not 0.005 mg/L.

   At the time the DEIS was distributed the draft EE/CA had not been finalized thus the remedial actions in it, and the anticipated effectiveness of those actions had not yet been approved by the regulatory agencies. Thus assuming an unspecified remedial approach would be effective to a certain degree would have been speculative and not within the data adequacy requirements of the EIS. The EE/CA was released for public comment on June 2, 2006. The specific remedial actions and anticipated effectiveness of those actions are now known and are described in a new **Appendix 2A** to the FEIS. Additional narrative has been added to the FEIS clarifying this matter.

2. Comment: Given the long period of time before the DEIS predicted impacts and Simplot's commitment to the AOC process, the analyses supporting results presented in Table 4.3-15 of the DEIS (Estimated Selenium Concentrations in Area Streams) should be conducted with a maximum baseline concentration of 0.005 mg/L dissolved selenium for Sage Creek. [Ltr475 Cmt91]

   Response: See the response to PC 258 Comment 1 above.

3. Comment: The cumulative effects discussion of surface water that begins at DEIS page 5-16 omits detailed consideration of how and when the AOC process will result in Hoopes Spring concentrations being at or below levels posing unacceptable risk to aquatic life (thereby meeting criteria). As discussed above, the DEIS predicted times for the maximum impact at Sage Creek and Crow Creek below Sage Creek are 97 and 81 years, respectively. Therefore, the surface water standard (.005 mg/L) should be a conservative starting point at Hoopes Spring to then evaluate cumulative effects for lower Sage Creek and Crow Creek. The water quality cumulative effects discussion needs to emphasize the long period of time before the projected Proposed Action and Mining Alternative impacts and how the AOC process will benefit the CEA well before the projected project impacts may occur. The single unduly circumspect reference in this section of the cumulative effects chapter to the AOC process (see DEIS page 5-24) is entirely outstripped by the detailed and misleading discussion that occurs for pages before this reference. In addition, tables 4.3-15 and 4.3-16 of the DEIS should be supplemented with new tables reflecting achievement of the surface water standard. Simplot strongly disagrees with the characterization at DEIS page 5-23 regarding the permitting consequences of modeled exceedances of groundwater and surface water standards leading to "none of the above alternatives" being chosen without additional measures. This characterization is inaccurate and misleading since Simplot has demonstrated above that the Proposed Action will comply with, among other standards, groundwater and surface water standards. Certainly all of the alternatives will comply with those standards (even as some of them fail to achieve the project's purpose and need). It is misleading and unnecessary to make this comment in the cumulative effects chapter. [Ltr475 Cmt132]

   Response: See PC 258 Comment 1, above. The sections in Chapter 4 and Chapter 5 of the FEIS discussing calculated impacts to groundwater and surface water quality have been revised to include more discussion on the uncertainty of the results and the conservative nature of the Agencies' analysis. A new **Appendix 2A** was added to the FEIS to further discuss what remedial work is proposed, what results are expected, and when the results would be evident. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

Public Concern ID 259

The BLM/FS should acknowledge that there would be no exceedances of the cold water biota criteria in the mouths of Deer Creek and the South Fork Sage Creek

1. Comment: The proponent noted that the DEIS states that Alternative D would lower selenium concentrations to below the Idaho cold water biota criteria of 5 ug/L at both the mouth of Deer Creek and the mouth of South Fork Sage Creek. DEIS at 4-144. The analysis that computed these expected concentrations in these streams is conservative. Simplot firmly believes that under Alternative D, the concentration of selenium in these streams will be considerably less than 5 ug/L. See Simplot Comments [section] 3.4, Table entitled Comparison of Maximum Predicted Selenium Concentrations for "Revised Alternative D" Using Recommended Adjustments to Model Input Values. Therefore, there will be no exceedances of the cold water biota criteria in these local streams as a result of this project. [Ltr475 Cmt101]

   Response: The DEIS already states in **Section 4.3.1** that selenium concentrations in lower Deer Creek and South Fork Sage Creek would be less than the 0.005 mg/L surface water standard. Additional information has been added to **Section 4.3.1** of the FEIS showing the potential affect on calculated groundwater and surface water selenium concentrations if revisions to the model inputs are made which incorporate selenium attenuation or revisions to the particle size adjustment. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

Public Concern ID 265

The BLM/FS should require the new draft EIS to present, disclose, and analyze significant impacts to the environment from the proposed operation

1. Comment: A group of conservation organizations stated: Given (1) that parts of the Deer Creek system are already on the Idaho 303(d) list as impaired due to sediment and habitat degradation, (2) that loss of springs feeding into the Deer Creek system is likely to lead to further habitat degradation and loss, and (3) increased Se inputs to Deer Creek expected from mining operations at Panel G are likely to adversely effect its trout population as well as its other fishes, it is likely that mine expansion as now proposed under any of the mining alternatives (except the no action alternative) will have both short - and long-term, major, and both local and regional impacts on Deer Creek's cutthroat trout. These impacts are significant and are likely to be irreversible. The DEIS fails to disclose and analyze these impacts, and the next version must fully discuss them. [Ltr950 Cmts181, 358]

   Response: Text has been added to **Section 3.3.2** of the FEIS related to the 303(d) listing of streams in the Project Area that occurred after the DEIS was written. Information has also been added to **Section 4.3.2** related to the ability of the Agency Preferred Alternative to meet the regulatory requirements that apply to the 303d listed streams. The affect of the loss of springs feeding Deer Creek is described in **Section 4.3.2** of the DEIS, as is the mitigation requirement that Simplot replace certain of these springs in compliance with the RFP. Additional information has been added to **Section**

4.8 and in **Appendix 3C** of the FEIS related to the potential effects of increased selenium concentrations on trout in the Project Area streams.

Public Concern ID 270
The BLM/FS should address legal issues regarding the discharge of selenium

The EPA and a group of conservation organizations provided the following concerns and comments.

1. Comment: The DEIS discussed the draft 2002 Integrated Water Quality Report of Idaho, in which lower Deer Creek and other water bodies in the project area were proposed to EPA for inclusion on the list of impaired waters (303(d) list) due to water quality impacts. In December 2005, EPA water bodies in the project area with water quality impairments for selenium and sediment. In particular, North Fork and South Fork Deer Creek are listed for sediment, and Sage Creek is listed for selenium. It is not entirely clear from the DEIS whether or not the Preferred Alternative will contribute to further impairment of these 303 (d) listed water bodies. In order to make the determination, BLM should continue its consultation with the IDEQ and decide whether the project will need to comply with the requirements of State statue IDAPA 58.01.02.054, Water Quality Limited Waters and TMDLs. These State standards address what types of activities are allowed prior to development of an analysis that allocates pollutant loads (known as a total maximum daily load or TMDL) in watersheds which include 303 (d) listed water bodies. [Ltr553 Cmt2]

   Response: The IDEQ is a cooperating agency on this EIS and is fully aware of and in agreement to the content of the EIS. The description of the effects of the recent changes to the 303(d) status of Project Area streams has been added to **Section 3.3.2** and **Section 4.3.2** of the FEIS as applicable.

2. Comment: Estimates of sediment impacts from project activities suggest that an additional 8.5 tons/year would be contributed by the project to Deer Creek, and 0.65 tons/yr to Sage Creek. It is unclear from this analysis whether this additional loading will adversely affect aquatic life. The EIS should provide additional analysis and description of the significance of this additional load, and its potential impact. For example, is the increase in sediment loading from Deer Creek consistent with IDAPA 58.01.02.054 Water Quality Limited Waters and TMDLs? [Ltr553 Cmt4]

   Response: The effects of this sediment load on aquatic life are discussed in **Section 4.8** of the DEIS. The ramifications of the change in the 303(d) listing for the upper reaches of Deer Creek due to sediment are discussed in **Section 3.3.2** and **Section 4.3.2** of the FEIS as applicable.

3. Comment: The DEIS (Section 2.3.5, Water Management) describes the existing NPDES storm water permits and Storm Water Pollution Prevention Plan (SWPPP) for the existing mine operations and the proposed mine expansion. The DEIS discusses utilization of a series of catch basins or discharges of storm water except during large storm events. Other portions of the DEIS describe sediment impacts to area streams. The EIS should clarify the apparent discrepancy related to sediment delivery from a facility designed to prevent direct discharges. In addition, we recommend that the

section on water management be expanded to describe how other potential waste streams directly or indirectly related to the expansion (which may include waste streams to mine dewatering, seepage, and excess process wastewater, and others) would be managed. If discharges of waste streams not eligible for coverage under the storm water general permit to waters of the U.S. did occur, then Smoky Canyon Mine would need an individual NPDES permit, and discharges of mine dewatering water would require a New Source NPDES permit. The EIS does not indicate the number of location of these catch basins/ponds, but EPA did have the opportunity to discuss this information with BLM during the course of our review. As a result of that conversation, we understand that BLM's intention is to conduct a review of the catch basin locations and evaluate whether there is a hydraulic connection to surface water that would be constitute discharges to waters of the United States. Currently the DEIS indicates that the catch-basins will be designed to handle 100-year, 24-hour storm event. [Ltr553 Cmt13]

Response: **Section 4.3.2**, Sediment Aspects, of the DEIS describes that sediment from the disturbed mine areas would typically be contained without discharge to area streams. The sediment impacts described in the DEIS are caused from the haul/access road disturbances, where it is logistically impossible to completely contain the runoff from the disturbed areas. The only significant wastewater stream that would be handled in the proposed mining operations would be runoff from the disturbed areas. Minor amounts of sanitary wastewater or maintenance wastes (water in secondary containments) would be generated. None of these wastewaters would be discharged to area streams. The runoff water would typically be collected in sediment control ponds and evaporate or seep into the ground with no connection to surface streams. Sanitary and maintenance wastes would be fully contained. Additional narrative has been added to **Section 2.4** of the FEIS to describe the management of these wastewaters. Additional narrative has been added to **Appendix 2D** in the FEIS requiring that sediment ponds be built and operated to prevent release of contained wastewater to area streams through direct hydrologic connections such as surface discharge or subsurface flow in streambeds.

4. Comment: Table 1.2-1 of the DEIS portrays the major permits that may be required for the mine expansion. Apparently Simplot will be required to obtain only a Stormwater discharge permit. A Stormwater permit would not account for or recognize the discharge of selenium from groundwater to the streams through the conduit created by Simplot in the proposed backfill configuration for the mine expansion. The discharge of selenium that will result from this engineered and constructed conduit raises an important issue: whether an NPDES Permit is required for the discharges from the mine, which clearly would contribute selenium contamination to the surface waters of Deer and Sage Creeks. From our perspective it clearly is. In similar cases the courts have held that water seeping from mining pits constituted a discharge from a point source. And, as noted above, under EPA policy, such discharges for hard rock mines are regarded as point sources. [Ltr950 Cmts137, 200]

   Response: The seepage from the proposed overburden fills will have no direct connection to surface streams subject to NPDES permitting requirements. The seepage impacts to the surface streams described in the EIS occurred through a pathway where the seepage moved down through the bedrock to the groundwater aquifer and then

laterally in the aquifer to points of discharge at area streams. The overburden fills in this pathway are not hydrologically connected to the surface streams as typically interpreted by the EPA. Region 10 EPA has commented on the DEIS and did not raise the same concern as the authors of this comment.

5. Comment: If Idaho Water Quality standards and the removal action concentrations of the Clean Water Act are to be met, selenium treatment may become the only effective means of controlling selenium in most of the deposits in the Smoky Canyon Mine. Treatment must be included in one or more of the alternatives considered in the next draft EIS and pilot programs utilizing the best possible technologies begun as soon as possible. [Ltr950 Cmt176]

   Response: The EE/CA for the Smoky Canyon Mine evaluated a number of potential remedial alternatives, including treatment of contaminated water. The recommended remedial action is to significantly reduce the contaminant loading at the overburden source to reduce COPC concentrations in area groundwater and surface streams. A similar approach has been adopted for the proposed Panels F and G, i.e. reducing potential releases of COPCs from the overburden by reducing introduction of water into the overburden fills. This controls the release of COPCs at the source before it can cause contamination of groundwater and surface water that must then be remediated. Analysis indicates that no treatment of water leaving the Panels F and G site will be required.

Public Concern ID 271

The BLM/FS should explain why the apparent discrepancy between the model results presented in the draft EIS and the actual data collected for the Site Investigation Report does not result in model results that underestimate the level of likely selenium contamination from the backfill

A group of conservation organizations provided the following comments.

1. Comment: Also of some concern is that the predicted selenium contamination is based on "Weighted Average Pore Water Chemistries" that in general yield lower selenium concentrations than those from the leaching tests conducted for the EIS (see DEIS, Table 4.3-4 Weighted Average Pore Water Chemistries for ROM [Run of Mine] Overburden, p.4-34). In describing the results of the modeling used for the DEIS, it is stated: "The selenium concentrations for PV1 calculated from the column test data (Table 4.3-4) ranged from 0.532 to 0.739 mg/L, which compares well to the average selenium concentration for overburden seeps in the database." DEIS, p.4-35.The results from actual water quality sampling from surface water seeps below the existing Smoky Canyon Mine are presented in the Smoky Canyon Site Investigation Report (SIR), and appear to have higher selenium concentration readings than implied in the statement above. This data is shown in the Table below, and the locations of these monitoring sites are shown in the Figure on the following page. Infiltration through the cover on the new waste dumps would be expected to leach selenium at roughly the same concentration as with existing dumps, but at lower volume/rate of discharge. Data from the overburden seeps, as presented in the Smoky Canyon (SIR) [Site Investigation Report], records selenium values that are several times higher than those predicted in the DEIS modeling, as shown in the weighted average pore water chemistries for ROM

[Run of Mine] overburden (DEIS, Table 4.3-4). This suggests that selenium concentrations in the waste could be higher than those assumed for the ground water modeling, at least on a localized basis. If this is so, then the contamination in the streams below the mine could be worse than predicted by the ground water model. [Ltr950 Cmt217]

Response: The reviewer is referring to Table 6-7 of the SIR, which listed COPC concentrations in water from several locations at the Smoky Canyon Mine including AS-2, DS-7, DS-10, ES-3, ES-4 and ES-5. When determining leachate chemistry inputs for the groundwater modeling, one should select a chemistry that would represent all available flow paths through the overburden over a long time frame. The total flow through the overburden is expected to consist of many flow paths, each with different chemistry. As described in the Groundwater Flow and Solute Transport Modeling Report (JBR 2007), and the various technical memos cited in that report (specifically Buck, Mayo and Schmiermund, 2005), the adjusted column test leachate chemistry was compared to empirical data from the Smoky Canyon Mine and found to be similar to the most representative of those field data, DS-7 and Pole Canyon Dump, with annual average selenium concentrations of 0.71 mg/L and 0.67 mg/L respectively. These sample sites were shown to be representative of the large majority of water passing through those overburden fills. However, seeps AS-2, ES-3, ES-4 and ES-5 were shown to account for minor amounts of all the water flowing through those overburden fills and thus were not representative of the entire fills. While numerous seeps in the region have both higher and lower concentrations of selenium than the column tests from Panels F and G, the input chemistry was determined primarily from laboratory tests on rock material and conditions specific to this project. Only then were results compared to regional empirical data. No one existing seep wholly represents potential leachate chemistry for Panels F and G.

2. Comment: Why does this apparent discrepancy between the model results presented in the DEIS and the actual data collected for the SIR [Site Investigation Report] not result in model results that under-predict the level of likely selenium contamination from the backfill? [Ltr950 Cmt218]

   Response: As described in the response to PC 271 Comment 1 above, the leachate chemistry used in the groundwater modeling does compare favorably with the sample sites at the Smoky Canyon Mine that most likely represent leachate from a large portion of the respective overburden fills. The apparent discrepancy only occurs when one compares the groundwater input chemistry with sample sites at Smoky Canyon Mine that are not representative of large quantities of overburden and thus are only representative of certain preferential flow paths.

Public Concern ID 301

The BLM/FS should consult with local landowners before accepting proposals to address selenium concerns

A nearby private landowner provided the following comment.

1. Comment: To attempt to address the selenium coming from Hoopes Spring into Sage Creek and our land, there seem to be two alternatives: (i) build an experimental water

treatment plant the size of a Wal-Mart within a mile of our ranch, or (ii) conduct a three year study, largely on our ranch, funded and controlled by Simplot, with the apparent goal of creating a more permissive selenium standard, just for Idaho, than the 7.91 mg/Kg standard proposed by the EPA. Needless to say, the agencies don't seem to believe we should be consulted about this use (or abuse) of our ranch. Certainly, no one has talked to me about either option to date. [Ltr1050 Cmt4]

Response: This comment is on the EE/CA and not the DEIS. The draft EE/CA was released for public review in June 2006, after the release of the Panels F and G DEIS. The commenter was able to provide any comments desired on the remedial action alternatives under consideration for the Smoky Canyon Mine during the public comment period on the EE/CA.

Public Concern ID 312

The BLM/FS should redesign Alternative D so that essentially no contaminant loading reaches the groundwater

1. Comment: Alternative D has a cover thickness that was designed to limit the recharge to an acceptable value. However, even if done correctly, the approach taken by the BLM ignores the uncertainty inherent with even the best modeling effort with the best data. Predicted concentrations and water levels are an expected value, just as the mean of a data sample is a descriptor of the population. The population will also be described with a variance, skewness and possibly other high order statistics. The model predictions used in the DEIS provides only one descriptor. Because of inherent uncertainty, if the predictions are normally distributed, there is an equal chance that the realized concentrations will be greater or less than the prediction. Compliance with the Clean Water Act will essentially depend on a coin-toss. Given the model shortcomings cited above, the coin is in fact loaded against a result that complies with the Clean Water Act. As currently designed, alternative D will likely cause water quality that violates standards; from a water quality perspective, this is unacceptable and likely illegal. [Ltr950 Cmt422]

   Response: The Agencies believe the decisions made on the inputs to the groundwater modeling in the DEIS were conservative and produced conservative impact predictions. More information has been added to **Section 4.3.1** of the FEIS to better describe these conservative inputs. Because of this conservative modeling the Agencies believe the predicted concentrations presented in the DEIS for groundwater and surface water impacts may be higher than what actually occurs in the future. To better demonstrate this, a range of modeled water quality results, using input values with different degrees of conservatism, are presented in **Section 4.3.1** of the FEIS. Nevertheless, Simplot has proposed a revised Alternative D cover design (see FEIS **Section 2.6.1**) that would reduce net percolation rates to levels lower than those indicated by the conservative modeling of Alternative D included in the DEIS. This provides additional assurance that resulting groundwater selenium concentrations from the proposed mining operations would remain below regulatory levels.

2. Comment: Alternative D must be redesigned so that essentially no contaminant loading reaches the groundwater. For this to occur, waste handling must effectively isolate the seleniferous overburden from the surface and surrounding groundwater environment. The overburden must either be kept dry or if it gets wet, the moisture must be prevented

form moving offsite. One alternative for keeping it dry would be to redesign the current proposal so that the cover would prevent flow into the overburden. This would require a water balance barrier underlain with a vapor barrier. A water balance barrier is designed to capture essentially all of the infiltration and evapotranspire it back to the atmosphere. It requires a combination of the adequate soil moisture holding properties with plants designed to move the water. During wet periods parts of the cap may become saturated, therefore the water vapor barrier, designed with coarse gravel to have pore spaces much larger than those in the backfill, will prevent through capillary action the continued vertical movement of water. Because breakthrough could still occur during wet periods, the gravel barrier should have a synthetic liner underneath it to prevent infiltration into the backfilled overburden. The vapor barrier should be sloped so that seepage that reaches it flows to a point for discharge away from the backfill. This designed would be similar to that used under a tailings impoundment or a leak detection system under a cyanide heap. This design would also require a compacted clay or synthetic liner along the side of the pit so that horizontal flow through the vadose zone does not reach the backfill. The pit walls may have to be sloped so that this compaction could occur. This scenario would essentially require maintenance in perpetuity. Monitoring of water levels would likely be necessary. [Ltr950 Cmt423, Cmt470, Cmt471]

Response: The Agencies have analyzed a revised design for the cover described in Alternative D of the EIS that includes a store and release cover similar to what is described in the comment. It would function to both reduce infiltration into the ROM overburden and to reduce interaction between root mass and the ROM material. This cover would include from top-down: topsoil, Dinwoody shale, and chert. The Dinwoody would be used as a subsoil layer having the ability to intercept and store annual infiltration from snowmelt and precipitation that gets through the topsoil layer. Extensive unsaturated flow modeling has been completed to select this design and test the sensitivity of its performance to changes in materials, vegetation, aspect and climatic conditions. The net percolation through this cover is predicted to be less than was described for the design of Alternative D in the DEIS and the water quality impact analysis in **Sections 4.3.1** and **4.3.2** of the FEIS show selenium concentrations in groundwater discharges to surface streams would be well below the applicable surface water standard for selenium.

A vapor barrier is not planned beneath the chert to intercept net percolation during high precipitation years. This is because the most important factor in the contaminant loading of the aquifer is the flux rate of seepage entering the water table at depth and not just the net percolation rate through the cover. The net percolation through the cover must transit more than 200 feet of overburden and then 200 to 600 feet of Wells Formation vadose zone before entering the aquifer in the Wells Formation. This long unsaturated flow path tends to smooth out the variations in the net percolation through the cover. The design studies of the cover have shown that net percolation through the cover in wet years is offset by little to no net percolation in drier years and the flux rate at the water table is approximately equal to the long-term average net percolation rate through the cover. **Section 2.6.1** of the FEIS provides additional detail on this design and references to the design studies that have been completed.

Flow of water from the pit walls into the pit backfills is not expected to be significant enough to require mitigation. There would be no up dip Phosphoria formation materials to transmit water into the pit backfills. The Phosphoria formation materials behind the highwall dip to the west, away from the pit backfills so downward percolating recharge is

more likely to move away from the pit backfills than into them. The materials behind the highwalls are mainly low permeability Meade Peak shale that generally do not transmit water to the highwalls. This is substantiated by observations of the lack of seepage from these highwalls at the existing Smoky Canyon Mine.

Monitoring of the construction and operation of the cover is described in **Section 2.10** and **Appendix 2E** of the FEIS. In addition, IDEQ will require inclusion of a contingency plan in any Consent Order for Panels F and G that will propose actions that could be applied if monitoring indicated additional mitigative measures are required.

3. Comment: The backfill could be encased in an impervious liner, either clay or synthetic, that would prevent seepage from leaving the backfill and reaching the groundwater. To prevent the pit from filling with water, there would be pumping and monitoring wells placed in the backfill with a mitigation plan to keep the backfill dry by pumping the seepage whenever it starts to accumulate. This design would still have a cover designed to minimize seepage but with the recognition the seepage will occur and that it must be captured, treated and discharged in an acceptable manner. This scenario is similar to that proposed at the Golden Sunlight mine in Montana to keep the backfilled pit dry. [Ltr950 Cmt472]

   Response: The use of impervious liners for water management at the overburden fills is evaluated in **Sections 2.6** and **2.7** of the FEIS. The use of such liners for the large expanse of the Panels F and G overburden fills is not considered to be feasible by the Agencies. Also described in these sections, the Agencies believe that placing a liner under the pit backfills and including pumping wells to remove the seepage water from the backfills so it can be treated is less desirable than the proposed design for Alternative D. The agency preference is on reducing the net percolation entering the backfills so less seleniferous seepage produced and its production rate would be kept low enough to reduce resulting impacts on groundwater and surface water quality to acceptable levels.

4. Comment: Any alternative ultimately constructed must include a detailed plan for monitoring and mitigation. Groundwater quality should be monitored at various points between the mine facilities and the modeled compliance points. The new modeling required for this project and described elsewhere in this report should be used to site the additional monitoring as wells. Monitoring wells should be sited to provide a sufficient lead-time to implement mitigation to prevent contaminated seepage from reaching the streams.

   If the monitoring shows that contaminants are leaching from the facilities, the mitigation would kick in to prevent contamination of surface water. The mitigation, in addition to the liners described above, should include pumping wells to collect the contaminated seepage before it reaches the streams. The water would be collected and treated before discharge. Often, pumpback systems merely cycle the water over the tailings impoundment. That would probably not be feasible here because the railing impoundment is several miles away. An active treatment system may be necessary.

   Additionally, the contamination could occur after mining ceases and the reclamation has been completed. Heavy precipitation or reclamation failure could cause seepage slugs to discharge from the backfill at any point. The monitoring must continue essentially forever to be certain that contamination does not affect the streams at some in the future

after the mine closes. The long-term monitoring must be accompanied by a mitigation plan and funding, bonding in perpetuity, to protect resources over the long term. [Ltr950 Cmt473]

Response: The Agencies have added a monitoring plan as a new **Appendix 2E** to the FEIS. Groundwater quality would be monitored at several locations downgradient and close to the proposed mine panels to provide an early detection of groundwater impacts, years before these impacts would reach surface streams. The monitoring wells have been located using the results of the groundwater modeling.

The IDEQ will require inclusion of a contingency plan in any Consent Order for Panels F and G that will propose actions that could be applied if monitoring indicated additional mitigative measures are required.

Reclamation of the overburden fills would occur as soon as feasible following the beginning of mining operations in the mine panels. It would then continue concurrently with mining for the rest of the mine life. Although there would be infiltration of precipitation directly into overburden areas before the cover is placed over these areas, the duration of this exposure would typically be less than a year.

Long-term monitoring of surface water and groundwater is discussed in the monitoring plan, **Appendix 2E**.

Public Concern ID 314

The BLM/FS should acknowledge that all of the alternatives are unacceptable because they degrade surface waters and cause exceedances of surface water standards

A group of conservation organizations provided the following comments.

1. Comment: Even though the BLM does not consider true low flows, it acknowledges the water quality impacts are major if they exceed the surface water standard. "Impacts to surface streams from COPCs [Chemicals of Potential Concern] contributed by groundwater discharges are considered to be local and long-term. Where the resulting stream concentrations of the COPCs are within applicable regulatory criterion, the impacts would be minor to moderate. Where the concentrations are over regulatory criterion, the impacts would be major." (DEIS 4-69) Even though alternatives are considered to decrease the seepage, all of the mining alternatives will degrade surface water in the study area (Table 2). Alternative D, the agency preferred alternative, allows stream concentrations to essentially equal the standards. "Using the results of the groundwater modeling, and the baseline surface water data (Maxim 2004d), estimates of selenium increases in area streams were made, Under the proposed Action, Panel F mining would result in the aquatic criterion for selenium (0.005 mg/l) being exceeded during summer/fall baseflow conditions in South Fork sage Creek, Sage Creek, and Crow Creek downstream of Sage Creek. The same would occur during the winter baseflow conditions, with the exception that Crow Creek downstream of Sage Creek would be equal to the criterion. There are already seasonal exceedances of the aquatic criterion for selenium (0.005 mg/l) in the lower reaches of Sage Creek (downstream of Hoopes Spring), due to the existing Smoky Canyon Mine" (NewFields, 2005b). Selenium loading to South Fork Sage Creek would increase over baseline conditions under the Proposed Action and all mining alternatives. [Ltr950 Cmt460]

Response: The statement in the DEIS on page 4-69[66] applies to all the alternatives considered, including Alternatives A, B and C, which were rejected by the Agencies. The description in **Section 4.3.1** of the DEIS of the water quality impacts from Alternative D, the Agency Preferred Alternative, says that peak selenium concentrations in South Fork Sage Creek and Deer Creek would be below the aquatic criterion for selenium during the summer/fall baseline period. **Section 5.4** of the DEIS indicated that, under the Agency Preferred Alternative and the peak discharge concentrations, lower Deer Creek and South Fork Sage Creek would maintain selenium concentrations just below the surface water standard and the selenium concentrations in Crow Creek downstream of Sage Creek is estimated to be approximately 0.005 mg/L year-round. The same sections of the DEIS disclose that the cumulative impact of the peak selenium concentrations discharged to South Fork Sage on the already contaminated lower Sage Creek would be to increase the time during the year when that reach exceeds the selenium surface water standard. Both sections of the DEIS further explain that remedial actions planned for the Smoky Canyon Mine are expected to reduce the selenium concentrations in lower Sage Creek and Crow Creek well before the peak selenium concentrations occur due to the Panels F and G operations. The DEIS concluded that these actions would reduce the potential for exceedances of the surface water standards in lower Sage Creek. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium groundwater concentrations to receiving streams than were shown in the DEIS. These predicted concentrations are well below the State and federal surface water standards for selenium.

2. Comment: Using the current selenium loading in lower Sage Creek, exceedances of the selenium criterion are estimated to occur but this assumes the current selenium loading to the stream stays the same until the peak selenium concentrations for the various alternatives occur in South fork Sage Creek, which are modeled to occur in approximately 85 to 100 years. This assumption is very conservative because the regulatory agencies and Simplot would presumably make efforts over a much lesser period of time to mitigate the current selenium loading to lower Sage Creek. At these analyzed stream locations, selenium concentrations would not affect water right holder's abilities to use this water for either stock watering or irrigation, based upon the action levels and thresholds discussed above. (DEIS, page 4-70, emphasis added) The BLM appears to argue that the exceedances at the mouth of Sage Creek are acceptable because is caused by the existing mine. It suggests that agency action and Simplot will change practices at the mine and allow conditions to improve. NewFields (2005b) contradicts this, and moreover, specifically notes that contaminants already in the groundwater are still reaching this are because steady state ahs not been reached. Concentrations at Hoopes Spring substantially exceed those at South Sage Springs, which indicates the bulk of the load has yet to reach South Fork Sage Springs. Although concentrations have been stable for several years at Hoopes Spring, there is no guarantee they will not increase due to contaminants already leached. There is a 20-year travel time from Pole Canyon to Hoopes Spring and Sage Creek. Degradation from the existing mine that increases concentrations at Sage Creek will not decrease soon. [Ltr950 Cmt461]

   Response: The narrative in the DEIS does not in any way argue that the exceedances in lower Sage Creek are acceptable to the Agencies. In fact, the EIS clearly describes

that the CERCLA investigations at the Smoky Canyon Mine are expected to determine how to clean up the existing selenium contamination of surface waters at the mine. NewFields (2005b) does not contradict this overall strategy and the EE/CA that was released for public review after the DEIS clearly shows the intent of Simplot and the Agencies to implement remedial actions intended to reduce selenium contamination in surface streams at the mine. The new **Appendix 2A** attached to the FEIS includes information on the timing and potential effectiveness of remedial actions planned for the Smoky Canyon Mine and indicates that selenium concentrations in lower Sage Creek are expected to respond to these actions well before the peak selenium concentrations occur from Panels F and G. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

3. Comment: All of the alternatives are unacceptable because they degrade surface waters and cause exceedances of surface water standards. Because the discharges to surface water decrease the ambient water quality, they may violate Idaho's anti-degradation regulation even if standards are not violated; streams that are cleaner than standards may not be polluted up to just less than the standard. Because Sage Creek is on the 303d list for selenium, irregardless of whether there is a TMDL (Total Maximum Daily Load), it may be illegal to increase the selenium load to it. [Ltr950 Cmt462]

   Response: The Agencies disagree with the commenters' conclusion that the Agency Preferred Alternative is unacceptable because it degrades surface waters and causes exceedances of surface water standards. The analysis the DEIS indicates that the Agency Preferred Alternative will not lead to exceedences of applicable surface or groundwater standards. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium. **Section 3.3.2** of the FEIS has been modified to include language provided by the IDEQ clarifying their interpretations of the applicable State regulations on surface water quality protection and 303d listed streams. The IDEQ has carefully reviewed the predicted water quality impacts from the Agency Preferred Alternative and agrees with the BLM and FS that this alternative is expected to comply with the applicable state rules on groundwater and surface water quality protection.

Public Concern ID 318

The BLM/FS should make technical and editorial changes to the EIS in the Water Resources section

1. Comment: A commenting group stated that on Page 3-51 of the DEIS, Table 3.3-3 Sediment Benchmark Levels Used by IDEQ (2002b), the table gives a selenium concentration of 4.0 mg/kg as the sediment benchmark and 2.6 mg/kg as the removal action level, but only lists IDEQ (2002b) as the only reference (a footnote also says to "see the above paragraphs"). The table should include references specifically to IDEQ (2002c) where the sediment benchmarks are found and to IDEQ (2004b) where the action levels are found. The benchmark for zinc in Table 3.3-3 of "123.1" mg/kg does

not match the benchmark in IDEQ (2002c) Table 7.1, which gives "123" mg/kg. [Ltr950 Cmt240]

Response: The suggested citations have been added to **Table 3.3-3**.

7.3.7 Soils

No soils specific comments were received.

7.3.8 Vegetation

Public Concern ID 52
The BLM/FS should acknowledge the importance of trees and vegetation in ensuring a pure water supply and flood prevention

1. Comment: A commenter stated destroying a public water supply when underground water is dwindling is unwise and foolish. The commenter further stated that with global warming the water cycle will change and that keeping a stable earth/tree regime may prevent flooding in the future downstream. [Ltr194 Cmt3]

   Response: Impacts to groundwater quality and quantity are fully addressed in **Sections 4.3** ad **5.3**. The connection between management practices that relate to vegetation and surface water quality is discussed in Cumulative Effects, **Section 5.4**, in terms of sedimentation from road construction, grazing, timber harvest, agriculture, and mining. Flood risk was not identified as an issue under the proposal and will not be discussed in this FEIS. Adequate revegetation of reclaimed areas, surface water runon/runoff controls and sediment controls are included to protect mine-disturbed surfaces. Regarding public water supply, the culinary well at the Smoky Canyon Mine was impacted in early 2005, but has since returned to a more baseline condition (approximately 20 ppb). Currently there are areas under the Smoky Canyon Mine (e.g., Pole Canyon overburden disposal area) that do exceed drinking water standards; however, these areas are being managed with cleanup plans under the CERCLA process. Potential impacts of contaminated areas outside the Study Area of the proposed Project are covered under Cumulative Effects (**Sections 5.3** and **5.4**). Additional measures are proposed in this mining effort to decrease future problems.

Public Concern ID 62
The BLM/FS should acknowledge that the proposed expansion will damage large numbers of trees

1. Comment: A commenter stated the following concerns: 1) hundreds of acres of aspen will be destroyed, 2) the diverse plant community will be replaced by a mono-culture, 3) tree growth will not take place for hundreds of years, and 4) there are no consequences in place if revegetation efforts are unsuccessful. [Ltr240 Cmt11]

   Response: Acreages of aspen disturbance are disclosed in **Section 4.5**. Impacts associated with the loss of aspen habitat are discussed in **Sections 4.5** (Vegetation) and **4.7** (Wildlife, as it pertains to species that utilize aspen habitat specifically). In terms of reclamation and revegetation, **Section 2.3** provides a list of species to be used in reclamation activities. A goal of revegetation would be to establish healthy native bunch

grass communities that are structurally diverse and would allow for succession over time. Native forbs, shrubs, and trees would be seeded or planted in clusters where they are most likely to establish; these "islands of diversity" are intended to produce seed for the gradual increase in diversity of the disturbed areas over time. Revegetation of reclaimed areas would be monitored by Simplot and the Agencies. The FS would periodically monitor reclamation vegetation progress. If progress is not indicative of potential success, recommendations for improvements will be made. Where non-compliance with state and federal standards or the approved Mine and Reclamation Plan/Record of Decision is noted through on-going monitoring activities, the BLM/USFS would likely issue an order to the operator noting the corrective actions that would be required to correct the non-compliance issue. In addition, the bond posted for reclamation activities would not be released until revegetation efforts are determined to be successful.

Public Concern ID 165

The BLM/FS should clarify whether the South Fork of Sage Creek is properly functioning or functioning at risk

1. Comment: A commenter asked for clarification regarding the rating of South Fork Sage Creek as either "properly functioning" as stated in Maxim (2004) or "functioning at risk" as evaluated by the USFS. [Ltr241 Cmt9]

   Response: Information related to the South Fork Sage Creek properly functioning condition (PFC) has been revised and corrected in the FEIS. South Fork Sage Creek was rated "'functioning at risk' by Maxim (2004e) but was misrepresented in the DEIS with the phrase "properly functioning, but at risk." In the Vegetation Resources Baseline Technical Report, Maxim (2004e) stated that "[a]lthough South Fork Sage Creek is in proper functioning condition, it is at risk from concentrated sheep grazing and trampling in riparian and upland areas." The assessment by Maxim that South Fork Sage Creek is "at risk from… grazing and trampling" is not valid because the PFC assessment protocol does not include an evaluation of grazing or land use. The CNF monitors the use of this area by livestock, including sheep, and does not consider the current usage to be in violation of the grazing permit, nor relevant Standards and Guidelines in the RFP (USFS 2003a). The Forest rated South Fork Sage Creek as "functioning-at-risk" in 2005 due to degraded vegetation condition and channel characteristics (USFS 2005a).

Public Concern ID 166

The BLM/FS should explain why Manning Creek was determined to be functioning at risk

1. Comment: A commenter stated that the last sentence in Section 3.5.2, Page 3-102 of the DEIS was incomplete and asked for an explanation to why Manning Creek was determined to be "functioning-at-risk." [Ltr241 Cmt10]

   Response: Information related to the Manning Creek PFC has been revised and corrected in the FEIS. Maxim (2004e) rated Manning Creek as "functioning-at-risk" due to "the effects of livestock grazing and tramping." Again (see response to PC 165), Maxim's assessment is invalid because the PFC assessment protocol does not include an evaluation of grazing or land use. The CNF did not evaluate Manning Creek in terms of PFC because on monitoring visits between May 2002 and December 2005, Manning

Creek was dry. Manning Creek was also dry at the time of Maxim's evaluation in June 2003.

Public Concern ID 244

The BLM/FS should recognize in the analysis that the proposed covering for Panels F and G could be inadequate to prevent selenium uptake in vegetation as the vegetation gets older and rooting depths increase

1. Comment: A commenter stated that the Agencies need to consider that the vegetation growing on capped areas on Panels B and C that has demonstrated a lack of selenium accumulation is relatively "young." Further, since the rooting depth of annuals and new perennials, the plants most likely populating these capped areas, is shallow, there is potential for the selenium levels to increase in plants on the capped areas when these plants become more established, and deeply rooted. Thus, the commenter wants the FEIS to consider that there may have not been sufficient time for vegetation on the new cap design to develop roots to their final depths, which could reach into the waste underneath the cover. [Ltr950 Cmt115]

   Response: The FEIS has been revised to acknowledge that the sampled vegetation growing on covered areas is "young." **Section 4.5** of the EIS addresses the potential uptake of selenium by vegetation planted on covered areas.

7.3.9 Wetlands

Public Concern ID 281

The BLM/FS should clarify what is meant by the "temporary" impacts to jurisdictional channels and wetlands

1. Comment: Commenters stated that in the Wetlands subsection, it indicates that jurisdictional channels and wetlands affected by temporary impacts that can be reclaimed would be restored to their approximate pre-construction condition as mining or uses of affected areas are completed. If the active mining life of the proposed expansion is 16 years as stated elsewhere in the DEIS, and mining will first occur in Panel F and then shift to Panel G as Panel F winds down, then can we assume that the active life of each panel is approximately 8 years? If so, would that also mean that the "temporary" period could last as long as 8 years for a given channel or wetland before reclamation would occur? That long of a "temporary" period would likely have environmental impacts in and of itself which are not brought out in this document. The DEIS writers should examine this aspect, making clear to readers that "temporary" really means at least 8 years, and also making clear the environmental impacts of such a lengthy period. [Ltr950 Cmt40, Ltr950 Cmt343]

   Response: Based upon the location of the jurisdictional channel and/or wetland, the "temporary" impact timeframe/period could be quite different. In general, impacts have been based on a maximum disturbance of 14-16 years. Thus, temporary impacts would be defined as 14-16 years or less as described in **Section 2.4**.

Public Concern ID 317

The BLM/FS should make technical and editorial changes to the EIS in the Wetlands section

1. Comment: A commenter stated that in general there is an inconsistent use of acronyms throughout the document. Examples include CTNF and CNF, USACE and USCOE, WUS and WOUS. [Ltr475 Cmt92]

   Response: The inconsistent use of acronyms throughout the document was evaluated and corrected where appropriate.

2. Comment: A commenter stated that contrary to the statement in the DEIS at page 3-110, the jurisdictional status of the wetlands in Panel G had been verified by the Corps of Engineers. The letter from the Corps dated September 17, 2003 inaccurately enumerated the verified wetlands. The commenter understands that the Corps is looking into modifying this letter to accurately verify the jurisdictional status of the wetlands in Panel G. [Ltr475 Cmt93]

   Response: A modified letter from the Corps has been received that clearly states the jurisdictional status of the wetlands in Panel G, and the statement in the FEIS has been revised appropriately.

3. Comment: A commenter stated that on page 3-110 of the DEIS, there was no text stating that there will be no impacts to wetlands in the North Lease Modification Area. It must be inferred from Table 4.6-1. [Ltr475 Cmt94]

   Response: A statement to this effect has been added to **Section 4.6** of the FEIS.

4. Comment: A commenter stated that the total acres of wetland disturbance in the DEIS were listed in Table 4.6-1 as 1.96 acres in the DEIS. The actual summation of the preceding numbers in the table yields a total 2.56 acres. There is either a mathematical error or a typo. However the 1.96 value is used throughout the text, as are the individual wetland acres that correctly add to 2.56, suggesting a mathematical error. The same commenter also stated that the values in Table 4.6-2 are wrong, continuing to use 1.96 as the total wetland disturbance acreage as opposed to 2.56 acres. The commenter recommends that these values be checked and confirmed throughout the DEIS. [Ltr475 Cmt95, Ltr475 Cmt98]

   Response: This summation was changed to 2.56 acres throughout the text and tables where appropriate in the FEIS and all incorrect calculations were corrected and revised in the FEIS.

5. Comment: A commenter stated that the linear disturbance of the waters of the United States in Table 4.6-1 of the DEIS were not consistent with those listed in Table 4.8-1 of Chapter 4 - Fisheries and Aquatics. These numbers should be relatively similar, if not exactly the same, and instead differ by thousands of feet. Additionally, the wetland chapter states there will be no direct impacts to waters of the United States by the powerline, while the fisheries chapter claims 2,719 linear feet of direct disturbance. If there is reasoning for the differences, they need to be defined. [Ltr475 Cmt96]

Response: **Tables 4.6-1** and **4.8-1** list different resource types and are correct as constituted in the DEIS. The fisheries section (**Section 4.8**) is considering impacts to both defined channels and drainage swales with no defined channel, while the Wetlands/WOUS discussion considers only defined channels. Fisheries, for example, sums all of the drainages crossed by the power line and cites this figure, but notes that selection of this alternative will have little or no actual impact on channels – i.e., channels would be avoided by design.

6. Comment: A commenter states that Table 4.6-2 is difficult to understand and inconsistent with Table 4.8-2, despite presenting similar information. These two tables should be similar, if not identical. [Ltr475 Cmt97]

   Response: As stated in the previous response, **Tables 4.6-1** and **4.8-1** list different resource types and are correct as constituted in the DEIS. The fisheries section (**Section 4.8**) is considering impacts to both defined channels and drainage swales with no defined channel, while the Wetlands/WOUS discussion considers only defined channels.

7. Comment: A commenter stated that they believe the statement that "Construction of mine facilities and other disturbances may directly affect wetlands and waters of the U.S. and could include increased metal and sediment loading in surface waters and/or changes in water/quantity in both surface waters and groundwater supporting waters of the U.S." should be revised as follows: "Construction of mine facilities and other disturbances would directly affect wetlands and waters of the U.S." Almost assuredly, any mining in a watershed will disturb metal and sediments, whose fate would be down gradient to wetlands and streams, which in turn would toxicologically impact organisms in those aquatic ecosystems. [Ltr950 Cmt248]

   Response: The sentence in question is a wetland "issue" developed from agency and public concerns. The "issues" are developed prior to impact analysis in order to determine what analysis will be needed based upon potential impacts. Thus, **Section 3.6** identifies wetlands and waters of the US within the study area that could be potentially impacted and **Section 4.6** describes the potential impacts to these identified wetlands and waters of the U.S. from the Project. The semantics of the issue statement as worded is therefore appropriate.

8. Comment: A commenter stated that more important than the actual disturbance type effects to wetlands is the impacts to wetlands from selenium contamination. The commenter stated that selenium can and does accumulate in wetland habitat types, which in turn can lead to impacts to wildlife, which feed on wetland plants or aquatic invertebrates. The commenter feels that the DEIS fails to disclose the full nature and extent to which selenium contamination can be expected to affect wetlands as a result of mine expansion. [Ltr950 Cmt41]

   Response: The DEIS (**Section 3.1.6**) describes data collected from a natural wetland formed from phosphate mine drainage as having selenium concentrations highest in the water, sediment, and wetland vegetation near the source and those concentrations decreasing with distance away from the source as presented by Stilling and Amacher (2004). The authors suggested that the wetlands attenuated selenium and that the highest concentrations of selenium in the wetland habitat were nearest the source. However, for this Project, hydrologic conditions studied by Stilling and Amacher are not

expected. Overburden fills would not be constructed in perennial drainages and overburden seeps of the type studied by Stilling and Amacher would not occur. No natural wetlands would be formed from phosphate mine drainage in the Project Area, and wetland habitats in the Study Area would not be impacted in this way either.

Peak selenium concentrations at groundwater discharge locations (springs and creeks) within the Study area have been calculated for the Agency Preferred Alternative (**Section 4.3** of the EIS). These groundwater discharge locations would be the most likely site for wetland habitats to be impacted by selenium contamination. All modeled peak groundwater selenium concentrations under the Agency Preferred Alternative at these locations were modeled in this FEIS to be well under the applicable surface water standards for selenium of 0.005 mg/L. Because the modeled peak selenium concentrations would be below applicable surface water quality standards, it is not anticipated that high levels of selenium concentrations would occur at these sites and in the wetland habitats. These concentrations would be much lower than the overburden seepage studied by Stillings and Amacher (2004) and thus would not pose any significant impacts to wildlife feeding on wetland plants or aquatic invertebrates. Potential impacts to wildlife from selenium poisoning is discussed in **Section 4.7.1** of the EIS.

7.3.10 Wildlife Resources

Public Concern ID 1

The BLM/FS should acknowledge that there is no documentation of selenium exposure from phosphate mining having negative impacts on wildlife in Southeast Idaho

1. Comment: Several reviewers maintain that there is no documentation of adverse impacts to wildlife from selenium exposure from phosphate mining in Southeast Idaho. [Ltr1 Cmt1, Ltr98 Cmt3, Ltr358 Cmt4, Ltr238 Cmt2, Ltr988 Cmt2, Ltr237 Cmt1, Ltr475 Cmt47]

   Response: In 1996, selenium associated with phosphate mining on the CNF was found to be the cause of selenosis in horses and sheep grazing on private land adjacent to the Forest. Since then, evidence for impacts to wildlife in Southeastern Idaho has been limited with Fessler's (2003) study on sheep, the methods and results of which have been called into question by the Agencies; in addition to studies by MWH (2003) on deer, elk, and moose; and by IDFG on elk (see Montgomery Watson 2000). In general, documentation of selenium effects in wildlife in Southeastern Idaho is described in **Section 3.7.7** of the EIS.

2. Comment: Two reviewers pointed out that selenium is a desirable trace element that is necessary for an animal's diet. One points out that the land in Southeast Idaho is actually selenium deficient, implying that more selenium would benefit wildlife. [Ltr98 Cmt3, Ltr256 Cmt4, Ltr358 Cmt4]

   Response: Selenium is a necessary trace element for all animals, but can become toxic through bioaccumulation in both aquatic and terrestrial systems. Mining in Southeastern Idaho has the potential to create conditions favorable to bioaccumulation, which is why the Agencies and Simplot are following rigorous investigations and remediation planning

as pertains to selenium contamination at the Smoky Canyon Mine. **Section 3.7.7** of the EIS discusses "Selenium Issues with Wildlife."

3. Comment: Reviewers have stated that the average selenium concentration in waters within the Study Area is currently within allowable standards and it appears that wildlife in the area are thriving and have not been observed to be adversely affected by selenium. [Ltr358 Cmt4, Ltr238 Cmt2]

   Response: **Section 3.7.7** of the DEIS describes the existing conditions and presents information on selenium issues with wildlife in the Project Area. **Section 4.7** analyzes potential impacts to wildlife from selenium from this proposed project. **Appendix 3A** of the DEIS presents the chemical composition of groundwater and surface water in the Study Area, including selenium concentrations. In addition, **Sections 3.3** and **4.3** address the water resources and the potential impacts to those water resources in the project area as a result of implementation of the proposed project.

Public Concern ID 9

The BLM/FS should acknowledge that Simplot reclamation efforts will enhance wildlife habitat

1. Comment: Many reviewers, some of whom have spent time in the phosphate mining area, observe that wildlife habitat is improved by reclamation after mining. [Ltr56 Cmt1, Ltr128 Cmt1, Ltr237 Cmt1, Ltr536 Cmt1]

   Response: Simplot's reclamation efforts would result in different habitat than existed before mining, the value of which would differ among wildlife species. There is anecdotal evidence that reclaimed land after mining provides more suitable habitat for wildlife. For species that utilize predominantly open space and early-succession communities, such as elk and deer (foraging), approximately 1,400 acres of early seral reclaimed habitat would be available after mining. Wildlife that utilize predominantly forest habitats are not likely to benefit from the habitat changes after mining.

2. Comment: Several reviewers hunt in or near the Study Area and observe that neither elk nor mule deer appear to be stressed or diminished in numbers within the reclaimed areas. One commenter added that he has not observed deleterious effects on trout numbers in streams within the Study Area. An additional comment attached but unrelated to this hunting issue, stated that access improvements made by the mining companies should be analyzed for long term access into the reclaimed areas. [Ltr56 Cmt1, Ltr123 Cmt1, Ltr242 Cmt11, Ltr536 Cmt1, Ltr1052 Cmt2, Ltr256 Cmt3, Ltr263 Cmt1, Ltr1032 Cmt18]

   Response: Elk herds in Southeastern Idaho have improved in the past 20 years. In addition, elk utilize open spaces, which would be more prevalent after mining. Whether or not Simplot reclamation efforts have contributed, or would contribute to elk increases, however, is unknown. Mule deer populations have actually declined in the past 20 years in Southeastern Idaho due to factors unrelated to mining (see **Section 3.7.5** of the EIS).

   Trout numbers have remained steady or increased in most streams within the Study Area. The condition of trout populations in the Study Area streams are addressed **Section 3.8.3** of the EIS, using data collected by independent researchers in addition to

baseline data collected for preparation of this EIS as referenced and presented in the EIS.

Regarding analyzing access improvements into reclaimed areas, all roads built for this project would be reclaimed as described in the EIS and would not be left open for future vehicle access (see **Section 4.15**). Non-motorized public access through the proposed mine panels and across haul/access roads would be allowed during mining, except in specific areas where active mining operations and facilities would present a potential safety hazard (see **Section 4.10**). After mining and reclamation is complete, non-motorized public access through proposed mining areas would return to the current (baseline) condition. In relationship to analyzing this issue for other mining companies, it is beyond the scope of this EIS to address this issue.

Public Concern ID 37

The BLM/FS should protect wildlife habitat and values of wildlife

1. Comment: Many reviewers expressed concern that the wildlife are not being valued under the proposal. These individuals would like to see the preservation of habitat and a concern for the ecosystems that support wildlife to take precedence over mining interests. [Ltr948 Cmt3, Ltr240 Cmt3, Ltr668 Cmt8, Ltr687 Cmt5, Ltr687 Cmt6, Ltr712 Cmt3, Ltr715 Cmt3, Ltr724 Cmt3, Ltr763 Cmt3, Ltr775 Cmt3, Ltr847 Cmt3, Ltr1044 Cmt3, Ltr754 Cmt3, Ltr942 Cmt3, Ltr735 Cmt3, Ltr518 Cmt1, Ltr240 Cmt12, Ltr1026 Cmt5, Ltr549 Cmt8, Ltr887, Cmt3, Ltr672 Cmt5]

   Response: Intensive wildlife baseline surveys were conducted for the preparation of this EIS to identify wildlife species, their habitat, and level of use by wildlife in the Study Area. The No Action Alternative evaluates the option of habitat preservation. By collecting baseline information and conducting the site-specific environmental review process, described in this FEIS, the Agencies are ensuring that adverse impacts to wildlife are recognized and avoided or greatly minimized through mitigation under the Action Alternatives.

2. Comment: One reviewer suggests that the Forest Service close down roads in areas adjacent to the Project Area to increase security for elk and other wildlife as a form of mitigation for loss of wildlife habitat. [Ltr978 Cmt12]

   Response: Undisturbed parts of the Study Area would provide alternative habitat for big game and other wildlife during mining operations (**Section 4.7.1.1)**. Conditions in the remaining habitat in the Study Area may be less suitable for wildlife due to increased population densities; 1,272 acres of suitable forest habitat would be disturbed under the Agency Preferred Alternative. Regarding roads, the CTNF recently analyzed the impacts of roads to be closed and left open in their approved Caribou Travel Plan Revision.

3. Comment: The previous reviewer also suggests that hauling be limited to certain hours of the day to reduce wildlife collision rates. [Ltr978 Cmt12]

   Response: Only one big game fatality related to haul traffic has been reported over the life of the Smoky Canyon Mine, thus the Agencies do not presently consider traffic on roads in and near the Study Area a major threat to wildlife from haul truck collisions.

Any collisions with wildlife due to mine traffic would be reported, so this issue could be re-evaluated if an increase in wildlife fatalities occurs.

4. Comment: Several reviewers are concerned that big game would suffer adverse impacts via habitat loss, particularly by the potential disturbance of elk calving grounds in Sage Meadows. [Ltr240 Cmt3, Ltr735 Cmt3, Ltr896 Cmt3, Ltr489 Cmt1, Ltr240 Cmt12, Ltr1023 Cmt7, Ltr239 Cmt18, Ltr310 Cmt1]

   Response: Impacts to big game would be minor to moderate due to displacement from mine areas and potential diversions from normal movement routes, particularly in winter (see **Section 4.7** of the EIS). Undisturbed parts of the Study Area would provide habitat and movement routes for big game during mining. As stated in the EIS, impacts from the Panel G West Haul/Access Road could potentially make Sage Meadows unsuitable for elk calving for at least the duration of mining.

5. Comment: Several reviewers are concerned about the potential adverse impacts to sensitive species, particularly wolverine and Yellowstone cutthroat trout, as well as potential impacts to western toads. [Ltr240 Cmt3, Ltr913 Cmt3, Ltr549 Cmt8, Ltr240 Cmt12, Ltr1023 Cmt7, Ltr518 Cmt1, Ltr496 Cmt1, Ltr239 Cmt18]

   Response: Impacts to sensitive species are described in **Sections 4.7** and **4.8** of the EIS and in the Biological Evaluation. Impacts to wolverine have the potential to be minor to moderate because wolverines prefer undisturbed habitat and mining operations would discourage colonization or movement through most of the Study Area. Impacts to YCT are addressed in **Section 4.8** of the FEIS. In addition, a detailed analysis of the effects of selenium on YCT is contained in a new **Appendix 3C** to the FEIS. In regards to western toad impacts, an approximately 120-acre area (including proposed topsoil stockpiles) within the reported potential western toad migration distance (1.5 mile or 2.5 kilometer) would be disturbed (see **Figure 3.7-2**) from construction of the Proposed Action Panel G West Haul/Access Road component of the Project.

6. Comment: Two reviewers express concern about adverse impacts to birds, particularly chicks, and bird habitat. [Ltr240 Cmt3, Ltr1050 Cmt11]

   Response: Impacts to migratory birds have been addressed in **Section 4.7**. Environmental Protection Measures and Mitigation described in **Sections 2.5** and **2.10** would be implemented to minimize impacts to birds and bird habitat. See PC 67 for additional information on the protection of birds.

7. Comment: Some reviewers would like the EIS to consider that the mine will pose migration barriers, particularly to the corridor that connects the southern Rocky Mountains to Yellowstone and Canada utilized by lynx and other wildlife. [Ltr240 Cmt3, Ltr662 Cmt5, Ltr896 Cmt3, Ltr489 Cmt1, Ltr1023 Cmt7, Ltr239 Cmt18]

   Response: Corridors of undisturbed habitat within the Study Area would provide routes for wildlife to avoid Project disturbances (see **Section 4.7**).

8. Comment: Several reviewers are concerned that selenium contamination and bioaccumulation will have adverse impacts on wildlife. [Ltr240 Cmt3, Ltr360 Cmt3, Ltr760 Cmt3, Ltr239 Cmt19, Ltr518 Cmt1, Ltr489 Cmt1]

Response: Potential impacts to wildlife from selenium bioaccumulation are addressed and analyzed in the FEIS (see **Sections 3.7** and **4.7**). Selenium impacts (i.e., threshold exceedences) would be avoided by implementation of Environmental Protection Measures, mitigation, and monitoring that would occur for a variety of media (surface water, ground water, reclamation vegetation, etc.) to track potential bioaccumulation of selenium. In addition, an appendix has been developed in the FEIS describing bioaccumulation of selenium in aquatic systems (**Appendix 3C**).

9. Comment: A reviewer is concerned that fish will be killed or deformed due to selenium poisoning. [Ltr1050 Cmt11]

   Response: Potential impacts to fish from selenium poisoning have been addressed in **Section 4.8** of the FEIS and in the Fisheries and Aquatics section for "responses to comments." Further analysis of this topic is also provided within a separate appendix to this FEIS (**Appendix 3C**).

10. Comment: One private landowner is concerned that the health of their dog will be at risk when it eats selenium-poisoned wildlife. [Ltr1050 Cmt11]

    Response: The potential for selenium-poisoned wildlife as a result of this mining project is expected to be very low due to the implementation of Environmental Protection Measures and mitigation activities described in the DEIS (see **Sections 2.5** and **2.10**). However, if some wildlife species were contaminated and consumed by a domesticated animal, it is very unlikely that enough contaminated prey individuals would be present to be eaten by that animal to cause illness.

    Some small amounts of selenium would be released in ground water and subsequently to surface water. At no time are these concentrations expected to exceed State and federal standards developed for the protection of human health. Regarding vegetation eaten by small animals, a cover system designed to separate the roots of reclamation vegetation from potentially seleniferous material would minimize selenium accumulating in vegetation. There could be small animals that may be impacted from other mine sites, but selenium accumulation in small animals is not expected to occur from the Smoky Canyon Mine expansion.

11. Comment: Several reviewers are concerned that selenium contamination will have adverse effects on human health through consumption of contaminated wildlife and fish. [Ltr1050 Cmt11, Ltr239 Cmt19]

    Response: The only human health concern identified thus far is that of fish consumption from East Mill Creek by child subsistence-level users (issued in Fall 2002). See **Section 3.8.5** of the EIS. There are no human health concerns identified for adult fish consumption, or for either child or adult consumption of other wildlife, including big game. Since selenium levels are not expected to exceed State or federal standards under the Agency Preferred Alternative, no future human heath risks are anticipated.

12. Comment: Several reviewers are concerned about adverse impacts to gray wolf. [Ltr418 Cmt3, Ltr735, Cmt3, Ltr896 Cmt3, Ltr1023 Cmt7, Ltr239 Cmt18]

    Response: As addressed and stated in **Section 4.7** of the DEIS, impacts to the gray wolf would be minor and include habitat loss, possible disruption of movement patterns (through the Study Area), and possible disturbances from noise and human presence

during mining. These impacts are not likely to jeopardize the continued existence of the experimental/non-essential population of gray wolf that may utilize the Study Area, as described in the Biological Assessment. A letter from the USFWS concurring with this determination was received by the CNF on 2 October 2006 (USFWS Concurrence File # 1050.4025).

13. Comment: A reviewer is concerned that the mine plan admits to ongoing selenium contamination even under optimistic assumptions. [Ltr239 Cmt19]

    Response: Under the Agency Preferred Alternative, which includes store and release covers on mine waste areas (Mining Alternative D), selenium releases in groundwater from the Smoky Canyon mine would not exceed State or federal standards. Ongoing mitigation and monitoring would be implemented to ensure that future selenium concentrations in water would not exceed established standards.

14. Comment: Several reviewers are concerned that adverse impacts to wildlife in the area would be felt over the long term. [Ltr239 Cmt19, Ltr489 Cmt1]

    Response: Long-term impacts to wildlife are disclosed in **Section 4.7** of the EIS, and pertain mainly to impacts within the Study Area itself and to species that mainly utilize forest habitat. These species would be displaced into adjacent, undisturbed habitat.

15. Comment: One reviewer believes that **Figure 4.7-1** is misleading in that tall trees are pictured growing on reclaimed areas. [Ltr239 Cmt19]

    Response: As stated in the EIS, clusters of shrubs and trees are planned for reclamation. Reclaimed areas could eventually (150-200 years) be reforested.

16. Comment: One reviewer is concerned about the adverse impacts to bald eagle. [Ltr239 Cmt18]

    Response: Impacts to bald eagle are expected to be negligible (**Section 4.7.1.1** of the DEIS). The Biological Assessment contains an analysis of the potential impacts to bald eagle. The determination in the Biological Assessment regarding bald eagle is that the Project may affect, but is not likely to adversely affect this species. A letter from the USFWS concurring with this determination was received by the CNF on 2 October 2006 (USFWS Concurrence File # 1050.4025).

17. Comment: One reviewer is concerned about the adverse impacts to small mammals and their habitat. [Ltr239 Cmt18]

    Response: Small mammals would be displaced or killed during initial ground disturbance activities (see EIS **Section 4.7**). Impacts to small mammals are discussed with respect to predator impacts (as prey; **Section 4.7.1.1**). Due to the protection measures prescribed in the EIS, impacts to small mammals from selenium are also expected to be minimal.

18. Comment: One reviewer has observed trumpeter swans in the vicinity of the Study Area on private land and on Books Spring pond, implying that this Forest sensitive species is present near the mine and may suffer adverse impacts. [Ltr239 Cmt18]

Response: The USFS lands within the Study Area do not contain suitable habitat for trumpeter swans. However, the FEIS has been updated to include this new information of observations on nearby private land within the Study Area. Water quantity and quality impacts to Book Spring are clearly described in **Section 4.3** of the EIS.

19. Comment: One reviewer is concerned that site specific impacts to species with limited numbers, distribution, and habitat preferences may be more serious (adverse) than described in the DEIS. Specifically, in the case of great gray owls and goshawks, these raptors may not find suitable nesting habitat nearby and may not reproduce, thus affecting these populations at a larger scale. [Ltr555 Cmt4]

    Response: **Section 4.7** analyzes the potential impacts to species that are known to occur within the Study Area. It has been determined that site specific impacts to species known to occur within the Study Area only occur at a local level and would not be impacted above the population level to include the species as a whole.

Public Concern ID 65

The BLM/FS should review the Avian Power Line Interaction Committee (APLIC) 1996 guidelines for Suggested Practices for Raptor Protection on Power Lines to ensure new power lines conform to suggested guidance

1. Comment: One reviewer recommends that the Agencies review the APLIC 1996 guidelines to ensure the proposed construction of new power lines in all alternatives conforms to the suggested guidance. In addition, they state that any changes to proposed power line activities should be outlined in the FEIS. [Ltr241 Cmt2]

   Response: The Agencies are following the APLIC guidance in construction of new power lines. Although specific construction parameters were not laid out in the EIS, new power lines would be raptor safe as dictated in the APLIC document.

Public Concern ID 67

The BLM/FS should recognize that removing of active raptor nests constitutes a taking in violation of the Migratory Bird Treaty Act (MBTA)

1. Comment: A reviewer clarifies for the Agencies that the MBTA prohibits the taking (including harm and harassment), killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Dept. of Interior (16 USC section 703). The commenter further discusses the MBTA and the acknowledgement in the DEIS that “an unknown number of active nests would be destroyed by ground-clearing activities.” [Ltr241 Cmt6, Ltr241 Cmt7, Ltr240 Cmt12]

   Response: The Agencies met with the USFWS on 30 June 2006 and again in September 2006 to discuss this comment. Although there are no provisions under the MBTA to permit an incidental take which could occur during timber removal or ground clearing activities, **Section 2.10.1** has been updated to reflect agreed upon measures such that the project would minimize possible incidental impacts. Briefly, those measures include analyzing nesting periods; planning timber harvest and ground clearing to avoid nesting season as much as possible; implementing surveys, prior to onset of nesting season and removing nests if found; phased timber harvest and ground

clearing activities; and creating islands of diversity in reclaimed areas that may be attractive to some migratory bird species.

Public Concern ID 95

The BLM/FS should recognize that over the life of the mine there has only been one big game fatality related to mining equipment

1. Comment: One reviewer wanted to inform the Agencies that there has only been one big game fatality related to mining equipment over the life of the existing Smoky Canyon Mine. [Ltr475 Cmt46]

   Response: This is acknowledged in the **Section 4.7** of the FEIS.

Public Concern ID 104

The BLM/FS should acknowledge that mining activities have and will continue to displace elk onto private property and ensure that mitigation measures are established for private landowners' property depredations

1. Comment: A commenter wanted the Agencies to acknowledge that as a result of previous mining activities, elk have moved from public to private lands. They expressed concern that because significant amounts of private land are located in the proposed mine expansion area that elk are likely to do the same thing, and this may even displace more elk to the same private land in Sage Valley, thus mitigation for private landowners may be warranted. [Ltr555 Cmt2]

   Response: In general, elk numbers have increased during the same time as the existing Smoky Canyon mine operation. Elk are currently spending the winter on private land at lower elevation than the existing and proposed mine, and have been fed by one land owner in Crow Creek, both of which confound the effects of displacement by the mine activities. The Agencies believe that a change in condition created by the mine expansion would be very difficult to show and could not be properly analyzed as part of this EIS.

Public Concern ID 105

The BLM/FS should provide evidence that supports the idea that spotted bats will actually benefit from mining activity

1. Comment: A reviewer wanted the Agencies to provide evidence that supports the idea that spotted bats would actually benefit from the proposed project, as a result of pit highwalls being created after mining is completed. [Ltr555 Cmt3]

   Response: The determination for spotted bats in the FEIS has been changed from BI (Beneficial Impact) to NI (No Impact), due to a lack of documentation that spotted bats utilize hanging walls after mining.

Public Concern ID 107

The BLM/FS should acknowledge that big game populations have not been adversely affected by the mine

1. Comment: One reviewer wanted the Agencies to acknowledge that big game populations (mainly elk) have not been adversely affected by mining and in a study conducted by the Idaho Department of Fish and Game, they failed to identify any negative effects to big game populations in the area. [Ltr554 Cmt5]

   Response: The existing condition of big game in the Study area is addressed in **Section 3.7.5** of the DEIS. Impacts to big game from this proposed project are discussed in **Section 4.7**. Despite finding no selenium levels in elk tissue above threshold, the IDFG and Idaho Division of Health concluded that elevated selenium levels in a small percentage of elk livers could result in acute gastrointestinal effects to humans, if consumed in large and persistent portions, and thus posted a human health advisory in the fall of 2000.

Public Concern ID 162

The BLM/FS should make technical and editorial changes to the draft EIS regarding potential impacts to wildlife

1. Comment: The DEIS reference list does not include a complete citation for Rattner et al. 2002. [Ltr544 Cmt3]

   Response: The complete citation has been added to the FEIS as Ohlendorf (2003); Rattner et al. was an incorrect citation. Rattner was coauthor of Handbook of Ecotoxicology (Hoffman et al. 2002) in which the article (chapter) in question appears.

Public Concern ID 167

The BLM/FS should provide information on bald eagle nesting areas in Wyoming that are located near the project area

1. Comment: A reviewer questioned whether the information presented in the DEIS regarding the nearest known bald eagle nest included nests located in Wyoming. The commenter recommended including information on nesting territories of bald eagles in Wyoming that are located near the project area. [Ltr241 Cmt11]

   Response: The information presented in the DEIS, regarding the nearest known bald eagle nests, did include known nests in Wyoming. However, the text has been revised in the FEIS, to indicate that a known bald eagle nest occurs in Thayne, Wyoming, 20 miles northeast of the Project Area.

Public Concern ID 168

The BLM/FS should acknowledge that the bald eagle and Canada lynx should be added to the list of threatened and endangered species for which disturbance of potential habitat would occur

1. Comment: The reviewer stated that the bald eagle and Canada lynx should be added to the list of threatened and endangered species for which disturbance of potential habitat would occur. [Ltr241 Cmt12]

Response: Impacts to federally listed species are addressed in **Section 4.7** of the EIS.

Public Concern ID 170

The BLM/FS should clarify in the DEIS that the biological assessment conducted under Section 7 of the Endangered Species Act is limited to discussion of a proposed action's potential jeopardy to the continued existence of endangered or threatened species or potential destruction or adverse modification of critical habitat

1. Comment: A commenter stated that the DEIS should clearly indicate that the Biological Assessment (BA) conducted under Section 7 of the Endangered Species Act is limited to discussion of a proposed action's potential jeopardy to the continued existence of endangered or threatened species or potential destruction or adverse modification of critical habitat. The commenter also added that Section 7 consultation does not apply to sensitive or candidate species. [Ltr475 Cmt99]

   Response: This is indicated in **Chapter 1** of the FEIS, **Table 1-2.1**.

Public Concern ID 178

The BLM/FS should acknowledge that the draft EIS analysis of potential impacts to wildlife is inadequate

1. Comment: One reviewer is concerned that western toad populations may be impacted because the species has a limited distribution. This individual also suggests that additional surveys be done for this species. [Ltr555 Cmt5]

   Response: The Agency Preferred Alternative would result in impacts to an approximately 120-acre area (including proposed topsoil stockpiles) within the reported potential western toad migration distance (1.5 mile or 2.5 kilometer) (see **Figure 3.7-2**) from construction of the Proposed Action Panel G West Haul/Access Road component of the Project. See **Section 4.7** of the EIS. In addition, environmental protection measures listed in **Section 2.5.7** and mitigation measures outlined in **Section 2.10** would minimize or assist in avoiding impacts to western toad populations. Conducting additional surveys for western toads is included as part of future mitigation.

2. Comment: One reviewer simply stated that differences in selenium sensitivity have been reported for closely related birds and that shifts in species composition or elimination of species could occur in Southeastern Idaho depending on the level of selenium contamination. [Ltr950 Cmt269]

   Response: Research into the different relationships between selenium contamination and survivorship of eggs and adults among bird species is limited. In general, adverse impacts to birds from selenium contamination are not anticipated under the Agency Preferred Alternative. Selenium issues with wildlife are discussed in **Sections 3.7.7**, **4.7.1**, and **5.8** of the EIS.

Public Concern ID 331

The BLM/FS should not allow the Smoky Canyon Mine to expand because of the existing mine and Simplot's other mines in Southeast Idaho have resulted in unacceptable levels of selenium contamination that have poisoned wildlife

1. Comment: One reviewer is concerned that a known polluter is being allowed to expand its operations. [Ltr521 Cmt2]

   Response: Although Simplot's past operations have led to selenium contamination, new environmental protection measures are planned that would avoid similar selenium contamination in the future. Via the NEPA process and the analysis of alternatives and mitigation measures, the Agencies do not believe future mine projects would have the same environmental effects as prior projects. Monitoring of environmental media during and after mining would ensure that any unexpected exceedences of State or federal selenium standards would be brought to the immediate attention of the Agencies and Simplot.

2. Comment: Several reviewers point out that wildlife, domestic sheep, and horses have already died from selenium poisoning. [Ltr765 Cmt3, Ltr694 Cmt5, Ltr310 Cmt1, Ltr357 Cmt1, Ltr294 Cmt1, Ltr488 Cmt1]

   Response: No adverse affects have been documented in game animals (Montgomery Watson 2000, MWH 2003). Those animals with large ranges seem to be less affected than those animals with small ranges. The deaths of domestic sheep and horses in 1996 and 1997 prompted the Agencies to identify the current leaseholder of the South Maybe Mine as the Potentially Responsible Party for the contamination and initiated action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to address the selenium problem and hold the mining companies responsible. Since that time and outside the Study Area, other domestic animals have died from selenium poisoning. These cases are documented. Under the current Agency Preferred Alternative, reclamation vegetation will be separated from seleniferous material to avoid accumulation. Surface and ground water are expected to be in compliance with State and federal regulations.

3. Comment: Several reviewers are concerned that open-pit phosphate mining has polluted water and aquatic life, and has the potential to adversely affect human health. [Ltr694 Cmt5, Ltr889 Cmt3, Ltr489 Cmt1, Ltr694 Cmt5, Ltr549 Cmt1, Ltr483 Cmt2, Ltr494 Cmt1, Ltr528 Cmt1]

   Response: Measured selenium contents of water and aquatic life at the Smoky Canyon Mine (i.e., lower Sage Creek) that currently exceed State and federal standards are fully considered in the Cumulative Effects section of this EIS. Mitigation measures included in the Agency Preferred Alternative are designed to keep selenium levels within State and federal standards. If selenium levels are exceeded at any time as detected through on-going monitoring activities, the BLM/USFS would likely issue an order to the operator noting the corrective actions that would be required to correct the non-compliance issue.

   Regarding public water supply, the culinary well at Smoky Canyon Mine was impacted in early 2005, but has since returned to levels below state and federal standards (approximately 20 ppb). As described in **Section 4.3**, approval of the Agency Preferred

Alternative is not anticipated to place the public at risk from selenium exposure either through recreation or drinking water. On-going monitoring activities are designed to detect exceedances of state and federal selenium levels in water before the public may be affected.

4. Comment: One reviewer does not believe the Agencies have the money or manpower to enforce the laws and regulations already in place that govern the existing mines, and therefore should not allow Simplot to expand. [Ltr293 Cmt1]

   Response: The more complex a Mine and Reclamation Plan is, the more time and money it takes for the Agencies to ensure compliance. It involves tasks such as: on-site inspections, review of monitoring data, bond reviews, record keeping, and sampling efforts. In order to accommodate the workload, the Agencies have required operators to provide detailed scientific studies to verify environmental claims. In some cases, the Agencies have required operators to hire independent third party engineering firms to monitor construction of some mitigation measures. In addition, the Agencies have required operators to report monitoring results in a form that facilitates agency review. Cost recovery rules recently implemented by the FS and BLM may also provide some financial relief to the Agencies in regard to administering the phosphate industry on public land in Southeast Idaho.

7.3.11 Fisheries and Aquatics

Public Concern ID 42

The BLM/FS should recognize that selenium contamination from the proposed project will adversely affect the YCT

1. Comment: Sedimentation is discussed in the DEIS. It is clearly acknowledged that the water will have increased sedimentation. This is dismissed as minor. That of course is true if you evaluate the percentages over the entire influence area. It is not true if you just look at the stream being affected. These local areas often represent spawning ground; therefore the YCT population will likely be affected. There is also discussion of the fact that the North Fork of Deer Creek has an existing sediment problem. This is certainly true. It is caused by abusive grazing which has not been properly controlled for many years. Rather than use that sedimentation as an excuse to mine, it should be cleaned up by controlling the grazing. [Ltr239 Cmt10]

   Response: Discussions regarding sedimentation and its effects upon aquatic biota can be found in **Section 4.8.1**. The Agency Preferred Alternative would have little impact on sediment in the North and South forks of Deer Creek. The mine panels are not expected to discharge sediment as sediment ponds are designed to fully contain sediment and runoff from mine disturbances. Most additional sediment generated comes from transportation routes. In relation to the baseline sediment load, it is a small amount and would only impact lower elevations of the Deer Creek watershed. The DEIS does disclose the possibility of water or sediment releases under unexpected conditions.

   Livestock grazing as pertains to fisheries is addressed in **Section 5.9** (Cumulative Effects).

2. Comment: "Fisheries biological strongholds are rated high because the presence of YCT in Crow Creek that drains into the Snake River Basin and Bonneville YCT in Preuss Creek (south of the study area) that drains into the Bear River Drainage." (**Section 3.11.1**) These strongholds will suffer from this proposal. The DEIS states "Specifically, long-term productivity effects related to cutthroat and other native fishes may be sacrificed through the bioaccumulation of selenium in Project Area streams (and eventually, the potential loss of reproductive function in resident fish)." (**Section 4.8.4**) Unfortunately the levels will increase significantly in lower South Fork Sage Creek and lower Deer Creek and that these increases will exist for 100's of years. These are both known, significant spawning areas for YCT. These trout populations will be affected for a long, long time. They "may" never be the same. Finally the DEIS states clearly "Impacts related to selenium accumulation would be unavoidable." (**Section 4.8.3**) How can this planned poisoning of the environment be allowed? The above discussion neglects sedimentation which the DEIS promises will only be a small effect. Unfortunately it will be direct, measurable and will further diminish spawning habitat. These impacts on YCT in Crow Creek and its tributaries will likely translate down stream to the Salt River, which is rated as a cold water game fishery. While we don't know how bad the affect will be, we do know it won't be good. [Ltr239 Cmt20]

   Response: All known possible selenium sources were considered when modeling impacts upon water within the Project Area. BMPs would be used during mining to minimize surface sediment/selenium delivery to streams. These BMPs are listed in **Appendix 2C and 2D**. Discussions regarding the effects of sedimentation upon fish populations can be found in **Section 4.8.1.1** of the DEIS. Discussions regarding the effects of sedimentation upon water resources can be found in **Sections 4.3.1** and **4.3.2**.

   The reasoning for not including the Salt River in the effects analysis of sediment upon surface water resources is discussed in **Section 5.4** in the EIS. As flow progresses downstream, selenium is expected to migrate with varying rates of uptake by organisms, depending on physical retention and bioavailability (discussed in **Appendix 3C**).

3. Comment: YCT are the most sensitive of the iconic species of the Project Area. While the direct, indirect, and cumulative negative effects of the proposed mine expansion and specifically from the resulting habitat loss/modification and selenium poisoning of aquatic habitat will be felt throughout the aquatic environments in the area and beyond, the effects on YCT are of particular importance: the species is already vulnerable because of declining populations and have been petitioned for listing as threatened under the Endangered Species Act. Moreover, trout are at the top of the food chain in area aquatic systems. In essence, YCT are the canary in the phosphate mine, and thus are emblematic of our fish and wildlife concerns regarding this project and the accompanying DEIS. Under the circumstances, the DEIS should have included a thorough and scientifically sound discussion of the likely impacts of the proposed expansion on YCT now and in the future. Regrettably, it did not. Instead, the authors attempted to gloss over the potential effects that selenium contamination could have for the species as well as to minimize habitat degradation. They relied on questionable information, ignored available data and presented an incomplete picture of current conditions. Last but not least, the DEIS did not assess the risk of extinction to YCT populations at the local and regional scale that might result from the expansion and in particular from the selenium contamination that is certain to result. The misleading and incomplete picture that the DEIS presents of the likely impacts of the proposed mine expansion to this species violates NEPA. [Ltr950 Cmt52]

Response: The effects from the Project upon fish, including YCT, are discussed in **Sections 4.8.1.1** and **5.9** of the DEIS. Additional survey data from Issak (2001) and Meyer et al. (2003) was added to the FEIS to supplement data collected by Maxim in the Study Area. Selenium analyses of fish tissues by GYC supplement the selenium data collected by Maxim in the FEIS.

The extinction risk of YCT is also discussed in **Sections 4.8.1.1** and **5.9**. On 21 February 2006 the USFWS found that the listing of YCT under the Endangered Species Act was not warranted given available scientific and commercial information (50 CFR Part 17).

4. Comment: The omission of quantitative fish sampling in South Fork Sage Creek is particularly surprising since later in the DEIS, in Subsection 3.8.4 (Abiotic Condition), this stream is described as having suitable conditions for trout reproduction with no fine sediments in riffle habitats, a high mean proportion of gravels, and robust habitat quality. South Fork Sage Creek was further rated as "properly functioning" per Forest Service standards. [Ltr950 Cmt60]

   Response: South Fork Sage Creek was sampled by Maxim Technologies in August 2003. Quantitative sampling such as the depletion pass method and determination of the fish condition factor index were not conducted on this stream due to a limited availability of suitable fish habitat. Areas containing suitable fish habitat on South Fork Sage Creek were qualitatively sampled for presence/absence of fish and species composition. Areas considered to contain suitable fish habitat were identified based on availability of water, water depth, and other habitat features. Presence/absence surveys were conducted along approximately 1.5 miles of South Fork Sage Creek. During the sampling effort, 8 fish were captured. All were YCT. Baseline technical reports cited in the EIS contain information on aquatic biota sampling in South Fork Sage Creek.

5. Comment: According to groundwater modeling (**Section 4.3.1**), Alternative D would lower selenium concentrations such that they would be just below the IDEQ [Idaho Department of Environmental Quality] cold water aquatic criterion for selenium (0.005 mg/L) at the mouth of Deer Creek, the mouth of South Fork Sage Creek, and Crow Creek downstream of Sage Creek during the summer/fall baseline period. Fewer increases in selenium concentration in Study Area streams would lessen the risk of selenium accumulation in native fishes that could lead to adverse reproductive effects. Differences between all other Mining Alternatives (A-C, E, and F) and the Proposed Action are negligible in terms of selenium risks to YCT and other native fishes. These statements reveal significant problems for this proposal and the DEIS process itself. First, they are virtually the sum total of the discussion of the direct impacts of selenium contamination on native fish. Second, even though the statements paint a less than rosy picture for YCT and YCT habitat in streams effected by the mine proposal, that bleak outcome is based entirely on the overly optimistic input assumptions of the groundwater model utilized in the DEIS (the flaws of which are addressed in the section on groundwater in these comments). In other words, given the defects in groundwater modeling, the outcome for YCT is likely to be far worse than these statements indicate. [Ltr950 Cmt71]

   Response: Selenium impacts upon fish go beyond the use of the groundwater model. These discussions can be found in **Sections 4.8.1** and **5.9** and **Appendix 3C** added to the FEIS, which discusses bioaccumulation of selenium and related fish impacts in more

detail. The groundwater model used is described in **Sections 3.3.6** and **4.3** of the EIS. The responses to comments regarding groundwater modeling and the adequacy of the groundwater model are located in the water quality section of this chapter. Ground water model inputs are based on laboratory tests and empirical data. Those data and subsequent model results have been thoroughly reviewed by agency staff and contracted experts. The FEIS shows the conservative nature of the modeling process. The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium.

6. Comment: The anticipated increases in selenium concentrations that will occur in area streams even given the terribly flawed modeling and resulting understating of the concentrations of selenium that will reach those streams have implications for the persistence of YCT populations at the local scale - that is in the streams affected by the current and proposed expansion of the Smoky Canyon Mine operations - as well as implications for their continued persistence at the regional population scale. As the agencies know the YCT has been petitioned for listing as Threatened under the Endangered Species Act. Whether the species is listed or not is not the issue here. What is clear is that YCT are in trouble throughout their range, having suffered significant population declines over the past century due to disease, damaging land use practices and the introduction of non-native species. Unfortunately, these threats still exist today and continue to put at risk the future of this important species. The proposed Smoky Canyon Mine extension will further endanger YCT in the Project Area streams. Inexplicably the agencies appear to have given little consideration of the extinction risks to YCT at the local or regional scale within the context of this proposal. Surely such an analysis was both warranted and possible. For example, population estimates for YCT are available for most of the fish bearing streams affected by the already permitted Smoky Canyon Mine and this proposal. A wealth of other relevant data is readily available. And it would not be difficult to use these data to assess extinction risks for YCT. [Ltr950 Cmt74]

   Response: Extinction risk of YCT is addressed in **Sections 4.8.1.1** and **5.9** in the EIS. Existing YCT population and habitat data were used in the DEIS; refer to **Sections 3.8.3** through **3.8.5**. Baseline technical reports cited in the DEIS contain information on aquatic biota sampling. YCT are a Forest Service Sensitive species. On 21 February 2006 the USFWS found that the listing of YCT under the Endangered Species Act was not warranted given available scientific and commercial information (50 CFR Part 17).

7. Comment: Concerning the native YCT, which are treated in the DEIS as a special status species, the DEIS is worded so as to minimize the impact from cumulative effects by spreading the risk across an entire metapopulation of YCT which is identified in the document as the Palisades/Salt metapopulation. The DEIS cites a Final Environmental Impact Statement, Caribou Revised Forest Plan, published in 2003 (cited in the DEIS as USFS 2003b) as saying that the Palisades/Salt metapopulation of YCT is robust and at a low risk of extinction. I commented on this assessment in Subsection 4.8.1 above, noting that I regret it as too generous an assessment owing to the overwhelming presence of brown trout in much of the drainage. The brown trout is an introduced species well known for its ability to replace native YCT in all but the most remote headwaters, and now outnumbers YCT by at least three to one in Palisades Reservoir,

is present pretty much throughout the Salt River watershed including the Crow Creek drainage, and is now by far the predominant species of trout in Sage Creek. Only in Deer Creek have the YCT remained predominant, and even here they are already under stress from sedimentation and habitat alteration, according to the Idaho 303(d) list. Loss of water from the unmitigated elimination of springs feeding into Deer Creek tributaries will exacerbate the loss of instream habitat for these trout. Furthermore, from Subsection 4.8.4 above, the proposed action will expose them to even greater and probably overwhelming risk of recruitment failure from elevated Se concentrations that will emanate from the mining operations in Panel G. [Ltr950 Cmt369]

Response: Although they are recognized as a predator, brown trout are not considered a serious threat to native fish populations within the upper Snake River System, including Salt River. They remain primarily in larger waters such as Crow Creek and Salt River. In fact, brown trout do not have an overwhelming prevalence in the system. For example, based on past IDFG sampling, YCT are the most common game species in Palisades Reservoir. YCT are also the only game species that exist in the South Fork of Sage Creek.

The Palisades/Salt YCT Metapopulation, as described in the RPF (USFS 2003a), is located in the heart of YCT strongholds on the CTNF. It is comprised of 40 sixth code Hydrologic Unit Code areas on the Forest (not even counting those in HUCS in the upper Snake and Salt rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions). Considering the large geographic range of the metapopulation that includes the Salt and upper Snake rivers, Palisades Reservoir, and all of their associated tributaries, and considering 35 of the 40 HUCs on the Forest are considered by the Forest as YCT stronghold streams, the Palisades/Salt YCT Metapopulation is robust and resilient. We do not expect a noticeable impact upon the well being of this metapopulation with the implementation of this Project. However, we do recognize impacts upon populations and habitat within the analysis area. These impacts are discussed in **Sections 4.8.1** and **5.9** of the EIS.

8. Comment: The survival of the YCT is very much at stake here. Also, animals who drink this water are very much at risk. [Ltr976 Cmt5]

   Response: Although potential impacts to local populations may occur, the metapopulation that uses the Salt and upper Snake Rivers and Palisades Reservoir is quite resilient and is not expected to be impacted by this Project. This Project is not expected to present a risk to the survival of YCT throughout its range. The predominant mode of selenium bioaccumulation in both fish and wildlife is through ingestion of contaminated organisms, and not through drinking contaminated water. Under the Preferred Alternative, selenium concentrations in groundwater discharges to surface streams would be below the aquatic chronic standard of 0.005 mg/l. This standard is protective of human health and the environment.

9. Comment: The DEIS must provide: A thorough and detailed analysis of the impacts of the proposed action on aquatic resources, including especially the YCT and addressing, in particular, the impacts that the resultant increased selenium loading will have on that vulnerable species. [Ltr950 Cmt11]

Response: The selenium bioaccumulation issue is addressed in **Appendix 3C**. Other effects upon aquatic resources can be found in **Sections 4.8.1** and **5.9** of the EIS.

10. Comment: In order to accurately assess the impacts of this proposal on YCT, the DEIS should have provided an accurate "picture" of the existing conditions of the aquatic resources of the streams affected by the mine expansion. Unfortunately, an accurate portrayal of existing conditions is not presented in the DEIS. To cite just one example of this failure, the DEIS does not reveal that Sage Creek from its source to the mouth, including the Pole Canyon drainage, is on Idaho's 303(d) list as impaired due to selenium concentrations. As serious as that omission is, the DEIS contains many other omissions. Notwithstanding the fact that this proposal has been in development for years, the description of existing conditions for fisheries and aquatics rely primarily on Simplot's consultant Maxim and the Final EIS for the Caribou Revised Forest Plan. Far more data sources were available and, as documented immediately below, much relevant reliable and important information has been ignored. Although the agencies have provided mere weeks to review the DEIS and other documents that shed light on the proposal, Trotter notes that, during that time he was able to locate and review "more comprehensive data sets for the affected waters that should have been available to the DEIS writers [and] were either overlooked or ignored." Trotter writes: The Maxim reports cited in the DEIS focused primarily on Deer Creek and on short segments of Crow Creek where Deer Creek and Wells Canyon enter. This is all well and good because of the importance of Deer Creek to YCT in the Crow Creek drainage. But the other major tributary system affected by the proposed action and alternatives, namely South Fork Sage Creek, was dismissed with only a cursory, qualitative survey, as were South Fork Deer Creek and Wells Canyon. [Ltr950 Cmt59]

    Response: The recent 303(d) listing issue is discussed in **Section 3.3.2**. The listing of Sage Creek as 303(d) occurred after the DEIS was released for public comment.

    Consultants collected baseline data and prepared reports prior to the writing of the DEIS. These reports are available upon request. South Fork Sage Creek was sampled by Maxim Technologies in August 2003. Quantitative sampling such as the depletion pass method and determination of the fish condition factor index were not conducted on this stream due to a limited availability of suitable fish habitat. Areas containing suitable fish habitat on South Fork Sage Creek were qualitatively sampled for presence/absence or fish and species composition. Areas considered to contain suitable fish habitat were identified based on availability of water, water depth, and other habitat features. Presence/absence surveys were conducted along approximately 1.5 miles of South Fork Sage Creek. During the sampling effort, 8 fish were captured. All were YCT. Baseline technical reports cited in the DEIS contain information on aquatic biota sampling in South Fork Sage Creek.

11. Comment: NEPA requires agencies to obtain the data that are necessary to permit an assessment to be made of the likely impacts of the proposed mine expansion on the aquatic resources of the area and, in particular, YCT. Because of the failure to include relevant and important baseline information in the DEIS' predictions of impacts, or as Dr. Trotter says, given the inadequacies in describing the true picture of the Fisheries and Aquatics resources. Section 4.8 of the DEIS likewise needs to be reassessed to properly describe direct and indirect impacts and environmental consequences of the proposed action and alternatives. [Ltr950 Cmt62]

Response: Consultants, Forest fisheries crews, and other agency personnel collected and analyzed data in and downstream of the Project Area. The data used in the DEIS included those collected by Maxim in 2003 and 2004. Additional data used in the FEIS to describe the baseline condition of fisheries (**Section 3.8.3**) includes additional data collected by Maxim (2006) as well as data collected by Meyer (Meyer et al. 2003), Isaak (Isaak 2001), and GYC (Weber 2005). These data sets provide a more complete picture of existing fisheries and aquatic resources by covering the years prior (Isaak 2001: 1996-1997, Meyer et al. 2003: 1999-2000) and following (Weber 2005: 2004, Maxim 2006: 2006) the Maxim baseline survey in 2003. The Agencies believe that the data that has been collected for analysis in the FEIS is sufficient for the decisions that need to be made and meet the requirements of the CEQ. Regarding direct and indirect impacts, **Section 4.8.1** was reassessed and the FIES includes a broader discussion of the environmental consequences of the proposed action and alternatives, including discussion of the characteristics of YCT populations in the Study Area (e.g., small size, isolation), density-dependent population dynamics, and winter stress syndrome (WSS). These issues are discussed further in **Appendix 3C**.

12. Comment: A metapopulation is nothing more than a "population" of interconnected populations. The promise of metapopulation theory is that if one of the interconnected populations is extirpated, the empty habitat may be re-colonized by migrants from one or more of the remaining populations. Through this mechanism of interconnected re-colonization, the metapopulation as whole remains at a lower risk of extinction even though the risk of extinction of any one of its individual populations may be high. But re-colonization can occur only if the empty habitat is healthy and can support fish, which in this case it will not be owing to the unavoidable and cumulative impacts of elevated Se levels that will not peak for 50 to 100 years after commencement of mining and will decline only gradually over hundreds of years thereafter, according to the DEIS. Should the YCT or other fish populations of the affected area of the Crow Creek drainage be extirpated by recruitment failure from these elevated levels of Se, which appears a likely result, these losses would, for all practical purposes, be permanent. Rather than attempting to minimize risks by spreading them over an entire metapopulation, this chapter of the DEIS should be rewritten to make clear the serious nature of the cumulative effects on the fish populations of the Crow Creek drainage. If the DEIS writers insist on framing this discussion in a metapopulation context, they should also point out that loss of YCT from the Crow Creek system would not only be a serious and permanent local impact, it would also diminish the size and viability of the Palisades/Salt metapopulation, which would be a serious and permanent regional impact. [Ltr950 Cmt370]

    Response: The word metapopulation was used in the RFP (USFS 2003a) to describe interconnected populations of key management species across the Forest and discuss their viability over the long term. The DEIS referred to the RFP for further description of the YCT populations within the Project Area. Using the RFP, they noted the resiliency of the group of populations that comprise the Palisade/Salt Metapopulation. They did not use the description to suggest the Project Area populations would be immediately recolonized by neighboring YCT populations. Rather, they commented on how robust the metapopulation is considering past and future mining activities. The impacts of the Project upon YCT are stated in the EIS (refer to **Sections 4.8.1** and **5.9**). These impacts have the potential to decrease fish population density in some reaches of streams within and downstream of the Project Area, but not have a noticeable effect upon the overall well-being of the metapopulation. In fact, the number of stronghold, depressed, and

absent populations within the metapopulation are expected to remain the same. The Palisades/Salt YCT Metapopulation is comprised of 40 sixth code Hydrologic Unit Code areas on the Forest (not considering those in HUCS in the upper Snake and Salt Rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions).

13. Comment: Compounding the problem of not using available information as noted above, Simplot's consultant Maxim apparently made no attempt to determine whether fish were using ephemeral drainages in the Project Area. It is well documented in the fisheries science literature that YCT often utilize ephemeral streams during the spring-early summer period (when these streams do carry water) for spawning and early rearing of fry (Behnke 1979, 1992; Coffin 1981; Hartman and Brown 1987; Nelson et al. 1987; Trotter 1987, 2006 in press). In most situations, as these tributaries recede, the young-of-the-year trout migrate downstream to perennial waters to grow and develop further. However, fry and fingerlings will sometimes also take refuge year around in perennial segments near spring sources that may also be utilized by trout even during low-water periods when downstream reaches may have no standing water or potential fish habitat. Ephemeral tributaries, short segments of surface-water between ephemeral reaches, and headwater spring-source stream segments may be particularly important for the YCT populations of Crow Creek and its tributary drainages, but the Maxim work sheds no light on these aspects of local YCT ecology. We agree with Trotter's conclusion taken together, the omissions cited above cast doubt on the adequacy of the Fisheries element of this chapter-it is essentially a job only half done. Subsection 3.8.3 should be revised in its entirety to incorporate all of the available fisheries data and to complete the picture of fish utilization of all streams, not just Deer Creek that will be affected by the proposed action or alternatives. This should be done even if it means delays and additional costs to complete necessary studies, for example, of the extent and timing of trout utilization, if any, of ephemeral systems such as Manning Creek and the Wells Canyon drainage. [Ltr950 Cmt61]

    Response: We concur with the assessment of the importance of intermittent and ephemeral streams to fish populations during high flows. However, the use of ephemeral streams by YCT in the Study Area has not been documented. A discussion of this issue has been incorporated in the FEIS in **Section 3.8.3**.

14. Comment: I wish to express my concerns with Simplot's plan to develop open pit phosphate mines in the Sage Creek roadless area of the Caribou National Forest. This area of SE Idaho is home to a few remnant populations of native cutthroat strains, once prevalent in the region, but now decimated by degraded habitat. These streams in this region should be preserved and protected from direct riparian damage (e.g. runoff from dirt roads, mining waste, warming of water due to removal of vegetation, etc.) and indirect damage (e.g. selenium leaching from mining waste, and eventually making it into the stream ecosystems). Selenium has been shown in the upper Blackfoot river drainage to greatly increase juvenile trout mortality. [Ltr380 Cmt1]

    Response: YCT occur in the Project Area. The potential effects upon fish and their habitat are described in **Sections 4.8.1** and **5.9** of the EIS. Existing overburden fills where contamination problems exist are being addressed with cleanup plans under the CERCLA process (see **Appendix 2A**). Additional measures are proposed in this mining

effort to decrease future problems. Some of these measures include covering the selenium-bearing waste to decrease water infiltration see **Section 2.6**).

The YCT that occur in Deer and Sage Creeks are part of a large metapopulation with many interconnected populations, so it would be inaccurate to say that "SE Idaho is home to a few remnant populations of native cutthroat strains." The Smoky Canyon Mine is located within the largest concentration of YCT strongholds on the Forest. As an example, Deer and Sage Creeks are within the Palisades/Salt YCT Metapopulation, comprised of 40 sixth code HUC areas on the Forest (not considering those in HUCS in the upper Snake and Salt rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions).

15. Comment: I did not discover until after I had bought the property that Sage Creek is in fact substantially impacted by selenium poisoning from the Smoky Canyon Mine and has actually been designated as an impaired stream pursuant to Section 303D. It is my understanding from reading the DEIS that expansion of the Smoky Canyon Mine will increase selenium levels in Sage Creek and that the "peak selenium concentration in South Fork Sage Creek would occur about 100 years or more after mining begins". Sage Creek already regularly exceeds the standard for selenium established by the State of Idaho. The results in fish samples already exceed the proposed standard for fish samples. [Ltr550 Cmt2]

    Response: The existing surface water quality for Sage Creek is described in **Section 3.3.1** of the EIS. The listing of Sage Creek as 303(d) occurred after the DEIS was released for public comment. That development has been addressed in the FEIS in **Section 3.3.2** and in **Section 4.3.2**.

16. Comment: The proposed expansion is an inappropriate industrialization of critical public wild lands. Harmful impacts to YCT populations and the risk of selenium contamination to area water supplies are not an acceptable public cost. The headwaters of the Salt River provide a refuge for endangered YCT populations. Development of these public lands will further put this species at risk. [Ltr591 Cmt1]

    Response: YCT are a Forest Service Sensitive species. The potential effects upon fish and their habitat are described in **Sections 4.8.1 and 5.9** of the EIS. Regarding public water supply, the culinary well at Smoky Canyon Mine was impacted in early 2005 but has since returned to levels below state and federal standards (approximately 20 ppb). As described in **Section 4.3**, approval of the Agency Preferred Alternative is not anticipated to place the public at risk from selenium exposure either through recreation or drinking water. On-going monitoring activities are designed to detect exceedances of state and federal selenium levels in water before the public may be affected.

17. Comment: YCT have enough population issues with the onslaught of Lake trout, whirling disease, and other habitat contamination. Please do not allow selenium add to the factors that are threatening this great species. [Ltr585 Cmt4]

    Response: We do not expect a noticeable impact upon the well being of the YCT metapopulation with the implementation of this Project. However, we do recognize impacts upon populations and habitat within the analysis area. These impacts are discussed in **Sections 4.8.1.1 and 5.9** of the EIS.

18. Comment: Several reviewers stated that they were generally opposed to the mine expansion due to selenium contamination from the mine harming YCT. [Ltr832 Cmt4, Ltr999 Cmt1, Ltr854 Cmt3, Ltr288 Cmt 2, Ltr382 Cmt2, Ltr401 Cmt3, Ltr455 Cmt3, Ltr243 Cmt2, Ltr 282 Cmt 2, Ltr379 Cmt3, Ltr549 Cmt7, Ltr997 Cmt5]

    Response: YCT occur in the Project Area. They are a USFS Sensitive species and are currently not federally listed as either Endangered or Threatened. The potential effects upon fish and their habitat are described in **Sections 4.8.1** and **5.9** of the EIS.

    Existing overburden fills where contamination problems exist are being addressed with cleanup plans. **Appendix 2A** further describes CERCLA cleanup efforts at the Smoky Canyon Mine. Additional measures are proposed in this mining effort to avoid future problems (Agency Preferred Alternative, **Section 2.10**). Some of these measures include covering the selenium-bearing overburden to decrease water infiltration (**Section 2.6**).

19. Comment: In times of "normal" cutthroat recruitment and survival rates such as we experienced prior to the late 1990's, perhaps we might consider relaxing some mining standards. However, in times like the present in which native cutthroat are under attack from all quarters, we should restrict any further development of the mine until we have restored native species and protected them for our children and grandchildren and future generations. [Ltr646 Cmt6]

    Response: Mining standards would not be relaxed. This Agency Preferred Alternative includes an increase in protective measures, including covering overburden fills and would be in compliance with all state and federal regulations, as well as the RFP.

20. Comment: Several reviewers expressed concern over possible adverse impacts to groundwater and public water supplies in addition to adverse impacts to fish. [Ltr455 Cmt3, Ltr302 Cmt2]

    Response: Regarding public water supply, the culinary well at Smoky Canyon Mine was impacted in early 2005 but has since returned to levels below state and federal standards (approximately 20 ppb). As described in **Section 4.3**, approval of the Agency Preferred Alternative is not anticipated to place the public at risk from selenium exposure either through recreation or drinking water. On-going monitoring activities are designed to detect exceedances of state and federal selenium levels in water before the public may be affected.

21. Comment: One reviewer was concerned that the roadless rules are being challenged [Ltr803 Cmt3]

    Response: Regarding roadless rules, lessees are permitted to access leases and produce minerals within the IRAs. Although 71 acres would retain permanent indications of mining within the IRAs, the majority of disturbances in IRAs would be reclaimed. Some roadless or wilderness attributes would be affected by mining activities (**Section 4.11.1.1**).

Public Concern ID 59

The BLM/FS should study the Blackfoot River fishery in order to understand the effects phosphate mining has on fish

1. Comment: Please ask someone about the state of the fishery in the Blackfoot River above the Blackfoot Reservoir, where extensive phosphate mining has occurred. It is quite frightening I can assure you, unless you hate fish. [Ltr200 Cmt3]

   Response: There are copious data and reports concerning the Blackfoot River populations. Studies continue regarding the effects of the mines on these streams. Several measures are included in this Agency Preferred Alternative that are expected to decrease the release of selenium into the environment when compared with previous mining projects. These measures include improvements on the way selenium bearing material is disposed (see **Sections 2.5** and **2.6**).

Public Concern ID 84

The BLM/FS should acknowledge that elevated selenium concentrations in fish tissue are due to naturally occurring background levels

1. Comment: I was pleased to see that findings were included in the document that some fish in Deer Creek exhibit elevated selenium concentrations in fish tissue due to naturally occurring background levels. It is important for the public in general to realize that selenium is associated with the local natural geologic setting and that all impacts are not created by man. Additionally, that studies do exist indicating that YCT have a much higher tolerance to selenium with respect to both overall health and reproductive considerations (Hardy). Which is in contrast to often quoted studies describing ill effects of selenium on certain warm water fish species (Lemly). [Ltr547 Cmt8]

   Response: Some streams in the Project Area appear to have naturally elevated concentrations of selenium in its sediment and fish. Although the Hardy report was helpful in suggesting YCT may be more resilient than spiny-rayed fish (subject of many previous studies), there are limits to the conclusions that can be drawn. Hardy hypothesizes the YCT in the study had an ability to compensate for higher selenium concentrations through excretion, perhaps accounting for individual study fish health. However, considering bioaccumulation, the study was not designed to determine what reproductive impacts later generations would incur in an environment with high selenium concentrations.

   Several peer-reviewed, published studies exist regarding selenium impacts upon coldwater species. Hilton et al. (1980) determined that uptake and accumulation in tissues of trout reared on diets containing in excess of 3 µg/g dry feed may ultimately be toxic to trout if maintained over a long period of time. Hodson et al. (1980) observed significant mortality of eyed eggs at selenium concentrations greater than 28 µg/L and decreased cellular blood iron concentrations at 16 µg/L. As a conclusion of their study, Hunn et al. (1987) recommended a safe level of 10 µg/L for inorganic selenium, but suggest that concentrations near this level can reduce levels of calcium in the backbones of trout. These and other studies, in addition to Hardy's report, help in our understanding of potential selenium impacts.

Hilton, J.W., P.V. Hodson, and S.J. Slinger. 1980. The requirement and toxicity of selenium in rainbow trout. Pp 2527-2535.

Hodson, P.V., D.J. Spry, and B.R. Blunt. 1980. Effects on rainbow trout of a chronic exposure to waterborne selenium. Can. J. Fish. Aquat. Sci. Vol 37.

Hunn, J.B., S.J. Hamilton, and D.R. Buckler. 1987. Toxicity of sodium selenite to rainbow trout fry. 233-238.

Public Concern ID 127

The BLM/FS should recognize that sport and commercial fisherman oppose further damage to the fish supply

1. Comment: Are you [aware] that sport and commercial fisherman oppose any more damage being done to the fish supply? [Ltr659 Cmt6]

   Response: Commercial fishing guides are not likely to be affected by this proposal to mine because they are not known to use the Project Area. Migratory fish and sport anglers target in the South Fork and Salt River would not likely be noticeably affected by the Project due to the limited time (if any) they spend in the Project Area.

Public Concern ID 131

The BLM/FS needs to recognize that selenium is a major environmental concern connected with the proposed expansion of the mine

1. Comment: Several reviewers consider the DEIS to be at fault for not taking into account the combined interaction of selenium concentrations in water, sediment, aquatic invertebrates, and fish and the resulting potential for effects at higher trophic levels. These reviewers consider the DEIS' treatment of bioaccumulation to be inadequate. [Ltr950 Cmt44, Ltr950 Cmt45, Ltr950 Cmt2, Ltr950 Cmt53]

   Response: Selenium bioaccumulation is discussed in **Appendix 3C** in which a range of thresholds and potential impacts are described, along with their relationship with local empirical data. A summary of this information is also provided in **Sections 3.8** and **4.8** of this FEIS, as applicable. The analyses in the EIS follow a defensible, scientific process to estimate the environmental consequences of the mining operation.

2. Comment: Several reviewers are concerned about contamination now occurring at the Smoky Canyon Mine. [Ltr950 Cmt44, Ltr950 Cmt143]

   Response: Comments concerning impacts at the existing mine should be directed to the CERCLA process. **Appendix 2A** further details the expected options, selections, timing, and calculated results of the CERCLA remedial plans at the Smoky Canyon Mine.

3. Comment: One reviewer points out that burial of waste rock might not stop the recycling of selenium or reduce its availability to biota, as has occurred at Kesterson Reservoir. [Ltr950 Cmt45]

   Response: Under the Agency Preferred Alternative, most seleniferous overburden would be backfilled into the mine panels and some would be stored in external

overburden fills. All would be covered with a cover designed to isolate the selenium from the environment by the reduction of infiltration and separation of roots from the ROM material (**Section 2.6**).

4. Comment: Several reviewers believe that any addition of selenium in the environment is unacceptable because of bioaccumulation, and that even low concentrations of selenium are problematic. [Ltr950 Cmt47, Ltr950 Cmt46]

   Response: Selenium bioaccumulation is discussed in **Appendix 3C**. The predicted surface water selenium concentrations would comply with the EPA chronic standard of 0.005 mg/L, a level designed to be protective of the environment. Under the Agency Preferred Alternative in this FEIS the selenium concentration in Crow Creek, downstream of the confluence with Sage Creek, is expected to be less than 0.005 mg/L. From that point downstream, selenium is expected to migrate with varying rates of uptake by organisms, depending on physical retention and bioavailability (discussed in **Appendix 3C**). Selenium ultimately released into streams in the Study Area would be below the level that is deemed safe for uptake into sediment and further bioaccumulation at higher trophic levels.

   The modeled extent of increases in water selenium concentrations is documented in **Section 4.3.2** of the EIS. Maps depicting predicted groundwater plumes of selenium are available in **Section 4.3.1** of the EIS.

5. Comment: The DEIS attempts to evaluate the potential impacts of selenium concentrations in ground and surface water by referencing the 5 ug/liter water quality standard for selenium. However, as Hamilton documents, this is not the relevant standard because of the bio-accumulative nature of selenium. Several investigations of selenium-impacted waters have concluded that selenium bioaccumulated from the waterborne concentrations of 2-5 ug/liter to toxic concentrations in sediments, aquatic plants, and aquatic invertebrates (both water column and benthic) and resulted in adverse effects on fish (reviewed in Hamilton 2004). Selenium bioaccumulation becomes toxicologically important above waterborne selenium concentrations of 2 ug/liter, which has been proposed as a national water quality criterion for selenium based on support from federal, state, university and international sources (reviewed in Hamilton and Lemly 1999). In other words, the standard that should be used for assessing the probably effects of selenium contamination is 2 ug/liter precisely because selenium concentrations above that level "result in bioaccumulation in sediment, aquatic plants, aquatic invertebrates, fish, and predators feeding on lower trophic concentrations" and that bioaccumulation in turn produces adverse effects in wildlife. To reiterate, as Hamilton clearly articulates, selenium doesn't just "disappear". The DEIS reveals clearly that all mining alternatives under consideration will equal or exceed the applicable standard. Indeed as Hamilton points out, the selenium concentrations that will result from the alternative that produces the lowest concentrations ranging 2-7 ug/liter in both winter and summer/fall periods. He concludes, "[a]llowing selenium concentrations of 2-7 ug/liter in Idaho streams would result in increased loading of selenium and adverse effects on fish, birds, and mammals." [Ltr950 Cmt48]

   Response: The Agency Preferred Alternative would be consistent with State and EPA selenium limits. Selenium bioaccumulation is discussed in **Appendix 3C**.

A discussion of the derivation of the EPA's water quality criteria and other approaches for deriving water quality guidelines for selenium are discussed in **Appendix 3C**. A range of thresholds and the body of scientific knowledge supporting each approach is discussed, with reference to Lemly, Hamilton, Skorupa, and other experts in the field of aquatic toxicology.

6. Comment: Several reviewers are concerned that the DEIS failed to assess the geographical extent of the selenium contamination. Specifically, they point out that adverse effects from selenium would not be limited to local streams, but would extend downstream to the Salt River, as is now occurring via Smoky Creek and Stump Creek. [Ltr950 Cmt49, Ltr950 Cmt142, Ltr950 Cmt143, Ltr950 Cmt227]

   Response: The Cumulative Effects Area incorporates the natural watershed boundaries and all past, present, and reasonably foreseeable future actions within the Crow Creek Watershed (HUC 5) to its confluence with the Salt River, the Tygee Creek Watershed (HUC 5) to its confluence with Stump Creek, and Diamond Creek Watershed (HUC 6) that extends to the confluence with Timber Creek. Aquatic resources beyond that boundary should not be significantly affected by the project. The proposed Project would not contribute to exceedances in the Salt River.

   Based on water quality samples, Smoky Creek is not expected to deliver a significant selenium load to the Salt River via Stump Creek. Impacts to fisheries based on tissue concentrations are discussed in **Appendix 3C**.

7. Comment: In the case of phosphate mining in southeastern Idaho, habitat disruption includes both the physical disruption of open pit mining and the construction of roads and utility corridors, as well as the disruption caused by chemical contamination. For example, as early as 1993, water samples collected as part of the Smoky Canyon Mine's required monitoring revealed a significant increase in selenium for Pole Creek; the documented concentration - 0.17 mg/L - is more than three times higher than the drinking water standard and considerably higher than water samples taken upstream of the mine that same year (0.001 mg/L). As a result, macroinvertebrate populations - primary salmonid food - were noted to be declining in Pole Creek that same year. Annual reports after 1994 continued to show an increasing selenium problem spreading to other streams tested under the monitoring program. These are real impacts to and real "disruption" of aquatic habitat and are not dependent on the presence of salmonid populations in Pole Creek. [Ltr950 Cmt 69]

   Response: The Agencies are aware that the release of selenium from phosphate mines can have impacts on the environment, beyond those caused by physical disruption. This issue has driven the creation of many of the alternatives in project design and environmental protection measures analyzed in the EIS. Via the NEPA process and the analysis of alternatives and mitigation measures, we do not believe future mine projects would have the same environmental effects as prior projects. In the Agency Preferred Alternative, calculated selenium concentrations in groundwater discharges to surface streams in the Project Area are not expected to exceed the State and EPA chronic aquatic standards determined to protect aquatic systems from selenium exposure. In addition, sufficient reclamation bonding would be required to cover the cost of reclamation at the current mine should Simplot not complete their reclamation obligations.

8. Comment: Several reviewers are concerned that the Proposed Action could lead to long-term impacts, and that fish species may be lost and ecosystem recovery may take decades or longer. [Ltr950 Cmt266, Ltr950 Cmt142, Ltr950 Cmt53, Ltr950 Cmt227]

   Response: The revised impact analysis in **Sections 4.3.1 and 4.3.2** of this FEIS for the revised Alternative D cover design predict lower selenium concentrations in groundwater discharges to receiving streams than were shown in the DEIS. These predicted groundwater concentrations are well below the State and federal surface water standards for selenium. However, because the peak effects from Panel F are not expected to occur for 50-100 years after the mine is closed, prior to the mixing of peak effects, the CERCLA process is expected to remediate lower Sage Creek such that an exceedance would not occur (**Section 4.3.2** and **Appendix 2A**). Effects to YCT over this time frame are addressed in **Section 4.8** as potentially long-term and moderate to major. The Agencies and Simplot expect impacts to fish would be minor but are approaching the selenium issue conservatively.

9. Comment: Several reviewers are concerned that, contrary to statements in the DEIS, Sage Creek is on the Idaho 303(d) list of impaired streams due to selenium contamination. [Ltr950 Cmt142]

   Response: The bioaccumulation issue is addressed in **Appendix 3C**. The listing of Sage Creek as 303(d) occurred after the DEIS was released for public comment. That development is addressed in the FEIS in **Section 3.3.2**.

10. Comment: The cumulative effects section of the DEIS also reiterates, in summary fashion, that, given all the BMPs that will be employed for the Panel F and G expansion, water quality will be protected in the Crow Creek-primarily through attenuation. This "dilution is the solution to pollution" mindset completely ignores the scientific evidence that clearly documents the bioaccumulative nature of selenium and the horrendous effects that bioaccumulation has on aquatic species, specifically fish species. Again, as Hamilton has clearly pointed out, selenium does not disappear; rather it builds up in the food web. [Ltr950 Cmt142]

    Response: The Agencies would agree that the terms dilution and attenuation simplify the behavior of water-borne selenium. As flow progresses downstream, selenium is expected to migrate with varying rates of uptake by organisms, depending on physical retention and bio-availability (discussed in **Appendix 3C**). The bioaccumulation process occurs via a complex series of interconnected hydrological, biogeochemical, and biological pathways that vary over time, among sites, and among receptor taxa. Each variable is discussed in **Appendix 3C**.

11. Comment: The DEIS attempts to downplay the threat of elevated selenium concentrations on YCT by referencing a study by Hardy, a non-peer reviewed "Field Report." The authors suggest that, according to Hardy, YCT reproduction suffers no significant effects from bioaccumulation of selenium at high concentrations: Hardy (2003), however, showed that YCT grown for 44 weeks on a steady diet of selenomethionine (the form of selenium found in the aquatic food chain) showed no signs of toxicity, including cranial-facial deformities in fry, despite measured whole-body selenium levels of up to 12.5 mg/Kg.In fact, the DEIS misrepresents the findings of this study as well as its utility for predicting the likely impacts of selenium contamination in the affected environment. Two of the foremost authorities on the effects of selenium on

fish, Dr. Dennis Lemly and Dr. Steven Hamilton, have reviewed the Hardy study and disagree strongly with this characterization of it and with the DEIS' reliance on it. According to Lemly in his comments on this DEIS.

At several locations in the DEIS (e.g., page 3-146 paragraph 2, page 4-142 paragraph 2), the statement is made that "Hardy (2003) showed that YCT grown for 44 weeks ... showed no signs of toxicity, including cranial-facial deformities in fry". This statement is absolutely not true. Page 13, section 3.2.4, of the Hardy (2203) reports says "A dose-response relationship was apparent in percentage of total deformities", and page 17, paragraph 2, says "There was an increased average percentage of deformed fry associated with increasing dietary selenium levels". Importantly, he found that the incidence of cranial-facial deformities was in the range of 6-12% (which indicates a population-level impact; Lemly 1997) when dietary concentrations of selenium were in the 2-4 mg/kg range. Selenium levels in fish food organisms (benthic macroinvertebrates) of Project Area streams already exceed this range (6-9 mg/kg in Deer Creek and Crow Creek; Hamilton and Buhl 2003). Therefore, toxicity is likely to be occurring in the field as well. Moreover, Hardy limited his interpretation of risk to cranial-facial deformities only. These are the least prevalent teratogenic effects, occurring much less frequently than deformities of the spine (lordois, scoliosis, kyposis and fins (Lemly 1993b). There are three critical points to be noted here: (1) The Hardy study did indeed find teratogenic effects of selenium, (2) Teratogenic effects other than cranial-facial deformities were present but were not factored into the risk analysis, which suggests that impacts may be more substantial than the report indicates, and (3) Using the Hardy study to infer that there are no existing impacts in the Project Area, or that the risk of future impacts is negligible, is absolutely not true. [Ltr950 Cmt53, Ltr950 Cmt54, Ltr950 Cmt55]

Response: The presentation of Dr. Hardy's study in the DEIS was consistent with Hardy's conclusions, which he made based on a holistic view of the study and qualifications of some data. Dr. Hardy's study is not emphasized in the FEIS because his methods and experimental design have not been peer-reviewed and have since been questioned by the Agencies and numerous reviewers. Conclusions regarding the impacts of the Project were not based solely on the Hardy study. The use of the Hardy study in the DEIS was for comparative purposes and a description of related work in the fisheries field.

Point #1 and 2: Hardy did observe deformities in fry. However, he could not find a linear dose frequency of deformity relationship. In the study, deformities did not occur at a significantly different frequency than control fish. When higher percentages of deformed fry occurred, they only occurred with a low frequency of parents.

Hardy, at least initially, looked at all deformities associated with exposure to excessive levels of selenium as described in Lemly (1993a) (refer to page 11 of Hardy's report). He then focused on cranial-facial deformities, following the procedures of Kennedy et al. (2000), in part to avoid general deformities often seen in trout and salmon populations (refer to page 17 of Hardy's report).

Point #3: The DEIS specifically describes potential impacts expected from the mining activities. For expected selenium effects upon fish, please refer to **Section 5.9**. Hardy's study showed a parabolic relationship, with fish fed intermediate levels of selenium having the highest deformity rate. Hardy hypothesized the subject YCT maintained sub-

toxic body levels of selenium by increasing its rate of excretion. His work indicated YCT may be more resilient than spiny rayed fish that have been traditional subjects of these type of studies and were used as prototypes for the development of EPA standards. Although the results of Hardy's study have some usefulness, we recognize there are limitations to its application. For instance, the study fish were removed from other elements in their natural environment that may have also impacted them, higher impacts may occur in later generations not studied in this experiment, and it does not account for fish immigration.

12. Comment: One reviewer was concerned that neither works by Lemly (1999) nor Hamilton (2004) were cited in the DEIS. [Ltr950 Cmt56]

    Response: Comment noted. Both Lemly (1999) and Hamilton (2004) were considered in the DEIS. The bioaccumulation issue is addressed in **Appendix 3C**, where numerous studies by both Lemly and Hamilton are considered. Lemly (1999) was considered in the DEIS. Both Lemly (1999) and Hamilton (2004) are considered in this FEIS, **Sections 3.8** and **4.8**.

13. Comment: The DEIS' misrepresentation and minimization of likely impacts of increased selenium in the aquatic environments that will be affected by the proposed expansion simply cannot be squared with the mandates of NEPA. The agencies' duty to take a hard look at the environmental impacts of the proposed action cannot be satisfied by analyses which seem designed to generate in the minds of decision-makers and the public the flatly erroneous belief that the impacts of adding more selenium to an already contaminated ecosystem will be minimal. As far as the proposed expansion of the Smoky Canyon Mine is concerned, we cannot do better than, or agree more with, Dr. Dennis Lemly of the U.S. Forest Service [Ltr950 Cmt56]

    Response: The Agencies disagree that the DEIS violates NEPA. The NEPA process requires the Agencies to ensure the scientific integrity of the analyses conducted but does not require exhaustive scientific studies. The Agencies consider the analysis in the DEIS to be scientifically defensible and the predicted impacts of selenium therein to be conservative.

14. Comment: From a fish health perspective, it is irresponsible for the Agency Preferred Alternative to be implemented. Concentrations of selenium in some streams and fish of the Project Area already equal or exceed regulatory limits and thresholds for dietary toxicity, reproductive effects, and winter mortality (5 ug/L, 4-7 mg/kg in fish tissues, >4 mg/kg in fish food organisms; pages 3-144, 3-145, 4-70). With these existing levels of selenium, it is not environmentally acceptable to allow additional selenium to be discharged into the Smoky Canyon Project Area. This ecosystem is a tinder box, and allowing additional selenium discharges will likely start a cascade of irreversible events, culminating in severe toxic impacts to fish and aquatic life for many years to come (Lemly 1999b, 2004). It is not as though one could allow a 1% increase in selenium in the Project Area and expect to see a 1% increase in effects. Because of bioaccumulation, allowing a 1% increase may translate to a 1,000% increase in toxic impacts. Indeed, even with the limited groundwater models used to prepare the DEIS, predictions indicate that waterborne selenium discharges at 85 to 100 years post-mining (page 4-70) will have concentrations that can easily bioaccumulate to toxic levels in aquatic food chains (5-10 ug/L, Lemly 2002). The Secretary of Agriculture and the Bureau of Land Management should not permit a process that could cause residual

toxicity and place trust resources (and future land managers) in jeopardy for 100+ years. (Emphasis in original) [Ltr950 Cmt57]

Response: Those streams in the Project Area that currently exceed regulatory limits are impacted by the current mine site. They are being addressed through the CERCLA process (**Appendix 2A**). The Agency Preferred Alternative is not expected to result in groundwater discharges with selenium concentrations above regulatory water quality standards. Currently, the applicable regulatory limit is the chronic aquatic criteria for surface water (0.005 mg/l) there are no specific regulatory limits on selenium regarding dietary toxicity in fish, reproductive effects in fish, and winter mortality impacts to fish. There are a range of thresholds proposed in literature. This range of thresholds and possible effects to fish are discussed in more detail in **Appendix 3C**. The mitigation measures applied to the mine plan and those being done to enhance local fisheries habitat, under the Agency Preferred Alternative are sufficiently protective of the YCT fishery.

There is no evidence that fish populations in Study Area streams are on the verge of collapse. Population densities appear to be normal for streams within the Project Area.

15. Comment: Post-mining surface water quality and quantity are inseparable from the effects this mining proposal will have on groundwater. Unfortunately, as described in the DEIS, the proposed actions for protecting surface and groundwater discharge feeds surface water. When a concentration of contaminates in groundwater is elevated, the seepage to surface water will then degrade the receiving surface water. In the case of this proposal, groundwater that will have high concentrations of selenium will seep into, and contaminate surface waters. The resultant contamination is likely to reach the point that surface water standards will be exceeded. And, as Imhoff stresses, "[S]elenium is not just another contaminant. When it becomes mobilized and concentrated in the environment, the costs to industry-and to the environment-have been shown to be huge." Compounding this problem is the fact that the agencies' overly optimistic and, as we have shown, unfounded, predictions on selenium contamination do not even account for the contamination to groundwater and surface water that is already occurring from the existing Smoky Canyon Mine. It appears that the agencies, including the Idaho DEQ, are willing to accept the degradation that will result from the proposed mine expansion in the belief that the existing contamination that was caused by prior mining will be ameliorated by some as-yet-undisclosed means through the CERCLA process for the Smoky Canyon Mine. However, the Site Investigation Report for the Smoky Canyon Mine indicates that selenium contamination resulting from the prior mining is still traveling to, and discharging into the Sage Creek drainage: "Degradation from the existing mine that increases concentrations at Sage Creek will not decrease soon." [Ltr950 Cmt34]

    Response: The water quality modeling process calculates seepage chemistry and volume as meteoric water percolates through the proposed backfills and external overburden fills. Fate and transport modeling is used to determine ground water quality as the seepage mixes with and disperses through the local groundwater system. Additional mixing models calculate resultant chemistry as groundwater discharges to the surface in local springs and streams. A detailed description of this process and results are provided in **Sections 4.3.1** and **4.3.2** in the EIS. The mixing of surface water and groundwater with streams already impacted by the current mine site is discussed in **Sections 5.3** and **5.4** of the EIS.

The Engineering Evaluation/Cost Analysis (EE/CA) for the Smoky Canyon Mine contains the details of planned remedial efforts at the Smoky Canyon Mine. Construction on corrective measures at the Pole Canyon overburden disposal area started in 2006 and will be completed in 2007. **Appendix 2A** further details the timing and calculated results of the CERCLA removal actions at the mine.

16. Comment: The significance of Deer Creek for YCT in the affected area cannot be underestimated: "Deer Creek is the one remaining bastion for YCT within the Project Area." Under all mining alternatives, however, and despite the myriad flaws of the DEIS, the proposed mine expansion "will have short and long-term, major, and both local and regional impacts on Deer Creek's YCT. These impacts are significant and are likely to be irreversible" for this species. Furthermore, Trotter asserts, "the cutthroat population will likely decline over the short to mid-term, and...this constitutes an irreversible and irretrievable commitment of an important aquatic resource." [Ltr950 Cmt58]

    Response: Comment noted. The EIS states that impacts to fisheries from the proposed action could be long-term, site specific, and moderate to major. The impacts from the Agency Preferred Alternative would be much less as all groundwater discharges to surface water are expected to be below the standard protective of chronic exposure to selenium. The potential effects upon fish can be found in **Sections 4.8.1.1** and **5.9** of the EIS. Deer Creek is considered suitable habitat for YCT and contains a healthy population. (The fish population in South Fork Sage Creek also predominantly consists of YCT.)

Public Concern ID 132

The BLM/FS should acknowledge that because of bioaccumulation, there is a higher risk from selenium, therefore the lower amount allowed to be discharged must be mandated

1. Comment: Selenium leaching from the proposed mine expansion will degrade downstream surface water including the South Fork Sage Creek and Deer Creek. However, this DEIS has not considered the downstream transport of selenium or the effects it may have on the aquatic ecosystems. This includes Crow Creek and the Salt River. The DEIS also ignores bioaccumulation, the process by selenium concentrates going up the food chain because selenium is either eaten by microorganisms or is bound in the sediments. [Ltr950 Cmt425]

    Response: The potential effects upon fish and their habitat are described in **Sections 4.8.1** and **5.9** of the EIS. The potential effects upon surface water are described in **Section 4.3.2**. The selenium bioaccumulation issue is addressed in **Appendix 3C**. Refer to PC 131, Comment 6 (above) regarding Cumulative Effects.

2. Comment: One reviewer is concerned about teratogenic effects from selenium already occurring in elk and fish. [Ltr950 Cmt3]

    Response: Teratogenic effects upon fish and elk have not been documented in the Project Area. Unless dominant in the population, observing teratogenic effects would be difficult for fish in the wild because they would likely succumb to predation or other sources of mortality prior to detection. As stated in the EIS, the Salt/Palisades YCT metapopulation is considered robust and regional elk populations are increasing. Within Study Area streams, there is no evidence that fish are on the verge of collapse. Population densities appear normal for streams in the Project Area.

3. Comment: Reviewers are concerned about the combined interaction of selenium in aquatic media and that a hazard assessment following Lemly was not done in the DEIS. They point out that when Hamilton conducted a hazard assessment using data from the Study Area, the ratings he found suggest that fish are currently under stress from selenium exposure in Study Area streams. [Ltr950 Cmt50, Ltr950 Cmt265]

   Response: The Lemly (2006) protocol was in draft form during the preparation of the DEIS and the authors of the DEIS did not know it existed. Further, the Lemly protocol does not represent USFS NEPA policy.

   The analyses in the EIS follow a defensible, scientific process to estimate the environmental consequences of the mining operation. Generally, this process is more rigorous than that proposed by Dr. Lemly. Regardless of the process, Dr. Lemly did agree with the conclusions drawn in the DEIS regarding impacts to fisheries.

   This FEIS does not provide a hazard analysis based on thresholds provided by a single scientist. Instead, a range of thresholds and potential impacts is described, along with their relationship with local empirical data, in **Appendix 3C**.

4. Comment: Hamilton concluded that the DEIS was seriously flawed: The DEIS does not take a holistic approach to examining or presenting the overall effects of selenium in various aquatic ecosystem components. Using the selenium hazard assessment protocol reveals selenium stress is occurring in several streams already - prior to the proposed action of mining Panels F and G. Mining of those panels will only increase selenium concentrations in aquatic compartments and increase the overall hazard from selenium exposure in various streams. The fate of selenium in the aquatic environment of the area and of the world-renowned fishery that these waters currently support is indisputably a major issue for this DEIS. Given the DEIS' failure to address the critical issue of the overall effects of selenium in the various components of the aquatic ecosystem, it has plainly failed to meet the "hard look" test. In fact, the DEIS did not even give this vital issue a sideways glance. [Ltr950 Cmt51]

   Response: Additional baseline data was collected and is included in the FEIS. This data included stations where fish tissue, stream sediment, water quality, and macroinvertebrates were sampled. Selenium impacts upon aquatic habitat and biota are addressed in **Sections 4.3.2**, **4.8.1**, and **5.9**. Local empirical data seems to contradict results of a hazard analyses. Some fish tissue selenium concentrations in Deer Creek and Crow Creek exceed fish toxicity thresholds proposed by Dr. Lemly. Stream sediments and aquatic benthos had elevated selenium and are the likely sources of selenium in local fish. However, baseline studies indicate the elevated selenium concentrations have apparently not had population-level impacts.

   The Agencies disagree that the DEIS violates NEPA. The NEPA process requires the Agencies to ensure the scientific integrity of the analyses conducted but does not require exhaustive scientific studies. The Agencies consider the analysis in the EIS to be scientifically defensible and the predicted impacts of selenium therein to be conservative.

5. Comment: There is a reasonably large data set of stream selenium concentrations taken contemporaneously with fish tissue samples. A very basic analysis would look at correlations within those data sets. A slightly more sophisticated analysis would add

time as a variable to attempt to account for the impact of accumulated selenium load and consequent bioaccumulation. Even though both agencies undoubtedly have scientists capable of carrying out such analyses, they were not done. Instead, it appears that the agencies simply decide to ignore the fact that several investigations of selenium-impacted waters have concluded that selenium bioaccumulates from waterborne concentrations of 2-5 ug/L to toxic concentrations in sediments, aquatic plants, and aquatic invertebrates, with resultant adverse effects on fish. As Hamilton and Lemly point out, selenium bioaccumulation becomes toxicologically important above waterborne concentrations of 2 ug/liter. As noted above, an analysis connecting water concentrations and time to selenium in tissue would not have been difficult to do. Not only did the agencies fail to do such an analysis, but they failed to do so despite the fact that the information obtained would be relevant and useful for predicting YCT mortality and reproductive success. NEPA's hard look standard simply does not allow the agencies to ignore the ample, peer-reviewed research available on the effects of various concentrations of selenium on fish mortality. For example, an authoritative panel of experts has concluded that the proposed EPA fish tissue standard of 7.91 mg/L dry weight would be lethal to 50% of juvenile Bluegill Fish. Even the EPA's own, heavily criticized analysis suggests 33.8% mortality. We do not believe there is any scientific consensus that YCT are less vulnerable to the effects of selenium than bluegills. [Ltr950 Cmt75]

Response: The Agencies are aware of the bioaccumulation potential of selenium. This was addressed in the DEIS. The subject along with a description of the range of science regarding the thresholds and impacts of selenium on fish is discussed further in **Appendix 3C** to this FEIS. It is not the point of **Appendix 3C** to choose one proposed threshold over another, but to present the range of opinions and present where the local empirical data fits. The analysis contained in this FEIS meets the requirements of the CEQ and is sufficient for the decisions in the ROD.

A discussion of the derivation of the EPA's water quality criteria and other approaches for deriving water quality guidelines for selenium are discussed in **Appendix 3C**. A range of thresholds and the body of scientific knowledge supporting each approach is discussed, with reference to Lemly, Hamilton, Skorupa, and other experts in the field of aquatic toxicology. The Agencies consider the analysis in the EIS to be scientifically defensible and the predicted impacts of selenium therein to be appropriately conservative.

6. Comment: Reviewers suggest that the DEIS use simple analytic tools to make much more supportable predictions about the extinction risks faced by YCT in the Project Area. They suggest that cumulative selenium load calculations should be run for different concentrations of selenium in fish from area streams, including but not limited to the assumed concentrations predicted in the DEIS. Using those data, confidence bands for mortality and reproductive failure of YCT populations in stream affected by the project could be generated using reasonable assumptions. Once those figures are arrived at, the relative risk of extinction for populations in each stream can be projected using published risk assessment protocols. [Ltr950 Cmt76, Ltr950 Cmt77]

   Response: The Agencies consider the approach taken in the EIS to follow defensible scientific processes to estimate impacts from the proposed mine operation, and that a formal analysis of changes in reproductive or survival rates to predict extinction probabilities is not necessary to assess the impacts to YCT. Results from the analysis in

the EIS show that under the Agency Preferred Alternative there are no long-term exceedances of State or federal regulations, protective of the aquatic environment. Impacts upon fish, including YCT long-term viability, are discussed in **Section 5.9** of this FEIS and supported by information in **Appendix 3C**.

In general, many subpopulations of YCT are facing a variety of risks inherent in their low abundance, as small populations have been shown to lose adaptive genetic variation and gain maladaptive genetic variation at higher rates than larger populations (Meyer and Lamansky 2004). Extinction risks for salmonids are influenced by complex and interacting factors that are often difficult, if not impossible, to identify and measure (Rieman and Dunham 2000).

Public Concern ID 147

The BLM/FS should recognize that the current NEPA process failed to produce an accurate characterization of selenium threats to aquatic resources

1. Comment: I have conducted field and laboratory investigations of aquatic selenium pollution for over 25 years and since 1998 I have been involved with mine-related selenium issues on national forests, including phosphate mining in Idaho and gold mining in Montana (e.g., Lemly 1999a). While working on these issues it became clear to me that the current NEPA process has repeatedly failed to produce an accurate characterization of selenium threats to aquatic resources. This failure stems from the lack of selenium assessment guidance in the Bureau of Land Management's NEPA Handbook and Forest Service NEPA policy documents, which simply identify agency actions that require an EIS or EA. Lack of clear guidance, i.e., a selenium-specific protocol, has led to inadequate EISs or EAs and, in some cases, poisoned fish, wildlife, and livestock. The Forest Service and its contractors have been unable to conduct a thorough and complete EIS or EA, and decisions are made without knowing if selenium could become a problem. Thus, mining permits are issued without understanding the potential for selenium pollution. These oversights result in violations, and the agency and/or specific individuals can be held accountable through legal actions. Indeed, selenium-related lawsuits and environmental appeals have been brought against the Forest Service repeatedly in the past decade. [Ltr604 Cmt1]

   Response: The process followed in the analysis of impacts is consistent with CEQ regulations. The processes are defensible and scientific. Analysis has been highly scrutinized within the Agencies and by qualified consultants. The EIS provides sufficient information regarding the potential impacts for agency decision makers. The Agencies disagree that the environmental impact assessment process for the Smoky Canyon Mine Panels F & G has resulted in violations of NEPA.

2. Comment: I believe that the DEIS has seriously underestimated the current impact of selenium on aquatic resources and under estimated the potential impact of the proposed action of mining Panels F and G as presented in the DEIS. The DEIS uses a selenium concentration of 8.3 mg/kg in whole-body fish as the background concentration in fish, which was taken from the Area-Wide Risk Assessment. The derivation of this concentration is highly questionable and a more defensible background concentration would be 4.6 mg/kg or lower. Little emphasis seems to be placed on the importance of wetlands as a conveyance of toxicological impacts to fish and wildlife resources and needs greater attention in the DEIS. The Hardy (2003) reference is used as a

benchmark in the DEIS for the lack of adverse effects of long-term selenium exposure in fish, however, Hardy (2003) is seriously flawed because it does not contain important data and information necessary to the understanding of the methods and material, results, or discussion sections. Consequently, it is not possible to draw any conclusions from Hardy (2003) because of the lack analytical chemistry methodology, lack of quality control/quality assurance measures, excessive loading densities in the Henry's Lake fish studies, missing selenium residue data in eggs, sac-fry, fry, and diets, reuse, re-reuse, and re-re-reuse of exposed fish mixed up between selenium dietary exposures in the Blackfoot River fry study, and several other problems in the conduct of these studies (my detailed review comments are attached). The greatest short-coming of the DEIS is the failure to take into account the combined interaction of selenium concentrations in water, sediment, aquatic invertebrates, and fish and the resulting potential for effects at higher trophic levels. [Ltr950 Cmt226]

Response: The DEIS did not determine the 8.3 mg/Kg average concentration in the Area Wide Risk Assessment. The number was used as a comparison of local empirical data to other studies that have been done, including Hamilton and Buhl (2003).

Appendix 3C evaluates selenium guidelines based on tissue residue concentrations and the ongoing debate over what the criterion should be, including proposals by Lemly, Deforest et al., Hamilton, and Maier and Knight. The analyses in the FEIS uses the appropriate criterion established by the EPA and adopted by the State.

Regarding wetlands, selenium content of water in wetlands is not expected to exceed the aquatic criterion of 0.005 mg/L and would therefore not be expected to pose a threat to fish or wildlife.

Refer to PC 131 Comment 11 for a response regarding the Hardy (2005) study.

3. Comment: Several reviewers are concerned that a hazard assessment was not conducted (following Lemly). [Ltr950 Cmt227, Ltr950 Cmt255, Ltr950 Cmt256, Ltr950 Cmt257, Ltr950 Cmt258, Ltr950 Cmt259, Ltr950 Cmt262]

   Response: The bioaccumulation issue is addressed in **Appendix 3C** of this FEIS. The Lemly protocol was in draft form during the preparation of the DEIS and the authors of the DEIS did not know it existed. Further, the Lemly protocol does not represent USFS NEPA policy.

   The analyses in the EIS follow a defensible, scientific process to estimate the environmental consequences of the mining operation. Generally, this process is more rigorous than that proposed by Dr. Lemly. Regardless of the process, Dr. Lemly did agree with the conclusions drawn in the DEIS regarding impacts to fisheries.

   This FEIS does not provide a hazard analysis based on thresholds provided by a single scientist. Instead, a range of thresholds and potential impacts are described, along with their relationship with local empirical data, in **Appendix 3C**.

4. Comment: I have been involved with mine-related selenium issues on national forests, including phosphate mining in Idaho and gold mining in Montana (e.g., Lemly 1999a). While working on these issues it became clear to me that the current NEPA process has repeatedly failed to produce an accurate characterization of selenium threats to aquatic

resources. This failure stems from the lack of selenium assessment guidance in the Bureau of Land Management's NEPA Handbook and Forest Service NEPA policy documents, which simply identify agency actions that require an EIS or EA. [Ltr950 Cmt376]

Response: Comment noted. Discussions of the general NEPA process are outside the scope of this EIS.

5. Comment: Reviewers are concerned that the DEIS did not account for differences in species sensitivity to selenium in both fish and birds, citing examples from Belews Lake, NC, Martin Lake, TX, and Kesterson Reservoir, CA. [Ltr950 Cmt267, Ltr950 Cmt268, Ltr950 Cmt270, Ltr950 Cmt271, Ltr950 Cmt272]

   Response: Comment noted. While the Agencies do not disagree with the statement that there are differences in species' sensitivity to selenium, the water bodies in the Study Area are generally cold-water springs or streams populated by cold water species. The case studies above pertain to warm water habitats.

6. Comment: A wide range in quality, timeliness, and consistency is shown in the reports of data and analyses available from various investigations and monitoring programs related to Smoky Canyon Mine. As the Idaho DEQ noted in the SIR for risk management, some data are more reliable than other data; and, there are great gaps in the information base. Scientists who have spent their careers studying selenium contamination of the environment, e.g., Dr. Dennis Lemly of the USFS, know what is needed to quantify the effects of phosphate mining on the linkages of inorganic and organic media that sustain life and support recreation and other non-mining activities in the watersheds and streams impacted by the Smoky Canyon Mine. Although the DEIS failed to adequately address the aquatic hazard of selenium, my own applications of the Lemly protocol, incorporated in my comments below, reveals that selenium stress is occurring in several streams already-prior to the proposed mining expansion. Allowing that expansion will only increase selenium concentrations and increase the overall hazard from selenium exposure in various streams. Before permitting any expansion of the existing mine, a comprehensive, scientific monitoring system must be put in placed to facilitate the tracing of selenium along the pathways from mining waste fills-to water-to sediment and plants-to invertebrates-and finally, -to fish and water dependent wildlife, in all their life stages. [Ltr950 Cmt295]

   Response: Following Hamilton's application of the selenium hazard analysis (Table 6 Hamilton comments), it is interesting to note that Project Area streams considered to be impacted, i.e. Sage Creek, rate as moderate and high, and streams that are considered unimpacted (Deer Creek) also rate as moderate and high. As discussed in **Appendix 3C**, there is a discrepancy between a predicted high stress level and an apparent healthy population. Thus, there is conflicting evidence regarding whether or not selenium stress is now occurring in Study Area streams. The Agency Preferred Alternative would not cause selenium in groundwater discharges to receiving streams within the Study Area to exceed the federal standard of 0.005 mg/L, which was determined sufficiently protective of human health and the environment. A monitoring plan has been established by Forest Service, BLM and IDEQ (see **Appendix 2E**). That plan includes monitoring of fish populations, and would be designed to detect any selenium increases in fish tissue over the course of the Project.

7. Comment: One reviewer is concerned that burying waste rock may not stop the recycling of selenium nor reduce its availability to biota. [Ltr950 Cmt 273]

   Response: Comment noted. The cover design system under the Agency Preferred Alternative of the FEIS is engineered to both physically separate the seleniferous material from the environment, and also limit contact with meteoric water by reducing infiltration into overburden fills and backfill.

8. Comment: One reviewer is concerned the Project will have long-term impacts, lasting decades after selenium loading, and occurring in streams and rivers throughout southeast Idaho. [Ltr950 Cmt 274]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C** to this FEIS. Timeframes of potential impacts are addressed in **Section 4.3.1** of the EIS.

   The selenium concentrations in groundwater discharges to surface waters would comply with surface water standards (FEIS **Section 4.3.1**). This is illustrated in **Tables 4.3-22** and **4.3-23** of the FEIS which shows that, for the Agency Preferred Alternative, the selenium concentrations where the groundwater discharges occur, i.e. mouth of Deer Creek and mouth of South Fork Sage Creek, are well below the surface water standard of 0.005 mg/L. The existing exceedances of the cold-water criterion for selenium in lower Sage Creek are due to discharges of selenium in water from Hoopes Spring and South Fork Sage Creek Spring. However, this situation is not expected to occur in the future because removal actions at Smoky Canyon Mine are expected to reduce selenium concentrations in lower Sage Creek well before the peak selenium concentration from Panel F would occur in South Fork Sage Creek. In this case, the selenium concentration in lower Sage Creek along with the added selenium from the Agency Preferred Alternative would remain below the surface water aquatic criterion (FEIS **Table 4.3-23**). Additional explanation of this topic has been added to the surface water impacts sections of **Chapters 4** and **5**. However, because the peak effects from Panel F are not expected to occur for 50-100 years after the mine is closed, prior to the mixing of peak effects, the CERCLA process is expected to remediate Sage Creek such that an exceedance would not occur. Effects to YCT over this time frame are addressed in **Section 4.8** as potentially long-term and moderate to major. The Agencies and Simplot expect impacts to fish would be minor or negligible, but are approaching the selenium issue conservatively and evaluating a worst case scenario.

Public Concern ID 149

The BLM/FS should ensure that the DEIS discusses the effects of winter stress syndrome has on fish

1. Comment: Several reviewers are concerned that winter stress syndrome (not discussed in the DEIS) could increase the toxicity to fish and affect fish reproduction in the Study Area. [Ltr604 Cmt8, Ltr950 Cmt73, Ltr950 Cmt386]

   Response: Fish would likely undergo selenium-induced Winter Stress Syndrome (WSS) if they: 1) require more energy (experience a stress response) when exposed to elevated selenium concentrations, and 2) reduce feeding and activity during cold weather. Limited evidence suggests that a stress response may be induced in cold-water salmonids as a result of selenium exposure; however, there are insufficient data to determine the magnitude, if any, of the response. Evidence regarding the sensitivity of

YCT to WSS relative to warm water fish is also lacking. Lemly's (1993b) study with bluegill sunfish is currently the only experimental demonstration of WSS on any fish species; additional laboratory investigations by the EPA designed to replicate this study are still in the planning phase. Winter stress syndrome is discussed in **Appendix 3C**.

Public Concern ID 155

The BLM/FS should recognize the disparity in selenium concentrations for Deer Creek in the DEIS, as well as an overall trend of much lower concentrations in the DEIS

1. Comment: The concentrations of selenium reported for YCT from Deer Creek (page 3-145) are extremely low relative to what was found in the other species collected (sculpin). Moreover, the magnitude of this difference is not supported by data from Hamilton and Buhl (2003), who found similar concentrations in both species (9-11 mg/kg in YCT, 12 mg/kg in sculpin). The disparity in concentrations for Deer Creek in the DEIS, as well as an overall trend of much lower concentrations in the DEIS as compared to those reported by Hamilton and Buhl, seem to indicate problems with quality control at the laboratory where the tissues were analyzed for selenium. [Ltr950 Cmt387]

   Response: Differences in selenium concentrations in individual YCT samples can be accounted for in many ways, in addition to potential data quality control issues. The samples could have been taken at different times of the year, they could have been differing life history patterns (resident vs. migratory), or they could be different sex or age class. In addition, Deer Creek has low selenium concentrations in surface water but elevated selenium in sediment. Sculpin could have more direct interaction with sediment than YCT (because their diet consists of 100% invertebrates, which are associated with sediment) and thus show relatively higher bioaccumulation levels. We, as an interagency community, are addressing this concern by cooperatively developing sampling and analysis guidelines for those collecting data in the analysis area. This quality control would be maintained by Idaho Department of Fish and Game during their sampling permit process.

   Additional fish tissue data collected by Maxim during January 2006 is closer to levels observed by Hamilton and Buhl (2003) in terms of the difference between YCT and sculpin. The selenium content in tissues of YCT and sculpin in January 2006 were not significantly different in either reach of Deer Creek in which there was an adequate sample size to test (Using Mann-Whitney U tests, DC-400: $N = 17$, $U = 45.5$, $p = 0.13$; DC-600: $N = 19$, $U = 39.5$, $p = 0.72$).

Public Concern ID 156

The BLM/FS should recognize that the interpretive value of the Hardy study in assessing existing or potential selenium impacts in the Project Area is limited

1. Comment: Several reviewers take issue with the way the Hardy study was presented in the DEIS in terms of his finding of deformities in trout fry. Specifically, they note: (1) The Hardy study did indeed find teratogenic effects of selenium, (2) Teratogenic effects other than cranial-facial deformities were present but were not factored into the risk analysis, which suggests that impacts may be more substantial than the report indicates, and (3) Using the Hardy study to infer that there are no existing impacts in the Project Area, or that the risk of future impacts is negligible, is absolutely not true. Additionally, Hardy's maximum dietary selenium concentrations were 15 mg/kg, whereas, selenium levels in

fish food organisms in the phosphate Mining Area of southeastern Idaho range up to 75 mg/kg (Hamilton and Buhl 2004). Therefore, the interpretive value of the Hardy study in assessing existing or potential selenium impacts in the Project Area is extremely limited. [Ltr 604 Cmt10, Ltr604 Cmt11, Ltr950 Cmt244, Ltr950 Cmt252, Ltr950 Cmt390]

Response: For point #1 and 2: Hardy did observe deformities in fry so the statement in the DEIS has been corrected in the FEIS. However, he could not find a linear dose to frequency of deformity relationship. In the study, deformities did not occur at a significantly different frequency than control fish. When higher percentages of deformed fry occurred, they only occurred with a low frequency of parents. Hardy, at least initially, looked at all deformities associated with exposure to excessive levels of selenium as described in Lemly (1993a) (refer to page 11 of Hardy's report). He then focused on cranial-facial deformities, following the procedures of Kennedy et al. (2000), in part to avoid general deformities often seen in trout and salmon populations (refer to page 17 of Hardy's report).

Point #3: The DEIS specifically describes potential impacts expected from the mining activities. For expected selenium effects upon fish, please refer to pages 5-36 through 5-38. Hardy's study showed a parabolic relationship, with fish fed intermediate levels of selenium having the highest deformity rate. Hardy hypothesized the subject YCT maintained sub-toxic body levels of selenium by increasing its rate of excretion. His work indicated YCT may be more resilient than spiny rayed fish that have been traditional subjects of these types of studies and were used as prototypes for the development of EPA standards. Although the results of Hardy's study have some usefulness, we recognize there are limitations to its application. For instance, the study fish were removed from other elements in their natural environment that may have also impacted them, higher impacts may occur in later generations not studied in this experiment, and it does not account for fish immigration.

2. Comment: Page 3-144: statement: "The EPA has proposed that aquatic life should be protected such that concentrations of selenium in whole-body fish tissues do not exceed 7.9 mg/kg dw (GLEC 2002)." There is a lot of controversy surrounding the GLEC (2002) document. The U.S. Environmental Protection Agency used comments on that document to prepare and submit a follow-up draft (USEPA 2004) that has also received a lot of comments. USEPA (2004, Table 4) reports that the range of freshwater chronic values from eight acceptable salmonid tests was 5.79 to 15.74 ug/g dw. Although a few additional studies were added to the evaluation of the chronic exposure criterion for selenium, the whole-body fish criterion remained at 7.91 ug/g dw. This criterion is in contrast for several publications that have reviewed the selenium literature and proposed 4 ug/g dw as the selenium concentration above which adverse effects in fish occur (reviewed in Hamilton 2003). This discrepancy in tissue criteria is also due in part to a difference of opinion between governmental researchers supporting criteria in the 4 to 5 ug/g range and non-governmental researchers (i.e., industry) promoting higher criteria (Hamilton 2004). [Ltr950 Cmt241]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C**. We are aware of the current EPA work regarding selenium standards. However, we cannot speculate how that national debate may go. Rather, it is our responsibility to be, and we will be, consistent with current law.

Public Concern 188

The BLM/FS should acknowledge that the Endangered Species Act's Section 7 consultation process does not apply to the YCT

1. Comment: The Fish and Wildlife Service (FWS) recently reached a finding on the "12-month petition" concerning the YCT. The FWS concluded: On the basis of the best available scientific and commercial information, which has been broadly discussed in this notice and detailed in the documents contained in the Administrative Record for this decision, we conclude that the YCT is not endangered (threatened with extinction within the foreseeable future), nor is it threatened with becoming endangered within the foreseeable future. Therefore, listing of the YCT as a threatened or an endangered species under the ESA is not warranted at this time. 71 Fed. Reg. 8818, 8831 (Feb. 21, 2006). The Endangered Species Act Section 7 consultation process is limited to discussion of a proposed action's potential jeopardy to the continued existence of endangered or threatened species or potential destruction or adverse modification of critical habitat. See 16 U.S.C. [section] 1536(a)(2). Based on FWS' 12-month finding concerning YCT, the Section 7 consultation does not apply to YCT. [Ltr475 Cmt100]

   Response: In our opinion, this is correct. However, we do informally discuss the effect of projects upon YCT with USFWS during the streamlining process.

Public Concern ID 189

The BLM/FS should acknowledge that the YCT is not threatened or endangered

1. Comment: The U.S. Fish and Wildlife Service just completed a 12-month petition finding for the YCT (USFWS 2006). The Service made a number of findings including: Although the distribution of YCT has been reduced from historic levels and existing populations face threats in several areas of the historic range, we find that the magnitude and imminence of those threats do not compromise the continued existence of the subspecies within the foreseeable future (which we define as 20-30 years.) The YCT remain widely distributed and there are numerous robust YCT populations and metapopulations throughout the subspecies' historic range. 71 Fed. Reg. 8818, 8831 (February 21, 2006). This review did include an examination of the impacts of mining on YCT, including selenium. USFWS stated:..selenium ...remains a localized threat and would not be expected to cause rangewide losses of YCT conservation populations. (emphasis added) After reviewing all the information on the population, conservation efforts and potential threats to the YCT, the USFWS concluded that: After a thorough review of all available scientific and commercial information, we find that listing the YCT as either threatened or endangered is not warranted at this time. (emphasis added) [Ltr475 Cmt109]

   Response: In our opinion, this is correct.

Public Concern ID 197

The BLM/FS should prevent selenium from exceeding water quality standards in Deer and Sage Creeks

1. Comment: The mouth of Sage Creek and the mouth of Deer Creek being at or above the Idaho water quality standard for selenium means the waters of Deer Creek and Sage

Creek that now meet water quality standards would exceed the chronic aquatic water quality standard for selenium due to the contribution of mine-related selenium from ground water. Both streams are reported to have resident populations of YCT, dace, shiners, sculpin, whitefish, and brown trout, which could be threatened because of the increase in selenium in these streams. There is no explanation in the DEIS as to why only the waters in Crow Creek are being protected. It appears that given there are fish and other aquatic organisms in Deer and Sage Creeks, these waters should also be protected, and selenium should not be allowed to exceed water quality standards. [Ltr950 Cmt223]

Response: The effects of the Agency Preferred Alternative upon groundwater are disclosed in **Section 4.3.1** of the EIS. The effects of the Agency Preferred Alternative upon surface water quality are disclosed in **Section 4.3.2**. Additional discussions pertaining to cumulative effects can be found in **Sections 5.3** and **5.4**. Groundwater discharges to Lower Deer Creek and South Fork Sage Creek under the Agency Preferred Alternative would maintain selenium concentrations well below the surface water standard of 0.005 mg/L. This is the result predicted by a model and does not reflect agency preferences of one stream over another. Recognizing the interconnectedness of aquatic ecosystems, the mobility of some aquatic species, and the effect that headwater streams have upon habitat downstream, the Agencies are also concerned with tributaries as much as Crow Creek itself.

2. Comment: I note that the current proposed EPA standard is projected to result in juvenile fish mortality of 35% to 50%. It certainly does not seem overly protective of fish. [Ltr1050 Cmt5]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C**. We are aware of the current EPA work regarding selenium standards. However, we cannot speculate how that national debate may go. Rather, it is our responsibility to be consistent with current law.

3. Comment: The Smoky Canyon Mine has polluted streams, groundwater, soils and vegetation with selenium and caused irreparable damage to a pristine part of the Sage Creek roadless area. Although the mine is under a Superfund cleanup order, no effective plan to address selenium contamination has been made public. Your agency's own draft environmental impact statement reveals that allowing the Smoky Canyon Mine to expand will only increase selenium pollution, and Forest Service experts have called the mine an ecological time bomb. Under these circumstances, approving the proposed expansion is both irresponsible and unjustifiable. I understand that the existing mine can continue to operate without expansion for three-and-a-half years. I urge you to use this time to develop, implement and prove the effectiveness of a plan to clean up the selenium contamination that has already occurred and prevent further contamination in the future. Unless and until an effective plan to deal with the selenium pollution problem is in place, the proposed mine expansion should not be approved. [Ltr183 Cmt2]

   Response: The EE/CA for the remedial actions at Pole Canyon Dump was released to the public June 2, 2006. As the Agencies currently understand Simplot's timeline, in order to not interrupt flow of phosphate ore from the mine to the processing plant, Simplot needs to begin construction of the roads and infrastructure at Panel F by Spring 2007.

The Agencies are aware that the release of selenium from phosphate mines can have impacts on the environment, beyond those caused by physical disruption. This issue has driven the creation of many of the alternatives and protection measures analyzed in the EIS. Via the NEPA process and the analysis of alternatives and mitigation measures, we do not believe future mine projects would have the same environmental effects as prior projects. In the Agency Preferred Alternative, calculated selenium concentrations in groundwater discharges to surface water are not expected to exceed the EPA and State standards determined to protect aquatic systems from chronic selenium exposure. In addition, sufficient reclamation bonding would be required to cover the cost of reclamation at the current mine should Simplot not complete their reclamation obligations.

4. Comment: An example of a "trigger" concentration can be found in the USEPA draft criterion for selenium as follows: "In addition, if whole-body fish tissue concentrations exceed 5.85 ug/g dw during summer or fall, fish tissue should be monitored during the winter to determine whether the selenium concentration exceeds 7.91 ug/g dw" (USEPA 2004). However, if there are substantial selenium residues in one or more media, i.e., water, sediments, benthic invertebrates, or fish, then changes in ongoing operations must include actions up to and including cessation of mining. [Ltr950 Cmt231]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C**. We are aware of the current EPA work regarding selenium standards and the national debate associated with it. However, we cannot speculate how that national debate may go. Rather, it is our responsibility to be consistent with current law.

   Although Simplot's past operations have led to selenium contamination, new environmental protection measures are planned that would be designed to avoid similar selenium contamination in the future. Via the NEPA process and the analysis of alternatives and mitigation measures, the Agencies do not believe future mine projects would have the same environmental effects as prior projects. Monitoring of environmental media during and after mining would ensure that any unexpected exceedances of state or federal selenium standards would be brought to the immediate attention of the Agencies and Simplot.

Public Concern ID 264

The BLM/FS should revise the DEIS to incorporate all of the available fisheries data and to complete the picture of fish utilization of all streams that will be affected by the Proposed Action

1. Comment: Subsection 3.8.3 of this DEIS should be revised in its entirety to incorporate all of the available fisheries data and to complete the picture of fish utilization of all streams, not just Deer Creek, that will be affected by the proposed action or alternatives. This should be done even if it means delays and additional costs to complete necessary studies, for example, of the extent and timing of trout utilization, if any, of ephemeral systems such as Manning Creek and the Wells Canyon drainage. [Ltr950 Cmt178]

   Response: A description of the effects upon fisheries can be found in **Sections 4.8.1** and **5.9**. This assessment includes data from many others streams in addition to Deer Creek, including Crow and Sage Creek. The effects of the Project upon fish in relation

to disturbance of ephemeral systems such as Manning and Wells Canyon Creeks are discussed in the FEIS.

2. Comment: Concerning special status species, the DEIS cites a Final Environmental Impact Statement, Caribou Revised Forest Plan, published in 2003 (cited in the DEIS as USFS 2003b) as saying that the Palisades/Salt meta-population of YCT is robust and has a low risk of extinction. Frankly, I regard that as rather generous assessment since brown trout, an introduced species well known for its ability to replace native YCT in all but the most remote headwaters (see Duff 1996; also May et al. 2003), now outnumber YCT by at least three to one in Palisades Reservoir and are also widely distributed in the Salt River drainage. However, whether or not that assessment is accurate for the Palisades/Salt meta-population, population density data available from the Idaho Department of Fish and Game (contact Kevin Meyer, Idaho Department of Fish and Game, Nampa) and University of Wyoming (contact D.J. Isaak, USDA Forest Service, Rocky Mountain Experiment Station, Boise; see also Isaak 2001) tell a different story for Crow Creek and its tributaries within the Project Area. While YCT do occur throughout the Crow Creek drainage, their population densities are not high. Brown trout are present in the Crow Creek drainage as well, and have extended farther up the drainage in just the last twenty years. In Sage Creek, brown trout have become by far the predominant species. Of all the tributaries of Crow Creek within the Project Area, cutthroat population densities remain highest in the Deer Creek system, and only here have YCT remained the predominant species. Based on these data, Deer Creek is the one remaining bastion for YCT within the Project Area. [Ltr950 Cmt357]

   Response: The Palisades/Salt YCT Metapopulation, as described in the Caribou Revised Forest Plan (2003) YCT viability analysis, is located in the heart of YCT strongholds on the Caribou-Targhee National Forest. It is comprised of 40 sixth code HUC areas on the Forest (not even counting those in HUCS in the upper Snake and Salt Rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions). Considering the large geographic range of the metapopulation that includes the Salt and upper Snake Rivers, Palisades Reservoir, and all of their associated tributaries, and considering 35 or the 40 HUCs on the Forest are considered by the Forest as YCT stronghold streams, the Palisades/Salt YCT Metapopulation is robust and resilient. We do not expect a noticeable impact upon the wellbeing of this metapopulation as a whole with the implementation of this Agency Preferred Alternative. However, we do recognize impacts upon populations and habitat within the analysis area. These impacts are discussed in **Sections 4.8.1** and **5.9** of the EIS.

   Brown trout are not considered a significant threat to the long-term viability of the YCT populations in the Project Area or the Palisades/Salt YCT Metapopulation. Although they are predators, their populations remain in larger waters.

   Deer Creek does have higher relative abundance and biomass of YCT than the other streams in the Project Area.

3. Comment: The great discrepancy among the sets of test results of selenium concentrations in fish makes it imperative that this subsection of the DEIS be updated and rewritten to include all of the new data on whole-tissue Se concentrations in fish and the impairment of some streams for high Se concentration in their waters. Further, this

rewrite should be expanded so as to adequately describe the existing trace element condition in all of the Crow Creek drainage downstream from the proposed action. [Ltr950 Cmt179]

Response: Available data is included in **Appendix 3C**.

Public Concern ID 266

The BLM/FS should require the chapter of the DEIS that discusses YCT to be rewritten

1. Comment: Rather than attempting to minimize risks by spreading them over an entire metapopulation (of YCT), this chapter of the DEIS should be rewritten to make clear the serious nature of the cumulative effects on the fish populations of the Crow Creek drainage. If the DEIS writers insist on framing this discussion in a metapopulation context, they should also point out that loss of YCT from the Crow Creek system would not only be a serious and permanent local impact, it would also diminish the size and viability of the Palisades/Salt metapopulation, which would be a serious and permanent regional impact. [Ltr950 Cmt183]

   Response: The phrase metapopulation was used in the Caribou Revised Forest Plan to describe interconnected populations of key management species across the Forest and discuss their viability over the long term. The writers of the DEIS referred to the Revised Forest Plan for further description of the YCT populations within the Project Area. Using the Revised Forest Plan, they noted the resiliency of the group of populations that comprise the Palisade/Salt Metapopulation. They did not use the description to suggest the Project Area populations will be immediately recolonized by neighboring YCT populations. Rather, they commented on how robust the metapopulation is, even considering past and future mining activities. The impacts of the Project upon YCT are stated in the EIS (refer to **Sections 4.8.1** and **5.9**). These impacts have the potential to decrease fish population density in some reaches of streams within and downstream of the Project Area, but not have a noticeable effect upon the overall well-being of the metapopulation. In fact, the number of stronghold, depressed, and absent populations within the metapopulation are expected to remain the same. The Palisades/Salt YCT Metapopulation is comprised of 40 sixth code Hydrologic Unit Code areas on the Forest (not considering those in HUCS in the upper Snake and Salt rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions). This Project is not expected to change that assessment.

   The Palisades/Salt YCT Metapopulation, as described in the RFP (USFS 2003a) YCT viability analysis, is located in the heart of YCT strongholds on the CTNF. It is comprised of 40 sixth code Hydrologic Unit Code areas on the Forest (not even counting those in HUCS in the upper Snake and Salt rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions). Considering the large geographic range of the metapopulation that includes the Salt and upper Snake rivers, Palisades Reservoir, and all of their associated tributaries, and considering 35 or the 40 HUCs on the Forest are considered by the Forest as YCT stronghold streams, the Palisades/Salt YCT Metapopulation is robust and resilient. We do not expect a noticeable impact upon the wellbeing of this metapopulation with the implementation of this Project. However, we do recognize

impacts upon populations and habitat within the analysis area. These impacts are discussed in **Sections 4.8.1** and **5.9** of the EIS.

Public Concern ID 273

The BLM/FS should acknowledge that the majority of the receiving waters downstream of the proposed action are lotic, not lentic

1. Comment: Chronic effects of selenium in the aquatic environment are due to the conversion of inorganic selenium into organo-selenium; such conversion is much more likely in lentic than in lotic environments (Simmons and Wallschlager 2005). The majority of the aquatic environment that will be affected by this project is lotic, not lentic, consisting of high gradient mountain streams (see Lentic vs. Lotic, below). Lotic environments with selenium concentrations substantially > 5 g/L have not resulted in chronic selenium effects to YCT (Kennedy et al. 2000; EVMEMC 2004; EVSTF 2005). Dietary exposure is the dominant exposure pathway; consequently, selenium bioaccumulation (and toxicity) can vary significantly from site to site depending on the specific food web present (which in turn, is dependent on the interaction of multiple physical, biological and chemical characteristics of the waterbody). Different species exhibit variable sensitivity to selenium exposure. Also, lentic environments (e.g., slow moving water in lakes, ponds, and backwater sections of rivers) tend to have greater selenium accumulation (and therefore, greater potential for adverse effects) than lotic environments (e.g., fast moving water in the main channel) (Simmons and Wallshlager 2005) in part due to the following factors:-Anaerobic zones in organic-rich sediments common to lentic systems favor the formation of reduced selenium forms (e.g., selenium (IV), organic-selenium) by bacteria, algae and phytoplankton, increasing the rate of transformation from the inorganic to organic forms;-Longer sediment residence time and storage capacity in lentic environments provides an optimum medium for the cycling of organic selenium; and-Lentic systems provide additional habitat for sediment-dwelling organisms that are in close proximity to the organic-selenium generated in the anaerobic zones. [Ltr475 Cmt104, Ltr475 Cmt105]

   Response: Although lotic aquatic habitat dominates the Project Area streams, lentic habitat exists in the form of beaver ponds and off-channel habitat features. The effect of selenium upon water quality is discussed in **Sections 4.3.1** and **4.3.2** of the EIS.

Public Concern ID 274

The BLM/FS should acknowledge that the trout collected from streams in the vicinity of the Smoky Canyon Mine have selenium concentrations that are much lower than the EPA recreational-exposure screening level

1. Comment: A screening-level Human Health Risk Assessment (HHRA) was been done for selenium from phosphate mining in southeastern Idaho (IDEQ 2003). The HHRA concluded there were no risks to humans consuming fish considering both selenium levels in fish and exposure (e.g., limited numbers of fish, a catch-and-release fishery). The trout collected from streams in the vicinity of the Smoky Canyon Mine have selenium concentrations much lower than the EPA recreational-exposure screening level of 20 mg/Kg (wet weight), or >50 mg/Kg dry weight (assuming 61 percent moisture content) (EPA 2000). The proposed project will not change the conclusions reached in the HHRA. [Ltr475 Cmt111]

Response: Monitoring would determine if the proposed Project would change the conclusions reached in the HHERA.

Public Concern ID 282

The BLM/FS should acknowledge more comprehensive data that documents the presence of YCT in the proposed affected area should have been used in the DEIS

1. Comment: The description in this subsection appears to have relied primarily on a consulting firm's reports prepared for the J.R. Simplot Company (these are cited as Maxim 2004k and Maxim 2005 in the DEIS), although the DEIS writers did note that the Final Environmental Impact Statement, Caribou Revised Forest Plan, published in 2003 (cited in the DEIS as USFS 2003b) documented the presence of YCT in North Fork Deer Creek. But other, more comprehensive data sets for the affected waters (listed below) that should have been available to the DEIS writers were either overlooked or ignored. [Ltr950 Cmt345]

   Response: The majority of aquatic habitat and biota data and reports available for the Project Area are produced by consultants studying mining-related issues. Any recent data identified by the public through their comments regarding the DEIS have been considered for inclusion in the FEIS.

2. Comment: The Maxim reports cited in the DEIS focused primarily on Deer Creek and on short segments of Crow Creek where Deer Creek and Wells Canyon enter. This is all well and good because of the importance of Deer Creek to YCT in the Crow Creek drainage. But the other major tributary system affected by the proposed action and alternatives, namely South Fork Sage Creek, was dismissed with only a cursory, qualitative survey, as were South Fork Deer Creek and Wells Canyon, on the grounds that "South Fork Sage Creek, South Fork Deer Creek, and the Wells Canyon drainage were determined to harbor limited and/or sparsely distributed fish habitat." This determination was evidently made visually, which always raises questions about observer training and ability to make such judgment calls. But more importantly, even those segments of the discounted tributaries that were determined to contain suitable fish habitat were only sampled qualitatively for fish, most probably by a rapid single pass with the electro-shocker, as these were labeled "spot-shock locations" in the DEIS Figure 3.8.1. The omission of quantitative fish sampling in South Fork Sage Creek is particularly surprising since later in the DEIS, in Subsection 3.8.4 (Abiotic Condition), this stream is described as having suitable conditions for trout reproduction with no fine sediments in riffle habitats, a high mean proportion of gravels, and robust habitat quality. South Fork Sage Creek was further rated as "properly functioning" per Forest Service standards. [Ltr950 Cmt346]

   Response: South Fork Sage Creek was sampled by Maxim Technologies in August 2003. Quantitative sampling such as the depletion pass method and determination of the fish condition factor index were not conducted on this stream due to a limited availability of suitable fish habitat. Areas containing suitable fish habitat on South Fork Sage Creek were qualitatively sampled for presence/absence or fish and species composition. Areas considered to contain suitable fish habitat were identified based on availability of water, water depth, and other habitat features. Presence/absence surveys were conducted along approximately 1.5 miles of South Fork Sage Creek. During the sampling effort, 8 fish were captured. All were YCT. For more biotic sampling

information, please refer to the Baseline Technical Report for Fisheries and Aquatic Resources for Smoky Canyon Mine (Maxim 2004c and 2004k).

3. Comment: Other available fisheries and aquatics data sets, not used by the DEIS writers, present a more thorough, independent picture of fish species, distribution, and population densities, not only in Deer Creek but also in the Sage Creek tributary system as well as in Crow Creek itself. These are: Idaho Department of Fish and Game surveys made in 1986 and again in 1999-2000; see IDFG (2000) and Moore (2000). Also contact Kevin Meyer, Idaho Department of Fish and Game, Nampa, for a spreadsheet of results from the 1999-2000 surveys, University of Wyoming, Laramie, graduate studies of fisheries and habitat conditions in the Salt River watershed including 24 sites in the Crow Creek drainage, surveyed in 1996 and 1997; see Isaak (2001) and Isaak and Hubert (2004). Also contact D.J. Isaak, USDA Forest Service, Intermountain Experiment Station, Boise, for results from these studies. [Ltr950 Cmt347]

   Response: These available reports have been reviewed and considered for inclusion in the FEIS.

4. Comment: Reviewers are concerned that fish usage of ephemeral drainages was not taken into account in the baseline information nor effects analysis of the DEIS, because these areas can be used under a variety of circumstances, including during periods of high flow. [Ltr950 Cmt348, Ltr950 Cmt349]

   Response: We concur with the assessment of the importance of intermittent and ephemeral streams to fish populations during high flows. A discussion of this topic has been incorporated in the FEIS.

Public Concern ID 283

The BLM/FS should acknowledge that the discrepancy among selenium test results makes it imperative that subsection 3.8.3 of the DEIS be updated and rewritten

1. Comment: Maxim, the Simplot consulting firm, also collected fish for analysis of Se in tissues. The DEIS writers relied on these results as well as results collected in 2001 but not reported until 2003 (see Hamilton and Buhl 2003). Again the focus in the DEIS appears to be on Deer Creek and only that part of Crow Creek near the Deer Creek confluence, where, as indicated in Table 3.8-12, specimens were indeed found with elevated Se levels that do exceed current biological effect thresholds. The Greater Yellowstone Coalition has also been active at collecting fish for Se analysis, and has reported whole-tissue Se values as high as 34.9 ug/g dry body weight (range 18.4-34.9 ug/g dry body weight) in Sage Creek fish, and values in the 10.8-21.2 ug/g dry body weight range in fish taken from Crow Creek downstream from the Sage Creek confluence - all well above current biological effect thresholds (see Weber 2005 for these Greater Yellowstone Coalition results). As noted earlier, Sage Creek from mouth to source is now listed on the Idaho 303(d) list as impaired for high Se levels. The great discrepancy among these sets of test results makes it imperative for this subsection of the DEIS to be updated and rewritten to include all of the new data on whole-tissue Se levels in fish and the impairment of some streams for high Se levels in their waters. Further, this rewrite should be expanded so as to adequately describe the existing trace element condition in all of the Crow Creek drainage downstream from the proposed action. [Ltr950 Cmt350]

Response: Discussion regarding previous whole-body analyses of fish within and around the Project Area can be found in **Section 3.8.5** of the EIS. The Greater Yellowstone Coalition data were not available during the writing of the DEIS. All recent data not included in the DEIS have been considered during the preparation of the FEIS.

2. Comment: One reviewer is concerned that the "8.3 mg/kg dw" value was derived as the mean of four fish samples collected from three streams (Table H-16, page 2 of 2 in TtEMI 2002), and that using four values to derive a background selenium concentration in an Area Wide Risk Assessment is inappropriate. [Ltr950 Cmt234, Ltr950 Cmt235, Ltr950 Cmt238]

   Response: The DEIS did not determine the 8.3 mg/Kg average concentration in the Area Wide Risk Assessment. The number was used as a comparison of local empirical data to other studies that have been done, including Hamilton and Buhl (2003). Bioaccumulation of selenium has been discussed in **Appendix 3C** to this FEIS.

3. Comment: One reviewer is concerned that the current selenium standard is not protective of fish and that a tissue-based selenium standard is needed. [Ltr950 Cmt236, Ltr950 Cmt237]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C**. We are aware of the current EPA work regarding selenium standards. However, we cannot speculate how that national debate may go. Rather, it is our responsibility to be consistent with current law.

4. Comment: DEIS page 3-145, Table 3.8-12: The table presents selenium concentrations in fish collected from several streams in the proposed Project Area including Deer Creek and Crow Creek. Fish were sampled in those two streams in May 2001 and analyzed for selenium concentrations (Hamilton and Buhl 2003). Although the DEIS mentioned the latter reference, they did not discuss the disparity between the two sets of data. In the DEIS the sampling site DC-400 was close to the site sampled by Hamilton and Buhl (2003). The DEIS reports 0.7, 6.4, and 5.8 mg/kg in sculpin and 0.48, 0.64, and 0.8 mg/kg in YCT, whereas Hamilton and Buhl (2003) report 12.0 mg/kg in sculpin and 9.3 - 11.00 mg/kg in YCT. In the DEIS the three sculpin samples were close in size (range 85 to 100 mm in length and 10 to 13 g in weight), but there was a substantial difference in selenium concentrations (0.7 compared to 5.8 to 6.4 mg/kg). Possible explanations for this disparity include analytical chemistry methods or possibly fish movement from a contaminated area to an un-contaminated area or vice versa. Assuming the "0.7" value is an anomaly, the remaining two values in the DEIS (5.8 and 6.4 mg/kg) are half of the selenium concentration as reported by Hamilton and Buhl (12.0 mg/kg; 2003). There is an even greater disparity for cutthroat between the DEIS (0.48 to 0.8 mg/kg) compared to Hamilton and Buhl (2003)(9.3 - 11.0 mg/kg) - a ten fold difference in selenium concentrations. The disparity could be due to analytical chemistry, fish movement, and possibly variability between years (Maxim collected fish in November 2004 and Hamilton and Buhl collected fish in May 2001). Comparison of fish collection for Crow Creek also reveals a disparity. In the DEIS the sampling site CC-300 was close to the site sampled by Hamilton and Buhl (2003). The DEIS reports 5.4 mg/kg in brown trout (Salmo trutta), whereas Hamilton and Buhl (2003) report 9.7 mg/kg. [Ltr950 Cmt242]

   Response: An interagency group is currently developing a standardized selenium sampling protocol to address the discrepancies in past sampling and sample analysis in

the Project Area. If sampling is standardized, it would facilitate the comparison of data from different sampling efforts. Although fish mobility within and between drainages may always increase the difficulty in comparisons (except for sculpin, that are not expected to migrate long distances), some things such as documentation of species, size, weight, and sex of fish can be readily recorded and help with comparison of samples. Time of the year for sampling is also very important. The literature indicates selenium mobilization and concentrations are higher in the spring, during higher flows, making it difficult to compare samples taken then with samples taken during low flows.

5. Comment: The disparity in selenium concentrations for fish collected from Deer Creek and Crow Creek is a concern and clouds the issue of whether the fish collected there should be considered background and raises the possibility of fish movement from contaminated areas, assuming the analytical chemistry is correct. [Ltr950 Cmt243]

   Response: Fish migratory behavior, particularly in YCT, may explain some differences in selenium concentrations within tissues. YCT could move from areas of relatively lower or higher selenium concentrations and thus show different tissue concentrations than resident species. Time of sampling may also explain differences, as selenium levels would be expected to vary with the amount of selenium-contaminated prey eaten (e.g., lower levels in spring when fish have only recently begun active feeding). The confounding factor of fish movement can be clarified somewhat by the selenium levels found in sculpin tissue. Sculpin, which do not normally migrate great distances, also have elevated selenium concentrations in Deer Creek. It is likely, therefore, that selenium levels in sculpin do represent conditions in an unimpacted stream setting such as Deer Creek, and Crow Creek above Sage Creek (Maxim 2006). An interagency group is currently developing a standardized selenium sampling protocol to address the discrepancies in past sampling and sample analysis in the Project Area. If sampling is standardized, it would facilitate the comparison of data from different sampling efforts.

Public Concern ID 284

The BLM/FS should acknowledge that subsection 3.8.5 of the DEIS is flawed and should be rewritten to expunge any finding based on the Area Wide Human Health and Ecological Risk Assessment

1. Comment: I also note that portions of Subsection 3.8.5 as written in the DEIS are based on an Area Wide Human Health and Ecological Risk Assessment report prepared for the Idaho Department of Environmental Quality by Tetra Tech EM, Inc., another consulting firm, in 2002 (this report is cited in the DEIS as TtEMI 2002d). Another interested party in this proposal is Mr. Kevin Toner, who owns land in Idaho at the confluence of Sage and Crow Creeks within the area that will be affected by the proposed action. Mr. Toner has himself examined the Tetra Tech EM report in great detail, and has exposed serious flaws in the way the data were compiled and analyzed to establish background Se levels for fish in Idaho's portion of the Salt River watershed. These flaws included using only two fish that actually came from the Salt River watershed and instead using fish from an entirely different watershed to make its case (see Toner 2005). Mr. Toner also methodically traced the process that led to the conclusion on background levels of Se in fish for both the Salt and Blackfoot Rivers, and exposed the flaws in that process. Therefore, since Subsection 3.8.5 establishes the baseline against which Environmental Consequences and Cumulative Impacts of elevated Se levels from the proposed action

and alternatives are evaluated, it should be rewritten to expunge any findings based on this unreliable report. [Ltr950 Cmt351]

Response: The DEIS establishes baseline based on fish tissue data collected locally and for this Project. That data is compared to other studies, one of which is TtEMI (2002). The discussion of trace selenium elements in **Section 3.8.5** includes several studies, such as Lemly (1993a), Hamilton (2002), Maxim fish sample analysis (**Table 3.8-12**), Hamilton and Buhl (2003), Hamilton et al. (2004), Presser et al. (2004), TtEMI (2002), NewFields (2005), Lemly (1999), Hardy (2003), etc. Existing conditions are not just established by **Section 3.8.5**, but by all of **Chapter 3** of the EIS, including sections on groundwater, surface water, and aquatic biota and habitat.

Public Concern ID 285

The BLM/FS should read and incorporate the findings of authoritative works such as Lemly and Hamilton into the DEIS

1. Comment: One reviewer takes issue with the DEIS' treatment of the Hardy study in regards to his observations of deformities in fry. [Ltr950 Cmt360]

   Response: Hardy did observe deformities in fry. However, he could not find a linear dose to frequency of deformity relationship. In the study, deformities did not occur at a significantly different frequency than control fish. When higher percentages of deformed fry occurred, they only occurred with a low frequency of parents.

   Hardy, at least initially, looked at all deformities associated with exposure to excessive levels of selenium as described in Lemly (1993a) (refer to page 11 of Hardy's report). He then focused on cranial-facial deformities, following the procedures of Kennedy et al. (2000), in part to avoid general deformities often seen in trout and salmon populations (refer to page 17 of Hardy's report).

2. Comment: Although the word "accumulation" is used often in the DEIS in connection with Se issues, nowhere is there a real treatise on selenium bio-accumulation and its effects on fish and aquatic resources. It would behoove the DEIS writers to read and incorporate the findings of such authoritative works as Lemly (1999) and Hamilton (2004) into the DEIS so as not to downplay the significance of this vital issue. [Ltr950 Cmt361]

   Response: Both Lemly (1999) and Hamilton (2004) were considered in the DEIS. The bioaccumulation issue is further addressed in **Appendix 3C** to this FEIS, where studies by both Lemly and Hamilton are considered. Lemly (1999) was considered in the DEIS. Both Lemly (1999) and Hamilton (2004) are considered in this FEIS, **Section 3.8.5**.

Public Concern ID 286

The BLM/FS should acknowledge that subsection 4.8.3, which refers to selenium accumulation, needs to be clarified

1. Comment: Subsection 4.8.3, Unavoidable (Residual) Adverse Impacts: This subsection states that, with the exception of Alternative D, mining of Panel F would result in the Idaho Department of Environmental Quality cold water aquatic Se standard being exceeded during the summer/fall baseline period in South Fork Sage Creek, Sage

Creek, and Crow Creek downstream of Sage Creek. In reality, Sage Creek from mouth to source is already impaired for Se, so this standard is likely to be exceeded in all seasons. Furthermore, the subsection states that Panel G mining would also result in the aquatic Se criterion being exceeded in lower Deer Creek, and that this impact would be unavoidable as well. This subsection constitutes an acknowledgement that there will indeed be significant, unavoidable impacts related to Se accumulation even with BMPs in place-which makes my earlier comments about the need for the DEIS to delve into the odds of BMPs working as advertised even more pertinent. The acknowledgement here makes it clear that the odds are against, but by how much, 3 to 2? 4 to 1? 10 to 1? The DEIS needs to clarify this. [Ltr950 Cmt365]

Response: Under the Agency Preferred Alternative, which includes a store and release cover as described in Alternative D, no direct or indirect exceedances of surface or groundwater standards are expected in groundwater discharged to the surface streams. The selenium concentrations in groundwater affected by Panels F and G would comply with State groundwater and surface water standards (FEIS **Section 4.3.1**). The groundwater selenium concentrations where the groundwater discharges occur, i.e. mouth of Deer Creek and mouth of South Fork Sage Creek, would be well below the surface water standard of 0.005 mg/L. The existing exceedances of the cold-water criterion for selenium in lower Sage Creek are due to discharges of selenium in water from Hoopes Spring and South Fork Sage Creek Spring. However, this situation is not expected to occur in the future because removal actions and reclamation activities on Panel E at Smoky Canyon Mine are expected to reduce selenium concentrations in lower Sage Creek well before the peak selenium concentration from Panel F would occur in South Fork Sage Creek. In this case, the selenium concentration in lower Sage Creek along with the added selenium from the Agency Preferred Alternative would remain below the surface water aquatic criterion (FEIS **Table 4.3-23**). Additional explanation of this topic has been added to the surface water impacts sections of **Chapters 4** and **5**. The details of what CERCLA actions may be taken, ongoing and future reclamation activites on Panel E, their expected effectiveness, and when they will occur are discussed more thoroughly in **Appendix 2A** to this FEIS. The selenium bioaccumulation issue is addressed in **Appendix 3C** to this FEIS. The store and release cover design has been analyzed by Agency and private specialists (FEIS **Section 2.6.1**). Construction and effectiveness monitoring of the design is part of the overall monitoring plan (see FEIS **Appendix 2E**).

2. Comment: Although roads would be reclaimed and culverts removed from perennial and intermittent stream channels after completion of the project and vegetation would be restored in Aquatic Influence Zones including riparian buffer strips, Subsection 4.8.3 acknowledges that impacts related to Se accumulation would be unavoidable. Since Se accumulation is already beyond threshold levels in Sage Creek and will likely increase in Deer Creek, the principal bastion of YCT in Crow Creek drainage, I argue that the YCT population will likely decline over the short to mid-term, and, as should become clear from my comments in Chapter 5, Section 5.9 below, this constitutes an irreversible and irretrievable commitment of an important aquatic resource. [Ltr950 Cmt366]

   Response: The Forest considers the accumulation of selenium in the Project Area to be an irretrievable effect, not irreversible. Irretrievable effects are those that can result in a loss of fish habitat or populations. A change in management activities has the potential to reverse this effect. An example would be the improper placement of a culvert in a stream crossing that becomes a migration barrier to upstream-migrating fish. The

culvert is producing the irretrievable effect of eliminating the genetic interchange between the fish upstream and downstream. Irretrievable effects can be reached from the intense use of a single Forest resource or several Forest resources affecting the same area. Over the long term, we would consider the expected impacts caused by selenium discharges from the Agency Preferred Alternative to be irretrievable in that they are expected to eventually decrease. The Agency Preferred Transportation Alternative is expected to disturb some perennial stream channel. These expected impacts can be addressed through future management decisions to remove the access route during mine reclamation activities and, with intensive management and time, re-establish the structure and function of the stream.

Irreversible effects are those that can result in a permanent loss of habitat or populations. Irreversible effects eliminate future management options. An example of an irreversible effect is the loss of a fish population or metapopulation. No matter what management action is taken, we will never be able to reverse the loss of the diversity that made that particular population unique. The development of Panels F and G (actual pit excavation) will directly disturb over 17,000 feet of intermittent stream channels. Those stream channels impacted by direct excavation may result in irreversible effects because, even if they are reclaimed, my not have the structure and function of the original streams.

Section 4.8.5 (Irreversible and Irretrievable Commitments of Resources) has been expanded in the FEIS. Effects from selenium on fish can be found in **Section 4.8.1** and **5.9** of the EIS.

3. Comment: The increase in Se concentrations in surface waters in the Cumulative Effects Area (here essentially the Crow Creek watershed to its confluence with the Salt River) expected from the proposed action will add to an increase Se concentrations in streambed sediment and, in a bioaccumulating manner, up the food chain through aquatic invertebrates fish. This will result in a cumulative effect on these resources that will actually increase over 50 years before peaking in Deer Creek and over 100 years before peaking in South Fork Sage Creek. Se concentrations are expected to decrease after the peaks are reached, but in an even more gradual manner over a period of hundreds of years, according to the DEIS. However, the DEIS attempts to downplay the seriousness of this cumulative affect in two ways. First, it asserts that lower Sage Creek does not exceed Se standards for surface waters, which, as I have pointed out earlier, is based on outdated information. Sage Creek (source to mouth, including the Pole Canyon drainage) is now listed on Idaho 303 (d) list as impaired for Se, a situation that will only be exacerbated by the expected increased Se inputs to South Fork Sage Creek. [Ltr950 Cmt367]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C**. Lower Sage Creek seasonally exceeds the chronic standard for selenium. Data sets in the FEIS have been updated with local data provided by the Greater Yellowstone Coalition. The listing of Sage Creek as 303(d) occurred after the DEIS was released for public comment. That development is addressed in the FEIS in **Section 3.3.2**.

Public Concern ID 288

The BLM/FS should acknowledge that selenium causes a variety of toxic effects, including teratogenicity (embryonic deformities) and birth defects in fish

1. Comment: Selenium (Se) is one of those naturally occurring substances that is both an essential dietary trace element and a toxic substance with a very narrow range between levels that are required in the diet and toxic threshold concentrations. Fish typically require dietary Se levels of 0.1-0.5 ug/g of dry body weight, but consumption in the range of 2-4 ug/g of dry body weight can produce toxic effects (Lemly 1997; Hamilton 2004). Most of the literature on deleterious and toxic effects of Se in natural fish populations- and thus the guidelines and indices for Se in water and aquatic environment- have been from standing, warm water habitats and fishes. The applicability of these guidelines and indices to cold, flowing water habitats and species has engendered some contention in the literature, especially as they apply to salmonid fishes (Hamilton and Palace 2001). Deleterious effects and toxicity of Se have been studied in these salmonid fishes: Chinook salmon (Oncorhynchus tshawytscha ; Hamilton et al. 1990), rainbow trout (O. mykiss ; Hodson et al. 1980; Holm et al. 2003), YCT (O. clarkii; Kennedy et al. 2000; Hardy 2003), and brook trout (Salvelinus fontinalis; Holm et al. 2003). Of these, YCT and brook trout are presented in the Project Area. Neither brown trout nor mountain whitefish (Prosopium williamsoni), the other two salmonids present in the Project Area, have ever been studied for Se effects. No outright fish kills or die-offs have been reported in adults of any of the salmonid species studied, even when elevated concentrations of Se are present in their tissues and exceed published toxic effects for warm water fishes (Lemly 1993a). However, elevated body levels of Se in salmonids and other fishes can trigger bans on human consumption. [Ltr950 Cmt371, Ltr950 Cmt372]

   Response: We concur with these statements. However, it can be difficult to document selenium-induced mortality in the field. Fish born with defects are less fit to survive and would likely be preyed upon or die some other way prior to human detection. To add to the complexity of the issue, multiple life history patterns exist within some of these YCT populations. While resident fish may be constantly exposed to elevated selenium concentrations, migratory fish may only be exposed seasonally and their offspring for their first couple years.

2. Comment: Thus, the added stress of Se teratogenesis can easily lead to failure of the entire year class of fry to recruit into the next generation of breeders. Teratogenic deformities have been reported in chinook salmon, rainbow trout and brook trout, but, curiously, in only one of the two cited studies of YCT, both of which were finance by mining industry interests. The second study, that of Hardy (2003), did report teratogenic deformities in YCT fry that was associated with increasing dietary levels of Se in adults, but Hardy concluded that no population-level consequences should result - perhaps because he carried out his studies should result - perhaps because he carried out his studies at a hatchery facility where the fist 30 to 60 days of a fry's life are not so critical as they are in the wild. There is no reason supported by scientific evidence why YCT should be somehow resistant to selenium effects when other closely related salmonid species are not, and the one cited study of this species that did report no ill effects of any kind has received heavy peer-review criticism that casts doubt on the validity of its findings and conclusions (Hamilton and Palace 2001). Recruitment failure has serious consequences for a trout population. Over the course of one to a few generations, the

trout population may simply disappear. Although there is no direct evidence that recruitment failure and population loss has or is occurring in the Project Area, there is at least one case in the southeastern Idaho phosphate mining region where it may be a likely suspect. Kendall Creek in the Blackfoot River watershed had YCT present in July of 2001 when specimens were captured for an assessment of human health and ecological risk (Tetra Tech EM 2002), but a Forest Service team found no trout at all in Kendall Creek just one year later in late June, 2002 (USDA Forest Service 2002). [Ltr950 Cmt373]

Response: The Hardy study was not peer-reviewed and exists as unpublished grey literature. Currently, it will not be discussed outside **Appendix 3C**. Kendall Creek is outside the direct, indirect, and cumulative effects areas for this project. Impacts to Kendall Creek are being addressed under CERCLA. The proposed mining activities would include environmental protection practices not employed in past mining projects. We expect these measures, including covering the mine overburden fills, would decrease selenium release into the environment when compared to previous mining projects in the area.

Public Concern ID 289

The BLM/FS should include an extinction risk analysis for fish species in the affected areas of the proposal

1. Comment: The DEIS should have included an assessment of the proposal's potential to push species, in particular YCT, towards extinction of both the local and regional level. Fundamental to such an assessment is an understanding of the processes of extinction. In the case of fish populations present in the streams that are directly or indirectly affected by the proposed expansion of the Smoky Canyon Mine, the risk of extinction would appear to be possible through both deterministic and stochastic processes. The risk of extinction at the local level is particularly relevant in light of the absence at this time of YCT and other salmonids from streams affected by phosphate mining that formerly had populations of those species. However, rather than providing a discussion and assessment of the extinction possibilities for YCT brought about by the ongoing mining operations at the Smoky Canyon Mine and the proposed mine expansion, the public is simply informed by the DEIS that the proposed will not likely contribute to a trend toward listing or cause a loss of viability to the population or species. That overly optimistic, some might say Pollyannaish, conclusion appears to have been reached a priori given the meager discussion and misleading information in the DEIS. For example, we find the following statements in the DEIS. Mining Alternative D would lower selenium concentrations such that they would be equal or be below the cold-water aquatic criterion for selenium (0.005 mg/L) at the mouth of Deer Creek, the mouth of South Fork Sage Creek, and Crow Creek downstream of Sage Creek. Even though these are lower than the Proposed Action and Mining Alternatives A through C, they would add some selenium burden to what now occurs in the lower reaches of Sage Creek. (Emphasis added). [Ltr950 Cmt70]

   Response: Discussion of impacts to YCT can be found in **Sections 4.8.1** and **5.9** of the EIS. The Agency Preferred Alternative would discharge groundwater to receiving streams at selenium concentrations predicted to be well below regulatory limits.

Determinations for sensitive species, including YCT, have been removed from the Cumulative Impacts section of the FEIS.

2. Comment: The DEIS attempts to minimize the impact from the proposal to YCT populations by spreading the risk across the entire Palisades/Salt metapopulation as robust and at low risk of extinction (made in the FEIS for the Caribou Revised Forest Plan) is "too generous," given "the overwhelming presence of brown trout in much of the drainage." This introduced species is well known for its ability to replace native YCT in all but the most remote headwaters and now outnumbers YCT by at least three to one in Palisades Reservoir, is present pretty much throughout the Salt River watershed including the Crow Creek drainage, and is now by far the predominant species of trout in Sage Creek. As noted in the DEIS, only in Deer Creek are YCT the predominant species, and there they are already impacted by sedimentation and habitat alternation, according to the Idaho 303(d) list. The loss of spring flow into Deer Creek will exacerbate existing instream habitat issues for YCT. In addition the elevated selenium concentrations that will occur as a result of all mining alternatives for this proposal "will expose them [[YCT]] to even greater and probably overwhelming risk of recruitment failure..."Trotter provides a succinct description of the values of metapopulations to the overall vigor of a species. A metapopulation is nothing more than a "population" of interconnected populations. The promise of metapopulation theory is that if one of the interconnected populations is extirpated, the empty habitat may be recolonized by migrants from one or more of the remaining populations. Through this mechanism of interconnected recolonization, the metapopulation as a whole remains at a lower risk of extinction even though the risk of extinction of any of its individual populations may be high. [Ltr950 Cmt66, Ltr950 Cmt67]

   Response: Although they are recognized as a predator, brown trout are not considered a serious threat to native fish populations within the upper Snake River System, including the Salt River. They remain primarily in larger waters such as Crow Creek and Salt River. In fact, brown trout are not as prevalent in the system as one might believe. For example, based on past IDFG sampling, YCT are the most common game species in Palisades Reservoir, not brown trout. YCT are the only game species that exist in the South Fork of Sage Creek.

   The Palisades/Salt YCT Metapopulation, as described in the Caribou Revised Forest Plan (2003), is located in the heart of YCT strongholds on the Caribou-Targhee National Forest. It is comprised of 40 sixth code HUC areas on the Forest (not even counting those in HUCS in the upper Snake and Salt rivers in Wyoming). Of those on the Forest, 3 HUCs are considered to have depressed YCT populations and 2 HUCs have populations that are extirpated (due to upstream passage problems and brook trout introductions). Considering the large geographic range of the metapopulation that includes the Salt and upper Snake Rivers, Palisades Reservoir, and all of their associated tributaries, and considering 35 or the 40 HUCs on the Forest are considered by the CTNF as YCT stronghold streams, the Palisades/Salt YCT Metapopulation is robust and resilient. We do not expect a noticeable impact upon the wellbeing of this metapopulation with the implementation of this Project. However, we do recognize impacts upon populations and habitat within the analysis area. These impacts are discussed in **Sections 4.8.1** and **5.9** of the EIS.

3. Comment: As detailed above, the proposed Smoky Canyon Mine expansion will have long-term, negative effects on YCT. Rather than glossing over this issue, the DEIS should have included a thorough discussion on the risk of extinction to YCT populations at local and regional scale resulting from the expansion. Not only NEPA, but also NFMA and particularly its mandate that the Forest Service maintain viable populations of all existing native vertebrate species on lands they manage require such a discussion. To comply with NFMA's viability mandate in this instance, the agency must assess the effects of the proposed expansion on aquatic species. To carry out this duty the DEIS was obliged to address in a much more thorough way than it has how habitat disruption and the response to that disruption would affect fish populations locally and regionally. Specifically, the agencies should have included an extinction risk analysis for fish species. [Ltr950 Cmt68]

   Response: The Forest Service's mandate to maintain viable populations of all existing native vertebrates on lands they manage under the National Forests Management Act (NFMA) is the foundation of the Sensitive Species Program. According to 36 CFR 219.9, a viable population is regarded as one which has the estimated numbers and distribution of reproductive individuals to ensure its continued existence as well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support at least a minimum number of reproductive individuals, and that habitat must be well distributed so those individuals can interact with others in the planning area. The Agencies consider the EIS to have provided a thorough analysis of the impacts to YCT under the Agency Preferred Alternative in terms of disruption to habitat. Viable populations of YCT would be maintained. The Biological Evaluation provides a detailed justification for the determination of "May Impact Individuals or Habitat but Will Not Likely Contribute to a Trend Toward Federal Listing or Cause a Loss of Viability to the Population or Species" for YCT. As stated above, the Agency Preferred Alternative would not result in noticeable population effects to the Salt/Palisades YCT metapopulation. Regarding extinction risk analysis, the Agencies believe a formal analysis of changes in reproductive or survival rates to predict extinction probabilities is not necessary to assess the impacts to YCT.

Public Concern ID 320

The BLM/FS should acknowledge that there is no documentation of selenium exposure from phosphate mining having negative impacts on fish in Southeast Idaho

1. Comment: Concerning the selenium effects upon fish there has been no studies that show selenium destroys fish and habitat. Simplot conducted a study on YCT with high levels of selenium and trout with no selenium. There was no apparent evidence to support selenium harms fish. Even so with the proposed environmental impact statement Simplot has created, the environment will not be ruined for future generations. [Ltr161 Cmt2]

   Response: There are studies that have documented the impacts of selenium upon fish and their habitat. Some of them are:

   Besser, J.M., J.N. Huckins, E.E. Little, and T.W. La Point. 1989. Distribution and bioaccumulation of selenium in aquatic microcosms. Environmental pollution. 62: 1-12.

Hamilton, S.J. and K.J. Buhl. 2004. Selenium in water, sediment, plants, invertebrates, and fish in the Blackfoot River Drainage. Water, Air, and Soil Pollution. 159: 3-34.

Hamilton, S.J., K.J. Buhl, F.A. Bullard, E.E. Little. 2000. Chronic toxicity and hazard assessment of an inorganic mixture simulating irrigation drainwater to razorback sucker and bonytail. Environmental Toxicology. 15: 48-64. Cited in **Appendix 3C**

Hamilton, S.J., K.J. Buhl, and P.J. Lamothe. 2004. Selenium and other trace elements in water, sediment, aquatic plants, aquatic invertebrates, and fish from streams in SE Idaho near phosphate mining. In: Life Cycles of the Phosphoria Formation: From Deposition to Post-Mining Environment. J.R. Hein, editor. Pages 483-525.

Hamilton, S.J., R.T. Muth, B. Waddell, and T.W. May. 2000. Hazard assessment of selenium and other trace elements in wild larval razorback sucker from the Green River, Utah. Ecotoxicology and Environmental Safety. 45: 132-147.

Hilton, J.W., P.V. Hodson, and S.J. Slinger. 1980. The requirement and toxicity of selenium in rainbow trout (Salmo gairdneri). Journal of Nutrition. 110: 2527-2535.

Hodson, P.V., D.J. Spry, and B.R. Blunt. 1980. Effects on rainbow trout of a chronic exposure to waterborne selenium. Can. J. Fish. Aquat. Sci. 37: 233-240.

Lemly, A.D. 1993. Teratogenic effects of selenium in natural populations of freshwater fish. Ecotoxicology and Environmental Safety. 26: 181-204.

These are peer-reviewed published reports, adding to their credibility. There are some limitations to the Hardy study. For instance, the impacts of selenium upon later generations were not studied and the subject fish were studied external to their environment. For more information regarding selenium effects upon fish and their habitat, please refer to **Appendix 3C**.

2. Comment: Extensive scientific studies of fish and birds in the phosphate region conducted by university and other highly qualified and respected researchers have not identified serious negative impacts due to mining related sources of contaminates of concern. Professor John T. Ratti of the University of Idaho writing in The Journal of Wildlife Management states. "We conclude that there are no negative effects on reproductive success of the general avian community at this time." Dr. Ronald W. Hardy, also of the University of Idaho in his Final Report "Effects of Dietary Selenium on YCT Growth and Reproductive Performance" concluded that "Clearly, there is no apparent threat to YCT in the Blackfoot River associated with the effects of Se on reproduction, as described by (Lemly 1993) in other species of fish." Although Simplot's proposed actions fall in the Salt River drainage instead of the Blackfoot, the primary species of concern is still the YCT and Dr. Hardy used the same species in his research. His work subjected YCT to selenium dosages several times greater than that found in the most impacted sections of the Blackfoot River and even greater than that in other scientific studies. His comment in the report is "it is unlikely that acute Se toxicity is likely to affect more than a few, if any, YCT in the Blackfoot River system. Fish sampled by Kennedy et al. (2000) had much higher levels of Se in eggs and tissues than fish in the present study, yet no evidence of deleterious effects on fish health or reproductive performance were observed. This further strengthens the conclusion that the levels found in YCT from the Blackfoot River drainage are not sufficiently high to impact

reproduction or affect population strength." I believe that these same conclusions apply to the Salt River and tributary streams that may be affected by development of the F and G Panels. [Ltr554 Cmt6]

Response: Bioaccumulation of selenium has been addressed in **Appendix 3C**. John Ratti's study is discussed in **Section 3.7.7**. Dr. Hardy's study is not relied upon in the FEIS because his methods and experimental design have not been subject to peer review.

3. Comment: Selenium fish studies on the YCT have shown no negative effects, and ironically have shown positive effects. [Ltr1032 Cmt19]

   Response: Various studies regarding impacts to fisheries, including YCT, are considered in the FEIS. These studies show a range of results and proposed thresholds for impacts. These studies are discussed in **Sections 3.8**, **4.8** and are addressed in **Appendix 3C**.

4. Comment: In regards to the Smoky Canyon Mine Panels F and G DEIS, particularly the environmental issues related to selenium, the science indicates that the mine expansion would not adversely impact either wildlife or fish. In fact, current conditions indicate thriving fisheries and wildlife populations. It should be noted and emphasized that selenium concentrations in most surface waters and groundwater are less than 0.050 parts per million. It is clearly evident that based on current mining practices, future mining can be completed without adverse impacts from selenium in surface waters or groundwater. [Ltr384 Cmt1]

   Response: Comment noted. The expected effects upon groundwater can be found in **Section 4.3.1** and upon surface water can be found in **Section 4.3.2** of the DEIS. The Agency Preferred Alternative includes mitigation measures designed to reduce the release of selenium. Analysis indicates that these measures, along with additional fisheries mitigation and monitoring, are sufficiently protective of the environment.

Public Concern ID 321

The BLM/FS should make technical and editorial changes to the EIS regarding potential impacts to fish

1. Comment: Reviewers are concerned that the DEIS reaches several conclusions that contain discrepancies regarding how the Proposed Action and the alternatives will effect water quality and fisheries, in particular the YCT, and that a review of the best scientific information implies that the Project will not adversely affect resources associated with the aquatic environment, including the YCT. [Ltr475 Cmt26, Ltr475 Cmt103, Ltr475 Cmt112, Ltr499 Cmt5, Ltr499 Cmt9, Ltr499 Cmt6]

   Response: Bioaccumulation of selenium is addressed in **Appendix 3C** of this FEIS. Due to the nature of selenium bioaccumulation and its impacts on fish populations, the impact determinations in the DEIS are justified. As is discussed in **Appendix 3C**, selenium has the potential to have major impacts when conditions are suitable for bioaccumulation, and suitable conditions in the Study Area are possible given the uncertainty surrounding many aspects of YCT life history and response to selenium. The Agencies are proceeding cautiously with this issue and analyzing effects. Studies in other systems suggest that selenium can have adverse effects on fish. A monitoring

plan has been established by Forest Service, BLM and IDEQ (see FEIS **Appendix 2E**). That plan includes monitoring of fish populations, and is designed to detect any selenium increases in fish tissue over the course of the Project.

2. Comment: One reviewer points out that healthy fish populations exist in the Study Area where there are naturally occurring selenium inputs, and that the Hardy study should receive more emphasis. [Ltr499 Cmt6]

   Response: The presentation of Dr. Hardy's study in the DEIS was consistent with Hardy's conclusions, which he made based on a holistic view of the study and qualifications of some data. Dr. Hardy's study is not emphasized in the FEIS because his methods and experimental design have not been peer-reviewed and have since been questioned by the Agencies and numerous reviewers.

   The Agencies are aware of the apparent discrepancy between elevated selenium concentrations in cutthroat from the seemingly healthy populations in North Fork of Deer Creek and fish toxicity thresholds proposed by some scientists.

3. Comment: Two reviewers would like to see the following three points emphasized in the Executive Summary: (1) Page 4-148, section 4.8.3, states that no matter which mining option is chosen, "Impacts related to selenium bioaccumulation would be unavoidable". I strongly agree. (2) Page 4.142, Selenium issues with fish, states "Indirect impacts to native fishes of the Study Area from further selenium accumulation could be long-term and moderate to major". I strongly agree. (3) Page 4-149, Section 4.8.4 states "The proposed action and alternatives would produce short- and long-term effects to YCT and other native fishes... Through the bioaccumulation of selenium in Project Area streams (and eventually, the loss of reproductive function in resident fish)." [Ltr950 Cmt384, Ltr 604 Cmt 6]

   Response: Comment noted. A statement regarding expected effects on aquatic biota and habitat has been inserted in the Executive Summary.

4. Comment: I didn't find a QA/QC report for the analytical chemistry results in the DEIS. It is essential that it be included and carefully reviewed for all of the DEIS fish tissue selenium values (as well as all other selenium measurements). If QA/QC problems occurred (i.e., unacceptable precision and/or accuracy as indicated by <90% spike recoveries, contamination of blanks, >10% RPD for duplicate samples, and <90% of certified values for reference materials), this entire data set is corrupted, has no interpretive value, and should be omitted. [Ltr950 Cmt388]

   Response: Relevant QA/QC data is contained in the Project Record and is available to the public.

5. Comment: DEIS Page 4-70, Table 4.3-15: The table gives the estimated selenium concentrations in area streams for the proposed action and four alternatives based on the results of groundwater modeling and baseline surface water data. Alternative D has the lowest estimated stream concentrations, which range from 2 to 7 ug/liter for both the summer/fall period and the winter period. These selenium concentrations in area streams would substantially increase selenium loading in sediment, aquatic plants, aquatic invertebrates, fish, and in predatory fish, birds, and mammals. A waterborne selenium concentration of 2 ug/liter has been proposed as a national water quality criterion for selenium based on support from federal, state, university, and international

sources because selenium bio-accumulation becomes toxicologically important at concentrations above 2 ug/liter (reviewed in Hamilton and Lemly 1999). Allowing selenium concentrations of 2-7 ug/liter in Idaho streams would result in increased loading of selenium and adverse effects on fish, birds, and mammals. [Ltr950 Cmt245]

Response: The expected impacts of increased selenium concentrations upon fish and wildlife are discussed in the EIS. We are aware of the national debate regarding the proposed waterborne selenium concentration standard. We cannot speculate on the results of this national debate, but will remain consistent with laws and regulations.

Public Concern ID 322

The BLM/FS should acknowledge that the EIS analysis of potential impacts to fish is inadequate

1. Comment: A preliminary assessment of selenium hazard in the Caribou National Forest was conducted using selenium residue data in water and fish collected from 1997-1998 (Lemly 1999). Lemly (1999) concluded that there was a high potential for toxic impacts occurring in fish and wildlife associated with the Blackfoot River, its tributaries, and tributaries of the Salt and Bear Rivers. The results of Lemly (1999), Hamilton et al. (2002, 2004), and Hamilton and Buhl (2003a, 2003b, 2004, 2005) give substantial support to the premise that selenium concentrations in several aquatic ecosystem components were sufficiently elevated to cause adverse effects to aquatic resources in the Blackfoot, Bear, and Salt River watersheds. Nevertheless, data from several sources can be used to conduct additional hazard assessments of streams that could be impacted under the proposed action in the DEIS for Panels F and G. There was insufficient data in the DEIS to allow me to conduct a hazard analysis. [Ltr950 Cmt260]

   Response: Refer to **Section 3.8.5** for an analysis of selenium hazards in the Study Area. While fish tissue data and surface water quality data in both impacted and unimpacted streams has caused some to conclude that there is a high potential for toxic impacts to occur in fish and wildlife, within the Study Area there is little evidence of adverse impacts to fish. YCT populations in some streams have even been determined stronghold populations by the USFS.

2. Comment: The hazard assessment for aquatic ecosystem components using data from NewFields (2005) that I developed is given in Table 3 [Hamilton 2006]. The assessment reveals a moderate hazard for South Fork Sage Creek and a high hazard for lower Sage Valley. The assessment also reveals an inconsistency between selenium concentrations in invertebrates and fish from South Fork Sage Creek, which suggests that perhaps the fish sampled might have recently moved from an area of lower selenium concentration into the stream area where they were captured. [Ltr950 Cmt261]

   Response: The findings are consistent with the existing condition of Sage Creek water quality described in **Section 3.3.2** of the EIS. The YCT in the NewFields data would be the most likely species to migrate between streams. YCT individuals can be classified as following one of three main life histories: resident, adfluvial, or fluvial; and it is likely that each is represented in the Study Area. Some individuals would be expected to permanently reside in small tributary streams; while others would be expected to move with varying frequency between smaller drainages and larger waters. It is probable that

most trout collected in winter (by Maxim in January 2006) are resident fish; refer to the EIS **Section 3.8.5**.

3. Comment: The hazard assessment for aquatic ecosystem components I calculated using data primarily from Hill (2005), but also three data values from Rocky Mountain Environmental Associates (2005), and one data value from the DEIS, is given in Table 5 [Hamilton 2006]. Deer Creek had a moderate hazard assessment, and Sage Creek and upper and lower Crow Creek add high hazard assessments. [Ltr950 Cmt263]

   Response: Comment noted. Deer Creek is considered unimpacted with regard to mining, has a healthy fishery, and yet has a moderate hazard assessment. This could be explained by any number of density dependent mortality or other population effects, including the hypothesized natural tolerance of high selenium levels by cutthroat trout. The Agencies have developed the bioaccumulation appendix in the FEIS (**Appendix 3C**) to explore the range of hazard thresholds currently in the literature in addition to analyzing the state of fisheries in the Study Area with regard to selenium.

   The CERCLA process is expected to reduce impacts in Sage Creek and downstream in Crow Creek prior to mixing with peak impacts from the mine expansion (see FEIS **Appendix 2A**).

4. Comment: The outcome of various hazard assessments are shown in Table 6 [Hamilton 2006]. Regardless of the data source, the hazard assessments consistently result in moderate to high hazards in Deer Creek, and high hazards in Crow Creek, South Fork Sage Creek, and lower Sage Creek. These ratings suggest that fish are currently under stress from selenium exposure in these streams. [Ltr950 Cmt264]

   Response: Comment noted. As is discussed in the FEIS **Appendix 3C**, there is a discrepancy between a predicted high stress level and an apparent healthy population. Thus, there is conflicting evidence regarding whether or not selenium stress is now occurring in Study Area streams.

5. Comment: I have addressed these major concerns I have with the DEIS: Some conclusions in fisheries as stated in the DEIS are unfounded and additional important facts with regard to fish data need to be included in the final EIS. [Ltr499 Cmt2]

   Response: The FEIS includes an appendix further discussing the selenium bioaccumulation issue (**Appendix 3C**), where a body of scientific knowledge is considered with reference to Lemly, Hamilton, Skorupa, other experts in the field of aquatic toxicology.

6. Comment: The concentrations of selenium reported for YCT from Deer Creek (DEIS, page 3-145) are extremely low relative to what was found in the other species collected (sculpin). Moreover, the magnitude of this difference is not supported by data from Hamilton and Buhl (2003), who found similar concentrations in both species (9-11 mg/kg in cutthroat, 12 mg/kg in sculpin). The disparity in concentrations for Deer Creek in the DEIS, as well as an overall trend of much lower concentrations in the DEIS as compared to those reported by Hamilton and Buhl, seem to indicate problems with quality control at the laboratory where the tissues were analyzed for selenium. I didn't find a QA/QC report for the analytical chemistry results in the DEIS. It is essential that it be included and carefully reviewed for all of the DEIS fish tissue selenium values (as well as all other

selenium measurements). If QA/QC problems occurred (i.e., unacceptable precision and/or accuracy as indicated by <90% spike recoveries, contamination of blanks,> 10% RPD for duplicate samples, or <90% of certified values for reference materials), this entire data set is corrupted, has no interpretive value, and should be omitted. [Ltr604 Cmt9]

Response: The migratory nature of some fish species in the analysis area may account for the differences in tissue selenium concentrations. Deer Creek, for example, an unimpacted stream, has elevated selenium in the sediment and in macroinvertebrates. Sculpin may show higher bioaccumulation levels than YCT in Deer Creek due to their more direct interaction with impacted media, as sculpin diet consists of 100% invertebrates (which are also associated with sediment). Additional data on selenium in fish tissue has been added to the FEIS and a more thorough review of selenium in other environmental media (water, sediment, aquatic plants, macroinvertebrates), including fish, is contained in **Appendix 3C**.

Additional fish tissue data collected by Maxim during January 2006 is closer to levels observed by Hamilton and Buhl (2003) in terms of the difference between YCT and sculpin. The selenium content in tissues of YCT and sculpin in January 2006 were not significantly different in either reach of Deer Creek in which there was an adequate sample size to test (Using Mann-Whitney U tests, DC-400: N = 17, U = 45.5, p = 0.13; DC-600: N = 19, U = 39.5, p = 0.72).

Public Concern ID 323

The BLM/FS should recognize that the value of the Hardy and similar studies in assessing existing or potential selenium impacts in the Project Area could be useful

1. Comment: The work of Hardy (2005) suggests that the level above which adverse reproductive effects occurs is greater than 12.5 mg/kg dw. Thus, the DEIS is incorrect in suggesting that adverse effects to resident fish may occur at selenium concentrations above 4 mg/kg dw. See DEIS at 3-144, Table 3.8-12. The DEIS refers to an earlier (2003) version of Hardy (2005) relative to a key study of the effects of dietary selenium on YCT from the Blackfoot River and Henry's Lake Fish Hatchery and only provides two sentences on page 3-16, one on page 3-146 and one on page 4-142 relative to this important study. Hardy (2005) fed Henry's Lake YCT experimental diets containing 0-10 mg/kg dw added selenium as selenomethionine for 124 weeks (2.5 years). Fish whole body selenium concentrations reached a high of 12.5 mg/kg dw prior to spawning. Fish were healthy by all measures and reproduction was successful with very few deformities or mortalities. Hardy (2005) concluded that selenium "levels found in YCT from the Blackfoot River drainage are not sufficiently high to impact reproduction or affect population strength" and "Clearly, there is no apparent threat to YCT in the Blackfoot River associated with the effects of selenium on reproduction..." He also found that, although the trout could accumulate high levels of selenium in certain areas of the drainage, when they left those areas their tissue levels would rapidly drop, indicating that selenium is not persistent in fish tissues and that migration can influence tissue concentrations. [Ltr475 Cmt107]

   Response: Hardy observed one generation that was studied external to their natural environment. We agree that migratory fish may have an advantage in that they are not subject to an environment with high selenium concentration throughout their life history.

However, some YCT and other fish species are not expected to migrate to a high degree, potentially spending their entire lives in the same stream.

The presentation of Dr. Hardy's study in the DEIS was consistent with Hardy's conclusions, which he made based on a holistic view of the study and qualifications of some data. Dr. Hardy's study is not emphasized in the FEIS because his methods and experimental design have not been peer-reviewed and have since been questioned by the Agencies and numerous reviewers.

2. Comment: It is important to accurately reflect that environmental health studies substantiate that toxicity from selenium in the resident YCT populations has not been shown. In fact, the most thorough and current study concludes that YCT in particular are less sensitive to selenium than other fish species. Hardy (2005) suggests that YCT have the ability to tolerate high levels of selenium exposure by maintaining non-toxic body levels via enhanced excretory mechanism. See **Appendix E**. Also, as discussed in these comments, the water quality concentration of selenium, resulting from this project and from concurrent remediation efforts for the effects of historic mining under the AOC, is expected to be at or below the existing cold water biota criteria of 5 g/L in local streams. In conclusion, with the combination of the expected water column concentration in conjunction with the best available scientific information regarding the toxicity of selenium to YCT, minimal to no impacts on local populations can be expected. This conclusion is supported by the current status of the local YCT populations, which are "robust" and the proposed project will not change that status. [Ltr475 Cmt108]

   Response: Hardy's suggestion that YCT have the ability to excrete excess selenium, avoiding toxic selenium levels in their bodies, is a hypothesis that has not been verified by his data. The CNF will be consistent with State and EPA regulations with the implementation of the Project, not exceeding current EPA standards.

   In terms of impacts to fish populations, the term "robust" was used to describe the Palisades/Salt YCT metapopulation, as described in the Caribou Forest Plan. This characterization applies at a watershed scale and does not necessarily apply at the scale of this Project. In general, however, fish populations in the Crow Creek system of tributaries are thought to have population densities typical of populations in the overall metapopulation. The Agencies believe that although it is likely that impacts to YCT populations would be minor, because of the uncertainty surrounding the life histories of fish in the Study Area and the impacts of selenium on YCT in general, it is appropriate for the EIS to be conservative. Studies in other systems suggest that selenium can have serious, adverse effects on fish. Because of this, the lack of certainty associated with selenium impacts to YCT, and certain habitat impacts associated with other aspects of the Project, it is appropriate for the EIS to be cautious in its effects assessments. Further discussions of fish conditions in the Study Area can be found in **Appendix 3C** and in **Section 3.8.3** of this FEIS.

3. Comment: The DEIS states that "high levels of selenium accumulation have been linked to reproductive failure and congenital deformities in other species of fish" (e.g., Lemly 1999). There have been no studies linking YCT with any reproductive failures or deformities. The only study to date has been the Hardy study, (2003) which shows that there are no signs of toxicity or deformities in YCT despite measured whole body selenium levels of up to 12.5 mg/Kg. This illustrates that trout are not highly sensitive to selenium and levels above the recommended 7.9 mg/Kg dry weight will not result in

adverse effects to the trout species. Agrium recommends that the BLM recognize that the Lemly study was conducted on warm water fish species (e.g., bluegill). Agrium further recommends that BLM emphasize the Hardy study conducted on trout, including YCT, which is more representative of possible effects to native fish species of the area. [Ltr977 Cmt9]

Response: Hardy did observe deformities in fry. However, he could not find a linear dose to frequency of deformity relationship. In the study, deformities did not occur at a significantly different frequency than control fish. When higher percentages of deformed fry occurred, they only occurred with a low frequency of parents.

Hardy's study showed a parabolic relationship, with fish fed intermediate levels of selenium having the highest deformity rate. Hardy hypothesized the subject YCT maintained sub-toxic body levels of selenium by increasing its rate of excretion. His work indicated YCT may be more resilient than spiny rayed fish that have been traditional subjects of these types of studies and were used as subjects for the development of EPA standards. Although the results of Hardy's study have some usefulness, we recognize there are limitations to its application. For instance, the study fish were removed from other elements in their natural environment that may have also impacted them, higher impacts may occur in later generations not studied in this experiment, and it does not account for fish immigration.

Several peer-reviewed, published studies exist regarding selenium impacts upon coldwater species. Hilton et al. (1980) determined that uptake and accumulation in tissues of trout reared on diets containing in excess of 3 µg/g dry feed may ultimately be toxic to trout if maintained over a long period of time. Hodson et al. (1980) observed significant mortality of eyed eggs at selenium concentrations greater than 28 µg/L and decreased cellular blood iron concentrations at 16 µg/L. As a conclusion of their study, Hunn et al. (1987) recommended a safe level of 10 µg/L for inorganic selenium, but suggest that concentrations near this level can reduce levels of calcium in the backbones of trout. There is no evidence to suggest that the physiology and ability to survive high concentrations of selenium in rainbow trout would be any different than YCT. These and other studies, in addition to Hardy's report, help in our understanding of potential selenium impacts.

The Agencies are aware of the conditions of Lemly studies regarding warm water and bluegill and the limitations when discussing YCT. This information was provided as a comparison of other relevant studies to the local empirical data collected for this Project.

Hilton, J.W., P.V. Hodson, and S.J. Slinger. 1980. The requirement and toxicity of selenium in rainbow trout. Pp 2527-2535.

Hodson, P.V., D.J. Spry, and B.R. Blunt. 1980. Effects on rainbow trout of a chronic exposure to waterborne selenium. Can. J. Fish. Aquat. Sci. Vol 37.

Hunn, J.B., S.J. Hamilton, and D.R. Buckler. 1987. Toxicity of sodium selenite to rainbow trout fry. 233-238.

4. Comment: EPA proposed in 2004 the establishment of an aquatic life criterion for selenium based on a fish tissue concentration. The proposed criteria of 7.91 mg/L was based on a single study of juvenile bluegills. Many comments were submitted on the

proposed criteria, including comments on problematic considerations of deriving a criterion that would be applied to Western streams where native trout, in particular cutthroats, have a significantly lower sensitivity to selenium than bluegills. See Appendix D. Studies conducted so far show that concentrations greater than the proposed criteria can occur without deleterious effects on cutthroats. Effects-based studies (fertilized eggs raised in the laboratory) on trout in both Alberta (AB; rainbow trout, Oncorhynchus mykiss and brook trout, Salvelinus fontinalis - Holm 2002; Holm et al. 2003, 2005) and British Columbia (BC; Westslope YCT, Oncorhynchus clarki lewisi - Kennedy et al. 2000) indicate that the USEPA (2004) value provides conservative protection for trout in northern waters (Chapman and McPherson 2004; Chapman 2005) (Table 6-3). In other words, whole body selenium concentrations > 7.9 mg/kg dw will not result in adverse effects to these trout species. In fact, given that background concentrations as noted in the DEIS are 8.3 mg/kg dw, the level that will cause adverse effects must be higher than 8.3 but as yet has not been determined. [Ltr475 Cmt106]

Response; Comment noted. The EIS is consistent with existing water quality regulations regarding selenium concentrations. There is a range of opinions and proposed hazard thresholds in the literature that are further described in the FEIS **Appendix 3C**. Refer to Comment 2 (above) regarding expected impacts to YCT; also see FEIS **Section 4.8.1**.

Public Concern ID 326

The BLM/FS should acknowledge that the EIS needs a section detailing Simplot's monitoring plan for fisheries and aquatics

1. Comment: Several reviewers make suggestions for a monitoring program for fish, including having an independent third-party fisheries biologist on the team, a continuing program of whole-tissue Se testing in fish, periodic assessments of the development of deformities in newly emerged fry of cutthroat and brown trout, and a developed set of thresholds for habitat condition, population changes, and whole-tissue Se levels (and, if adopted, proportion of deformities in newly emerged fry) which would trigger immediate operational changes and require meaningful measures to reverse the adverse condition. In addition, reviewers suggest tracing of selenium along the pathways from mining waste fills-to water-to sediment and plants-to invertebrates-and, finally to fish and water dependent wildlife, in all their life stages, as well as trigger values for immediate operations changes to the mining plan that would require meaningful measures to reverse adverse conditions. [Ltr950 Cmt362, Ltr950 Cmt342, Ltr950 Cmt124, Ltr950 Cmt125, Ltr950 Cmt196]

   Response: A monitoring plan has been established by Forest Service, BLM and IDEQ (see **Appendix 2E**). That plan is designed to detect any selenium increases in fish tissue over the course of the Project.

Public Concern 327

The BLM/FS should acknowledge that the Agency Preferred Alternative is irresponsible from a fish health perspective

1. Comment: We do not support any action that results in increased selenium concentrations, since selenium is known to bioaccumulate. In a system that already contains elevated selenium, even subtle increases could have significant negative consequences. Sampling by Dan Isaak indicates that Crow Creek and Sage Creek

contain abundant YCT (224 and 106 kg/ha, respectively), as well as mountain whitefish, mottle sculpin, Paiute sculpin, speckled dace, longnose dace, Utah sucker, and redside shiner. Only two other creeks in the Salt River drainage (i.e., Stump and Jacknife creeks) have greater species diversity than Crow Creek. Obviously, Crow Creek and its tributaries are important components of the Salt River system and need to be managed accordingly. [Ltr1054 Cmt1]

Response: Selenium concentrations in some streams within the Project Area are expected to increase, but are not expected to increase beyond standards established by law. The expected effects of this Project upon surface water can be found in **Sections 4.3.1** and **4.3.2** of the FEIS. The expected effects of this Project upon aquatic biota can be found in **Sections 4.8.1**and **5.9** of the EIS. A separate report regarding selenium bioaccumulation (**Appendix 3C**) has been included in the FEIS. It is not expected that there would be population level impacts to fisheries from the Agency Preferred Alternative in Deer Creek, Sage Creek, Crow Creek or downstream of these waters. The Agencies believe that although it is likely that impacts to YCT populations would be minor, because of the uncertainty surrounding the life histories of fish in the Study Area and the impacts of selenium on YCT in general, it is appropriate for the EIS to be conservative. Studies in other systems suggest that selenium can have serious, adverse effects on fish. Because of this, the lack of certainty associated with selenium impacts to YCT, and certain habitat impacts associated with other aspects of the Project, it is appropriate for the EIS to be cautious in its effects assessments.

7.3.12 Grazing Management

Public Concern ID 122

The BLM/FS should acknowledge that as long as topsoil is used as the planting medium, there will be minimal risk to grazing animals from selenium

1. Comment: A commenter stated that as long as topsoil is being used as the planting medium, there is minimal risk to grazing animals since the vegetation in the existing soils has been consistently measured below the grazing toxicity threshold of 5 ppm selenium. [Ltr573 Cmt6]

   Response: Reclamation vegetation would be tested for selenium and other constituents prior to bond release. The USFS release criterion for selenium is 5 mg/Kg, below which there is minimal risk to grazing animals from selenium. Regarding topsoil, it would be sampled for selenium content prior to being salvaged for reclamation. Topsoil with an average content of less than 13 mg/Kg selenium has been recommended by the USFS as suitable, in not posing a risk of adverse bioaccumulation levels in reclamation vegetation. In addition, the Agency Preferred Alternative cover design is between 6 and 7 feet thick, a thickness protective of vegetation.

Public Concern ID 300

The BLM/FS should disclose any records of death or deformity to wildlife, livestock, or aquatic organisms where selenium contamination is suspected

1. Comment: A commenter stated that the Agencies should disclose any records of death or deformity of wildlife, livestock, or aquatic organisms that they suspect may be due to selenium. In addition, the commenter stated that the Agencies should also investigate

any compensation made by Simplot to livestock owners who may have had losses. [Ltr1050 Cmt3]

Response: Although there have been documented cases at various phosphate mine sites in Southeastern Idaho of sheep, horse, fish, and salamander mortalities, no records of death or deformity of wildlife, livestock, or aquatic organisms have been noted, reported, or observed within the existing and proposed Smoky Canyon Mine area. An outbreak of salamander infections occurred within the Cumulative Effects Area (see **Section 3.7.7**) but outside the proposed mine footprint.

According to Simplot, they have never had to compensate any livestock owner in cash or in kind for livestock losses due to selenium, collisions or other reasons on the existing or proposed Smoky Canyon Mine site.

Public Concern ID 179

The BLM/FS should acknowledge that the DEIS analysis of livestock grazing impacts is inadequate

1. Comment: A commenter stated that it was unclear from reading the DEIS where the current livestock grazing on the proposed acres of allotment disturbed by the Proposed Action would be relocated. The USFS has initiated an aggressive fire management program that would require livestock AUMs adjustment post fire and mining activities would also require relocation of these animals from impacted allotments. They further stated that the EIS should evaluate the impact of any increases in livestock AUMs in these locations as a result of the mine expansion and other treatments or activities. The commenter (IDFG), requested that they be consulted when realignment of grazing allotments are made, as these actions could have significant impacts to wildlife. [Ltr555 Cmt6]

   Response: As stated in **Section 4.9**, "a variety of management options are available to the USFS to respond to decreased grazing areas on affected allotments caused by mining." This includes the potential of relocating animals to alternate (i.e. unused or shared) allotments. However, as the EIS states, the feasibility of relocating animals to alternate (i.e., unused or shared) allotments during mining to compensate for lost acreage would be determined on a case-by-case basis once the final decision on a preferred alternative is made. Other options include reducing stocking rates on affected allotments for the duration of the mining and reclamation, or temporarily closing affected allotments.

Public Concern ID 332

The BLM/FS should acknowledge that mining companies are not responsible for livestock losses

1. Comment: A commenter stated that they felt that each of the situations where losses of domestic livestock occurred could have been prevented by the livestock owners easier and more efficiently than by the mining company. Further, the commenter stated that each instance was located near a "historic" mining operation, whose operating and reclamation practices are no longer accepted as best management practices. [Ltr554 Cmt3]

Response: Because selenium poisoning (selenosis) was found to be the cause of death for some of the livestock in question, and selenium poisoning for the other animals could not be ruled out, the Agencies identified the phosphate mineral leaseholders as the Potentially Responsible Party for the contamination and initiated action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1997. Operating and reclamation practices have changed dramatically since the "historic" mining operations in question have been reclaimed and revised best management practices are now in place to prevent future similar instances of livestock losses.

7.3.13 Recreation and Land Use

Public Concern ID 70
The BLM/FS should have more control over land use in local areas

1. Comment: One commenter expressed concern that people living outside the area are coming in and purchasing property around the forest and then locking it up to prevent public uses such as mining and recreation. The commenter stated that local leaders, the BLM, and the Forest Service should have more control over land uses in the area. [Ltr253 Cmt3]

   Response: The BLM and FS manage public lands consistent with current policy utilizing multiple-use and sustainable development principles. See response to PC 26 Comment 1 in Chapter 1 responses section. The BLM and FS cannot dictate adjacent land use. Local governments (i.e. city, county) create zoning regulations, which provide guidelines for land use per zone within their jurisdiction.

Public Concern ID 319
The BLM/FS should reject the proposed expansion of the Smoky Canyon Mine to protect recreational opportunities

1. Comment: One commenter noted that recreational use in the area is increasing. The scars left by the mine will last forever which will limit the recreational opportunities and consequently the economic benefits of recreation. Further, the DEIS is incorrect in stating the trails in the Deer Creek watershed are motorized. These trails were designed for hiking, horseback, and bicycling only. [Ltr239 Cmt21]

   Response: The increase in recreation use is documented in the EIS. Reclamation would restore recreation opportunities in the mined areas. Concurrent reclamation work would be conducted as mining shifts into different areas of each panel. Following completion of mining in each panel, reclamation work would continue for approximately two years, as described in **Section 2.4** of the EIS. Of the 1,340 acres of disturbance, 46 acres would remain as highwall and pit bottom areas; most of the remaining acreage would be regraded and seeded for stabilization purposes and to establish native grasses and forbs; various areas would be planted with shrubs and trees for diversity. As shown in **Section 3.10**, trails within the study area are non-motorized.

2. Comment: One commenter stated that no one will want to recreate in an industrial zone. Hunting and fishing will be diminished which will result in an economic loss for the area.

Selenium will be a threat to livestock, wildlife, and humans that use the area. [Ltr240 Cmt13]

Response: Access to active mining areas within the proposed project will be restricted during active operations. As discussed in the wildlife section (**Section 4.7**), some big game would likely be displaced but overall hunting opportunities should not be diminished. Reclamation would create open areas of grass and shrubs, which could draw big game to those areas. Overall use is expected to remain similar, since the area of active mining is essentially being shifted to the south of current mining. Recreational fishing could be affected as there will be some short-term, site-specific, and minor to moderate impacts through sedimentation, loss of habitat, AIZ function, and increased selenium levels in surface water (**Section 4.8**). Selenium impacts to wildlife and livestock are discussed in **Sections 4.7** and **4.9**. Selenium impacts to humans are described in **Sections 3.1.6** and **5.15**. The impact analyses indicate that covering and reclamation practices would reduce potential selenium impacts to humans, livestock and terrestrial wildlife to minor levels of concern.

3. Comment: One commenter stated that degradation to recreational opportunities cannot be mitigated. [Ltr281 Cmt2]

   Response: Mitigation for recreation is discussed in **Section 2.10.1** and **Section 4.10.3**. Little mitigation is planned as the impacts to recreation would be temporary; recreational opportunities would be largely reestablished after completion of mining and reclamation (See **Section 4.10**). Signs would be posted at the margins of the mining areas to inform hikers about mining operations and potential hazards. Impacts to recreational trails would be mitigated through re-establishment of trails, rerouting of trails, and/or construction of new trail crossings. Established snowmobile routes would be affected. Temporary restrictions of recreational uses may cause some recreationists to abandon the area in search of more remote recreation opportunities. After reclamation, the area would be expected to provide the same types of recreation use as is currently available.

4. Comment: Numerous commenters expressed that recreation opportunities would be harmed/threatened by the project, especially non-motorized recreation. Expansion will impact the recreational and wildlife character of this unique area. Wildlife, water, and other recreation resources will be impacted. [Ltr282 Cmt3, Ltr288 Cmt3, Ltr376 Cmt3, Ltr379 Cmt4, Ltr380 Cmt3, Ltr395 Cmt3, Ltr416 Cmt3, Ltr446 Cmt3, Ltr451 Cmt3, Ltr453 Cmt3, Ltr461 Cmt3, Ltr472 Cmt3, Ltr501 Cmt1, Ltr579 Cmt4, Ltr593 Cmt4, Ltr764 Cmt5, Ltr914 Cmt3, Ltr915 Cmt3, Ltr924 Cmt3, Ltr937 Cmt3, Ltr957 Cmt3, Ltr1046 Cmt3, Ltr326 Cmt2, Ltr429 Cmt3, Ltr833 Cmt3, Ltr494 Cmt2, Ltr862 Cmt3, Ltr791 Cmt3]
   Response: See Comment 3 response above.

5. Comment: Two commenters expressed opposition to mine expansion within the Yellowstone/Greater Yellowstone Ecosystem as it diminishes the recreation experience. The area is pristine and biologically diverse; expansion would spoil it. [Ltr399 Cmt3, Ltr580 Cmt2]

   Response: As described in **Section 3.10.2** of the EIS, the Greater Yellowstone Ecosystem encompasses over 12 million acres of land; the proposed project area is 1,340 acres on the southwest portion of that representing 0.01 percent of the GYE. The

proposed mine expansion is adjacent to current and past mining areas and would therefore keep mining activities localized. The Project Area would be managed in accordance with Prescription 8.2.2 in the Caribou RFP. The Project is in compliance with the RFP.

6. Comment: Two commenters stated that ATVs/OHVs, as well as other motorized vehicles, should be kept out of the area so that people can enjoy nature without the noise and damage caused by these vehicles. [Ltr721 Cmt3, Ltr725 Cmt3]

   Response: The Forest Travel Plan designates where ATVs/OHVs and vehicles can be used. Active mine areas and roads would not be open to the public for motor vehicle access. After the mining is complete, the roads would be reclaimed and therefore not available for motorized access.

7. Comment: One commenter stated that generations from now jobs created by non-motorized recreation will outweigh the profit from mining. [Ltr746 Cmt3]

   Response: This is the opinion/speculation of the commenter. There is no data to verify the statement and it is beyond the scope of the project to analyze potential future economics of recreation or of mining, as the resource availability and demand for each is likely to be very different generations from now. The EIS analyzes the impact of the proposed project on the local economy based upon direct and indirect effects, and past, present, and foreseeable future actions, but does not predict what the local economy will be in the future beyond what is proposed or foreseeable.

8. Comment: Two commenters stated that the area contains roadless areas and wildlife which is threatened by existing mining. Additional mining is irresponsible and unnecessary. The Caribou-Targhee National Forest wild lands are a national treasure. [Ltr981 Cmt2, Ltr990 Cmt1]

   Response: Forest lands are managed under multiple-use principles. See PC 26 Comment 1 response. Also see **Sections 4.7** and **4.11** in the EIS.

Public Concern ID 324

The BLM/FS should acknowledge that phosphate mining access improvements could provide long-term recreational access into Forest lands

1. Comment: Two commenters stated that because this mining is located in prime recreational use areas, the access improvements made by the mining companies should be analyzed for long term recreational access into the forest. [Ltr1032 Cmt20, Ltr242 Cmt12]

   Response: The Forest Travel Plan analyzed road needs on the Caribou National Forest and is out of scope for this project. Under the Agency Preferred Alternative, mine haul/access roads will be reclaimed when no longer needed for mining.

7.3.14 Inventoried Roadless Areas

Public Concern ID 14
The BLM/FS should confine the roadless areas to the Central Idaho Frank Church Wilderness Area

1. Comment: A commenter stated that roadless areas should be confined to the Central Frank Church Wilderness Area, and that multi-use forests should be allowed motorized and non-motorized recreation as well as mining and logging activities. [Ltr75 Cmt2]

   Response: The purpose and need for the action is not to change the status or mapping of Inventoried Roadless Areas, which are not the same as Designated Wilderness Areas, such as the Frank Church-River of No Return Wilderness. The IRA inventory is beyond the scope of the analysis. A brief description of how roadless areas were identified on USFS lands is provided in **Section 1.3.2** of the EIS. The management prescriptions for the CNF IRAs are identified in the RFP (USFS 2003a) and vary from prescriptions that emphasize mining, and timber management to prescriptions that emphasize non-motorized recreation and wildlife habitat.

Public Concern ID 28
The BLM/FS should protect roadless areas

1. Comment: Numerous commenters stated concerns regarding the value and importance of roadless areas, the need to protect these areas in their current undisturbed condition, and the significance of the "roadless" designation. [Ltr240 Cmt8, Ltr380 Cmt2, Ltr381 Cmt4, Ltr411 Cmt3, Ltr441 Cmt3, Ltr463 Cmt3, Ltr467 Cmt3, Ltr477 Cmt2, Ltr482 Cmt2, Ltr521 Cmt1, Ltr681 Cmt5, Ltr699 Cmt3, Ltr876 Cmt3, Ltr943 Cmt3, Ltr287 Cmt1, Ltr424 Cmt3, Ltr427 Cmt3, Ltr731 Cmt4, Ltr822 Cmt3, Ltr833 Cmt4, Ltr927 Cmt3, Ltr928 Cmt3, Ltr299 Cmt2]

   Response: IRAs are addressed in the EIS in **Sections 1.3.2**, **3.11**, **4.11**, and **5.12** and potential impacts to IRAs in the Study Area have been thoroughly considered. All applicable and current USFS regulations regarding the management of IRAs, including the RFP (USFS 2003a), would be followed and adhered to regarding the Project. Numerous transportation alternatives were developed and considered specifically to decrease impacts to IRAs.

2. Comment: Several commenters stated that, due to the lack of resolution regarding the legal status and treatment of roadless areas in Idaho, these areas should not be disturbed until a final rule has been determined and/or issued. [Ltr205 Cmt3, Ltr365 Cmt2, Ltr832 Cmt3, Ltr850 Cmt3, Ltr940 Cmt4, Ltr997 Cmt3, Ltr1000 Cmt2, Ltr243 Cmt3, Ltr448 Cmt3, Ltr310 Cmt2, Ltr350 Cmt1, Ltr998 Cmt2, Ltr332 Cmt1, Ltr376 Cmt2, Ltr593 Cmt1]

   Response: **Section 1.3.2** of the EIS presents the current legal status of the roadless rule. The Agencies are legally operating under the appropriate and most relevant guidance for management of roadless areas.

3. Comment: Several commenters were opposed to the mining industry in particular and those impacts typically associated with mining activities, including environmental impacts and the disturbance of previously un-occupied areas. [Ltr481 Cmt1, Ltr885 Cmt3, Ltr912 Cmt3, Ltr469 Cmt3, Ltr665 Cmt5]

   Response: Mining on previously undisturbed Federal land always results in environmental impacts that are evaluated in the decision-making process by the permitting Agencies. Impacts associated with the Project have been thoroughly addressed in the EIS for all resources and/or issues that are present or could be affected in the Study Area. The Caribou RFP clearly provided for eventual mining in Panels F & G and the areas would be managed under prescription 8.2.2(g) during mining and reclamation. The Agencies have determined that the Agency Preferred Alternative includes environmental protection and mitigation measures that afford sufficient environmental protection for the Agencies to permit the proposed operations. The Project would also meet the applicable Standards and Guidelines and all relevant laws.

4. Comment: Numerous commenters stated general concerns regarding the potential impacts to wildlife and habitat within the roadless areas, including but not limited to deer, elk, moose, wolverine, lynx, wolves, and fish. [Ltr585 Cmt5, Ltr797 Cmt3, Ltr12 Cmt1, Ltr826 Cmt3, Ltr789 Cmt3, Ltr934 Cmt3, Ltr280 Cmt1, Ltr761 Cmt3, Ltr796 Cmt3, Ltr398 Cmt3, Ltr526 Cmt1, Ltr538 Cmt1, Ltr365 Cmt1, Ltr332 Cmt1, Ltr369 Cmt1, Ltr522 Cmt1, Ltr576 Cmt1, Ltr436 Cmt3, Ltr723 Cmt3]

   Response: Potential impacts to wildlife and fish and their habitat from the Project within the Study Area have been analyzed and are addressed in **Sections 4.7** and **4.8** of the EIS. Known occurrences of specific species and habitat (Threatened, Endangered, Sensitive, and Rare Species Occurrence/Habitat) within the IRAs in the Study Area is also presented in **Section 3.11**.

5. Comment: Several commenters stated specific concerns regarding potential impacts to roadless areas within the biologically diverse Greater Yellowstone Ecosystem (GYE). [Ltr751 Cmt3, Ltr963 Cmt3, Ltr1000 Cmt1, Ltr372 Cmt1, Ltr452 Cmt3, Ltr529 Cmt3, Ltr795 Cmt3, Ltr343 Cmt1, Ltr593 Cmt1]

   Response: Impacts to wilderness attributes and roadless characteristics for IRAs that occur within the Study Area are presented in **Section 4.11** of the EIS. The IRAs within the Study Area that would be impacted occur near the southern extent of the GYE. **Section 5.12** provides additional analysis related to impacts on IRAs within the Cumulative Effects Area for IRAs.

6. Comment: Several commenters stated that roadless areas are important for wilderness, recreation and tourism purposes, particularly non-motorized varieties, including hiking, hunting, fishing, photography, etc., and that proposed impacts would prove detrimental to these activities. [Ltr371 Cmt2, Ltr867 Cmt3, Ltr364 Cmt1, Ltr549 Cmt11, Ltr688 Cmt7, Ltr863 Cmt3, Ltr366 Cmt1, Ltr952 Cmt3, Ltr867 Cmt3]

   Response: Potential impacts to recreation and land use issues within the Study Area have been analyzed in **Section 4.10** of the EIS. In addition, impacts to a variety of

wilderness attributes and roadless area characteristics have also been analyzed and are presented in **Section 4.11**. The EIS acknowledges that impacts to recreation and land use would occur, but would be temporary and minor to moderate in nature. Mitigation measures, outlined in **Section 2.10**, would be implemented in order to reduce the level of impacts.

7. Comment: Several commenters stated that roadless areas are important in protecting the integrity of wilderness regions, and that mining activity in roadless areas is not compatible with the intent of the wilderness designation. [Ltr442 Cmt3, Ltr481 Cmt2, Ltr798 Cmt3, Ltr796 Cmt3, Ltr225 Cmt3]

   Response: The EIS thoroughly addresses potential impacts from the Project on IRAs that occur within the Study Area. The IRAs within the Project Area do not rate high for wilderness attributes. They did not rate high in the 1985 FEIS or the 2003 FEIS for Forest Planning.

8. Comment: Many commenters stated concerns regarding the potential contamination impacts within roadless areas to surface and groundwater supply features due to phosphate and selenium discharges from mining activities. [Ltr364 Cmt2, Ltr310 Cmt2, Ltr350 Cmt1, Ltr761 Cmt3, Ltr909 Cmt3, Ltr450 Cmt3, Ltr796 Cmt3, Ltr998 Cmt2, Ltr333 Cmt1, Ltr365 Cmt1, Ltr343 Cmt1, Ltr332 Cmt1, Ltr376 Cmt2, Ltr369 Cmt1, Ltr508 Cmt1, Ltr522 Cmt1, Ltr576 Cmt1, Ltr585 Cmt1, Ltr585 Cmt2]

   Response: Potential impacts to surface and groundwater supply features within the Study Area, regardless of whether the impacts would occur within a specific IRA boundary, have been thoroughly analyzed and addressed in the EIS. Potential impacts to resources specific to a particular IRA within the Study Area are analyzed and addressed in **Section 4.11**, as it relates to wilderness and roadless attributes. In terms of addressing groundwater impacts within IRAs from existing mining operations, a new appendix in the FEIS (**Appendix 2A**) describes and summarizes the removal actions that the Agencies and Simplot have been following. This EE/CA is a well-planned and rigorous process of investigation and remediation planning for the existing Smoky Canyon Mine. The removal actions for the Smoky Canyon Mine, Pole Canyon Overburden Fill commenced in 2006 and will be completed in 2007 before any expansion into Panel F would occur. Via the NEPA process and the analysis of alternatives and mitigation measures, the Agency Preferred Alternative is not predicted to result in the same environmental effects as prior projects. Impact analysis in **Chapter 4** of the EIS does not predict exceedences of State or federal standards. Mitigation measures that have been analyzed under NEPA adequately reduce threats to the environment. Information regarding the selenium releases, from the CERCLA investigation, at SCM is thoroughly analyzed in the EIS.

Public Concern ID 60

The BLM/FS should make a final decision on roadless areas before mine expansion and road building are allowed

1. Comment: Numerous commenters stated that a final decision regarding the status and location of roadless areas in Idaho should be made prior to a final decision regarding the Proposed Action. [Ltr326 Cmt3, Ltr303 Cmt2, Ltr483 Cmt1, Ltr302 Cmt3, Ltr585 Cmt3,

Ltr283 Cmt1, Ltr489 Cmt2, Ltr549 Cmt9, Ltr980 Cmt2, Ltr288 Cmt4, Ltr357 Cmt2, Ltr845 Cmt3, Ltr282 Cmt4, Ltr292 Cmt1, Ltr304 Cmt3, Ltr548 Cmt4, Ltr579 Cmt3, Ltr581 Cmt2, Ltr584 Cmt2, Ltr588 Cmt2, Ltr589 Cmt2, Ltr748 Cmt3, Ltr764 Cmt4, Ltr765 Cmt4, Ltr880 Cmt3, Ltr294 Cmt2, Ltr289 Cmt1, Ltr1030 Cmt4, Ltr244 Cmt2, Ltr592 Cmt1]

Response: **Section 1.3.2** of the EIS presents the current legal status of the roadless rule. The Agencies are legally operating under the appropriate and most relevant guidance for management of roadless areas.

2. Comment: Two commenters expressed concern regarding existing selenium contamination from mining activities that has not been remediated, as well as the potential for future contamination due to the proposed action. [Ltr283 Cmt1, Ltr289 Cmt1]

   Response: See response to Public Concern 28 Comment 8 above.

3. Comment: One commenter stated that the Proposed Action is an obvious attempt to rapidly acquire permits prior to resolution of the roadless area designation. [Ltr281 Cmt3]

   Response: See response to Comment 1 above.

4. Comment: One commenter stated that the roadless areas proposed for impact should be considered as candidates for wilderness designation prior to final decision on the Proposed Action. [Ltr593 Cmt3]

   Response: It is beyond the scope of this EIS to determine whether the roadless areas that would be impacted by the Project, should or should not be considered as candidates for wilderness designation. This analysis was done during the Forest Plan revision process and they were not recommended for wilderness designation. A brief description of how roadless areas were identified on USFS lands is provided in **Section 1.3.2** of the EIS.

5. Comment: One commenter stated that the proposed mining activity should not be considered due to unavoidable impacts in unspoiled, naturally beautiful areas. [Ltr744 Cmt3)

   Response: See response to Comment 1 above.

Public Concern ID 125

The BLM/FS should make the public aware as much as possible of what is happening to wild areas

1. Comment: One commenter stated that the public should be sufficiently aware of proposed activities in wild areas. [Ltr769 Cmt3]

   Response: IRAs are addressed in the EIS in **Sections 1.3.2**, **3.11**, **4.11**, and **5.12** and potential impacts to IRAs in the Study Area have been thoroughly considered. All applicable and current USFS regulations regarding the management of IRAs, including

the RFP (USFS 2003a), would be followed and adhered to regarding the Project. The DEIS was made available to the public for a review period of 75 days. It's availability was advertised in local newspapers and nationally in the Federal Register and on the Idaho BLM website. Public information meetings were held in Pocatello, ID, Soda Springs, ID, and Afton, WY.

Public Concern ID 219

The BLM/FS should minimize the transportation impacts in both Sage Creek and Meade Peak Inventoried Roadless Areas (IRAs)

1. Comment: One commenter stated that road impacts should be excluded from areas that are too steep to be reclaimed and/or have the potential for long-term water quality degradation. The commenter also stated that the alternatives utilizing generators at Panel G posed an unacceptable degree of risk associated with the constant transport of diesel fuel. [Ltr978 Cmt15]

   Response: Impacts to all resources that occur within the Study Area need to be evaluated and considered within the context of the EIS to determine the preferred transportation alternative. The Agency Preferred Transportation Alternative (Proposed Action Panel G West Haul/Access Road) has the third fewest acres to be left unreclaimed of the transportation haul/access road alternatives. The Agency Preferred Alternative is further described in **Section 2.10.2**. Rational for selection of the Panel G West Haul/Access road will be in the ROD.

   Regarding Mining Alternative F, electrical generators at Panel G, the Agencies have not identified this alternative as their preferred mining alternative.

Public Concern ID 236

The BLM/FS should acknowledge that expansion of the Smoky Canyon Mine into Panels F and G would violate the Roadless Area conservation rule

1. Comment: One commenter indicated that the Proposed Action would not meet the exemptions allowed for mining activities in the Roadless Area Conservation Rule (Rule), and that the action would be a violation of the Rule. The commenter acknowledged that the Rule is currently pending due to litigation filed against the FS May 2005 decision repealing the Rule, however, the Proposed Action could necessitate an injunction against any action authorized by this EIS in order to protect the interests of the plaintiffs in the Rule challenge. [Ltr950 Cmt152, Ltr950 Cmt153]

   Response: See the response to Public Concern 60 Comment 1.

Public Concern ID 278

The BLM/FS should acknowledge that the draft EIS analysis of environmental impacts is inadequate in regards to several of the roadless and wilderness characteristics for IRAs

1. Comment: One commenter noted multiple areas where the DEIS appeared to sufficiently address and analyze project impacts, including soils, landscapes, and wilderness attributes, and several areas where the DEIS did not sufficiently address project impacts,

including water quality, Threatened, Endangered, Sensitive and Rare species, and recreation. [Ltr475 Cmt115, Ltr475 Cmt116, Ltr475 Cmt117]

Response: The Agencies believe that impacts to IRAs, specifically the roadless and wilderness attributes within each IRA that occurs in the Study Area, have been adequately addressed in **Section 4.11** of the DEIS. However, the Agencies have revised **Section 4.11** of the FEIS, to include additional information applied to the analysis and to ensure that the current description of impacts is appropriate and adequate.

Public Concern ID 325
The BLM/FS should acknowledge that the proposed mining activities are authorized to occur in roadless areas

1. Comment: One commenter stated that, while mentioning of impacts within IRAs is appropriate to provide a full parameter of environmental impacts, extensive discussion should not be required due to the exemption of mining activities in the RFP (USFS 2003a) for the CTNF. [Ltr551 Cmt7]

   Response: The Agencies believe that is was important and appropriate to provide the background status of IRA policy in the USFS and the State of Idaho. **Section 1.3.2** of the EIS presents the current legal status of the roadless rule for the public and for consideration of the decision makers.

7.3.15 Visual and Aesthetic Resources

Public Concern ID 96
The BLM/FS should recognize that Simplot is willing to mitigate visual effects of Alternative 2 on Crow Creek landowners

1. Comment: One commenter questioned whether the Alternative 2 road alignment would be visible from the Osprey Ranch on Crow Creek Road, as stated in the DEIS. The commenter suggested that the alignment could be adjusted based on topography in an effort to lessen the visual effect of this alternative from the Osprey Ranch. Other mitigation measures, such as planting trees, could also be explored. [Ltr475 Cmt48]

   Response: According to the KOP observations and seen/unseen representations presented in **Section 3.12**, a small portion (less than 0.25 mile) of the Alternative 2 alignment would be visible from the viewpoint analyzed within the Osprey Ranch area. Adjustment of the corridor further west could lessen the visual effect from the Osprey Ranch. Trees could be planted at locations that could screen the road from specific public viewpoints. The tree planting mitigation measure has been added to the EIS.

7.3.16 Cultural Resources

Public Concern ID 164

The BLM/FS should make technical and editorial changes to the draft EIS regarding cultural and tribal resources

1. Comment: Chapter 3.13, Paragraph 3, Line 4: Replace "nominated to" with "eligible for nomination to". Frontier Historical Consultants assessed a site's potential "eligibility for the NRHP" within the baseline studies; there is no intent to actually nominate properties to the NRHP. The recommended word change brings the statement closer to the actual process. [Ltr475 Cmt119]

   Response: The editorial comments have been addressed. See updated section in FEIS.

2. Comment: Chapter 3.13, Paragraph 3, Line 5: The last sentence should read ". . . site must retain cultural integrity and meet at least . . ." According to published guidelines for the nomination of cultural sites, a site must retain integrity to be nominated to the NRHP. Sites that do not retain integrity are precluded from the process. [Ltr475 Cmt120]

   Response: The editorial comments have been addressed. See updated section in FEIS.

3. Comment: Chapter 3 Cultural Resource Sites: Throughout this section the Wells Canyon and Diamond Creek Arborglyph district (CB-342) is listed as unevaluated. This is incorrect. The Caribou - Targhee National Forest reviewed the documentation for this site and found it ineligible. When the report and site form were forwarded to the Idaho SHPO, the SHPO concurred with the Forest and returned a finding of no effect. While this is apparently at odds with later evaluation of other arborglyph sites - especially site CB-317, the original ruling by the Forest and SHPO still stands and official documents support this original finding. Documents on file at the Idaho SHPO and Caribou - Targhee National Forest currently reflect the ineligible status. Section 3 and 4 should be changed to reflect the official status of CB-342. [Ltr475 Cmt123]

   Response: In a letter dated May 5, 2006, the Idaho SHPO concurred with the Caribou-Targhee Forest Archaeologist that site CB-342 should be considered unevaluated at this time. CB-342, an arborglyph site/district, was recommended by the consultant as eligible in 2003. At that time, the Forest Service and SHPO did not agree with that recommendation, as noted in the Determination of Significance and Effect letter dated April 2004. Between that time and the subsequent inventory in the summer of 2004, discussions regarding the study of arborglyphs and their significance to local history and settlement took place in Idaho. Since the first review of the Smoky Canyon Mine project cultural resource inventories, there has been additional research on the Boise National Forest that suggests that these types of site may be eligible for the National Register of Historic Places. Site CB-342 was listed as unevaluated in the DEIS and will remain unevaluated until further research has been conducted as outlined in the EIS.

Public Concern ID 279

The BLM/FS should acknowledge that the mine site has a low potential for prehistoric sites due to its remote location and its steep topography

1. Comment: Chapter 3 prehistory context discussion: While the cultural resource surveys in the project areas included a prehistoric survey, archaeologists conducting the field reviews recorded that no prehistoric sites or isolates were found. The area has a low

potential for prehistoric sites due to its remote location and its steep topography. [Ltr475 Cmt121]

Response: It is true that no prehistoric sites were recorded during the project specific cultural resource inventories. However, prehistoric sites have been found in adjacent project areas and in the general area. The fact that there are so few prehistoric sites in the area supports their significance when located. The prehistory context is provided to support later discussions in cumulative effects and monitoring requirements of known sites in and adjacent to the Smoky Canyon Mine.

7.3.17 Native American Concerns and Treaty Rights Resources

(Comments from the Shoshone-Bannock Tribes are addressed in **Chapter 6** – Coordination and Consultation, in **Section 6.3**)

7.3.18 Transportation

Public Concern ID 15
The BLM/FS should provide a pre-plan on road needs

1. Comment: A commenter stated that it would be expected to see a pre-plan on road needs because this would greatly improve access for the public to really see nature after Simplot vacates this area in the future. [Ltr79 Cmt3]

   Response: The location of all proposed haul roads and/or access roads associated with the proposed Project are clearly identified in the EIS. In addition, figures displaying the results of reclamation of these roads after mining have also been provided in the EIS. A pre-plan on road needs was deemed unnecessary for the FEIS.

Public Concern ID 72
The BLM/FS needs to address the increased traffic problem on Crow Creek Road

1. Comment: A commenter stated that no one has addressed the increased traffic problem on Crow Creek Road and the present problem should be looked at more carefully and solved before moving on with this Project. [Ltr269 Cmt2]

   Response: In **Section 3.15**, the present traffic on Crow Creek Road is discussed. No traffic counts were available for the Crow Creek Road in the vicinity of the project, so traffic counts were estimated and based on traffic counts taken on a section of the Crow Creek Road 10 miles to the south. Concerns with present increases in traffic on the Crow Creek Road are outside the scope of this project and are not addressed. In **Section 4.15**, the potential increase of traffic on Crow Creek Road associated with Transportation Alternative 7 – Crow Creek/Wells Canyon Access Road is addressed and discussed. This is the only transportation alternative that would increase traffic on the Crow Creek Road.

Public Concern ID 310

The BLM/FS should prevent increased roads and motorized traffic in the Smoky Canyon area

1. Comment: Several commenters stated that all traffic needs to be kept out of the Project Area and no new roads should be allowed because each new road causes pollution and too much damage. [Ltr481 Cmt3, Ltr824 Cmt3]

   Response: Roads are a necessary component of this proposed Project for the movement of personnel and supplies into the proposed mines and the movement of overburden and ore out of the mines. The potential environmental impacts of the different road alternatives have been identified throughout the EIS. The roads included in the Agency Preferred Alternative would be private roads.

7.3.19 Social and Economic Resources

Public Concern ID 8

The BLM/FS should protect the Smoky Canyon Mine from closure

1. Comment: Numerous commenters stated that the closure of the Smoky Canyon Mine and/or the Don Plant would impact employees, their families, and the local communities through lost wages, royalties, and tax base, as well as cause adverse impacts to secondary industry, fertilizer production, and agriculture (i.e. the cost to produce crops). [Ltr146 Cmt1, Ltr147 Cmt1, Ltr148 Cmt1, Ltr248 Cmt2, Ltr32 Cmt1, Ltr83 Cmt1, Ltr251 Cmt1, Ltr109 Cmt1, Ltr115 Cmt1, Ltr120 Cmt1, Ltr254 Cmt1, Ltr1014 Cmt2, Ltr1015 Cmt2, Ltr991 Cmt5, Ltr253 Cmt2, Ltr291 Cmt3, Ltr156 Cmt1, Ltr603 Cmt1, Ltr162 Cmt3, Ltr551 Cmt4, Ltr574 Cmt5, Ltr351 Cmt2, Ltr1009 Cmt3, Ltr1032 Cmt3, Ltr566 Cmt2, Ltr85 Cmt1, Ltr1013 Cmt2, Ltr242 Cmt3]

   Response: Comments noted. Information has been added to the socioeconomic section (**3.16**) of the FEIS providing further details on the economic presence of Simplot in the local communities and Southeast Idaho.

Public Concern ID 10

The BLM/FS should acknowledge that environmental damage caused by mining in Southeast Idaho is minimal and is outweighed by the positive influence on the local economy

1. Comment: Several commenters stated that Simplot is a good environmental steward and vital to economics of Southeast Idaho and the region. Some impacts are expected as a result of mining which are balanced out by the benefits gained; environmental or habitat degradation is not demonstrated in the EIS. [Ltr142 Cmt1, Ltr554 Cmt2, Ltr554 Cmt4, Ltr59 Cmt1, Ltr242 Cmt7]

   Response: The EIS describes environmental impacts and habitat degradation in the various resource sections of Chapter 4. The socio-economic benefits and impacts of the operations are also described in the EIS.

Public Concern ID 16

The BLM/FS should acknowledge the economic importance of Simplot's mining operations in eastern Idaho and western Wyoming

1. Comment: Numerous commenters stated that Simplot operations are of great economic importance locally and regionally (as evidenced through payroll, higher wages, local goods and services). Not granting the mine expansion would be devastating to the local communities and the region. Simplot has shown that the company operates in responsible manner with respect to the environment. [Ltr46 Cmt1, Ltr47 Cmt1, Ltr84 Cmt2, Ltr86 Cmt1, Ltr103 Cmt1, Ltr104 Cmt1, Ltr267 Cmt1, Ltr996 Cmt1, Ltr115 Cmt1, Ltr136 Cmt1, Ltr137 Cmt1, Ltr138 Cmt1, Ltr145 Cmt1, Ltr233 Cmt1, Ltr237 Cmt2, Ltr238 Cmt1, Ltr254 Cmt1, Ltr260 Cmt3, Ltr173 Cmt2, Ltr358 Cmt2, Ltr173 Cmt1, Ltr991 Cmt4, Ltr543 Cmt6, Ltr1009 Cmt3, Ltr39 Cmt1, Ltr316 Cmt2, Ltr17 Cmt1, Ltr572 Cmt8, Ltr175 Cmt1, Ltr252 Cmt2, Ltr992 Cmt2]

   Response: Local and regional economic conditions are described in the EIS, and detailed information provided by a commenting party, 'Idaho Economics', has been added to the FEIS regarding the economic contribution of Simplot in this area.

2. Comment: Several commenters stated that Simplot is important to phosphate production in the U.S. Phosphate is important to agriculture, food production, and the processing industry. It is important to have a long term domestic fertilizer supply and not become dependent on foreign supplies. Fertilizers are very important to food production and helping to solve world hunger. [Ltr173 Cmt2, Ltr993 Cmt1, Ltr157 Cmt1, Ltr147 Cmt1, Ltr1032 Cmt10, Ltr261 Cmt1, Ltr540 Cmt1, Ltr552 Cmt1, Ltr383 Cmt1, Ltr551 Cmt2, Ltr175 Cmt1, Ltr557 Cmt1, Ltr558 Cmt1, Ltr1032 Cmt16, Ltr558 Cmt4, Ltr558 Cmt5, Ltr252 Cmt1, Ltr84 Cmt3, Ltr242 Cmt6, Ltr1032 Cmt11]

   Response: Phosphate and phosphate fertilizers are important to food production overall. The U.S. is a major exporter of phosphate fertilizers. Although the U.S. imports phosphate rock, domestic mines including Smoky Canyon Mine, still account for 90% of the nation's supply. Idaho ranks 2nd nationally in phosphate rock production. According to Idaho Geological Survey's Idaho Mining and Exploration, 2005, Simplot's Smoky Canyon Mine was the largest phosphate rock operation in Idaho, and the Don Plant had a record year of production in 2005.

3. Comment: Several commenters stated that Simplot is important to the community for social reasons as well as economics. [Ltr250 Cmt1, Ltr161 Cmt1, Ltr603 Cmt6, Ltr17 Cmt1, Ltr246 Cmt1, Ltr571 Cmt2, Ltr572 Cmt8]

   Response: Comments noted. Information provided by commenting party, 'Idaho Economics', has been added to the socioeconomic section (**3.16**) of the FEIS providing further details on the economic and community presence of Simplot in the local area and Southeast Idaho region.

4. Comment: Two commenters noted that Simplot competes in a commodity market therefore the economics of mining are important in order to continue to utilize the resource and maintain a positive economic benefit to area. [Ltr256 Cmt2, Ltr252 Cmt2]

   Response: Comment noted.

5. Comment: Several commenters stated that the Agencies have responsibility to make decisions in the best interest of the public, not to fold to pressure from environmental activists, wealthy landowners, and non-locals. [Ltr499 Cmt13, Ltr1 Cmt2, Ltr291 Cmt3, Ltr161 Cmt1, Ltr156 Cmt3]

   Response: The BLM and FS are required to accept and review all public comments and participation in the NEPA process through established practices guided by regulation and agency policies.

6. Comment: Two commenters stated that the Smoky Canyon Mine provides positive economic benefit to the region through high paying jobs that allow folks to live in this area with an outstanding quality of life. [Ltr991 Cmt1, Ltr162 Cmt3]

   Response: Higher paying jobs can benefit the employed families as well as the economy.

7. Comment: Two commenters stated that the importance of Simplot in the economy, directly and secondarily, is supported by Church's economic study, employment, purchase of goods & services, and taxes. [Ltr552 Cmt5, Ltr1032 Cmt3]

   Response: See Response to PC 177 Comment 1, further along in this section.

8. Comment: Several commenters expressed support for the mine expansion and urge the Agencies to permit it using sound economics and environmental protection. [Ltr80 Cmt1, Ltr160 Cmt1, Ltr540 Cmt1, Ltr1009 Cmt3, Ltr39 Cmt1, Ltr156 Cmt3, Ltr175 Cmt1, Ltr557 Cmt1, Ltr558 Cmt1, Ltr1032 Cmt16, Ltr558 Cmt4, Ltr558 Cmt5, Ltr252 Cmt2, Ltr527 Cmt2]

   Response: Comments noted. The Agencies intend to continue the NEPA process and make decisions according to established management practices and policy. The Agency Preferred Alternative, as descried in **Section 2.10**, includes the selection of a mining alternative and mitigation measures, which are predicted to be sufficiently protective of the environment.

9. Comment: One commenter expressed support for the mine expansion and stated that the proposed expansion directly affects land use and development, as well as the economic and social welfare of the residents. Local government has already developed plans, programs, and policies directly bearing on the proposed expansion. It is important for economic development to be sustained and contribute to the future. [Ltr245 Cmt1]

   Response: Comment noted. It is important that economic development is sustained and contributes to the future. The BLM and FS appreciate the role of Lincoln County in the Agencies' land use planning processes.

Public Concern ID 17

The BLM/FS should acknowledge the importance of Smoky Canyon Mine to the U.S. agricultural industry

1. Comment: Three commenters stated that without Simplot, Canadian-based Agrium would have a monopoly on phosphate, causing food production costs in the US to increase. [Ltr84 Cmt3, Ltr242 Cmt6, Ltr1032 Cmt11]

   Response: This comment is outside the scope of the EIS.

Public Concern ID 19

The BLM/FS should acknowledge that when natural resources are not properly utilized, product prices rise and jobs are lost

1. Comment: Several commenters stated that wise use of our natural resources, such as phosphate, will keep jobs in the U.S., keep product prices lower, increase crop yields so less land is devoted to agriculture, reduce global environmental impacts since U.S. has stringent laws, and help feed the world. [Ltr85 Cmt3, Ltr242 Cmt9, Ltr237 Cmt4, Ltr235 Cmt2]

   Response: The socio-economic benefits and impacts related to this project are described in **Section 4.16** of the FEIS. The comparison of regulatory programs in the U.S. with other countries is outside the scope of this EIS.

Public Concern ID 29

The BLM/FS should support incentives for agricultural methods that recycle nutrients

1. Comment: One commenter requested that the Agencies should support incentives for methods of agriculture that recycle nutrients, instead of constantly depleting the soil. [Ltr211 Cmt4]

   Response: Analysis/comparison of various agricultural methods is outside the scope of this EIS.

Public Concern ID 32

The BLM/FS should recognize that productive farming reduces the need for additional land to be turned into farmland

1. Comment: One commenter stated that when existing farmland is farmed wisely and productively, there is less pressure to transform range and forest land into agricultural land. Wise use of the phosphate plant nutrients derived from the ores of Panels F and G will protect other lands from the plow. [Ltr235 Cmt2]

   Response: This comment is beyond the scope of this EIS.

Public Concern ID 50

The BLM/FS should disclose the negative effect the proposed mine lease expansion would have on local property values in the EIS

1. Comment: Three of the adjacent landowners commented that the EIS should project impacts to property values for landowners adjacent to the proposed mining activity/transport routes. [Ltr239 Cmt22, Ltr239 Cmt25, ltr240 Cmt9, ltr561 Cmt2, Ltr561 Cmt6]

   Response: It is beyond the scope of this EIS to predict in detail how such impacts would affect land values along Crow Creek. The BLM and FS determined that potential impacts to property values would be addressed in the EIS relative to resources that could impact those values. **Sections 3.16** and **4.16** of the FEIS do discuss potential project impacts to property values in the area by identifying the characteristics/amenities that subjectively influence property values and describing which ones may be affected. **Section 4.16.1** of the FEIS indicates that some impacts from the operations such as air emissions are not expected to impact property values along Crow Creek. Other impacts to resources such as nearby forest recreation opportunities, visual resources, and surface water quality are described as negative changes that could potentially affect property values. For some transportation alternatives, noise is described as possibly affecting property values along Crow Creek. Transportation Alternative 7, Crow Creek/Wells Canyon Road improvement, is described as potentially benefiting property values due to improved, year-round access to more of Crow Creek valley but also subjecting these properties to increased noise, visual disturbance and traffic which could impact property values. The No Action alternative is described as potentially affecting property values to the extent the local community is dependent on the mining industry.

Public Concern ID 51

The BLM/FS should recognize that the EIS overstates the positive economic affect the proposed mine expansion would have on the surrounding community

1. Comment: One commenter stated that the positive effect of the phosphate industry on the economy of the area is overestimated. According to the commenter: “In Star Valley 174 persons out of a work force of 6695, or 2.6%, are employed by the Smoky Canyon Mine. This is about 3% of the payroll for nonagricultural workers. When talking of the 4 County areas "Annual payroll for these 545 persons is $31,863,000, or about 2 percent of the total nonagricultural payroll for the four counties." (DEIS Section 4.16.1.1, page 4-212) When discussing the 3 Idaho counties, "Approximately 3.4 percent of the nonagricultural employment in Bannock, Caribou and Power Counties, Idaho is due to the Phosphate operations." (DEIS Section 3.16.9, page 3-223). It is particularly significant these figures ignore agricultural communities. These figures also ignore agricultural income in what are primarily agricultural communities. These figures also ignore dividends, interest and transfer payments. This is a major factor in Star Valley and very significant in Idaho. In fact these payments will grow as time goes on. The draft EIS states "Simultaneously, the area's economy had become more dependent upon investment income (dividends, interest, and rent) and government transfer payments and less dependent upon mining and manufacturing". (DEIS Section 3.16.3, page 3-203) In the case of Star Valley the jobs at the mine are considered to be good jobs. The average mine wage is $44,675, although this number is likely biased by the higher salaries of the mine management. The average wage in Star Valley is $26,621.

Unfortunately it looks as though the mine is in part responsible for the lower wages for the rest of Star Valley, which rely more on traditional industries of agriculture and natural resource extraction, tend to have lower household incomes." (DEIS Section 3.16.5, page 3-210) [Ltr239 Cmt26]

Response: **Section 3.16** of the EIS provides a factual summary of population, income, demographics, employment, and local government finances. **Section 3.16.4** of the EIS discusses the trends of employment in the four-county area and clearly shows that employment in mining has decreased since 1980 while employment in many other industrial sectors has increased. **Section 3.16.5** discusses trends in personal income and shows that total personal income from mining has decreased since 1980 while all other income sources have increased. **Section 3.16.8** of the EIS specifically addresses agricultural economics in the same counties as were included in the description of phosphate industry economics. The first sentence of this section states, "Agriculture plays a significant role in the economics of each of the four counties". **Section 3.16.5** of the DEIS specifically recognizes dividends, interest and transfer payments, and includes the following statement, "Investments have been rising as a source of personal income in the four counties with dividends, interest and rent rising from 11.3 to 17.7 percent of total personal income."

Public Concern ID 53

The BLM/FS should recognize that phosphate is a strategic resource and we should not be sending U.S. phosphate overseas because Smoky Canyon Mine is not a significant influence on the phosphate trade balance; and because government should save our phosphate for the future

1. Comment: One commenter stated: It is suggested that the U.S. will suddenly become dependent on foreign Phosphate if the Smoky Canyon Mine closes. The U.S. is a net exporter of phosphate fertilizer by a wide margin. "In fact, the U.S. exports approximately twice the quantity of ammonium phosphate fertilizer (measured in terms of contained P/2O/5) as is consumed domestically." (DEIS Section 3.16.9, page 3-218) Also "China is the largest consumer for United States diammonium phosphate exports, accounting for over 60 percent of U.S. exports in 2002." (DEIS Section 3.16.9, page 3-210) All of western phosphate is only 14% of U.S. production so it is clear that Smoky Canyon Mine is not a significant influence on phosphate trade balance. Phosphate is considered a strategic resource. It seems outrageous to send it overseas, especially to China where they have their own reserves. We should be using Chinese ore. [Ltr239 Cmt29]

   Response: **Section 3.16.9** shows that U.S. phosphate fertilizer exports are approximate twice the quantity that is consumed domestically so there is no factual reason why the U.S. would "suddenly become dependent on foreign Phosphate if the Smoky Canyon Mine closes" as stated in the comment. **Section 4.16.1.4** of the DEIS clearly indicates that the Don Plant represents a major portion of the western phosphate manufacturing capacity but represents just 2.4 percent of national capacity. Nowhere in this section is there any mention that closure of the Don Plant would make the U.S. dependent on foreign phosphate sources. It is beyond the scope of this EIS to make policy regarding the import or export of phosphate products.

Public Concern ID 64

The draft EIS should disclose how much revenue will be paid to the U.S. Agencies and the State of Idaho in royalties resulting from Simplot's mining activities

1. Comment: One commenter noted that J.R. Simplot, a private company, will profit from this project. Less than three percent of Star Valley's non-agricultural residents may have employment for a slightly longer time. Some royalties will go to federal agencies and the state of Idaho but Lincoln County will not receive any royalties. It is unclear how much revenue each entity will receive. [Ltr240 Cmt15]

   Response: A description of the royalty payment system and royalties paid annually by Simplot is included in **Section 3.16.9** of the EIS. The phosphate mining industry pays royalties to the federal government for ore mined from federal leases on public lands at the rate of 5 percent of the value of phosphate mined. Royalties are distributed to the county in which the phosphate was mined, thus Lincoln County would receive no royalty, but they receive much of the direct and indirect benefits of the mine. Information has been added to **Section 3.16.9** of the EIS further describing the phosphate royalty calculation, as well as its relationship to PILT monies.

Public Concern ID 80

The BLM/FS should recognize that if mining was done overseas there would be a greater negative impact on the environment

1. Comment: One commenter stated that mining overseas as an alternative to mining in the U.S. increases global environmental problems, since the U.S. is unique in having stringent environmental laws. The No Action alternative should include a discussion of effects to the global environment if mining is forced overseas. [Ltr532 Cmt4]

   Response: A comparison of environmental protection measures on a worldwide scale with local requirements is beyond the scope of this EIS.

Public Concern ID 90

The BLM/FS should recognize that all alternatives have significant economic impact to Panel G (Deer Creek)

1. Comment: The project proponent stated that all of the mining alternatives have significant impacts to resource recovery and economics, especially as related to Panel G. Alternatives B and C have little environmental protection and significant economic implications. Combining Alt. B with the Proposed Action is viable, but combining it with any other Alternative would not be economically justifiable. Alternative C would render the mining of Panel G economically unfeasible. Alternative D includes environmental benefit as well as economic cost, but is supported as an addition to the Preferred Alt. [Ltr475 Cmt37, Ltr475 Cmt38, Ltr475 Cmt39, Ltr475 Cmt40]

   Response: The impacts to resource recovery and mine life for each of the mining alternatives are discussed in **Section 4.1.1.2** of the DEIS. The impacts of the mining alternatives on local employment and federal lease royalties are discussed in Section **4.16.1.2** of the DEIS. The Agencies have determined that combining Alternative B with Alternative D in the Agency Preferred Alternative is not necessary because Alternative B

would not significantly decrease environmental impacts to natural resources and would add significant cost to the overall project which add the economic impacts from Alternative B to Alternative D unnecessarily.

Public Concern ID 99

The BLM/FS should recognize that Simplot is in negotiations with private landowners to purchase land in order to implement Alternative 2

1. Comment: The project proponent stated: "The road alignment for Alternative 2 crosses the northwest corner of private ground for a total of 4,570 feet amounting to a total disturbance for the road's cut and fill of approximately 21 acres. Simplot has begun discussions with the land owner to obtain a mutually agreeable settlement to allow implementation of this environmentally preferred alternative. Idaho law does provide for a Constitutional and statutory right of eminent domain for a mining company to obtain access to mining property. See Idaho Constitution, art. 1, [section] 14; Idaho Code [section] 47-901 et. seq." [Ltr475 Cmt49]

   Response: Comment noted. Any changes in land status between the distribution of the DEIS and the FEIS are described in the FEIS and considered in the ROD. The Agency Preferred Alternative has been revised since the DEIS, based upon Transporation Alternative 2 crossing a portion of private land and Simplot not being able to obtain an easement across this private land. Thus, the Agencies believe that construction of the East Haul/Access Road would not be possible at this time. However, if Simplot and the private land holder were to come to a mutual agreement that would provide Simplot an easement for Transportation Alternative 2 – East Haul/Access Road, then the Agencies would prefer to implement this Transportation Alternative. The Agencies understand that both the landowner and Simplot have certain rights related to the location of the Alternative 2 road across the private property in question and the Agencies' decision is intended to be neutral with regard to these rights. The Agency Preferred Alternative description in **Chapter 2** has been modified to indicate that Alternative 2 would be the fall back road alignment if the necessary legal access for Alternative 2 across the private property is obtained by Simplot in the future.

Public Concern ID 113

The BLM/FS should recognize that no more phosphate is needed because phosphate pollution contaminates our waterways

1. Comment: One commenter expressed that there is not a need for more phosphate since there is too much phosphate polluting waterways as it is. [Ltr621 Cmt3]

   Response: The Agencies do not regulate the marketing or use of phosphate.

Public Concern ID 177

The BLM/FS should acknowledge that the draft EIS analysis of potential economic impacts is inadequate with regard to the No Action Alternative

1. Comment: Several commenters stated that the DEIS analysis of potential social and economic impacts is inadequate because it does not adequately describe the direct, indirect and cumulative economic impacts of the Smoky Canyon Mine and Don Plant in

the local and regional area, and therefore does not adequately describe the detrimental implications of the No Action alternative on the area. An economic impact analysis, "JR Simplot Company's Don Plant in Pocatello, Idaho and Smoky Canyon Phosphate Mine in Caribou County, Idaho" has been prepared by Mr. John Church of Idaho Economics to provide information for use in the EIS. [Ltr475 Cmt125, Ltr475 Cmt126, Ltr603 Cmt5, Ltr475 Cmt27, Ltr475 Cmt28, Ltr475 Cmt29, Ltr475 Cmt124, Ltr475 Cmt127, Ltr475 Cmt128, Ltr561 Cmt5]

Response: The Idaho Economics Report appears to be a fairly straightforward economic impact study utilizing the RIMS II Input-Output model developed by the Bureau of Economic Analysis (BEA). However, there are some problems with the way the input-output model was applied and the Agencies will not use any of the economic impact data included in this report until these problems are resolved. Since the results from the economic impact section of the report were used in the calculations for the section on tax collections, the results for this section are also considered suspect. Below, the various sections are addressed in order.

The Agencies agree that a portion of the Idaho Economics report contains updated information that would be useful to include in the EIS. The data in the section titled JR Simplot Company's Don Fertilizer Plant and Smoky Canyon Mine has been added to **Section 3.16** of the FEIS. This section is fairly straightforward and basically describes the operations using data provided by Simplot. The remainder of the sections of Mr. Church's report are summarized below by section, with reasons for not including this analysis in the FEIS.

Estimating Economic Impacts: This section explains the theoretical background behind input-output modeling. One thing that should be noted is that the second paragraph of the Idaho Economics report states this Economic Impact Study used model parameters specific to BEA Region 77, consisting of a 13-county area in Southeastern Idaho. Therefore, the input-output modeling in this study should only be applied to spending that occurs in this region and the results apply to BEA Economic Region 77 in its entirety.

Economic Impacts: This section details the results of the input-output modeling using the model for BEA Area 77. There appear to be some problems with the calculations, as noted below.

The basis for an input-output model is an inter-industry transactions table. This table shows the inputs required from each industry in the region for each unit of output by the respective industries. From the inter-industry transactions table, the input-output multipliers are developed. Since the inter-industry transactions table is specific to a region, the resulting input-output model is specific to the region.

Two types of multipliers are commonly used (1) the final-demand multiplier, and (2) the direct effect multiplier. Three final demand multipliers are included in the RIMS II Model; these are multipliers for economic output, earnings, and employment. Direct effect multipliers are supplied for employment and wages. For example, the multipliers for the two industries involved in this EIS and the 27-county area considered for total impact in the original DEIS are listed below.

	Final-demand multiplier			Direct-effect multiplier	
	Output (dollars)	Earnings (dollars)	Employment (jobs)	Earnings (dollars)	Employment (jobs)
Mining Chemical and Fertilizer Minerals	1.9106	0.4937	11.7	1.9520	3.3054
Nitrogenous and Phosphatic Fertilizers	2.6639	0.4999	14.5	4.8386	6.0322
Source: 27-county RIMS II Model purchased for the Simplot F & G Mine Panels EIS					

The Final-demand multipliers relate the change in final demand (basically an increase in sales) in the subject industry to changes in economic output, earnings, and employment. For example, an additional dollar in sales by the fertilizer manufacturing industry in this 27-county region results in an increase of $2.6639 in total economic output, $0.4999 in additional earnings in the region, and 0.0000145 jobs (the employment multiplier is in term of jobs per million dollars).

It is also important to notice, in using the Final-demand multipliers, the correct multiplier to use is the multiplier for the selling industry, not the industry making the purchase. As an example, if the Smoky Canyon Mine is purchasing lumber from a local lumber mill, the Final-demand multipliers for the industry "Sawmills and planning mills, general" in the RIMS II model should be used, not the multiplier for the mining industry listed in the above table. So if a company is making purchases from several suppliers in different industries, the calculations have to be conducted separately for each of the industries from which purchases are being made. This concept becomes important in some later comments in this review.

The Direct-effect multipliers relate employment and wages in a specific industry to total employment and wages in the area as a result of spending by that industry and its employees in the area. For example, for every employee in the Mining Chemical and Fertilizer Minerals industry in this 27-county area, there are 3.3054 total jobs, including the mining job. The Direct-effect multipliers were used in the DEIS since employment and wages were available and spending by the Simplot operations by industry was not available.

Mr. Church's Economic Impact Study used the Final-demand multipliers since Simplot provided Idaho Economics with the company's expenditure data. However, there are problems with the way the RIMS II Input-Output model was applied. The RIMS II models can be purchased for any county or multi-county area in the country defined by the purchaser of the model.

The Idaho Economics Economic Impact Study used a RIMS II Model for a 13-county area in Southeastern Idaho, which the BEA has defined as BEA Economic Area 77 (Page 11, second paragraph). This is the shaded area in the map of Idaho shown in **Figure 1**.

Figure 1 Bureau of Economic Analysis Economic Area 77

The Final-demand multipliers are what Idaho Economics used to calculate the secondary economic impacts listed in Table 10 (page 16) and Table 11 (page 17) of the Idaho Economics report. The data in these two tables was then summed and presented in Table 9 (page 15) of the report.

The data in Tables 9 through 11 of the Idaho Economics report are listed by county. Both the direct economic impact, basically spending by Simplot and wages paid to Simplot employees, and the secondary impacts calculated using the RIMS II model are listed by county. This implies that these secondary impacts are specific to the county. However, the RIMS II model used covered the entire 13-county area shaded in **Figure 1** above. Since the RIMS II model covered this 13-county area, it should only be applied to spending that occurs in this area and the results apply to the entire area.

As an example, in Table 10 of the Idaho Economics report, the direct economic impact for Bannock County is listed as $37,565,000 and the secondary economic impact as $23,678,730. This secondary impact is not isolated to Bannock County, as is implied by reading Table 10, but is the total secondary impact in the 13-county area as a result of the direct impact in Bannock County.

The RIMS II model was also applied to spending in areas that lie totally outside of the 13-county area for which it was developed. Again, in Table 10, it was applied to Ada, Franklin, Payette, and Shoshone Counties, Idaho. Similarly, in Table 11, data are listed for Lincoln County, Wyoming and Ada, Franklin, and Shoshone Counties, Idaho. None of these areas lie within the 13-county area for which the model was developed and it is inappropriate to apply the model to these areas. A good analogy would be purchasing the RIMS II model for Utah and applying it to the Simplot operations in Idaho.

There is one other aspect of Tables 10 and 11 of the Idaho Economics report, which requires attention. The ratio of the Total Direct and Secondary Impacts to the Direct Economic Impacts in each table is consistent across each county examined. This ratio is 1.630 in Table 10 and 1.951 in Table 11. As stated above, the correct multiplier to use is that for the selling industry, not for the purchasing industry. If Simplot is purchasing different goods and services in different counties, the ratio (Total Direct and Secondary Impacts to the Direct Economic Impacts) should vary as different industries have different multipliers. It is difficult to believe that Simplot is purchasing goods and services in the same ratio from different industries in the several counties examined, as would be necessary for the ratio to remain constant across the counties examined.

There are differing opinions as to the best way to define Economic Impact. There are three Final-demand multipliers, one for economic output, earnings, and employment, respectively. The Idaho Economics, Economic Impact Study focused on economic output as a measure of economic impact. Although use of economic output is quite common in economic impact studies, it is preferable to use earnings and employment. Earnings and employment have a real meaning to all persons while the meaning of economic output is more nebulous.

Economic Output basically refers to the value of all the transactions that occur in the supply chain, so as goods pass from the raw material stage, through manufacturing, wholesaling and distribution to the final consumer, their value gets counted at every transaction. The BEA, the federal agency that provides the RIMS II Input-Output model recently published a statement to this effect:

"Gross output is a measure of what is produced in the domestic economy. It reflects the value of intermediate inputs (energy, materials, and purchased services) and the value added created by the industry's labor and capital. Gross output includes both the value of what is produced and then used by others in their production processes as well as the value of what is produced and sold to the final users. <u>Gross output for the economy reflects double counting and is much higher than GDP</u>; in the benchmark I-O accounts it is measured in nominal dollars." [Emphasis added]. BEA. Survey of Current Business, Sept. 2005, page 66.

Boyd L. Fjeldsten, formerly of the Bureau of Economic and Business Research at the University of Utah also published some of the problems with using economic output as a measure of economic impact:

"Finally, the output effects of a proposed project are frequently calculated by means of an output multiplier and then represented to be the benefit to a regional economy of the proposed project. However, the increase in the gross output of a regional economy is no more of a benefit than the increase in gross sales to a business firm. Neither gross output nor gross sales is a bottom line figure. Both completely ignore the costs of achieving the result, which may more than offset the benefits associated with the increased output or increased sales. Apparently <u>the only reason for using the projected change in gross output is that this results in a much more impressive number</u>, a number that could be a magnitude or several magnitudes of order greater than the change in regional personal income." [Emphasis added]. Regional Input-Output Multipliers: Calculation, Meaning, Use and Misuse. Utah Economic and Business Review. Vol 50, no. 10, Oct. 1990.

This opinion of the use of economic output as a measure of economic impact is seconded by Dr. Victor A. Matheson of the College of the Holy Cross Economics Department. In a recent paper, Dr. Matheson stated:

"Finally, most economic impact analyses use expenditure multipliers (rather than income multipliers) to assess the economic impact of an event. The use of expenditure multipliers is unjustified, however, as the important point is not how much business activity is created by an event but rather how the income of local residents is impacted by it." [Emphasis added]. Padding Required: Assessing the Economic Impact of the Super Bowl. College of the Holy Cross, Department of Economics Faculty Research Series, Working Paper No. 04-03.

Three Final-demand multipliers are included in the RIMS II Model, one for economic output, wages, and employment. The Economic Impact Study has an extensive section on total economic output, briefly addresses employment, and appears to totally ignore the subject of additional wages beyond those paid directly to Simplot employees.

The Estimated Impact of Simplot's Don Plant & Smoky Canyon Mine Operations on State and Local Taxes in Idaho: This section uses common methods of using ratios of tax collections to income. These ratios are then applied to changes in earnings estimated using the input-output modeling to estimate the amount of tax revenue as a result of these earnings.

Of concern in this section is applying these ratios to the secondary impacts calculated for the Economic Impact section of the report. As outlined above, there appear to be some problems with the calculations of the Economic Impact. If the Economic Impact data is suspect, then any additional information derived from this data is also suspect. Recall that the secondary impacts cannot be isolated by county because the RIMS II Model used is for 13 counties collectively. If the secondary impacts cannot be isolated to a specific county, then the tax revenue based on these impacts cannot be isolated by county (as is done in tables at the end of the report) but also is spread over the 13-county area. Similarly, if the RIMS II model used cannot be applied to counties outside of the 13-county area, then the results cannot be used to calculate the estimated taxes for these areas.

This section also appears to ignore the impact on tax collections in Wyoming as a result of Simplot operations at the Smoky Canyon Mine. Most of the mine's employees live in Wyoming.

The Simplot Games: This section addresses the economic impact of the Simplot Games, an annual Track and Field competition for high school athletes. The games are held in Pocatello, Idaho each February. Although these games are a valuable asset to the local communities, what is important here is how are the Simplot Games related to the Smoky Canyon Mine and the Don Plant? If the games were to continue upon closure of the mine and plant, then this section has no bearing on the EIS. However, recent information provided by Simplot confirms that these games would be discontinued if the mine and Don Plant were closed.

The 'direct socioeconomic impacts' as defined in section 4.16.1 of the DEIS are caused by the action, and occur at the same time and in the local area of the action. The Idaho Economics report claims that 14 different states and one Canadian province are directly

impacted. Although the economic effects are likely to stretch that far, the issue may be one of defining direct vs. secondary.

The impacts described under the No Action alternative are a fair and unbiased assessment of the losses to the communities and the region should the Mine cease operations at some point.

2. Comment: A commenter stated that the DEIS is unfair and unbalanced since it ignores Simplot's plans to mine the Wells Canyon lease in the backyard of Stewart's Crow Creek Ranch. [Ltr561 Cmt8]

   Response: The DEIS states in **Section 5.1** that the potential development of the Wells Canyon lease area was not included in the Table of 'Currently Permitted and Proposed Mine Disturbance Areas' because it has not been proposed. Simplot has conducted mineral exploration on the lease but does not own the lease and has not submitted a plan for development of the lease. Should the Agencies receive a proposal to mine this lease, it will be thoroughly reviewed and a new NEPA analysis will be done on it that includes environmental impacts from it and other mining and other developments within its cumulative effects area.

Public Concern ID 192

The BLM/FS should consider that Vernal, Utah can be an alternative supplier of phosphate ore with fewer environmental limitations than the Smoky Canyon Mine

1. Comment: One commenter stated that "the draft EIS is deficient in failing to consider the alternative source of supply near Vernal, Utah. It is believed that these reserves already supply the Pocatello plant to some extent. They are the chief source of supply for Simplot's Rock Springs plant. They have similar pipeline and rail transport connections to Pocatello as Smoky Canyon. While a comparison of costs of Vernal and Smoky Canyon ores is not readily available, it must be known to Simplot, and it is clearly the responsibility of the Agency to establish such a comparison in the EIS. Most importantly, it is known, from extensive and detailed exploration and testing, that the Vernal ores do not pose the selenium problems which appear to constitute the chief environmental limitation of Smoky Canyon ores. Except transport studies indicate that physical distance need not be an economic impediment. That is, Vernal may be a source of equally economic supply, having substantially reduced environmental impacts. The part of the Vernal reserves not presently controlled by Simplot is controlled by ACP [Ashley Creek Properties] as lessee of the State of Utah. The latter reserves could provide at least as extensive a supply as Smoky Canyon, apparently without comparable environmental limitations. ACP [Ashley Creek Properties] is prepared to provide all relevant information respecting the State of Utah reserves." [Ltr498 Cmt4]

   Response: **Section 2.6.3** of the DEIS specifically addresses the potential to obtain alternate ore supplies for the Don plant if mining were terminated at the Smoky Canyon Mine. Ore concentrate from the Vernal phosphate mine is transported directly to the Simplot fertilizer plant in Rock Springs via a slurry pipeline. There is no connection in this line with the Don Plant. The Agencies believe that it is not necessary to include the mining of Ashley Creek's reserves near Vernal, UT as an alternative. BLM has the responsibility to approve the proposed action, modify the mine plan with alternatives, or not approve the proposal by selecting the No Action Alternative. A comparative analysis

of cost and environmental factors of the proposed action versus other phosphates deposits is not within the scope of the EIS. NEPA does not require the analysis of unrelated phosphate deposits when considering alternatives.

Public Concern ID 211

The BLM/FS should acknowledge that the draft EIS economic analysis is inadequate because it does not consider changes taking place, which reduce dependence on phosphate mining

1. Comment: The socio-economic section of the DEIS does not present an accurate description of the economy of the region – such as wages, personal income, government income, royalties, etc. The impact analysis does not adequately consider the major socio-economic changes (including migration) taking place in the project area, which reduce dependence on phosphate mining. According to Dr. Swanson's review, these changes are primarily due to the natural amenities of the public lands in the area attracting wealthy migrants. [Ltr950 Cmt101, Ltr950 Cmt88, Ltr950 Cmt95, Ltr950 Cmt99, Ltr950 Cmt100, Ltr950 Cmt98, Ltr950 Cmt322, Ltr950 Cmt324, Ltr950 Cmt93, Ltr950 Cmt323, Ltr950 Cmt325, Ltr950 Cmt326, Ltr950 Cmt327, Ltr950 Cmt328, Ltr950 Cmt329, Ltr950 Cmt330, Ltr950 Cmt331, Ltr950 Cmt332, Ltr950 Cmt333, Ltr950 Cmt335, Ltr950 Cmt321, Ltr950 Cmt102, Ltr950 Cmt320, Ltr950 Cmt103, Ltr950 Cmt104, Ltr950 Cmt315, Ltr950 Cmt316]

   Response: The Dr. Swanson review addresses long-term structural changes that have occurred in the economy of western Wyoming and eastern Idaho (particularly a 15-county region) over the past several decades. The review covers the decline of natural resources extraction in importance to the regional economy and the region's increased dependency on in-migration and associated income of the new residents. This 15-county area includes two complete Metropolitan Statistical Areas, part of a third Metropolitan Statistical Area, and three Micropolitan Statistical Areas defined by U.S. Office of Management and Budget. Metropolitan and Micropolitan Statistical Areas are defined along county lines. Metropolitan Statistical Areas are counties with an urbanized area with a population of 50,000 or more and adjacent counties that meet certain requirements for commuting to and from the urbanized county. Micropolitan Statistical Areas are based on counties with an urban core of between 10,000 and 50,000 people.

   The trends mentioned in the review are acknowledged in the DEIS. **Table 3.16-4** clearly indicates the decline of mining as a portion of total employment in the four-county area analyzed and this is discussed in the preceding paragraphs. Similarly, **Table 3.16-7** shows how mining wages have declined and dividends, interest and rent have increased as a percentage of personal income for the four-county area analyzed.

   The analysis which is important for this topic is not only the long-term structural changes in the regional economy, but how the presence of the Smoky Canyon Mine has affected these changes, and would theses changes be affected by the absence of the mine? If these changes were accelerated by the absence of the mine, would these accelerated changes be sufficient to counter the loss to the economy resulting from closure of the mine?

   The Smoky Canyon Mine has been operating since 1984, at the same time these larger structural changes have been occurring in the regional economy. Dr. Swanson has not

demonstrated that the presence of the Smoky Canyon Mine has delayed or decreased these larger structural changes in the region's economy, or that the absence of the mine would accelerate these changes and increase the area's economic growth.

A more in-depth examination of the personal income data for this 15-county region and several economic indicators for the Star Valley follows, in order to shed more light on the changes in this region's economy and how the Smoky Canyon Mine fits in within these changes.

Personal Income data at a county level is released annually by the Bureau of Economic Analysis (BEA), an agency in the U.S. Department of Commerce. The BEA data lists Earnings by Industry by Place of Employment, makes an adjustment to convert total Earnings by Place of Employment to Earnings by Place of Residence, and adds Dividends, Interest, and Rent (investment income) and Personal Current Transfer Receipts (essentially government assistance) to arrive at Total Personal Income for an area. If an area is benefiting from an influx of wealthy residents that have outside income, then this should be reflected in the data for Dividends, Interest, and Rent for the area. The 2004 Personal Income for the 15 subject counties and percentage attributable to the three components are listed in **Table 1** below. Teton County, Wyoming stands out in that nearly half (47.3 percent) of the county's personal income is due to Dividends, Interest and Rent. In nine of the 15 counties, Personal Current Transfer Receipts are a larger component of Personal Income than are Dividends, Interest and Rent.

Table 1 Components of Personal Income, 2004

	Personal Income, $1,000	Earnings by Place of Residence, Percent	Dividends, Interest and Rent, Percent	Personal Current Transfer Receipts, Percent
Bannock, ID	1,868,350	68.6	13.2	18.2
Bear Lake, ID	128,679	63.9	13.5	22.6
Bingham, ID	927,891	69.9	11.8	18.3
Bonneville, ID	2,502,511	69.6	15.7	14.6
Caribou, ID	175,183	65.3	19.6	15.2
Franklin, ID	258,089	74.1	11.0	14.9
Fremont, ID	252,121	61.7	17.9	20.4
Jefferson, ID	438,847	71.9	11.5	16.6
Madison, ID	481,951	70.8	11.3	17.9
Oneida, ID	75,325	61.1	16.4	22.6
Power, ID	162,265	68.8	13.7	17.5
Teton, ID	159,785	68.5	18.5	13.0
Lincoln, WY	429,114	66.4	20.0	13.7
Sublette, WY	241,714	66.6	23.8	9.6
Teton, WY	1,543,467	49.3	47.3	3.4
15-County Area	9,645,292	65.8	19.9	14.3

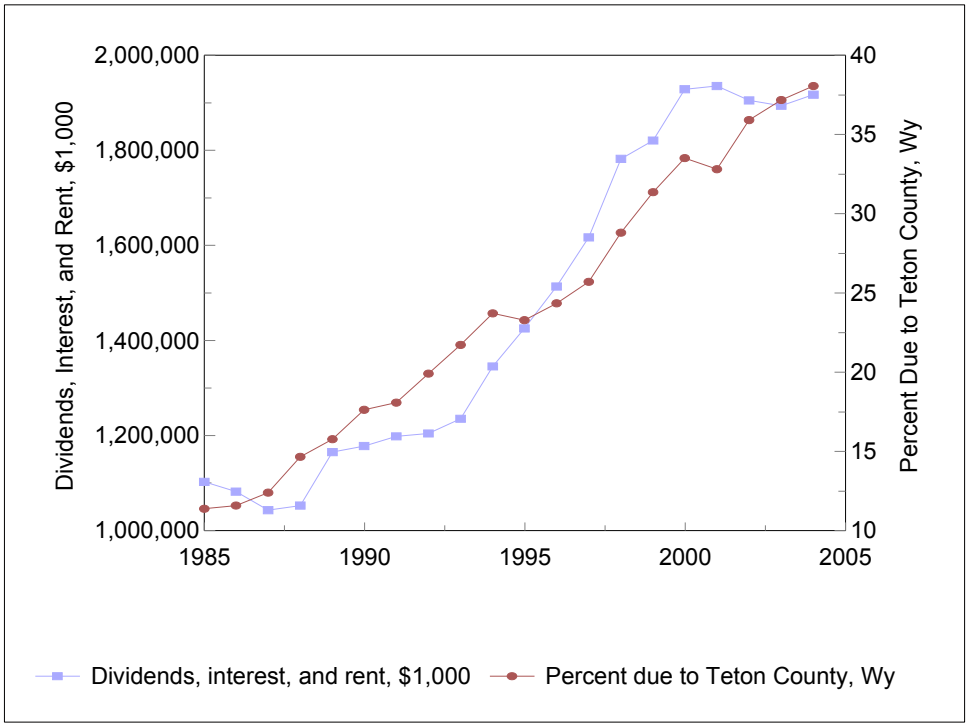
Source: Bureau of Economic Analysis

The fact that investment income is becoming a larger portion of total Personal Income for this 15-county area is apparent from examining time series data. From 1985 to 2004, the per capita income in this 15-county region due to Dividends, Interest, and Rent

increased from $3,777 to $5,323, in constant 2004 dollars. That is, the BEA data have been adjusted for inflation using the Consumer Price Index.

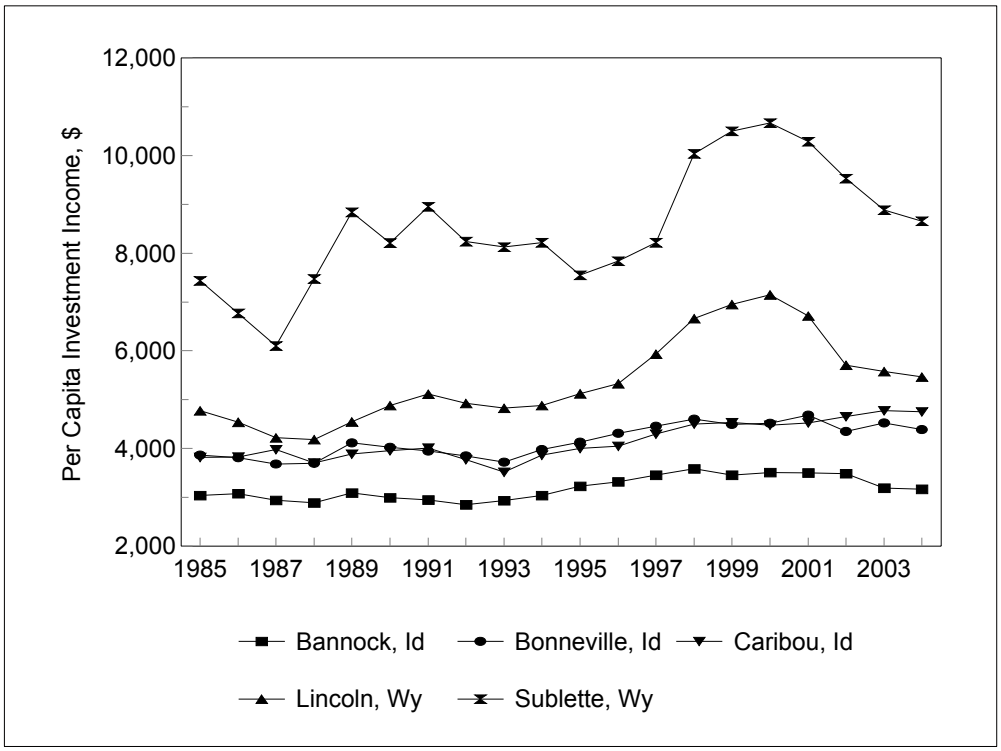
When looking at total Personal Income in the area due to Dividends, Interest, and Rent, the increase is also apparent. From 1985 to 2004, total income in the 15-county region due to Dividend, Interest, and Rent rose from $1.10 billion to $1.92 billion, again in constant 2004 dollars (**Figure 2**, below). This increase in Dividends, Interest, and Rent is concentrated in Teton County, Wyoming - the Jackson Hole area. In 1985, Teton County, Wyoming was responsible for 12.7 percent of all Dividends, Interest, and Rent received by residents of this 15-county area. In 2004, Teton County, Wyoming was responsible for 38.1 percent of investment income in the 15-county area. Over this time period, per capita investment income in Teton County, Wyoming grew from $12,404 in 1984 to $38,412 in 2004, again these data are in constant 2004 dollars.

Figure 2 Dividends, Interest, and Rent paid to residents of the 15-county area, 1985-2004



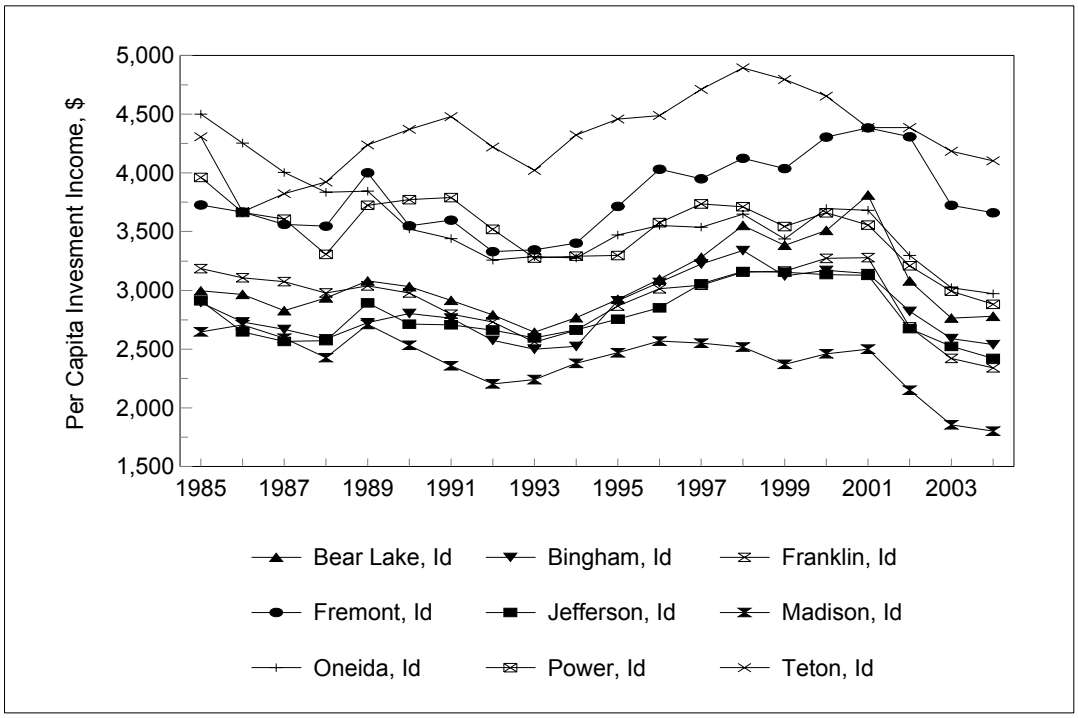
Of the 15 counties examined, only six experienced an increase in per capita investment income over the past 20 years. In addition to Teton County, Wyoming, these are Bannock, Bonneville, and Caribou, Counties in Idaho and Lincoln and Sublette Counties in Wyoming (**Figure 3**, below). Teton County, Wyoming was excluded from **Figure 3** because its per capita income from Dividends, Interest and Rent ($38,412 in 2004) is sufficiently high that the data for the other five counties would be compressed at the bottom of the figure.

Figure 3 Counties (other than Teton County, Wyoming) which experienced an increase in per capita investment income, 1985-2004 (constant 2004 dollars)



That Sublette County, Wyoming has the second highest per capita investment income in the area after Teton County, Wyoming is interesting. The category Dividends, Interest, and Rent in the personal income data includes royalties on natural resources extraction and Sublette County is the largest natural gas producer in Wyoming, responsible for 37.7 percent of the state's natural gas production in 2004 and 9.1 percent of the crude oil production. The large portion of the per capita investment income in Sublette County is likely due to royalties from oil and gas extraction on private land in the county. That Lincoln and Caribou counties rank third and fourth among the counties that experienced increases in per capita investment income over the past 20 years, and these are the counties most affected by the presence of the Smoky Canyon Mine, suggests that the mining industry in this area has not detracted from investment income increases in the two counties. Nine of the counties considered by Dr. Swanson in his analysis actually experienced a decrease in per capita investment income from 1985 to 2004 (**Figure 4**, below).

Figure 4 Counties which experienced a decrease in per capita investment income, 1985-2004 (constant 2004 dollars)



Examining the distribution of the change in Dividends, Interest, and Rent across the 15 counties indicates that the area is not benefiting equally from an increase in investment income (**Table 2**). Over 95 percent of the increase investment income over the past 20 years is concentrated in three of the 15 counties. Teton County, Wyoming accounts for 74.2 percent of the increase in investment income in this area over the past two decades. Another 21.4 percent of the increase is spread between Bannock and Bonneville Counties, Idaho. Bannock and Bonneville Counties are notable in that they contain Pocatello and Idaho Falls, respectively, and are the "core based statistical area" for the two Metropolitan Statistical Areas in the 15-county area examined by Dr. Swanson.

Examining changes in total Personal Income for the area yields similar results. Of a $3.6 billion increase in Personal Income from 1985 to 2004, nearly three-fourths of the increase occurred in three counties (**Table 3**). As with Dividends, Interest, and Rent, the increase in total Personal Income was concentrated in Teton County, Wyoming, and Bannock and Bonneville Counties, Idaho. These three counties collectively account for 72.4 percent of the increase in total Personal Income from 1985 to 2004, expressed in constant 2004 dollars.

Table 2 Change in Personal Income due to Dividends, Interest, and Rent, 1985-2004 (Constant 2004 dollars)

County	Change in Dividends, Interest, and Rent ($1,000)	Percent of Total Change	County	Change in Dividends, Interest, and Rent ($ 1,000)	Percent of Total Change
Bannock, ID	42,966	5.6	Madison, ID	-4,310	-0.5
Bear Lake, ID	-3,284	-0.4	Oneida, ID	-3,435	-0.4
Bingham, ID	-1,293	-0.2	Power, ID	-6,416	-0.8
Bonneville, ID	128,676	15.8	Teton, ID	14,957	1.8
Caribou, ID	2,546	0.3	Lincoln, WY	17,240	2.1
Franklin, ID	-1,947	-0.2	Sublette, WY	16,580	2.0
Fremont, ID	4,648	0.6	Teton, WY	604,248	74.2
Jefferson, ID	3,147	0.4	15-County Area	814,322	100.0

Source: Bureau of Economic Analysis

Table 3 Change in Total Personal Income, 1985-2004 (constant 2004 dollars)

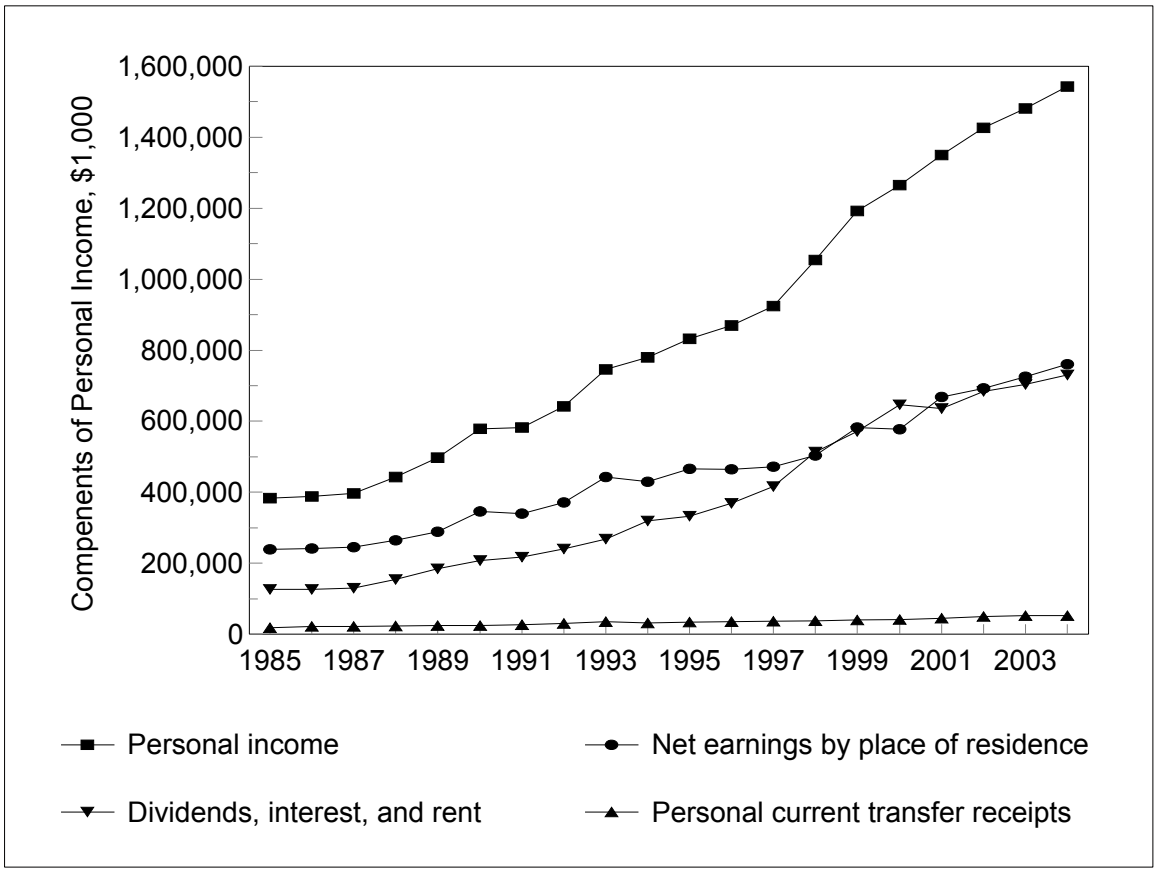
County	Change in Personal Income ($ 1,000)	Percent of Total Change	County	Change in Personal Income ($ 1,000)	Percent of Total Change
Bannock, ID	495,556	13.9	Madison, ID	176,635	4.9
Bear Lake, ID	25,792	0.7	Oneida, ID	15,197	0.4
Bingham, ID	256,871	7.2	Power, ID	-2,886	-0.1
Bonneville, ID	928,870	26.0	Teton, ID	109,568	3.1
Caribou, ID	1,809	0.1	Lincoln, WY	-19,116	-0.5
Franklin, ID	120,102	3.4	Sublette, WY	63,045	1.8
Fremont, ID	62,071	1.7	Teton, WY	1,160,560	32.5
Jefferson, ID	179,675	5.0	15-County Area	3,573,751	100.0

Source: Bureau of Economic Analysis

The above data show that increases in both total Personal Income and income from Dividends, Interest, and Rent (Investment Income) in the 15-county area examined by Dr. Swanson are concentrated in Teton County, Wyoming, (Jackson Hole), and Bannock and Bonneville Counties, Idaho (the cores for the two Metropolitan Statistical Areas contained in the 15-counties). Examining the changes in the components of Personal Income for these three counties reveals different patterns of growth between Teton County, Wyoming and the two counties in Idaho.

Dividends, Interest, and Rent has been rising at a faster rate than the other two components of Personal Income and in 2004 was responsible for nearly half (47.3 percent) of all Personal Income in Teton County, Wyoming (**Figure 5**).

Figure 5 Components of Personal Income for Teton County, Wyoming, 1985-2004 (constant 2004 dollars)



By contrast, the Bannock and Bonneville Counties, Idaho are much more dependent on Earnings for Personal Income and have not experienced the dramatic rise in investment income as has Teton County, Wyoming. For Bannock County, Idaho, Dividends, Interest, and Rent was responsible for only 13.2 percent of Personal Income while Earnings accounted for 68.6 percent of all Personal Income in 2004 (**Figure 6**). Similarly, in Bonneville County, Idaho, Dividends Interest and Rent provided 15.7 percent of Personal Income and 69.6 percent of Personal Income came from Earnings (**Figure 7**).

Figure 6 Components of Personal Income for Bannock County, Idaho, 1985 - 2004 (constant 2004 dollars)

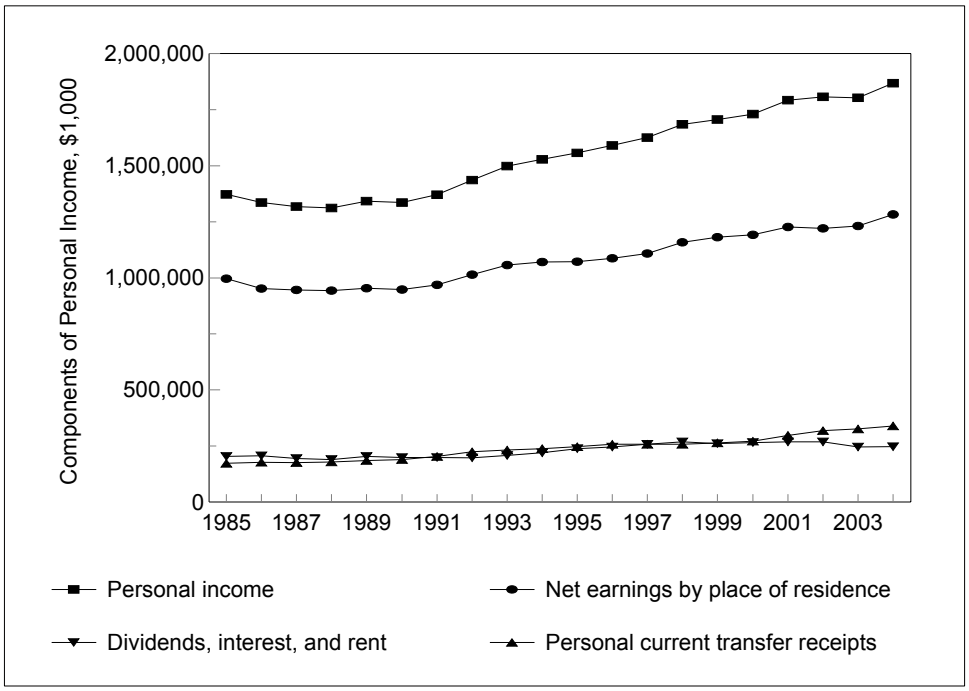
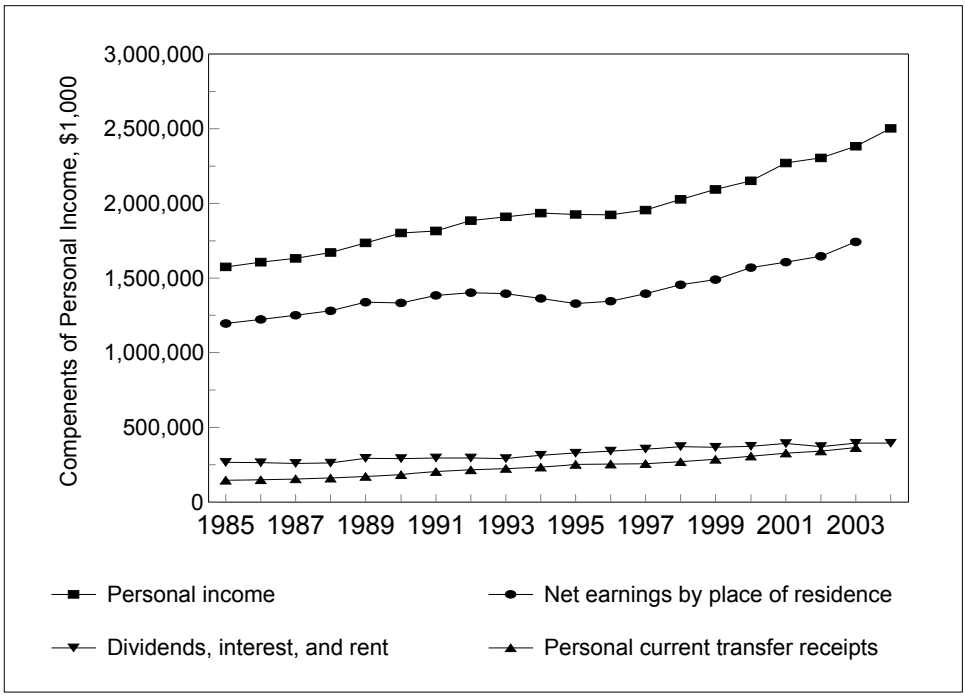


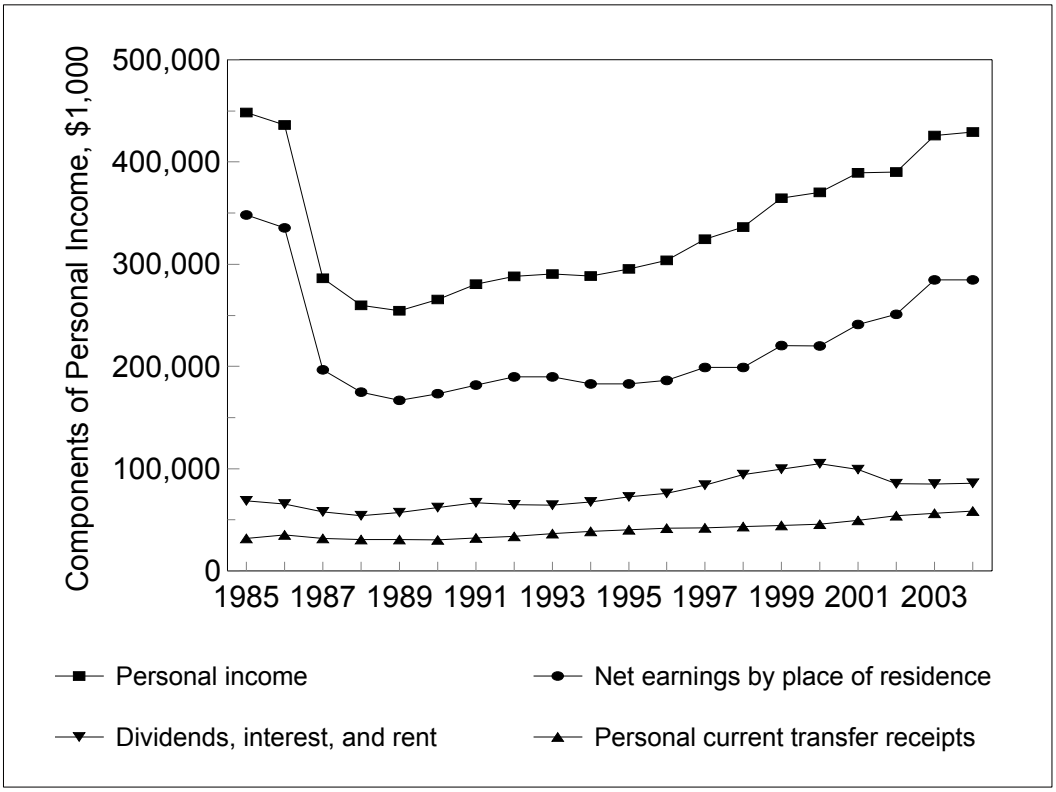
Figure 7 Components of Personal Income for Bonneville County, Idaho, 1985-2004 (constant 2004 dollars)



The above data demonstrate that although investment income is an increasing component of Personal Income in this 15-county area, the increase is highly concentrated in Teton County, Wyoming (Jackson Hole) and to a lesser extent in the urbanized cores of the two Metropolitan Statistical Areas (Pocatello and Idaho Falls). The other 12 counties are not experiencing a significant increase in investment income.

Since the Smoky Canyon Mine most directly impacts Lincoln County, Wyoming (163 of the mine's 207 employees live in Lincoln County), examining the trend in Lincoln County's Personal Income is useful (**Figure 8**). Total Personal Income and Earnings dropped rapidly in the mid 1980s, coinciding with the worldwide decline in the petroleum industry. From 1985 to 1987, earnings due to Oil and Gas Extraction in Lincoln County declined from $8.8 million to $2.1 million. Over the same time period, Construction earnings dropped from $121 million to $23 million. In 2004, Dividends, Interest and Rent accounted for 20.0 percent of the county's Personal Income, down from 28.3 percent in 2000. In recent years, both Earnings and Personal Current Transfer Receipts in Lincoln County have increased while over the past four years income from Dividends, Interest and Rent has declined.

Figure 8 Components of Personal Income for Lincoln County, Wyoming, 1985-2004 (constant 2004 dollars)



The second complete paragraph on page 17 of Dr. Swanson's comments states that many of the people moving to the Interior West are persons with investment income and they may be either full-time or part-time residents of the area. The Personal Income data used in the above discussion applies to a person's primary residence. The income of persons with second or vacation homes in the area but whose primary residence is elsewhere is not reflected in the data.

When considering part-time or seasonal residents of the area, the important feature to consider from an economic viewpoint is not the income of these part-time residents but how much do they spend while visiting the area. As pointed out by Dr. Swanson in his comments, non-labor income is readily transportable. There is no assurance that part-time residents are spending a majority of their income in the area.

Mr. Swanson states that population statistics show people are migrating from other parts of the Country to areas in the Western U.S. where there are natural amenities of public lands and he postulates that it is the natural amenities of these areas that are driving this migration. Nowhere does he refer to any studies conducted on the reasons why these people migrated to the West that would indicate that they moved here for the natural amenities. All the communities in the Intermountain West are close to public lands so no matter where you live in this region you will be close to the amenities of these public lands. Therefore, any population growth in communities of the area will be close to natural amenities but that does not automatically mean these amenities are the reasons for the growth. He does not discuss any other reasons why people have moved into this area such as the flight of many from California, or the movement west of people from other parts of the country that struggle economically compared to the West.

The present site of the mine is less than 10 miles north of Panels F and G in very similar terrain. Dr. Swanson appears to be advancing the thesis that mining these types of areas precludes economic growth since many persons moving to the area are doing so for the natural environment. The Star Valley area of Lincoln County, Wyoming is the populated area closest to the current mining operation. The mine is about five miles west of the Idaho-Wyoming border, and approximately 10 miles west of Afton, Wyoming. Data for the Afton Census County Division (essentially the Star Valley) from the 1990 and 2000 Decennial Census indicates that the Star Valley has been enjoying robust economic growth in the recent past (**Table 5**). From 1990 to 2000, the Star Valley experienced growth of in excess of 50 percent in number of households, housing units, housing units for seasonal, recreational or occasional use, and median household income. Population growth over the 10-year period was 36.5 percent.

Table 5 Growth in the Afton Census County Division (Star Valley, Wyoming), 1990 to 2000

	1990	2000	Percent Change
Population	6,856	9,359	36.5
Households	2,126	3,263	53.5
Housing Units	2,889	4,362	51.0
Housing Units for Seasonal, Recreational or Occasional Use	520	799	53.7
Prior Year Median Household Income, current year dollars	$25,043	$39,648	58.3
Source: 1990 and 2000 Decennial Census of Afton Census County Division, Lincoln County, Wyoming			

Comparing the growth in the Star Valley to Lincoln County, Wyoming as a whole and to the other 14 counties examined by Dr. Swanson confirms robust economic growth in the valley. From 1990 to 2000, only Teton County, Idaho and Teton County, Wyoming experienced a higher population growth rate (on a percentage basis) than the Star Valley (**Table 6**). In actual numbers, approximately as many people moved into the Afton area, with the nearby operating Smoky Canyon Mine, as moved into Teton County, Idaho, without an operating phosphate mine, during this period.

The population in the Star Valley grew at a higher rate than Lincoln County, Wyoming as a whole and faster than the other 12 counties examined by Dr. Swanson. That Teton County, Idaho would experience this strong growth along with Teton County, Wyoming is not surprising when one considers that both are in the Jackson Micropolitan Area. Teton County, Wyoming has more than 10,000 residents in an urbanized setting, making it the central county for the Micropolitan area. Teton County, Idaho has a strong economic linkage to Teton County, Wyoming, as implied through it's inclusion in the Micropolitan Area. Basically, Teton County, Idaho is enjoying spill-over economic growth from the Jackson Hole area.

Table 6 Ranking Population Growth, 1990 to 2000

	Population, 1990	Population, 2000	Percent Change
Teton County, ID	3,439	5,999	74.4
Teton County, WY	11,172	18,251	63.4
Afton CCD (Star Valley)	6,856	9,359	36.5
Franklin County, ID	9,232	11,329	22.7
Sublette County, WY	4,843	5,920	22.2
Oneida County, ID	3,492	4,125	18.1
Madison County, ID	23,674	27,467	16.0
Jefferson County, ID	16,543	19,155	15.8
Lincoln County, WY	12,625	14,573	15.4
Bannock County, ID	66,026	75,565	14.4
Bonneville County, ID	72,207	82,522	14.3
Bingham County, ID	37,583	41,735	11.0
Fremont County, ID	10,937	11,819	8.1
Power County, ID	7,086	7,538	6.4
Bear Lake County, ID	6,084	6,411	5.4
Caribou County, ID	6,963	7,304	4.9

Source: 1990 and 2000 Decennial Census

As with population, only Teton County, Idaho and Teton County, Wyoming saw a more rapid rate of increase in the number of households from 1990 to 2000 (**Table 7**).

Table 7 Ranking Growth in Number of Households, 1990 to 2000

	Households, 1990	Households, 2000	Percent Change
Teton County, ID	1,123	2,078	85.0
Teton County, WY	4,568	7,688	68.3
Afton CCD (Star Valley)	2,126	3,263	53.5
Sublette County, WY	1,834	2,371	29.3
Lincoln County, WY	4,137	5,266	27.3
Oneida County, ID	1,159	1,430	23.4
Franklin County, ID	2,824	3,476	23.1
Madison County, ID	5,801	7,129	22.9
Jefferson County, ID	4,871	5,901	21.1
Bonneville County, ID	24,289	28,753	18.4
Bannock County, ID	23,412	27,192	16.1
Bingham County, ID	11,513	13,317	15.7
Caribou County, ID	2,262	2,560	13.2
Bear Lake County, ID	2,005	2,259	12.7
Fremont County, ID	3,453	3,885	12.5
Power County, ID	2,370	2,560	8.0

Source: 1990 and 2000 Decennial Census

When looking at the growth rate of both total housing units and housing units for seasonal, recreational and occasional use, the Star Valley again experienced high growth rates (**Tables 8** and **9**).

Table 8 Ranking Growth in Housing Units, 1990 to 2000

	Housing Units, 1990	Housing Units, 2000	Percent Change
Teton County, ID	1,645	2,632	60.0
Afton CCD (Star Valley)	2,889	4,362	51.0
Teton County, WY	7,060	10,267	45.4
Lincoln County, WY	5,409	6,831	26.3
Madison County, ID	6,133	7,630	24.4
Sublette County, WY	2,911	3,552	22.0
Franklin County, ID	3,240	3,872	19.5
Jefferson County, ID	5,353	6,287	17.4
Oneida County, ID	1,496	1,755	17.3
Bonneville County, ID	26,049	30,484	17.0
Fremont County, ID	5,961	6,890	15.6
Bannock County, ID	25,694	29,102	13.3
Bingham County, ID	12,664	14,303	12.9
Bear Lake County, ID	2,934	3,268	11.4
Caribou County, ID	2,867	3,188	11.2
Power County, ID	2,701	2,844	5.3

Source: 1990 and 2000 Decennial Census

Table 9 Ranking Growth in Housing Units for Seasonal, Recreational or Occasional Use, 1990 to 2000

	Housing Units For Seasonal Use, 1990	Housing Units For Seasonal Use, 2000	Percent Change
Oneida County, ID	57	114	100.0
Jefferson County, ID	30	53	76.7
Afton CCD (Star Valley)	520	799	53.7
Lincoln County, WY	621	912	46.9
Teton County, WY	1457	2121	45.6
Bear Lake County, ID	503	729	44.9
Franklin County, ID	117	168	43.6
Bannock County, ID	188	260	38.3
Madison County, ID	51	70	37.3
Power County, ID	22	29	31.8
Sublette County, WY	747	930	24.5
Teton County, ID	297	355	19.5
Caribou County, ID	221	257	16.3
Bingham County, ID	92	103	12.0
Fremont County, ID	2168	2336	7.7
Bonnevillle County, ID	491	377	-23.2

Source: 1990 and 2000 Decennial Census

As with several other economic indicators, only the Jackson Micropolitan Area, consisting of Teton County, Idaho and Teton County, Wyoming, experienced a higher rate of increase in median household income than did the Star Valley (**Table 10**).

Table 10 Ranking Household Income Growth, 1989 to 1999 (current year dollars)

	Median Household Income, 1989	Median Household Income, 1999	Percent Change
Teton County, ID	$22,799	$41,968	84.1
Teton County, WY	31,586	54,614	72.9
Afton CCD (Star Valley)	25,043	39,648	58.3
Jefferson County, ID	24,421	37,737	54.5
Oneida County, ID	22,582	34,309	51.9
Bear Lake County, ID	21,646	32,162	48.6
Sublette County, WY	26,825	39,044	45.6
Bingham County, ID	25,158	36,423	44.8
Lincoln County, WY	28,488	40,794	43.2
Fremont County, ID	23,498	33,424	42.2
Madison County, ID	23,000	32,607	41.8
Franklin County, ID	25,446	36,061	41.7
Bannock County, ID	26,275	36,683	39.6
Bonneville County, ID	30,462	41,805	37.2
Power County, ID	24,771	32,226	30.1
Caribou County, ID	29,979	37,609	25.5
Source: 1990 and 2000 Decennial Census			

The above five economic indicators demonstrate that the Star Valley experienced good economic growth from 1990 to 2000. The Star Valley is immediately east of the Smoky Canyon Mine, which has been in continuous operation since 1984. The economic growth that occurred in the Star Valley during the 1990s indicates that the presence of the mine does not have a negative effect on an area's economic growth.

2. Comment: Several commenters stated that the DEIS assertions of mine closure and shutdown of the Don Plant under the No Action alternative are not justified as plenty of ore resources exist and jobs would not be lost entirely. Further, the analysis in the EIS does not support the assertion that the Don Plant is uneconomical using phosphate ore if it is sourced elsewhere in the US or abroad. [Ltr239 Cmt28, Ltr950 Cmt88, Ltr950 Cmt89, Ltr950 Cmt319, Ltr950 Cmt96, Ltr950 Cmt97, Ltr950 Cmt92. Ltr950 Cmt91]

   Response: **Section 2.6.3** of DEIS states that Simplot does have other phosphate reserves; however they are not permitted or as ready to mine as those at panels F and G. The Simplot phosphate mining operations cannot be moved somewhere else to develop alternative leases without a shutdown of the Smoky Canyon Mine and interruption in ore slurry supply to the Don Plant. It would not be possible to plan, permit, and construct mining, milling and ore slurry pipelines at these leases in time to prevent idling or potential closure of the Don Plant. This same section also discusses the particular design of the processing systems at the Don Plant, and the difficulties in potential purchase of ore elsewhere for the Don Plant. For all the available information, the Agencies have concluded that the No Action Alternative would result in the

termination of mining operations at Smoky Canyon Mine, interruption in ore supply to the Don Plant, and idling or potential closure of the Don Plant.

3. Comment: A commenting group stated several times that the DEIS fails to include information on economic benefits based upon remediation/reclamation to the mine site. [Ltr950 Cmt105, Ltr950 Cmt97, Ltr950 Cmt304]

   Response: **Section 2.3.7** of the DEIS describes how reclamation activities are done concurrently with ongoing mining. Thus reclamation at the mine is part of normal mining operations and therefore does not stimulate economic benefits in addition to those normal mining activities. **Sections 2.3.7** and **2.4** of the DEIS indicate this concurrent reclamation would continue to be practiced as part of the proposed Panels F and G. The operations schedule shown in **Table 2.4-1** of the DEIS shows that mining of Panels F and G would conclude about 14.5 years following inception of activities and reclamation activities would continue for about 1.5 years following. Thus there would be some continued economic activity following cessation of mining for a relatively short time. This would require significantly less labor, equipment, and supplies than during full mining activities; thus economic benefits to the local economy would be less than during mining.

   Remedial activities at an idle mine would stimulate the local economy as there would be a need for personnel, equipment, and supplies for a number of years.

   Current analysis for the proposed mine expansion does not show that remedial activities, beyond the mitigation and reclamation in the Preferred Alternative would be required.

4. Comment: A commenting group stated that the DEIS asserts that the Don Plant's demand for natural gas has significant effect on the total natural gas market and consequently employment for gas producers from Utah, northwestern Colorado, and southwestern Wyoming, when actually the Don Plant and the mine account for a very small fraction of the national demand for natural gas. [Ltr950 Cmt90]

   Response: The EIS asserts that the Don Plant has a significant effect on the total natural gas market. **Section 3.16.1** of the DEIS does state that eastern Utah, northwestern Colorado, and southwestern Wyoming is a significant producer of natural gas and that, "natural gas is a major feedstock for anhydrous ammonia and sulfuric acid." Both of these are feedstocks to the production of phosphate fertilizers and **Section 3.16.9** of the DEIS states that, "the fertilizer industry is very sensitive to changing economics in the natural gas industry."

5. Comment: One commenting group stated that the EIS is misleading in the employment rate implications of the closure of the Astaris plant in December 2001. [Ltr950 Cmt94]

   Response: The text of the DEIS in **Section 3.16.9** states: "Past closures of phosphate facilities in Southeastern Idaho have resulted in noticeable changes in the local economy. The closure of the Astaris LLC elemental phosphorus plant in Pocatello, Idaho and the layoff of 400 employees during December 2001 resulted in the unemployment rate in the three Idaho counties (Bannock, Caribou, and Power) jumping from 5.75 percent in December 2001 to 6.84 percent in January 2002." This is a reasonable conclusion and not intended to be misleading.

Public Concern ID 221

The BLM/FS should recognize that the draft EIS ignores the long-term economic benefits of an environment that does not suffer more selenium contamination

1. Comment: A commenting group provided the following: The primary documents (SIR, SEIS and DEIS) paint a rosy economic future for continued and expanded mining at Smoky Canyon Mine. They focus on present economic impact of this mining in terms of jobs, taxes and royalties. The environmental documents assume that reclamation-despite historic evidence to the contrary-will be successful, and that the only economic benefits that can be obtained from Smoky Canyon Mine involve more mining. The DEIS ignores the long-term economic benefits of an environment that does not suffer more selenium contamination. In fact, even if the Mine is not expanded, successful reclamation and remediation will require years of work that will provide many jobs, while preserving a landscape rich in natural resources and options. [Ltr950 Cmt303]

   Response: The socio-economic sections of the DEIS present factual information on the relative importance of phosphate mining and the Smoky Canyon Mine to the economics of the four-county area directly affected by this activity. This information clearly shows that phosphate mining, while a significant factor in the local economy, is a relatively smaller component of economic activity since 1980, compared to others in the area. However, it is a significant contributor to local government revenues; generates an important demand for supplies and services; and provides some of the highest paying jobs in the area. The reason why this analysis focuses on present economic impacts is simple, the economic impacts of the mining have already occurred and will only continue if mining continues. The EIS does not specifically address impacts to socio-economics from selenium, but there is no available data that selenium contamination has negatively impacted the local economy. The information in **Section 3.16** of the DEIS indicates that the economy in the four-county area that has been affected by known selenium contamination has grown over the same time that this contamination has presumably occurred. Since 1970 employment in every industrial sector in the study area is up and total employment for the area in 2000 was almost double that in 1970. Total personal income for the study area is over 8.5 times greater than it was in 1970. See the response to PC211 Comment 3 related to economic benefits of reclamation/remediation work.

2. Comment: Several commenters expressed opposition to the mine expansion, citing that they are in favor of preserving more natural areas locally and regionally for long term benefits to recreation, and wildlife tourism. [Ltr537 Cmt1, Ltr195 Cmt3, Ltr916 Cmt3, Ltr945 Cmt3, Ltr714 Cmt3, Ltr297 Cmt1, Ltr239 Cmt32, ltr940 Cmt3, Ltr382 Cmt4, ltr139 Cmt1, Ltr198 Cmt1, Ltr143 Cmt1, Ltr895 Cmt3, Ltr717 Cmt3, Ltr381 Cmt2, Ltr483 Cmt3]

   Response: Comments noted. See PC 26, Comment 1 under the Chapter 1 comment responses. The Agencies are required to review the mine and reclamation plan submitted by Simplot, and to analyze the associated environmental impacts.

3. Comment: Several commenters expressed opposition to the mine expansion due to impacts to local landowners and recreationists by contaminating/ impacting natural resources and land values. [Ltr550 Cmt1, Ltr550 Cmt4, Ltr240 Cmt1, Ltr549 Cmt5, Ltr374 Cmt1]

Response: The EIS assesses impacts to natural resources and recreation. **Section 4.10** of the EIS evaluates impacts to recreation and determined that these impacts would be localized, minor to moderate, and last for the duration of mining and reclamation. See also the response to PC50 Comment 1 related to impacts to land values.

4. Comment: One commenter noted that the EIS clearly states that the area is developing due to an influx of retirement residences, tourism, and outdoor recreation. Extractive industry will only hurt this influx of new, clean industry. The mine expansion can only have a harmful affect on this trend. [Ltr239 Cmt27]

   Response: See Response to PC 177 above.

5. Comment: Several commenters expressed opposition to the mine expansion stating that the short-term economic gains are not worth the long-term environmental impacts. One company will profit at the expense of the public. [Ltr645 Cmt5, Ltr736 Cmt3, Ltr281 Cmt4, Ltr360 Cmt1]

   Response: Comments noted. The economic impacts of the Proposed Action as well as environmental impacts by resource are described in the EIS. Resource values of public lands are managed and utilized in the combination that best meets the present and future needs of the American people. These decisions regarding use are not expected to be agreed upon by everyone. The public also benefits from the mining and use of phosphates; see **Section 3.1.7** of the DEIS. Also see response to PC 215. The Agency Preferred Alternative has been designed to comply with all legally applicable requirements for environmental protection.

Public Concern ID 222

The BLM/FS should recognize the economic gains that would come from reclamation and remediation projects resulting from the mine expansion

1. Comment: A commenting group stated: “Selenium contamination is the primary problem with the existing mine, as evidenced by its CERCLA/Superfund status, and the primary environmental risk of the proposed expansion. As noted above, the costs of remediation have been shown to be huge. While this advises extreme caution in terms of approving a mine expansion, these remediation costs may ironically become significant income for the local economy. There is no doubt there will be remediation: the mine is under a CERCLA order. There may be doubt as to who bears those costs-Simplot, other parties, or the United States public. For the purposes of the DEIS's Social/Economic sections on the local economy, who pays is irrelevant. Unless the responsible agencies reasonably believe this cost is not material, and thus the local income is also not material, they must provide some assessment of what the impact of this income might be. Any notion that the costs of remediation are immaterial flies in the face of all historical experience. Very definite benefits to the local and regional economy from remediation can be estimated and projected into the future for a considerable time period. Estimates of these benefits should have been included in the DEIS and, in fact, in this case it would have been very easy in include them. Not only does Simplot know how much it is spending now on labor and other costs for reclamation, but also the company apparently completed a draft EE/CA in November 2005. Although the draft was not made public, the authors of the DEIS could surely have used its reclamation cost figures for estimating local and regional economic benefits now and in the future. It is unclear why the responsible

agencies have not allowed this draft to be released to the public given its particular relevance for evaluation of the proposed expansion and its usefulness in evaluating the economic stimulus that can result from "good reclamation" in present mining and remediation of past mining." [Ltr950 Cmt304, Ltr950 Cmt305]

Response: Because the reclamation work has historically occurred as part of the ongoing mining activities at the Smoky Canyon Mine, its economic benefit is also included with that of the mining. The economic effects of the Smoky Canyon Mine on the local economy are discussed in **Section 3.16** of the DEIS. See the response to PC211 Comment 3 for more information on this matter. Additional information has been added to **Chapter 2** of the FEIS describing the reclamation cost estimate for the Panels F and G operations. However, as described in the response to PC211 Comment 3, reclamation would also occur concurrently with mining and so is already included in the economic effects analysis of the DEIS.

Public Concern ID 227

The BLM/FS should recognize that the draft EIS analysis fails to account for changing population patterns in Southeast Idaho and western Wyoming

1. Comment: A commenting group provided the following: "The economic analysis contained in the Smoky Canyon mine DEIS uses the right data, the standard data available on income and employment compiled and disseminated by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce and population data provided by the U.S. Census Bureau. However, the data are interpreted somewhat narrowly and the significance of larger economic changes occurring in the in the economy of both the area and larger region is grossly under-appreciated. As a result, the DEIS analysis does not see continued mining expansion into areas with fairly high quality natural environments as posing any real dilemma for the area in terms of largely competing economic choices for the future. As stated in the analysis of cumulative effects: "No major changes to population, housing, employment, or private and public income would occur as a result of the Proposed Action or Mining Alternatives" (p. 5-53). This tacit assertion, simply stated, essentially ignores emerging patterns of growth and change in much of the interior West, including this area of southeast Idaho and western Wyoming.

   Many more people are moving the Interior West of the United States than the number moving away, and southeast Idaho and western Wyoming are participating in this change. This type of population growth is happening in many areas perceived as having desirable environmental amenities and quality of life characteristics by an increasing number of people. And there is considerable evidence that recent growth is greatest in areas with large concentrations of federal public lands where many amenities, forests, streams, mountains, natural landscapes, open spaces, etc. are contained and protected. As a more people move to places like southeast Idaho and western Wyoming, housing construction is increasing, property values are growing, income and employment are increasing and changing in composition, and the underlying economy of the area is restructuring. Mining, while still important, is becoming less and less of a contributor to overall economic vitality and other activities increasingly ties to the area's attractiveness are increasingly "driving" area economic growth and change. If an area wants to defuse this process of change and remove itself from growth's path, it need only steadily degrade the very things that make the area an attractive place to live for more and more

people; namely, the area's most appealing, distinctive, and largely irreplaceable environmental amenities such as those protected on nearby public lands, particularly relatively pristine areas contained within Inventoried Roadless Areas." [Ltr950 Cmt315, Ltr950 Cmt316]

Response: The intent of the sentence from the DEIS that is quoted in the comment is simply to recognize the fact that impacts of the Smoky Canyon Mine to population, housing, employment, or private and public income have already occurred and continued mining would cause no major changes in these conditions. The Agencies have not ignored the "emerging patterns of growth and change" in the Study Area. **Section 3.16** of the DEIS provides abundant, objective data that shows the relative importance of phosphate mining in the overall economy of the four-county study area. The data and narrative in this section clearly shows that mining, while still important, is a relative small component of the overall economic activity as measured in employment and personal income statistics. **Section 3.16.5** describes the changing income trends in the local area and clearly states that personal income is higher in households where persons have moved into the area for recreational and similar reasons and is lower in communities which rely more on agriculture and natural resources extraction. It also clearly states that investment income is increasingly important to personal income. The Agencies disagree with the assertion in the comment that environmental impacts due to mining would "defuse this process of change". Again, the data in **Section 3.16** clearly show dramatic and beneficial economic changes have occurred in the Study Area, at the same time phosphate mining has been ongoing in the area. It is unknown what effect phosphate mining has had on these economic changes. See the response to PC211 Comment 1 for more information on this topic.

Public Concern ID 253

The BLM/FS should consider that the government should control the country's supply of phosphate

1. Comment: One commenter stated that there are limited supplies of phosphate worldwide. Corporations are in a race to mine the resource and then sell it overseas. This resource should be controlled by the government. The government could pay miners not to mine; that way the mining companies would still make money but the environment would not suffer and this strategic resource vital to the American agricultural industry would be saved for the future. [Ltr681 Cmt6]

   Response: The supplies of phosphate rock are a geologic and finite resource. The EIS discloses impacts to geologic resources of the proposed project under current policy. Changes to mining policy are beyond the scope of this project.

Public Concern ID 276

The BLM/FS should consider private property owners whose land holdings will be impacted by the proposed mine expansion

1. Comment: A nearby landowner commented: "As landowners whose holdings will be impacted by the proposed expansion from the Smoky Canyon Mine, we do not understand why the federal agency on this Comprehensive Environmental Response Compensation Liability Act (CERCLA) cleanup has not been in contact with my neighbors and us about this matter, since our property will be affected by any proposed

cleanup. Specifically, we do not understand why we are not contacted during the development of the Area Wide Human Health and Environmental Risk Assessment, the Administrative Order on Consent for the Smokey Canyon Mine, the Site Investigation Report, of the draft Engineering Evaluation and Cost Analysis (EE/CA). Finally, outside of the rumor of some sort of public review of the EE/CA we have heard nothing officially. When would this review take place? Will there be a public meeting? How will our comments be used? If we disagree with the proposal will it make any difference? Obviously, we want real assurances that the environmental cleanup of the Smoky Canyon Mine actually works so that our properties are not damaged. The cleanup should begin at once and be completed quickly, not ten, twenty or one hundred years from now." [Ltr236 Cmt1]

Response: These are not comments on the DEIS but are comments on the CERCLA process for the Smoky Canyon Mine. There was a completely separate public comment process by which the commenter could have provided input into the Agencies' consideration of the EE/CA for the mine.

Public Concern ID 332

The BLM/FS should acknowledge that people want to live in and near quality environmental amenities, like public lands and national parks

1. One commenting group stated: "More and more people simply want to live and work in places with quality communities surrounded by quality environmental amenities. Areas nearby large concentrations of public lands, like national parks, national forest areas, and other lands with highly-values amenities like forests, streams, lakes, open spaces, natural landscapes, and abundant wildlife, are emerging as "pockets of growth." But the interior West in general, where these types of public lands are heavily concentrated, is seeing much more growth today than it has ever seen before. These trends pose both economic opportunities and challenges - opportunities are largely associated with growth itself (more income, more employment, more economic vitality), and challenges are largely associated with managing growth and accommodating the needs of both "new economic drivers" and old ones. This is essentially the challenge posed by continued phosphate mining expansion in southeast Idaho. It is a longstanding and important industry. But it is not the industry offering the region the best chance of sustained economic growth and prosperity in the future. And it is clearly not the industry driving the more recent growth in the area. In areas with economies narrowly based upon mining, there once was an economic imperative that said that the growth of these industries needed to be accommodated almost no matter what the cost. This was because there were few other economic opportunities for such areas outside of these industries. However, this is no longer the case." [Ltr950 Cmt334]

   Response: As described in **Section 3.16** of the DEIS, the phosphate mining industry in Idaho is an important but relatively small component of total employment and personal income in the area. However, it is a significant contributor to local government revenues; generates an important demand for supplies and services; and provides some of the highest paying jobs in the area. Thus, the phosphate industry is an important component of the local economy. Along with the continued presence of the phosphate industry over the last 20+ years; **Section 3.16** of the DEIS shows there has been considerable growth of other economic activity in the area, and indications are that this growth is continuing. Thus phosphate mining has apparently not restrained sustained

economic growth and prosperity in the area. The Agencies believe there is a place for ongoing natural resource production from Federal lands in concert with of multiple use of these lands.

7.3.20 Environmental Justice

(Environmental Justice specific comments were received from the Shoshone-Bannock Tribes and are addressed in **Chapter 6** – Coordination and Consultation, **Section 6.3**)

7.3.21 Cumulative Effects

Public Concern ID 191
The BLM/FS should acknowledge that the Bald Eagle Risk Assessment for the Tailings Ponds Area shows that selenium poses no risk to bald eagles

1. Comment: One commenter stated that selenium contamination does not pose a risk to Bald Eagles in the Tailings Ponds area, based on an independent study conducted by IDEQ (2005), and that revisions in regard to control of vegetation on the pond perimeters was in response to nesting resident waterfowl. [Ltr475 Cmt133]

   Response: **Section 5.8** of this FEIS has been revised to reflect the additional information obtained from the ecological risk assessment conducted at the tailings ponds showing that risk to Bald Eagles is limited.

Public Concern ID 234
The BLM/FS should acknowledge the draft EIS failed to disclose the long-term impacts on terrestrial species, avian species, and aquatic mammals that the tailings ponds have had, and will continue to have

1. Comment: One commenter expressed concern that that DEIS failed to address potential long-term wildlife impacts associated with contamination in the tailings ponds. [Ltr950 Cmt144]

   Response: **Section 5.8** of this FEIS provides additional discussion of potential cumulative impacts to wildlife as a result of the Project, including the tailings ponds. **Section 3.7.7** of the EIS also presents known information on selenium issues with wildlife and uses that information in considering cumulative impacts to wildlife. Based upon previous studies and documents specifically related to the tailings ponds (MFG 2003b, 2004a), impacts to wildlife populations from the tailings ponds were determined to be limited for both operational and post-operational conditions.

Public Concern ID 250
The BLM/FS should recognize the draft EIS fails to take a "hard look" at the cumulative impacts of the proposed Smoky Canyon Mine expansion

1. Comment: Several commenters stated concerns over the potential bioaccumulation/contamination cumulative effects of selenium on the aquatic environment, specifically water quality, aquatic invertebrates, and fish (i.e. Yellowstone cutthroat trout), and the inadequacy of the DEIS in addressing these impacts. One set of comments indicated the DEIS <u>overstated</u> the potential impacts to fisheries and water

resources, while the other set of comments stated that the potential impacts were understated. [Ltr475 Cmt110, Ltr475 Cmt129, Ltr475 Cmt134, Ltr475 Cmt135, Ltr950 Cmt140, Ltr950 Cmt145, Ltr950 Cmt254]

Response: Cumulative impacts by resource were addressed throughout **Chapter 5** of the DEIS. Comments that the direct and indirect impact analysis for fisheries and aquatics resources in the DEIS were inadequate have been addressed by adding more information and analysis to the FEIS **Chapters 3, 4** and **5** and adding a new **Appendix 3C** to the FEIS on bioaccumulation of selenium in aquatic habitats. The Agencies believe the FEIS does provide a hard look at potential impacts to these resources.

2. Comment: One commenter indicated that the cumulative effects discussion in the DEIS is not clearly stated and that the Chapter 5 spreads the effects over broader areas than just the affected area. [Ltr950 Cmt337]

   Response: The CEA for each environmental resource is clearly described along with the rationale for selecting the boundaries of that CEA. This was purposely done to tailor the CEAs for each resource to include enough geographic area so cumulative effects are captured, but not to include so much area as to dilute the cumulative effects. Each section then presents the past, present, and reasonably foreseeable impacts to the specific resource in the CEA and describes whether or not implementation of the Project would result in cumulative impacts to that resource. Please also see the response to PC 280, Comment 1 below that describes the process that was used in **Chapter 5** to evaluate potential cumulative effects for all alternatives.

3. Comment: One commenter stated that cumulative effects associated with logging and timber operations as a result of the new access areas should be addressed. [Ltr950 Cmt338]

   Response: Impacts associated with removal of vegetation, including trees, as a result of the proposed mining disturbances were evaluated as direct and indirect effects in **Chapter 4** of the DEIS. Since these impacts were considered in the analysis presented in **Section 4.5** of the DEIS, these impacts were also considered when evaluating and determining whether or not there would be cumulative impacts as a result of this Project. Cumulative impacts to vegetation are addressed in **Section 5.6** of the EIS. The cumulative effects analysis for vegetation and a variety of other resources, including air, water and wildlife, specifically identify past, present and reasonably foreseeable timber harvests and prescribed burns and evaluate impacts caused by these activities.

4. Comment: One commenter stated the failure to address cumulative impacts in the DEIS is representative of the fundamental failure of the process to evaluate all environmental consequences. [Ltr950 Cmt42]

   Response: Cumulative impacts by resource were addressed throughout **Chapter 5** of the DEIS. The Agencies understood how important the cumulative impacts analysis was for this Project and thus prepared a detailed and informative discussion on potential cumulative impacts in the DEIS. Based upon other resource specific comments on the DEIS and any changes made in **Chapter 4** related to the analysis of potential impacts for the FEIS, additional information has been added to **Chapter 5** in the FEIS.

Public Concern ID 280

The BLM/FS should ensure that the draft EIS describes the direct, indirect, and cumulative environmental impacts of each mining alternative and each transportation alternative

1. Comment: One commenter stated that the environmental consequences, while clearly defined for the Proposed Action, are left open to interpretation by the reader for each of the other alternatives. [Ltr950 Cmt336]

   Response: The environmental effects of each alternative, including the Proposed Action and the No Action are described throughout **Chapter 4** of the EIS. For many of the environmental resources, the environmental impacts of the mining alternatives are similar to, or the same as, the Proposed Action. In these cases, the rationale for the similarity is stated and the impacts from the Proposed Action are restated. This was done to reduce redundancy in impact analysis of the EIS. Where there were unique differences in environmental impacts between alternatives, these were discussed and disclosed. Cumulative impacts are discussed in the separate **Chapter 5** with particular attention paid to selecting and discussing the appropriate cumulative effects analysis area for each resource. Comments expressed by Native Americans on the DEIS are analyzed separately in **Chapter 6** of the FEIS.

TABLE 7.3-1 COMMENT LETTERS ALPHABETICALLY BY AUTHOR

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
ABRAM, TREVOR,	570	1
ADAMS, CAROL,	986	5
ADAMS, JEAN,	886	2
ADAMS, SUSAN,	117	4
ADDISON, DAVID,	507	1
ADKINSON, GARY,	473	1
AGUILAR, ANTONIO,	149	4
ALBAN, PETER,	462	1
ALDERSON, GEORGE & FRANCES,	143	3
ALIS, RAYMOND,	771	1
ALLEN, BARBARA,	948	1
ALLEN, JOSEY,	323	1
ALLEN, MATT,	374	1
ALLEN, VIRGINIA,	446	1
ALVAREZ, KATIE,	616	1
AMBROSE MD, KENNETH,	909	1
AMEND, ANDREA & RICHARD,	905	1
AMPEL, CAROL,	213	1
ANDERSON, GEORGIANA,	217	1
ANDERSON, PHIL,	155	4
ANDERSON, STACEY,	211	2
ANDERSON, VAUGHN,	804	1
ANDREWS, R VERLEN,	17	3
ANDREWS, RICHARD,	253	4
ANDREWS, STEVE,	137	4
ANGELL, KATHE,	883	1
ANON,	806	1
ANON, ,	721	1
APPLEBEE, PHYLLIS,	363	1
ARAQUISTAIN, MARK,	255	3
ARCHER, JOHN, ASHLEY CRK PROP LLC	498	4
ARCHIBALD, DALLAS,	571	2
AROESTE, JEAN,	813	1
ARTER, VIRGINIA,	711	1
ARTLEY, RICHARD,	360	3
ASHTON, GENE, PRCS SYSTS EQUIP	169	1
ASMUS, SIGRID,	619	1
AULMAN, ADRIENNE,	563	1
AUSTIN, JULIE,	1016	4
AVERY, PATRICK,	19	4
BABUSKA, JOSHUA ATZ & LENKA,	589	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
BAILEY, JOAN,	680	1
BAIN, THOMAS,	933	1
BAKER, CHERI,	12	1
BAKER, JENNIFER,	844	1
BAKER, WAYNE,	1005	4
BALCOMB, ROBERT B & RUTH,	452	1
BALDES, RICHARD,	535	1
BALDES, RICHARD,	923	1
BALL, CHAD,	726	1
BALL, KENNETH,	894	1
BANKS, BONNIE,	633	1
BARCKLAY, RODERICK,	345	1
BARKER, STEVE,	207	1
BARKS, WILLIAM,	722	1
BARLOW, RICK,	867	1
BARMORE, JUNE,	1053	1
BARNETT, ALMA,	723	1
BARNICLE, DANIEL,	738	1
BARRETT MD, PETER,	839	1
BARTHA, GREGORY,	768	1
BARTLETT-RE, STEPHEN,	220	1
BARTO, LESTER,	731	2
BARZ, PAT,	407	1
BASS, LAURALEE,	615	1
BASSETT, KINDRA,	698	1
BAYLOR, DENNIS,	430	1
BEALS, PHILIP,	600	1
BEARD, DAVID,	129	4
BEASLEY, BRAD,	411	1
BEASLEY, JIM,	434	1
BEER, SALLY,	706	1
BEESON, ELIZABETH,	966	1
BENJAMIN, PAUL,	893	1
BENNETT, ALAN,	191	2
BENNETT, CHERYL, MT HOOD FASTENER CO	164	1
BENOLIEL, TAMARA,	480	1
BENTON, RICHARD,	899	1
BERMAN, CATHY,	508	1
BERNDT, JOHN,	519	1
BERNET, MAURITA,	1045	1
BERSANTI, DAN,	367	1
BERTRAND, ROSE,	981	2
BESCRIPT, LINDA,	651	1
BESCRIPT, RUTH,	656	1
BESOLD, BOBBE,	1021	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
BEVERS, WILLIAM,	73	1
BIDLEMAN, LUCINDA,	614	1
BIRDSEY, BARBARA,	588	2
BISHOP, ANDREW,	197	1
BISHOP, CAROLYN & WALTER,	515	4
BISHOP, LORI,	118	4
BISHOP, ROBERTA,	418	1
BISSELL, DALE,	39	4
BLAIN, RICHARD,	302	3
BLAINE, EDMO, CHAIRMAN, FORT HALL BUSINESS COUNCIL/SHOSHONE-BANNOCK TRIBES	969	See Chapter 6 Cons. & Coord.
BLAINEY, ELAINE,	405	1
BLAKE, LISA,	675	1
BLAKE, RONALD,	801	1
BLASSINGHAM, ELIZABETH,	872	1
BLISS, THOMAS,	304	3
BLOXHAM, DEVON,	1003	4
BLOXHAM, RONNIE,	1014	6
BOBBITT, BILLY, STHRN ALLOY CORP	175	1
BOLSTAD, DONALD,	798	1
BOLTEN, VIRGINIA,	1029	1
BONDY, STEVE,	513	3
BOOK, PHARES,	339	1
BOOTH, JOE,	509	1
BOOTH, VALERIE,	330	1
BOSWORTH, DR KEN,	380	3
BOULDING, BONNIE & RUSS,	843	1
BOWERS, CHET,	805	1
BOWRON, WIN,	352	1
BOYDEN, DAVE,	288	4
BRAGG, SANDRA,	863	1
BRAUN, KATHLEEN,	661	1
BREEDING, ROGER,	529	3
BREESE, PAULA,	965	1
BRINKERHOFF, FRANCES,	740	1
BROCKIS, GWENDOLYN,	916	1
BROMER, GAIL,	193	1
BROOKS, SUSAN,	278	1
BROSNAN, BARBARA,	841	1
BROTMAN, JILL,	341	1
BROUDE, JOHN,	299	2
BROWER, MARTELL,	587	2
BROWN, BRIDGER,	566	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
BROWN, RICHARD,	153	3
BROWN, SHANE,	390	1
BROWN, STEPHEN,	277	1
BROWNING, R,	450	1
BRUNELLE, STEPHEN,	700	1
BRYANT, TOMMY,	146	4
BUCHER PHD, THERESA,	505	1
BUCHER PHD, THERESA,	911	1
BUDGE, NANCY,	357	2
BUECHLER, SHANE,	248	2
BUEHLER, ROSE, JR SIMPLOT CO	992	5
BUNKER, ANN,	855	1
BURNS, HEATHER,	308	2
BURRINGTON, WENDY,	1017	4
BURTON, VICKIE,	709	1
BUTLER, DEL, SIMPLOT AGRIBUSINESS DON PLANT	252	2
BYCZEK, MAESTRO L,	837	1
BYINGTON, DAVID,	1052	6
BYINGTON, GARY,	75	4
BYINGTON, MARY,	492	4
BYINGTON, TROY,	44	4
CAIN, DEBORAH,	733	1
CALDER, CRAIG PAUL,	259	4
CAPE PH D, JOHN,	576	1
CARLISLE, STEVE,	294	2
CARPENTER, DAVID,	973	9
CARSON, ANDREW & NANCY,	279	1
CARSON, DEBBIE,	511	1
CARSTEN, TONI,	373	1
CARTER, JOHN,	662	2
CASEY, CLAIRE,	349	1
CEDARLEAF, JACK,	874	1
CHAMBERLAIN, KENT CLAIR,	799	1
CHAMBERS, CHARLES,	502	3
CHAMBERS, DAVID, CENTER FOR SCIENCE IN PUBLIC PARTICIPATION	64	0
CHAPMAN, SHARON,	196	1
CHASE, ROGER, CITY OF POCATELLO OFC OF THE MAY	603	7
CHEREPY, AVIS,	645	1
CHILDS, CATHERINE,	781	1
CHISHOLM, BILL,	348	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
CHISUM, KRISTINA,	88	3
CHOPPERS-WIFE, SUE,	224	1
CHOWNING, KATHERINE,	732	1
CICERCHI, MARIANNA,	400	1
CLAITOR, DIANA,	1019	1
CLARK, CARNZU,	708	1
CLARK, MICHAEL,	1038	3
CLARK, NANETTE,	657	1
CLEAVES, KEN,	90	4
CLEMENT, VAL & PAM,	170	1
CLEMENT, VAL & PAM,	178	4
CLEMON, MONTE,	269	2
CLIFFORD, STEPHEN,	931	1
CLINES, BILL,	583	3
CLINES, VAL,	388	1
COFFEY, DAVID,	777	1
COLCLASURE, DOUG,	970	2
COLLIER, PAT,	225	1
COLOMBO, NANCI,	27	3
COLVIN, KORY,	95	4
CONAN, ED,	4	3
CONE, FRANCES,	693	1
CONE, FRANCES,	826	1
CONLEY, RONALD,	773	1
COOK, ROBERT,	150	4
COOK, ROBERTA,	618	1
COOKE, D,	634	1
COOLEY, DR. DAVID R.	772	See #244
COOPER, CAROLEE	13	4
COOPER, JOHN H & JOAN B,	408	1
COPP, EUGENIE,	939	1
CORDER, DAN,	68	1
CORELLI, NINA,	827	1
CORRA, JOHN, WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY	1055	1
CORRINGTON, TED,	62	3
COUPER, CHARLES,	398	1
COURTIS, DAVID,	521	2
COYNE, NORMAN,	1007	2
CRAIG, HELEN,	189	1
CREE, KAREN,	389	1
CRISS, JAMES S., CARIBOU COUNTY PROSECUTING ATTORNEY	605	See #603
CROLY, GEORGE,	882	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
CRONE, MARTIE,	593	5
CROWELL, VIVIAN,	936	1
CUNNINGHAM, JOHN & LAURIE,	532	4
CURRIE, JOHN, WSTRN STATES EQUIP	60	1
CUSHING, NANCY JANE,	526	1
CUTBERTH, CONNIE,	45	3
CUTBERTH, J,	46	3
DACKEN, ELAINE,	769	1
DAHLIN, NATE,	599	1
DALEY, STEVEN,	536	2
DALY, DR CHRISTOPHER,	921	1
DANIELS, AARON,	562	1
DAUGHERTY, MARCI,	208	1
DAVID, CHRISTOPHER,	963	1
DAVIS, AMY,	596	1
DAVIS, DANIEL,	996	5
DAVIS, DELBERT,	766	1
DAVIS, LINDA,	130	1
DAVIS, SUSAN,	678	1
DAVIS, SUSAN,	922	1
DAVIS, TOM,	336	1
DAWSON, AGNES,	819	1
DAY, CONNIE,	898	1
DAYTON, KEN,	776	1
DEAN, JOHN,	364	2
DEAN, MICHAEL,	920	1
DECKARD, BERNADINE,	692	1
DEGENKOLB, JOAN,	853	1
DELMONT, STEFANIE,	669	1
DELMORE, RACHEL,	82	1
DEMARCO, JEAN,	847	1
DEMOTS, DENNIS,	845	1
DENISON, LOU ANNA,	394	1
DENISON, MR & MRS JAMES,	689	1
DENNIS, KAITLIN,	290	1
DENNIS, MARK,	369	1
DENNIS, MARY ANN & RALPH,	960	1
DESPAIN, JOEL,	643	1
DEVINE, JAMES, US DEPT OF THE INTR/US GEOLGCL SRVY	544	3
DEXTER, GREG,	47	4
DICKERSON, PATTY,	449	1
DICKINSON, PATRICIA,	926	1
DICOLLI, CAROL,	1037	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
DIEKMAN, DUANE,	546	5
DILLIER, GARY,	76	3
DOBSON, M,	861	1
DOCKSTADER, KIM,	320	1
DOMENICO, JAMES,	687	3
DOMINGUEZ, ANTONIO,	55	4
DONAHOE, JOYCE,	828	1
DORTON, BETH,	648	2
DORY, JOE,	697	2
DOUGHERTY, DARRELL,	111	4
DOUGHERTY, MARILYN,	109	4
DOUGLASS, JUDI,	11	2
DOUGLASS, TERRY,	1009	4
DUBENDORFF, JOHN,	785	1
DUBROSKY, DOUGLAS,	366	1
DUKE, BETH,	488	2
DUNKUM, JOHN,	896	1
DUNLAP, KENNETH,	943	1
DUNN, A DALE, SIMPLOT CORPRT HQ	263	2
DUNN, CURTIS,	3	4
DURHAM, SONYA,	1008	2
DYKMAN, DAVID, DYKES ELECTR INC	144	4
DYKMAN, KIRK, DYKES ELECTR INC	145	4
EALEY, GORDON,	162	9
EALEY, LAURI LYNN,	988	5
EBERHART, MELANIE,	122	1
EDWARDS, LUCY S & CHARLES,	907	1
EHRHARDT, CAROLE,	685	1
EIDT, JACK,	673	1
ELLIOTT, EDWARD,	303	2
ELLIOTT, MARY,	1027	1
ELTING, ELIZABETH,	406	1
EMMER, MATTHEW,	216	1
EMPEY, ROGER,	387	1
ENGLAND, STEVEN, CITY OF CHUBBUCK OFFICE OF THE MAYOR	608	See #603
ENGLE, MARK,	244	2
ERICKSON, CHAD,	258	1
ERICKSON, GARY,	65	1
ERICKSON, PENNY,	702	1
ERICKSON, ROB,	267	2
ERSKINE, PETER,	737	1
ESCHBACH, SCOTT,	752	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
ESKELSON, RICK, PARTNER STL INC	286	1
ESPY, J BRUCE & JUNE,	795	1
ESSIG, JOYCE,	457	1
EVANGELINE, JAE,	715	1
FACER, BETTY,	1034	1
FACER, DENNIS,	1032	21
FACER, RON,	530	1
FAKRIEH, NANCY,	391	1
FALLAW, TIMOTHY,	514	1
FARBER, CONSTANCE,	416	1
FARNSWORTH, DAVID,	554	12
FENWICK, VIRGINIA,	716	1
FERGUSON, JAMES,	591	3
FERGUSON, MICHAEL,	113	4
FERRIN, DAVE,	81	1
FERRIN, JACOB,	57	4
FICKER, A,	786	1
FIDDLER, JIM,	679	1
FIELDS, GARY,	1022	1
FILIPELLI, DEBORAH,	672	1
FINFROCK, ANDY,	647	1
FISHER, RICHARD,	1028	1
FISK, TERRY,	756	1
FLAGG, JO,	442	1
FLETCHER, WILLIS,	885	1
FLUESMEIER, A,	307	1
FOLEY, KELLY,	991	9
FOLGER, HELEN WHITNEY,	884	1
FOMIN, GEORGE,	590	1
FORD, BRAD,	533	1
FORNSTROM, CINDY,	750	1
FORSMAN, TANYA,	61	1
FOSTER, AARON,	594	1
FOSTER, SUSAN,	293	2
FRASER, JUDITH,	548	5
FRAZIER, JAMES RICHARD,	800	1
FRAZIER, JOHN,	119	1
FRENCH, ELAINE,	350	1
FRIEDMAN, PHILLIP,	471	1
FUCHS, ESTER,	825	1
FULLMER, KELLY,	328	1
FURLONG, ROGER,	997	5
GABBERT, RON,	70	4
GADSKI, MARY ELLEN,	955	1
GALE, MARY,	734	1
GAMBLIN, MARK, ID DEPT OF FISH & GAME	555	9

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
GAMMILL, WALT,	538	1
GANDENBERGER, JADEEN,	386	1
GARBETT, CLAUDE,	176	3
GARDING, LOUIS,	198	1
GARLAND, CAROLINE,	644	1
GARRITY, WILLIAM,	460	1
GAUSS, EUGENE, WILBUR-ELLIS CO	383	4
GERMAN, DENNIS,	632	1
GERMINO PHD, MATTHEW,	295	1
GHICADUS, CHRISTOPHER,	868	1
GIBSON, URSULA,	212	1
GILBERT, KRIS,	66	1
GILBERT, QUIN,	89	4
GILLESPIE, PATRICK, SCHAEFFER MFG	156	3
GILLIS, BRUCE,	435	1
GILMOUR, KEN,	310	2
GILOTH, KIRK,	944	1
GIRARDEAU, LAURA,	918	1
GLANZ, FILSON,	664	1
GLANZ, FILSON,	718	1
GLOMBIAK, JOSEPH,	187	1
GOLDSTEIN, BARRY,	296	1
GOLTZ, NEILL & DEBBIE,	465	1
GOUGH, FRANCIS,	812	1
GOWER, KIM,	495	4
GRAHAM, JOHN,	93	4
GRANING, FAY,	415	1
GREEN, DANNY,	78	5
GREEN, DAVID,	10	4
GRIFFIN, ALEX,	624	1
GRILLO, JOHN,	199	1
GRIVNA, BRIAN,	525	1
GRIVNA, BRIAN,	937	1
GROESCHEL, CHRISTA,	1046	1
GROOM, MARY,	300	1
GROVER, ELDENA,	975	3
GUESNON, PIERRE,	925	1
GUINN, RANDY,	21	4
GUSTAFSON, MATT,	569	1
GUTHRIE, ALETHEA,	984	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
GUTHRIE, JIM, CHAIRMAN, AND HADLEY, STEVE, MEMBER, BANNOCK COUNTY BOARD OF COMMISIONERS	606	See #603
GUTKOSKI, JOE,	445	1
GUZMAN, DORINE,	409	1
HAAK, RUTH,	764	3
HADERLIE, FARREN,	329	1
HADERLIE, KAREN, STAR VLY CHMBR OF COMMRCE	572	1
HADLEY, WILLIAM,	306	1
HAIGH, KATHY,	877	1
HALPER, LEE,	347	1
HALVERSON, MARTHA,	314	1
HAMILTON, NORMA & PATRICK,	592	1
HAMMAN, MILDRED,	414	1
HANCE, JUDITH,	763	1
HANDELSMAN, ROBERT,	811	1
HANEL, JOHN,	410	1
HANSEN, JIM,	1015	6
HANSEN, KIRK, MAYOR, CITY OF SODA SPRINGS	1041	See #603
HANSEN, ROGER,	425	1
HANSON, BRUCE,	990	2
HANSON, FERN & HAROLD,	266	1
HARKNESS, CAROL,	371	2
HARLIB, AMY,	946	1
HARMON, ROGER,	912	1
HARPER MD, DANIEL,	895	1
HARRELL, MARTHA ANN,	864	1
HARRIS, CHARLES,	836	1
HARRIS, SCOTT,	181	3
HARRIS, SCOTT,	359	1
HARRISON, JOLEENE,	247	5
HARTWELL, DAVID,	518	1
HASHIMOTO, CARLA,	856	1
HASKELL, DARREL,	123	4
HATCHER, GILBERT,	831	1
HECHT, JOHN,	447	1
HEDBERG, KIM,	668	4
HENDRIX JR, GEORGE T,	472	1
HENTHORNE, LAURIE,	186	1
HEPLER, WINIFRED,	947	1
HERINK, MAX & MARY,	851	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
HERMANN, RAYMOND,	375	1
HERRMANN, TOM, SCHAEFFERS MFG CO	180	1
HESS, NORM,	43	4
HEYMANN, NANCY,	280	1
HIGGINS, RUSSELL,	681	2
HILL, GERLADINE,	901	1
HILL, MARILYN,	835	1
HILL, SHERYL,	586	4
HIMMERICH, KRISTI,	126	3
HIMMERICH, RICK,	121	3
HIRSCH, MARTIN,	292	2
HLOIBK, LAWRENCE, J R SIMPLOT CO	173	5
HOBSON, CON,	58	1
HOFFMAN, RICK, BONNEVILE IND SUPL CO	140	1
HOFFSIS, EARL,	1051	1
HOFSTETTER, BELINDA,	136	4
HOGUE, NOEL,	817	1
HOLCOMB, KATHERINE,	848	1
HOLLIER, DAWN,	985	1
HOLMES, ELVIRA,	274	3
HOLMES, RICHARD,	273	3
HOOPES, JOHN,	313	1
HOOPES, RICHARD,	315	1
HOOPES, SIDNEY,	487	1
HOPE, JOHN,	640	1
HOUGH, JOSHUA,	183	2
HOUX, BARRY,	23	4
HOWARD, JAMES,	989	2
HOYT, MARV, GRTR YELLOWSTONE COALITION, and WALD, JOHANNA, NRDC	950	502
HUBER, WENDY,	541	1
HUEBSCH, PENNY,	1031	1
HUG, LEI ANN,	403	1
HUGHES, DORIS,	713	1
HUGHES, LARRY,	928	1
HULT, BRIAN,	16	4
HULTGREN, INGRID,	934	1
HUM, JEANNE,	927	1
HUMBERGER, ROGER,	134	4
HUNNEWELL, SARAH,	243	4
HUNT, BETTY & RONALD,	703	1
HUNT, CHRIS,	362	3
HUNT, DONALD,	865	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
HUNT, MARTIN,	40	4
HUNT, RONALD,	520	1
HUNTER, MATTHEW, EXECUTIVE DIRECTOR, AND HEINER, DAN, BOARD CHAIR, GREATER POCATELLO CHAMBER OF COMMERCE	609	See #603
HURD, YOUIK,	897	1
HUSKINS, SHIRLEY,	869	1
HUTCHINGS, LORI,	1024	1
HUTCHINSON, JOHN,	888	1
IOSUPOVICI, MIRIAM,	69	3
ISAACSON, JASON,	311	1
ISZARD, DOUGLAS,	748	1
JACOBS, EDGAR,	459	1
JASPERSON, CADE,	49	1
JAYNE, JERRY,	694	1
JEFIMOFF, JOHN,	372	1
JELLUM, DR LYNNE,	930	1
JENSEN, CHAD, TWN OF AFTON	246	4
JENSEN, CHAD, TWN OF AFTON	607	See #603
JENSEN, DAVE,	147	4
JENSEN, ROD, BK OF STAR VLY	250	4
JENSON, ANGELA,	301	1
JOHNSON, BARBARA,	959	1
JOHNSON, BLAIR,	753	1
JOHNSON, COREY,	28	3
JOHNSON, E,	467	1
JOHNSON, ED,	677	1
JOHNSON, GEORGE,	9	4
JOHNSON, MICHELE,	351	3
JOHNSON, MONTY,	1	5
JOHNSON, REED,	531	1
JOHNSON, REYNOLD,	486	2
JOHNSON, SHAWN,	334	1
JOHNSON, TAMMY,	177	4
JOHNSTON III, JOHN,	814	1
JOHNSTON, FLORENCE,	1030	4
JOHNSTON, LENORE,	399	1
JONES, GENE & KATHY,	289	1
JONES, JAMES,	468	1
JONES, JOHN,	506	1
JONES, KAREN,	340	1
JONES, LOU ELLEN,	983	2
JONES, MARY,	433	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
JONES, TRACY,	356	1
JORDAN, C,	577	1
JOYNER, JAMES, US ARMY CORP OF ENGRS	151	1
JURGEN, MEGHAN,	2	4
KALB, KENNY,	26	4
KARR, DR JONATHAN,	653	1
KAUFFMANN, PATRICIA,	642	1
KAUFMAN, KEN & BARBARA,	820	1
KEENN, SHERI,	51	1
KEHLER, BILL,	443	1
KELLAM, JANET,	832	2
KELLER, JEFF,	30	4
KELLER, KEVIN, PPS CO INC	261	2
KENSINGER, ROBERT,	823	1
KENT, CATHERINE,	742	1
KEPNER, SHARI,	585	5
KERN, ALBERT,	757	1
KERR, RICHARD,	476	1
KING, NANCY,	735	1
KIPPHUT, JOE,	999	2
KIRSCHBAUM, SARAN,	686	1
KITCHEN, PAUL, TETCO	101	4
KLINE, DANIEL, AGRIUM	977	9
KLINE, NORMA,	1020	1
KNIGHT, BOYDE,	1012	2
KNIGHT, LLOYD, FOOD PRODCR OF ID	556	6
KNUTSON, MEL & PAT,	438	1
KOHN, ROBERT B & BETTE JANE,	458	1
KOSTER, DOROTHY,	887	1
KOTRABA, MICHAEL,	1010	4
KOVED, RUTH & FRED,	287	1
KOZUB, JOHN,	636	1
KRAMER, SCOTT,	309	1
KURTAGH, CATHRYN,	451	1
KURTZ, DR PETER,	910	1
LABERGE, GEORGI,	929	1
LABOUVIE, ERIC,	762	1
LADD, BERTHE,	803	1
LAMBETH, LARRY,	695	2
LANDON, STEVE,	71	3
LARSEN, DENNIS,	758	1
LARSEN, GREGG,	833	2
LARSEN, LEE,	92	4

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
LARSEN, WARD,	72	3
LARSON, DARRELL,	574	5
LATTERELL, RICHARD,	745	1
LAWLESS, CHARLOTTE,	419	1
LAWRENCE, JOAN,	690	2
LAWS, MIKI,	382	4
LEATHERMAN, CHRIS,	503	4
LECHNIR, CLEMENT,	268	1
LEDMAN, DOROTHA,	824	1
LEIFER, TIM,	622	1
LEMASTERS, BARBARA,	474	1
LEMLY PH D, A DENNIS,	604	13
LENAGHEN, MIKE,	641	1
LENAGHEN, MIKE,	1033	1
LESKE, JEANNE,	528	2
LESTER, KATHARINE,	417	1
LETENDRE, MICHAEL,	719	1
LEWIS, CAROLE,	938	1
LEWIS, KATHLEEN,	254	3
LEWIS, TOM,	249	3
LICHTER, LENNIE,	670	1
LIEN, DAVID,	424	1
LIFTAWI, TALAL,	141	4
LINABURY, SANDRA,	830	1
LIND, MONTE,	1011	2
LINDEMAN, CATHY,	125	1
LINDEMAN, JANNETTE,	264	1
LINFORD, ALAN	601	2
LINFORD, ALAN, CHAIRMAN-LINCOLN COUNTY CHAMBER	497	See #603
LINFORD, ROBERT,	337	1
LINFORD, T DEB WOLFLEY & KENT CONNELLY & ALAN, BD OF LINCOLN CNTY COMMRS	245	5
LISH, CAROL,	182	4
LIVINGSTON, CURT,	429	1
LIVINGSTON, KEN & MRS,	964	1
LOFE, DAVID, PITTSBURG & MIDWAY COAL MIN CO	370	1
LOFTO, GARRETT, SIMPLOT AGRIBUSINESS	86	4
LOGAN, RICHARD,	797	1
LOPEZ, RICHARD LEE,	79	7
LOSH, ROBERT,	1040	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
LOUT MD, ROBERT,	972	3
LOWE, ROSEMARY,	611	1
LOWEN, JAN,	343	1
LOWICHIK, AMY,	982	2
LUEHRMANN, PAUL,	915	1
LUSINSKI, GREGG,	802	1
LUTHI, DENA,	317	1
LYMAN, JACK, ID MIN ASSN	543	7
LYON, RICHARD,	956	1
MACDONALD PHD, JOHN,	312	1
MACE, KELLY,	539	3
MACKRELL, THOMAS,	205	1
MACNAB, MAGNUS,	228	1
MAERTZ, BERNICE,	818	1
MAGUIRE, JOEL,	655	1
MALEK, PAUL,	128	3
MALEK, PAUL,	131	3
MALINOWSKI, JOHN,	41	3
MARONICK, JAMES,	234	5
MARSHALL, JOSEPH,	231	2
MARTIN, A,	688	3
MARTIN, MELODIE,	282	4
MARTIN, PAUL,	354	1
MARTIN, STEPHEN,	881	1
MATHEWSON, SALLY,	285	1
MATKEY, JOHN,	393	1
MATRISCIANO, CAROLINA,	712	1
MATTHEWS, MARY ANN,	952	1
MATTHEWS, NANCY,	453	1
MAURER, MICHAEL,	924	1
MAZIK, KIM,	376	3
MCCALL, CARLA,	500	1
MCCLINTON, BEN,	652	1
MCCLURE, DONALD,	420	1
MCDONALD, RICHARD,	201	1
MCDOUGAL, SUZANNA,	953	1
MCFADDEN, RICHARD,	15	4
MCGARRY, KENT, CATE IDAHO EQUIP CO	316	6
MCGEEHAN, CAROL,	891	1
MCKENNON, MARK,	190	1
MCKEON, RENAE,	214	2
MCKIM, LYNIECE,	318	2
MCKINNEY, CHERYL,	516	1
MCMANUS, TED,	305	1
MCMILLEN, STEW & MIMI,	761	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
MCMULLEN, ROB & CAROLE,	1036	1
MCNEELY, S,	1043	1
MCOMBER, CHARLY,	160	1
MCOMBER, JESSICA,	159	1
MECHALKE, MINDY,	914	1
MECHAM, TONY,	104	4
MEEKS, MARK,	1018	1
MEIER, JO,	444	1
MENSON, SHARENE,	481	4
MERRELL, DONLAD,	171	3
MERRILL, MATTHEW,	426	1
MERRILL, RICHARD,	846	1
MEYER, CARLA,	610	1
MEYER, GLENN, ID HAY & FORAGE ASSN	558	6
MEYERS, CAROLE,	379	4
MICHAELS, ROBERT,	327	1
MICHAUD, JENNIFER,	775	1
MICK, DOLLY,	628	1
MICKELSON, TODD,	52	1
MIGNOGNO, DEB, US DEPT OF INTR FISH & WLDLF SVC	241	12
MILEFSKY, ANNA, NATL MIN ASSN	551	7
MILES, DAVID,	87	4
MILES, DOROTHY,	105	3
MILES, SCOT,	97	4
MILLER, CARLYN,	902	1
MILLER, GERLAD,	209	1
MILLER, JEFFREY,	736	1
MILLWARD, RANDY,	99	4
MINOR, BARBARA,	7	3
MITTANCK, MIKE,	32	4
MOON, B DALE,	765	2
MOON, SHIRLEY,	346	1
MORAN, JOE,	355	1
MORCOM, LAURA & MIKE,	650	1
MORELLO, PHYL,	684	1
MORRISEY, JERRY,	297	1
MORRISON, PETER,	674	1
MORRISON, ROBERT,	219	1
MOSS, ELAINE,	728	1
MOWAT, BRANDIE,	565	1
MULLARKEY, MIKE,	691	1
MULLEN, THOMAS,	384	4
MULLIGAN, PAUL,	595	1
MUNDT, DANIEL,	961	1
MURDOCK, LOUIS,	871	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
MURPHY, AMY,	654	1
MURRAY, RAY,	900	1
MURRAY-BRADSHAW, MARGARET,	621	1
MYERS, KATHY,	223	1
NAY, PAT,	29	4
NAY, SUSAN,	31	4
NEBEKER, CLINT,	184	2
NEIDELL, MERLE,	638	1
NEIDER, KEN, WESTERN STATES CRCT BREAKERS INC	1006	2
NEIFERT, CHRISTA,	148	4
NELSON, LYNN,	637	1
NEMES, JOSEPH,	878	1
NEWGARD, ROBERT,	422	1
NEWMAN, NANCY,	957	1
NIBLACK, JANICE,	221	1
NICHALSON, DAVID,	272	4
NIELD, MARIE,	242	12
NISSL, JAN,	365	2
NOORDA, PAUL, GEM ST DISTRS	262	4
NORTON, DR DANIEL,	402	1
NOTHSTEIN, FRED,	794	1
NYKAMP, BRUCE,	276	1
OBORN, JOHN,	229	3
OBORN, JOHN,	232	3
OECHLER, HERBERT,	699	1
OESCH, RONALD,	792	1
OFFUTT, THOMAS,	542	1
OLSEN, JERRY,	59	3
OLSON, STEVE,	161	5
OTTESON, KELLY,	5	3
PACHECO-THEARD, LAUREN,	195	1
PADUCH, RITA,	754	1
PALMER, TOM,	112	4
PAOLETTI, STEPHEN,	132	3
PAOLI, JAMES,	48	1
PARKER, CHERI,	18	3
PARKER, DENTON	8	3
PARKER, FRANK,	567	1
PARKER, PETER,	968	1
PARKS, ELIZABETH,	822	1
PARSONS, TERYL,	50	1
PARTANSKY, MICHAEL,	676	1
PASICHNYK, RICHARD,	649	1
PASLEY, ADAM,	83	3
PATRICK, J NICHOLS,	377	1
PATTERSON, CYNTHIA,	784	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
PEAD, JESSICA,	568	1
PECK, SHARIK,	14	4
PEEBLES, FRITZ,	20	4
PERRY, J STEVE,	138	1
PERRYMAN, TODDY,	663	1
PETELLE PH D, MICHAEL,	876	1
PETERSON, B,	889	1
PETERSON, JOHN MULVIHILL & CAROL,	401	1
PETRICH, DEAN,	510	1
PETSCHE, STEVEN L & SANDRA,	704	1
PFANNKUCHE, SUSAN,	788	1
PFEIFFER, STEVEN,	935	1
PHELPS, CODY,	102	3
PICHER, JOANNA & LEWIS,	421	1
PIKE, BILL,	517	1
PILBURN, ELIZABETH,	852	1
PILCHER, BONNIE,	612	1
PINTHER, T ELVIRA,	710	1
PINTI, BEN,	1044	1
PIRZADEH, MICHELLE, US ENVIRON PROTECT AGCY/REGN 10	553	15
PLACZKOWSKI, PAULINE,	493	1
PLETCHER, TERESA,	849	1
PLIGAVKO, ANDRA,	226	1
PONCZEK, LAWRENCE,	1025	1
POND, RICHARD,	646	3
PORTER, JOEL, BURCH PORTER & JOHNSON PLLC	550	4
POST, AMBER,	120	4
PRIDGEON, CAROL,	671	1
PROESCHOLDT, KEVIN,	215	1
PROUTY, ALAN,	560	3
PROUTY, ALAN, J R SIMPLOT CO	475	142
PRUETT, AMBER,	38	4
PRUETT, EMILY,	33	4
PRUETT, EVAN,	37	4
PRUETT, GREG,	34	4
PRUETT, JEFF,	540	4
PRUETT, KAY,	478	1
PRUETT, LEON,	36	4
PRUETT, TAMMY,	35	4
PRYOR, BARBARA,	879	1
PURCELL, JOHN,	631	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
QUIST, ELIZABETH,	188	1
RABY, JOHN,	714	1
RAIZIN, HAROLD & CAROL,	322	1
RAND, HONEY,	381	4
RANDOLPH, GREG,	361	1
RAPP, JULIE,	941	1
RAPPING, JUDITH,	283	1
RATCLIFF, PHILIP,	579	4
RATHER, NORVAL,	780	1
RATZER, LEO,	770	1
RAY, KIMBERLIE,	233	4
REAVIS, JOHN,	114	6
REED, CHARLES,	436	1
REICHARDT, DOROTHY,	741	1
REISER, RICHARD,	717	1
REPAR, MARY,	222	1
RESIDENT, ,	873	1
REX, ANGELA,	625	1
REYNOLDS, KATHLEEN,	432	1
RICCI, DEBRA,	810	1
RICHARDSON, DANA,	413	1
RICHARDSON, JOHN & GAIL,	791	1
RICHMOND, DAVID & KATHY,	875	1
RIEDE, JUDY,	240	15
RIEDE, PETE & JUDY,	174	1
RIEDE, PETER,	239	32
ROBBINS, KEVIN,	116	4
ROBBINS-SMITH, JENNIFER,	998	2
ROBERTS, HEIDI,	338	1
ROBERTS, ROBERT,	974	1
ROBERTSON, LISA,	534	1
ROBERTSON, STEPHEN,	967	1
ROBICHAUX, T,	326	3
ROBISON, JOHN, ID CONSERVE LEA	978	17
ROCKWELL, DONALD,	908	1
RODDA, GORDON,	491	1
ROESLER, JEFF,	42	3
ROGERS, AMBER,	564	1
ROGERS, ANDREA & JOHN,	720	1
ROHEN, ROBERT,	760	1
ROMINE, MARY,	319	1
ROOS, ARVIN,	744	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
ROOT, MARION T & RICHARD,	270	2
ROSENBERG, RHONDA,	620	1
ROTT, JOHN,	257	1
ROWBERRY, FRANK WENDELL,	63	3
ROWBERRY, FRANK WENDELL,	108	4
ROWE, BRET ZANE,	96	4
ROWE, SHAUN,	179	4
ROWLAND, DORIS,	206	1
RUBEN, ADAM,	850	1
RUDOLPH, MATT,	163	3
RUSH, RICHARD, ID ASSN OF COMMRCE & INDUST	552	6
RUSK, RUTH,	759	1
RUSSELL, KATHLEEN,	747	1
RUSSELL, KATHY,	639	1
RUSSELL, MARY,	321	1
RYAN, MICHAEL,	581	2
RYDBERG, CAROLE,	344	1
RYE, JAMES, CROWN PARTS AND MACHINE	80	1
SABEL, SCOTT,	74	3
SAMENFELD, HERBERT,	463	1
SAMUEL, RONALD,	110	4
SAMUELSON, KRISTI,	103	4
SANDERS, RUSSELL,	730	1
SARTELL, DAVE, ID COOPRTV CNCL INC	557	6
SAUDOK, FLORENCE,	598	1
SAUER, GREG,	913	1
SAUNDERS, BRYCE,	98	6
SAUNDERS, C CRAIG,	106	4
SAVINSKI, MARK,	469	1
SCALLAN, CAROL,	584	2
SCARBOROUGH, JAMES CURTIS,	454	1
SCARLETT, JOE,	537	1
SCHAFER, ROBERT,	168	4
SCHAREN, ALBERT L & VICTORIA,	1000	3
SCHENK, BRIAN,	6	4
SCHERBEL, PAUL,	523	1
SCHIERS, JOHN GORDON,	256	7
SCHIFFERLE, JAMES & ANNE,	940	2
SCHILDCROUT-LLOYD, NICOLE,	666	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
SCHILLIE, ERIC, SIMPLOT PHOSPHATES LLC	291	4
SCHLAEPPI, MARJORIE,	705	1
SCHLAMM, RHODA,	779	1
SCHMIDT, DR JUDITH,	951	1
SCHMIDT, JOHN, ESTRN ID GRP OF SIERRA CLB	549	12
SCHMIDT, KATHY,	667	1
SCHNEIDER, DANIEL,	696	3
SCHNIETER, K,	54	1
SCHRAND, CYNTHIA PATTERSON & PETER,	580	2
SCHUESSLER, BILL,	860	1
SCHULTZ, DIXIE,	152	1
SCHUPBACH, SHERRY,	942	1
SCHUR, ALAN,	456	1
SCHUTT, ROGER,	77	4
SCHWAGER, MICHAEL,	333	1
SEARING, CLAIRE,	892	1
SEATENA, SANDRA,	767	1
SEAY, TINA,	789	1
SEELYE, CHANDRA,	623	1
SEESOCK, WENDY,	202	1
SEILER, BARBARA,	729	1
SELLERS, R,	397	1
SERVOSS, JOHNNY,	1013	6
SETARO, DANIKA,	617	1
SETTER, MARIAN,	439	1
SHEPPARD, BUTCH,	251	5
SHERWOOD PHD, VANCE,	501	1
SHERWOOD, STACI-LEE,	659	2
SHETTERLY, JOHN,	192	1
SHIKANY, SANDRA & KEITH,	431	1
SHITAMA, CELESTE,	821	1
SHORES, ROBERTA CHENEY,ERIC,ANNE,RICHARD & KAREN,	834	1
SHURTLEFF, MATTHEW,	139	2
SIEGRIST, TONI,	976	5
SIMMONS, ROBERT,	494	3
SIMONS, DIANE,	154	3
SIMONSEN, COLLEEN,	484	4
SIMONSEN, STEIN,	485	4
SIMPLOT, SCOTT, J R SIMPLOT CO	235	5
SIMPSON, DAHL,	335	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
SIMPSON, ERIC DURSTELER & EVAN, SURNISE ENGRG	275	2
SIMPSON, JAMES CARL,	135	4
SIMPSON, KITTY CAROLE,	455	1
SIMS, PATRICIA,	482	2
SINCLAIRE, PETER,	866	1
SKILLIN, R THOMAS,	325	1
SKINNER, LANCE & JANADENE,	167	1
SLINING, THOMAS,	353	1
SMITH, ANDREW,	200	1
SMITH, CAROL RAE,	958	1
SMITH, DANIEL,	172	3
SMITH, EMIL,	751	1
SMITH, INGEBORG,	919	1
SMITH, JAMES,	157	7
SMITH, PATRICIA,	682	1
SMITH, PAUL,	165	1
SMITH, PRUDENCE,	470	1
SMITH, SANDI,	166	1
SMITH, STEPHANY MYATT,	358	4
SMITH, THAYLE,	1004	4
SMITH, TRISTAN,	115	5
SMOOT, JASON,	385	1
SNOW, GARY,	56	1
SNYDER, BILL,	203	1
SOALBORN, ERIC,	464	1
SOLOMON, CASEY,	94	4
SOLOMON, JUSTIN,	332	1
SOLOMON, MIKE,	107	4
SORENSEN, CAROL,	428	1
SOUTHLAND, CAROL,	727	1
SPOTTS, RICHARD,	210	1
ST JAMES, CAROLYN,	630	1
STACHOWSKI, KATHLEEN,	559	1
STALLINGS, CONSTANCE,	427	1
STANIONIS, CRYSTAL,	477	2
STANLEY, LOUISE,	840	1
STARLIGHT, SAMANTHA,	1039	2
STEELE, WILLIAM,	483	3
STEINBERG, DOROTHY,	782	1
STERNBERG, STEVE,	368	4
STETSON, JUDITH,	479	1
STEUBER, SARI,	809	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
STEVENS, BOB & HOPE,	859	1
STEVENS, TIMOTHY R & AMY O TITGEMEIER,	441	1
STEWART, DAVID, STEWART'S CROW CRK RNCH	561	8
STIGEN, LEE,	862	1
STILES, CHRISTIE & TODD,	796	1
STIMAC, V,	440	1
STOCKS, MRS W,	739	1
STOUT, DAVID,	194	2
STRATTON, JIM,	870	1
STRONG, DANIEL,	743	1
STROSBURG, L,	404	1
STURM, JACK,	53	1
SULLIVAN, BRUCE & ROBERTA,	582	1
SULLIVAN, ROBERT,	635	1
SWALLOW, LARRY SCOTT,	127	3
SWENTON, ANDREW,	906	1
SYLVAN, ELISABETH,	613	1
SZCZEPKOWSKI, MR & MRS STANLEY,	807	1
SZEWEZYK, LES & PAT,	423	1
TAYLOR, CAROLYN,	880	1
TAYLOR, PAUL,	378	3
TEASLEY PHD, REGI,	331	1
THOMPSON, MICHAEL,	265	1
THORNOCK, DON,	91	4
THORP, THOMAS,	665	1
TICE, SID,	890	1
TOLFORD, MATTHEW,	204	1
TOMASZEWSKI, NINA,	466	1
TONER, KEVIN,	1050	22
TRAWEEK, JIM,	658	1
TROY, GAIL RITA WIENEN,	857	1
TUREK, THOMAS,	746	1
TURIANO, THOMAS,	980	3
TWITCHELL, DERALD,	237	5
UMPHREY, MICHAEL,	124	1
UNFRIED, MILDRED & DOUGLAS,	793	1
URBAN, DOLORES,	1023	4
VALERIO, PAUL,	783	1
VANALSTYNE, JAYNE,	790	1
VANCE, MARGARET,	626	1
VANKAMMEN, LEE,	158	1
VANLEUVEN, ERIC,	142	3

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
VASPOL, SALVATORE,	524	1
VASSEY, PAULA,	392	1
VICE, MICHAEL,	573	9
VINING, CARL,	838	1
VOLPE, FRANCIS,	778	1
VOSS, ERIC,	904	1
VRANES, RANDY,	547	15
VROOM, JAY, CROPLIFE AMER	238	5
VUKMANIC, PAUL,	854	1
WAADSWORTH, DON & GWENN,	298	1
WAGNER, DONNA,	396	1
WAITE, CURT L & MARSHA,	85	7
WALKER, JOHN,	629	1
WALKER, SHARON, BK OF STAR VLY	260	3
WALLS, NANCY & WAYNE,	395	1
WALTER, DONNA,	504	1
WALTON, SIMON,	512	1
WALZ, K,	954	1
WARCLOUD, ARDIS,	597	1
WARREN, HELEN SCOTT & KENNETH,	489	2
WASHBURN, PHILIP,	281	4
WATSON, HAZEL,	660	1
WATSON, KENT, THOMPSON CRK MIN CO	545	4
WAYNE, MERRITT,	324	1
WEBB, DAVID,	1035	2
WEBB, JAMES, LOWR VLY ENRGY	271	2
WEBSTER, JEFFREY,	1002	4
WEEDEN, HESTER,	808	1
WEGWEISER, MARILYN,	218	1
WEHRI, MARK,	683	1
WEINSTOCK, ARNOLD,	701	1
WELCH, POPPY,	230	4
WELLARD, JERRY, ID IRON INC	133	1
WENRICK, LINDA EPTON,	185	1
WESTWOOD, PAUL,	1001	4
WEXLER, MERIDA and JOSEPH	774	See #244
WHITACRE, BILL, J R SIMPLOT CO AGRIBUSINESS GRP	84	3
WHITE, LORNIE	949	1

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
WHITE, MINDI,	724	1
WHITMAN, ARIANNA,	755	1
WHITNEY JR, DICKSON,	236	1
WHITWORTH, CHESTER GEORGE,	602	4
WHITWORTH, DAVID,	527	2
WICHERS, BILL, WYOMING GAME AND FISH	1054	2
WIER, J,	858	1
WIES, JIM,	917	1
WILES, JEFFREY,	1026	1
WILKE, GAIL,	725	1
WILKINS, BOB,	787	1
WILLIAMS, BONNIE,	24	4
WILLIAMS, BRUCE,	25	4
WILLIAMS, DEDRA,	22	4
WILLIAMS, DENISE,	461	1
WILLIAMS, GEORGE WOODS,	962	1
WILLIAMS, JAMES R & SHARELYNN,	829	1
WILLIAMS, LINDA,	945	1
WILLIAMS, XENIA,	342	1
WILSON, MARTHA & GLEN,	437	1
WILSON, MARTHA & GLEN,	522	1
WILSON, MONTY,	284	1
WILSON, RICHARD,	496	2

LAST, FIRST, AFFILIATION	LETTER NUMBER	# OF COMMENTS
WINARD, MR & MRS GEORGE,	707	1
WIND, DONALD,	987	5
WINEGAR, BRUCE,	499	13
WITTMEYER, JANE, INTRMTN FRST ASSN	575	5
WMSON, BRUCE,	67	1
WOLF, DEBRA,	578	1
WOLLSTEIN, L,	412	1
WORTHY, CRISTA,	815	1
WYATT, MADELINE,	490	1
WYBERG, BRYAN,	227	1
WYBERG, KENNETH,	1042	1
WYLD, JEANNE MARIE,	971	1
YATES, MARGARET,	842	1
YCAS, LAVINIA A,	749	1
YERGOVICH, CHERYL,	994	5
YERGOVICH, TOM,	995	5
YOST, JAY,	993	4
YOUNG, DR RICHARD,	448	1
YOUNG, JENNIFER,	627	1
YOUNG, MILLICENT,	903	1
ZALES, WILLIAM,	816	1
ZEAL, PAM,	100	4
ZURN, JAMES,	932	1
Attendance Sheet	1047	0
Attendance Sheet	1048	0
Attendance Sheet	1049	0

TABLE 7.3-2 COMMENT LETTERS NUMERICALLY

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
1	JOHNSON, MONTY,	5
2	JURGEN, MEGHAN,	4
3	DUNN, CURTIS,	4
4	CONAN, ED,	3
5	OTTESON, KELLY,	3
6	SCHENK, BRIAN,	4
7	MINOR, BARBARA,	3
8	PARKER, DENTON	3
9	JOHNSON, GEORGE,	4
10	GREEN, DAVID,	4
11	DOUGLASS, JUDI,	2
12	BAKER, CHERI,	1
13	COOPER, CAROLEE	4
14	PECK, SHARIK,	4
15	MCFADDEN, RICHARD,	4
16	HULT, BRIAN,	4
17	ANDREWS, R VERLEN,	3
18	PARKER, CHERI,	3
19	AVERY, PATRICK,	4
20	PEEBLES, FRITZ,	4
21	GUINN, RANDY,	4
22	WILLIAMS, DEDRA,	4
23	HOUX, BARRY,	4
24	WILLIAMS, BONNIE,	4
25	WILLIAMS, BRUCE,	4
26	KALB, KENNY,	4
27	COLOMBO, NANCI,	3
28	JOHNSON, COREY,	3
29	NAY, PAT,	4
30	KELLER, JEFF,	4
31	NAY, SUSAN,	4
32	MITTANCK, MIKE,	4
33	PRUETT, EMILY,	4
34	PRUETT, GREG,	4
35	PRUETT, TAMMY,	4
36	PRUETT, LEON,	4
37	PRUETT, EVAN,	4
38	PRUETT, AMBER,	4
39	BISSELL, DALE,	4
40	HUNT, MARTIN,	4
41	MALINOWSKI, JOHN,	3
42	ROESLER, JEFF,	3
43	HESS, NORM,	4
44	BYINGTON, TROY,	4
45	CUTBERTH, CONNIE,	3
46	CUTBERTH, J,	3

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
47	DEXTER, GREG,	4
48	PAOLI, JAMES,	1
49	JASPERSON, CADE,	1
50	PARSONS, TERYL,	1
51	KEENN, SHERI,	1
52	MICKELSON, TODD,	1
53	STURM, JACK,	1
54	SCHNIETER, K,	1
55	DOMINGUEZ, ANTONIO,	4
56	SNOW, GARY,	1
57	FERRIN, JACOB,	4
58	HOBSON, CON,	1
59	OLSEN, JERRY,	3
60	CURRIE, JOHN, WSTRN STATES EQUIP	1
61	FORSMAN, TANYA,	1
62	CORRINGTON, TED,	3
63	ROWBERRY, FRANK WENDELL,	3
64	CHAMBERS, DAVID, CENTER FOR SCIENCE IN PUBLIC PARTICIPATION	0
65	ERICKSON, GARY,	1
66	GILBERT, KRIS,	1
67	WMSON, BRUCE,	1
68	CORDER, DAN,	1
69	IOSUPOVICI, MIRIAM,	3
70	GABBERT, RON,	4
71	LANDON, STEVE,	3
72	LARSEN, WARD,	3
73	BEVERS, WILLIAM,	1
74	SABEL, SCOTT,	3
75	BYINGTON, GARY,	4
76	DILLIER, GARY,	3
77	SCHUTT, ROGER,	4
78	GREEN, DANNY,	5
79	LOPEZ, RICHARD LEE,	7
80	RYE, JAMES, CROWN PARTS AND MACHINE	1
81	FERRIN, DAVE,	1
82	DELMORE, RACHEL,	1
83	PASLEY, ADAM,	3

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
84	WHITACRE, BILL, J R SIMPLOT CO AGRIBUSINESS GRP	3
85	WAITE, CURT L & MARSHA,	7
86	LOFTO, GARRETT, SIMPLOT AGRIBUSINESS	4
87	MILES, DAVID,	4
88	CHISUM, KRISTINA,	3
89	GILBERT, QUIN,	4
90	CLEAVES, KEN,	4
91	THORNOCK, DON,	4
92	LARSEN, LEE,	4
93	GRAHAM, JOHN,	4
94	SOLOMON, CASEY,	4
95	COLVIN, KORY,	4
96	ROWE, BRET ZANE,	4
97	MILES, SCOT,	4
98	SAUNDERS, BRYCE,	6
99	MILLWARD, RANDY,	4
100	ZEAL, PAM,	4
101	KITCHEN, PAUL, TETCO	4
102	PHELPS, CODY,	3
103	SAMUELSON, KRISTI,	4
104	MECHAM, TONY,	4
105	MILES, DOROTHY,	3
106	SAUNDERS, C CRAIG,	4
107	SOLOMON, MIKE,	4
108	ROWBERRY, FRANK WENDELL,	4
109	DOUGHERTY, MARILYN,	4
110	SAMUEL, RONALD,	4
111	DOUGHERTY, DARRELL,	4
112	PALMER, TOM,	4
113	FERGUSON, MICHAEL,	4
114	REAVIS, JOHN,	6
115	SMITH, TRISTAN,	5
116	ROBBINS, KEVIN,	4
117	ADAMS, SUSAN,	4
118	BISHOP, LORI,	4
119	FRAZIER, JOHN,	1
120	POST, AMBER,	4
121	HIMMERICH, RICK,	3
122	EBERHART, MELANIE,	1
123	HASKELL, DARREL,	4

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
124	UMPHREY, MICHAEL,	1
125	LINDEMAN, CATHY,	1
126	HIMMERICH, KRISTI,	3
127	SWALLOW, LARRY SCOTT,	3
128	MALEK, PAUL,	3
129	BEARD, DAVID,	4
130	DAVIS, LINDA,	1
131	MALEK, PAUL,	3
132	PAOLETTI, STEPHEN,	3
133	WELLARD, JERRY, ID IRON INC	1
134	HUMBERGER, ROGER,	4
135	SIMPSON, JAMES CARL,	4
136	HOFSTETTER, BELINDA,	4
137	ANDREWS, STEVE,	4
138	PERRY, J STEVE,	1
139	SHURTLEFF, MATTHEW,	2
140	HOFFMAN, RICK, BONNEVILE IND SUPL CO	1
141	LIFTAWI, TALAL,	4
142	VANLEUVEN, ERIC,	3
143	ALDERSON, GEORGE & FRANCES,	3
144	DYKMAN, DAVID, DYKES ELECTR INC	4
145	DYKMAN, KIRK, DYKES ELECTR INC	4
146	BRYANT, TOMMY,	4
147	JENSEN, DAVE,	4
148	NEIFERT, CHRISTA,	4
149	AGUILAR, ANTONIO,	4
150	COOK, ROBERT,	4
151	JOYNER, JAMES, US ARMY CORP OF ENGRS	1
152	SCHULTZ, DIXIE,	1
153	BROWN, RICHARD,	3
154	SIMONS, DIANE,	3
155	ANDERSON, PHIL,	4
156	GILLESPIE, PATRICK, SCHAEFFER MFG	3
157	SMITH, JAMES,	7
158	VANKAMMEN, LEE,	1
159	MCOMBER, JESSICA,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
160	MCOMBER, CHARLY,	1
161	OLSON, STEVE,	5
162	EALEY, GORDON,	9
163	RUDOLPH, MATT,	3
164	BENNETT, CHERYL, MT HOOD FASTENER CO	1
165	SMITH, PAUL,	1
166	SMITH, SANDI,	1
167	SKINNER, LANCE & JANADENE,	1
168	SCHAFER, ROBERT,	4
169	ASHTON, GENE, PRCS SYSTS EQUIP	1
170	CLEMENT, VAL & PAM,	1
171	MERRELL, DONLAD,	3
172	SMITH, DANIEL,	3
173	HLOIBK, LAWRENCE, J R SIMPLOT CO	5
174	RIEDE, PETE & JUDY,	1
175	BOBBITT, BILLY, STHRN ALLOY CORP	1
176	GARBETT, CLAUDE,	3
177	JOHNSON, TAMMY,	4
178	CLEMENT, VAL & PAM,	4
179	ROWE, SHAUN,	4
180	HERRMANN, TOM, SCHAEFFERS MFG CO	1
181	HARRIS, SCOTT,	3
182	LISH, CAROL,	4
183	HOUGH, JOSHUA,	2
184	NEBEKER, CLINT,	2
185	WENRICK, LINDA EPTON,	1
186	HENTHORNE, LAURIE,	1
187	GLOMBIAK, JOSEPH,	1
188	QUIST, ELIZABETH,	1
189	CRAIG, HELEN,	1
190	MCKENNON, MARK,	1
191	BENNETT, ALAN,	2
192	SHETTERLY, JOHN,	1
193	BROMER, GAIL,	1
194	STOUT, DAVID,	2
195	PACHECO-THEARD, LAUREN,	1
196	CHAPMAN, SHARON,	1
197	BISHOP, ANDREW,	1
198	GARDING, LOUIS,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
199	GRILLO, JOHN,	1
200	SMITH, ANDREW,	1
201	MCDONALD, RICHARD,	1
202	SEESOCK, WENDY,	1
203	SNYDER, BILL,	1
204	TOLFORD, MATTHEW,	1
205	MACKRELL, THOMAS,	1
206	ROWLAND, DORIS,	1
207	BARKER, STEVE,	1
208	DAUGHERTY, MARCI,	1
209	MILLER, GERLAD,	1
210	SPOTTS, RICHARD,	1
211	ANDERSON, STACEY,	2
212	GIBSON, URSULA,	1
213	AMPEL, CAROL,	1
214	MCKEON, RENAE,	2
215	PROESCHOLDT, KEVIN,	1
216	EMMER, MATTHEW,	1
217	ANDERSON, GEORGIANA,	1
218	WEGWEISER, MARILYN,	1
219	MORRISON, ROBERT,	1
220	BARTLETT-RE, STEPHEN,	1
221	NIBLACK, JANICE,	1
222	REPAR, MARY,	1
223	MYERS, KATHY,	1
224	CHOPPERS-WIFE, SUE,	1
225	COLLIER, PAT,	1
226	PLIGAVKO, ANDRA,	1
227	WYBERG, BRYAN,	1
228	MACNAB, MAGNUS,	1
229	OBORN, JOHN,	3
230	WELCH, POPPY,	4
231	MARSHALL, JOSEPH,	2
232	OBORN, JOHN,	3
233	RAY, KIMBERLIE,	4
234	MARONICK, JAMES,	5
235	SIMPLOT, SCOTT, J R SIMPLOT CO	5
236	WHITNEY JR, DICKSON,	1
237	TWITCHELL, DERALD,	5

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
238	VROOM, JAY, CROPLIFE AMER	5
239	RIEDE, PETER,	32
240	RIEDE, JUDY,	15
241	MIGNOGNO, DEB, US DEPT OF INTR FISH & WLDLF SVC	12
242	NIELD, MARIE,	12
243	HUNNEWELL, SARAH,	4
244	ENGLE, MARK,	2
245	LINFORD, T DEB WOLFLEY & KENT CONNELLY & ALAN, BD OF LINCOLN CNTY COMMRS	5
246	JENSEN, CHAD, TWN OF AFTON	4
247	HARRISON, JOLEENE,	5
248	BUECHLER, SHANE,	2
249	LEWIS, TOM,	3
250	JENSEN, ROD, BK OF STAR VLY	4
251	SHEPPARD, BUTCH,	5
252	BUTLER, DEL, SIMPLOT AGRIBUSINESS DON PLANT	2
253	ANDREWS, RICHARD,	4
254	LEWIS, KATHLEEN,	3
255	ARAQUISTAIN, MARK,	3
256	SCHIERS, JOHN GORDON,	7
257	ROTT, JOHN,	1
258	ERICKSON, CHAD,	1
259	CALDER, CRAIG PAUL,	4
260	WALKER, SHARON, BK OF STAR VLY	3
261	KELLER, KEVIN, PPS CO INC	2
262	NOORDA, PAUL, GEM ST DISTRS	4
263	DUNN, A DALE, SIMPLOT CORPRT HQ	2
264	LINDEMAN, JANNETTE,	1
265	THOMPSON, MICHAEL,	1
266	HANSON, FERN & HAROLD,	1
267	ERICKSON, ROB,	2

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
268	LECHNIR, CLEMENT,	1
269	CLEMON, MONTE,	2
270	ROOT, MARION T & RICHARD,	2
271	WEBB, JAMES, LOWR VLY ENRGY	2
272	NICHALSON, DAVID,	4
273	HOLMES, RICHARD,	3
274	HOLMES, ELVIRA,	3
275	SIMPSON, ERIC DURSTELER & EVAN, SURNISE ENGRG	2
276	NYKAMP, BRUCE,	1
277	BROWN, STEPHEN,	1
278	BROOKS, SUSAN,	1
279	CARSON, ANDREW & NANCY,	1
280	HEYMANN, NANCY,	1
281	WASHBURN, PHILIP,	4
282	MARTIN, MELODIE,	4
283	RAPPING, JUDITH,	1
284	WILSON, MONTY,	1
285	MATHEWSON, SALLY,	1
286	ESKELSON, RICK, PARTNER STL INC	1
287	KOVED, RUTH & FRED,	1
288	BOYDEN, DAVE,	4
289	JONES, GENE & KATHY,	1
290	DENNIS, KAITLIN,	1
291	SCHILLIE, ERIC, SIMPLOT PHOSPHATES LLC	4
292	HIRSCH, MARTIN,	2
293	FOSTER, SUSAN,	2
294	CARLISLE, STEVE,	2
295	GERMINO PHD, MATTHEW,	1
296	GOLDSTEIN, BARRY,	1
297	MORRISEY, JERRY,	1
298	WAADSWORTH, DON & GWENN,	1
299	BROUDE, JOHN,	2
300	GROOM, MARY,	1
301	JENSON, ANGELA,	1
302	BLAIN, RICHARD,	3
303	ELLIOTT, EDWARD,	2
304	BLISS, THOMAS,	3
305	MCMANUS, TED,	1
306	HADLEY, WILLIAM,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
307	FLUESMEIER, A,	1
308	BURNS, HEATHER,	2
309	KRAMER, SCOTT,	1
310	GILMOUR, KEN,	2
311	ISAACSON, JASON,	1
312	MACDONALD PHD, JOHN,	1
313	HOOPES, JOHN,	1
314	HALVERSON, MARTHA,	1
315	HOOPES, RICHARD,	1
316	MCGARRY, KENT, CATE IDAHO EQUIP CO	6
317	LUTHI, DENA,	1
318	MCKIM, LYNIECE,	2
319	ROMINE, MARY,	1
320	DOCKSTADER, KIM,	1
321	RUSSELL, MARY,	1
322	RAIZIN, HAROLD & CAROL,	1
323	ALLEN, JOSEY,	1
324	WAYNE, MERRITT,	1
325	SKILLIN, R THOMAS,	1
326	ROBICHAUX, T,	3
327	MICHAELS, ROBERT,	1
328	FULLMER, KELLY,	1
329	HADERLIE, FARREN,	1
330	BOOTH, VALERIE,	1
331	TEASLEY PHD, REGI,	1
332	SOLOMON, JUSTIN,	1
333	SCHWAGER, MICHAEL,	1
334	JOHNSON, SHAWN,	1
335	SIMPSON, DAHL,	1
336	DAVIS, TOM,	1
337	LINFORD, ROBERT,	1
338	ROBERTS, HEIDI,	1
339	BOOK, PHARES,	1
340	JONES, KAREN,	1
341	BROTMAN, JILL,	1
342	WILLIAMS, XENIA,	1
343	LOWEN, JAN,	1
344	RYDBERG, CAROLE,	1
345	BARCKLAY, RODERICK,	1
346	MOON, SHIRLEY,	1
347	HALPER, LEE,	1
348	CHISHOLM, BILL,	1
349	CASEY, CLAIRE,	1
350	FRENCH, ELAINE,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
351	JOHNSON, MICHELE,	3
352	BOWRON, WIN,	1
353	SLINING, THOMAS,	1
354	MARTIN, PAUL,	1
355	MORAN, JOE,	1
356	JONES, TRACY,	1
357	BUDGE, NANCY,	2
358	SMITH, STEPHANY MYATT,	4
359	HARRIS, SCOTT,	1
360	ARTLEY, RICHARD,	3
361	RANDOLPH, GREG,	1
362	HUNT, CHRIS,	3
363	APPLEBEE, PHYLLIS,	1
364	DEAN, JOHN,	2
365	NISSL, JAN,	2
366	DUBROSKY, DOUGLAS,	1
367	BERSANTI, DAN,	1
368	STERNBERG, STEVE,	4
369	DENNIS, MARK,	1
370	LOFE, DAVID, PITTSBURG & MIDWAY COAL MIN CO	1
371	HARKNESS, CAROL,	2
372	JEFIMOFF, JOHN,	1
373	CARSTEN, TONI,	1
374	ALLEN, MATT,	1
375	HERMANN, RAYMOND,	1
376	MAZIK, KIM,	3
377	PATRICK, J NICHOLS,	1
378	TAYLOR, PAUL,	3
379	MEYERS, CAROLE,	4
380	BOSWORTH, DR KEN,	3
381	RAND, HONEY,	4
382	LAWS, MIKI,	4
383	GAUSS, EUGENE, WILBUR-ELLIS CO	4
384	MULLEN, THOMAS,	4
385	SMOOT, JASON,	1
386	GANDENBERGER, JADEEN,	1
387	EMPEY, ROGER,	1
388	CLINES, VAL,	1
389	CREE, KAREN,	1
390	BROWN, SHANE,	1
391	FAKRIEH, NANCY,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
392	VASSEY, PAULA,	1
393	MATKEY, JOHN,	1
394	DENISON, LOU ANNA,	1
395	WALLS, NANCY & WAYNE,	1
396	WAGNER, DONNA,	1
397	SELLERS, R,	1
398	COUPER, CHARLES,	1
399	JOHNSTON, LENORE,	1
400	CICERCHI, MARIANNA,	1
401	PETERSON, JOHN MULVIHILL & CAROL,	1
402	NORTON, DR DANIEL,	1
403	HUG, LEI ANN,	1
404	STROSBURG, L,	1
405	BLAINEY, ELAINE,	1
406	ELTING, ELIZABETH,	1
407	BARZ, PAT,	1
408	COOPER, JOHN H & JOAN B,	1
409	GUZMAN, DORINE,	1
410	HANEL, JOHN,	1
411	BEASLEY, BRAD,	1
412	WOLLSTEIN, L,	1
413	RICHARDSON, DANA,	1
414	HAMMAN, MILDRED,	1
415	GRANING, FAY,	1
416	FARBER, CONSTANCE,	1
417	LESTER, KATHARINE,	1
418	BISHOP, ROBERTA,	1
419	LAWLESS, CHARLOTTE,	1
420	MCCLURE, DONALD,	1
421	PICHER, JOANNA & LEWIS,	1
422	NEWGARD, ROBERT,	1
423	SZEWEZYK, LES & PAT,	1
424	LIEN, DAVID,	1
425	HANSEN, ROGER,	1
426	MERRILL, MATTHEW,	1
427	STALLINGS, CONSTANCE,	1
428	SORENSEN, CAROL,	1
429	LIVINGSTON, CURT,	1
430	BAYLOR, DENNIS,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
431	SHIKANY, SANDRA & KEITH,	1
432	REYNOLDS, KATHLEEN,	1
433	JONES, MARY,	1
434	BEASLEY, JIM,	1
435	GILLIS, BRUCE,	1
436	REED, CHARLES,	1
437	WILSON, MARTHA & GLEN,	1
438	KNUTSON, MEL & PAT,	1
439	SETTER, MARIAN,	1
440	STIMAC, V,	1
441	STEVENS, TIMOTHY R & AMY O TITGEMEIER,	1
442	FLAGG, JO,	1
443	KEHLER, BILL,	1
444	MEIER, JO,	1
445	GUTKOSKI, JOE,	1
446	ALLEN, VIRGINIA,	1
447	HECHT, JOHN,	1
448	YOUNG, DR RICHARD,	1
449	DICKERSON, PATTY,	1
450	BROWNING, R,	1
451	KURTAGH, CATHRYN,	1
452	BALCOMB, ROBERT B & RUTH,	1
453	MATTHEWS, NANCY,	1
454	SCARBOROUGH, JAMES CURTIS,	1
455	SIMPSON, KITTY CAROLE,	1
456	SCHUR, ALAN,	1
457	ESSIG, JOYCE,	1
458	KOHN, ROBERT B & BETTE JANE,	1
459	JACOBS, EDGAR,	1
460	GARRITY, WILLIAM,	1
461	WILLIAMS, DENISE,	1
462	ALBAN, PETER,	1
463	SAMENFELD, HERBERT,	1
464	SOALBORN, ERIC,	1
465	GOLTZ, NEILL & DEBBIE,	1
466	TOMASZEWSKI, NINA,	1
467	JOHNSON, E,	1
468	JONES, JAMES,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
469	SAVINSKI, MARK,	1
470	SMITH, PRUDENCE,	1
471	FRIEDMAN, PHILLIP,	1
472	HENDRIX JR, GEORGE T,	1
473	ADKINSON, GARY,	1
474	LEMASTERS, BARBARA,	1
475	PROUTY, ALAN, J R SIMPLOT CO	142
476	KERR, RICHARD,	1
477	STANIONIS, CRYSTAL,	2
478	PRUETT, KAY,	1
479	STETSON, JUDITH,	1
480	BENOLIEL, TAMARA,	1
481	MENSON, SHARENE,	4
482	SIMS, PATRICIA,	2
483	STEELE, WILLIAM,	3
484	SIMONSEN, COLLEEN,	4
485	SIMONSEN, STEIN,	4
486	JOHNSON, REYNOLD,	2
487	HOOPES, SIDNEY,	1
488	DUKE, BETH,	2
489	WARREN, HELEN SCOTT & KENNETH,	2
490	WYATT, MADELINE,	1
491	RODDA, GORDON,	1
492	BYINGTON, MARY,	4
493	PLACZKOWSKI, PAULINE,	1
494	SIMMONS, ROBERT,	3
495	GOWER, KIM,	4
496	WILSON, RICHARD,	2
497	LINFORD, ALAN, CHAIRMAN-LINCOLN COUNTY CHAMBER	See #603
498	ARCHER, JOHN, ASHLEY CRK PROP LLC	4
499	WINEGAR, BRUCE,	13
500	MCCALL, CARLA,	1
501	SHERWOOD PHD, VANCE,	1
502	CHAMBERS, CHARLES,	3
503	LEATHERMAN, CHRIS,	4
504	WALTER, DONNA,	1
505	BUCHER PHD, THERESA,	1
506	JONES, JOHN,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
507	ADDISON, DAVID,	1
508	BERMAN, CATHY,	1
509	BOOTH, JOE,	1
510	PETRICH, DEAN,	1
511	CARSON, DEBBIE,	1
512	WALTON, SIMON,	1
513	BONDY, STEVE,	3
514	FALLAW, TIMOTHY,	1
515	BISHOP, CAROLYN & WALTER,	4
516	MCKINNEY, CHERYL,	1
517	PIKE, BILL,	1
518	HARTWELL, DAVID,	1
519	BERNDT, JOHN,	1
520	HUNT, RONALD,	1
521	COURTIS, DAVID,	2
522	WILSON, MARTHA & GLEN,	1
523	SCHERBEL, PAUL,	1
524	VASPOL, SALVATORE,	1
525	GRIVNA, BRIAN,	1
526	CUSHING, NANCY JANE,	1
527	WHITWORTH, DAVID,	2
528	LESKE, JEANNE,	2
529	BREEDING, ROGER,	3
530	FACER, RON,	1
531	JOHNSON, REED,	1
532	CUNNINGHAM, JOHN & LAURIE,	4
533	FORD, BRAD,	1
534	ROBERTSON, LISA,	1
535	BALDES, RICHARD,	1
536	DALEY, STEVEN,	2
537	SCARLETT, JOE,	1
538	GAMMILL, WALT,	1
539	MACE, KELLY,	3
540	PRUETT, JEFF,	4
541	HUBER, WENDY,	1
542	OFFUTT, THOMAS,	1
543	LYMAN, JACK, ID MIN ASSN	7
544	DEVINE, JAMES, US DEPT OF THE INTR/US GEOLGCL SRVY	3
545	WATSON, KENT, THOMPSON CRK MIN CO	4
546	DIEKMAN, DUANE,	5
547	VRANES, RANDY,	15

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
548	FRASER, JUDITH,	5
549	SCHMIDT, JOHN, ESTRN ID GRP OF SIERRA CLB	12
550	PORTER, JOEL, BURCH PORTER & JOHNSON PLLC	4
551	MILEFSKY, ANNA, NATL MIN ASSN	7
552	RUSH, RICHARD, ID ASSN OF COMMRCE & INDUST	6
553	PIRZADEH, MICHELLE, US ENVIRON PROTECT AGCY/REGN 10	15
554	FARNSWORTH, DAVID,	12
555	GAMBLIN, MARK, ID DEPT OF FISH & GAME	9
556	KNIGHT, LLOYD, FOOD PRODCR OF ID	6
557	SARTELL, DAVE, ID COOPRTV CNCL INC	6
558	MEYER, GLENN, ID HAY & FORAGE ASSN	6
559	STACHOWSKI, KATHLEEN,	1
560	PROUTY, ALAN,	3
561	STEWART, DAVID, STEWART'S CROW CRK RNCH	8
562	DANIELS, AARON,	1
563	AULMAN, ADRIENNE,	1
564	ROGERS, AMBER,	1
565	MOWAT, BRANDIE,	1
566	BROWN, BRIDGER,	2
567	PARKER, FRANK,	1
568	PEAD, JESSICA,	1
569	GUSTAFSON, MATT,	1
570	ABRAM, TREVOR,	1
571	ARCHIBALD, DALLAS,	2
572	HADERLIE, KAREN, STAR VLY CHMBR OF COMMRCE	1
573	VICE, MICHAEL,	9
574	LARSON, DARRELL,	5
575	WITTMEYER, JANE, INTRMTN FRST ASSN	5
576	CAPE PH D, JOHN,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
577	JORDAN, C,	1
578	WOLF, DEBRA,	1
579	RATCLIFF, PHILIP,	4
580	SCHRAND, CYNTHIA PATTERSON & PETER,	2
581	RYAN, MICHAEL,	2
582	SULLIVAN, BRUCE & ROBERTA,	1
583	CLINES, BILL,	3
584	SCALLAN, CAROL,	2
585	KEPNER, SHARI,	5
586	HILL, SHERYL,	4
587	BROWER, MARTELL,	2
588	BIRDSEY, BARBARA,	2
589	BABUSKA, JOSHUA ATZ & LENKA,	2
590	FOMIN, GEORGE,	1
591	FERGUSON, JAMES,	3
592	HAMILTON, NORMA & PATRICK,	1
593	CRONE, MARTIE,	5
594	FOSTER, AARON,	1
595	MULLIGAN, PAUL,	1
596	DAVIS, AMY,	1
597	WARCLOUD, ARDIS,	1
598	SAUDOK, FLORENCE,	1
599	DAHLIN, NATE,	1
600	BEALS, PHILIP,	1
601	LINFORD, ALAN	2
602	WHITWORTH, CHESTER GEORGE,	4
603	CHASE, ROGER, CITY OF POCATELLO OFC OF THE MAY	7
604	LEMLY PH D, A DENNIS,	13
605	CRISS, JAMES S., CARIBOU COUNTY PROSECUTING ATTORNEY	See #603
606	GUTHRIE, JIM, CHAIRMAN, AND HADLEY, STEVE, MEMBER, BANNOCK COUNTY BOARD OF COMMISIONERS	See #603
607	JENSEN, CHAD, TWN OF AFTON	See #603

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
608	ENGLAND, STEVEN, CITY OF CHUBBUCK OFFICE OF THE MAYOR	See #603
609	HUNTER, MATTHEW, EXECUTIVE DIRECTOR, AND HEINER, DAN, BOARD CHAIR, GREATER POCATELLO CHAMBER OF COMMERCE	See #603
610	MEYER, CARLA,	1
611	LOWE, ROSEMARY,	1
612	PILCHER, BONNIE,	1
613	SYLVAN, ELISABETH,	1
614	BIDLEMAN, LUCINDA,	1
615	BASS, LAURALEE,	1
616	ALVAREZ, KATIE,	1
617	SETARO, DANIKA,	1
618	COOK, ROBERTA,	1
619	ASMUS, SIGRID,	1
620	ROSENBERG, RHONDA,	1
621	MURRAY-BRADSHAW, MARGARET,	1
622	LEIFER, TIM,	1
623	SEELYE, CHANDRA,	1
624	GRIFFIN, ALEX,	1
625	REX, ANGELA,	1
626	VANCE, MARGARET,	1
627	YOUNG, JENNIFER,	1
628	MICK, DOLLY,	1
629	WALKER, JOHN,	1
630	ST JAMES, CAROLYN,	1
631	PURCELL, JOHN,	1
632	GERMAN, DENNIS,	1
633	BANKS, BONNIE,	1
634	COOKE, D,	1
635	SULLIVAN, ROBERT,	1
636	KOZUB, JOHN,	1
637	NELSON, LYNN,	1
638	NEIDELL, MERLE,	1
639	RUSSELL, KATHY,	1
640	HOPE, JOHN,	1
641	LENAGHEN, MIKE,	1
642	KAUFFMANN, PATRICIA,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
643	DESPAIN, JOEL,	1
644	GARLAND, CAROLINE,	1
645	CHEREPY, AVIS,	1
646	POND, RICHARD,	3
647	FINFROCK, ANDY,	1
648	DORTON, BETH,	2
649	PASICHNYK, RICHARD,	1
650	MORCOM, LAURA & MIKE,	1
651	BESCRIPT, LINDA,	1
652	MCCLINTON, BEN,	1
653	KARR, DR JONATHAN,	1
654	MURPHY, AMY,	1
655	MAGUIRE, JOEL,	1
656	BESCRIPT, RUTH,	1
657	CLARK, NANETTE,	1
658	TRAWEEK, JIM,	1
659	SHERWOOD, STACI-LEE,	2
660	WATSON, HAZEL,	1
661	BRAUN, KATHLEEN,	1
662	CARTER, JOHN,	2
663	PERRYMAN, TODDY,	1
664	GLANZ, FILSON,	1
665	THORP, THOMAS,	1
666	SCHILDCROUT-LLOYD, NICOLE,	1
667	SCHMIDT, KATHY,	1
668	HEDBERG, KIM,	4
669	DELMONT, STEFANIE,	1
670	LICHTER, LENNIE,	1
671	PRIDGEON, CAROL,	1
672	FILIPELLI, DEBORAH,	1
673	EIDT, JACK,	1
674	MORRISON, PETER,	1
675	BLAKE, LISA,	1
676	PARTANSKY, MICHAEL,	1
677	JOHNSON, ED,	1
678	DAVIS, SUSAN,	1
679	FIDDLER, JIM,	1
680	BAILEY, JOAN,	1
681	HIGGINS, RUSSELL,	2
682	SMITH, PATRICIA,	1
683	WEHRI, MARK,	1
684	MORELLO, PHYL,	1
685	EHRHARDT, CAROLE,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
686	KIRSCHBAUM, SARAN,	1
687	DOMENICO, JAMES,	3
688	MARTIN, A,	3
689	DENISON, MR & MRS JAMES,	1
690	LAWRENCE, JOAN,	2
691	MULLARKEY, MIKE,	1
692	DECKARD, BERNADINE,	1
693	CONE, FRANCES,	1
694	JAYNE, JERRY,	1
695	LAMBETH, LARRY,	2
696	SCHNEIDER, DANIEL,	3
697	DORY, JOE,	2
698	BASSETT, KINDRA,	1
699	OECHLER, HERBERT,	1
700	BRUNELLE, STEPHEN,	1
701	WEINSTOCK, ARNOLD,	1
702	ERICKSON, PENNY,	1
703	HUNT, BETTY & RONALD,	1
704	PETSCHE, STEVEN L & SANDRA,	1
705	SCHLAEPPI, MARJORIE,	1
706	BEER, SALLY,	1
707	WINARD, MR & MRS GEORGE,	1
708	CLARK, CARNZU,	1
709	BURTON, VICKIE,	1
710	PINTHER, T ELVIRA,	1
711	ARTER, VIRGINIA,	1
712	MATRISCIANO, CAROLINA,	1
713	HUGHES, DORIS,	1
714	RABY, JOHN,	1
715	EVANGELINE, JAE,	1
716	FENWICK, VIRGINIA,	1
717	REISER, RICHARD,	1
718	GLANZ, FILSON,	1
719	LETENDRE, MICHAEL,	1
720	ROGERS, ANDREA & JOHN,	1
721	ANON, ,	1
722	BARKS, WILLIAM,	1
723	BARNETT, ALMA,	1
724	WHITE, MINDI,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
725	WILKE, GAIL,	1
726	BALL, CHAD,	1
727	SOUTHLAND, CAROL,	1
728	MOSS, ELAINE,	1
729	SEILER, BARBARA,	1
730	SANDERS, RUSSELL,	1
731	BARTO, LESTER,	2
732	CHOWNING, KATHERINE,	1
733	CAIN, DEBORAH,	1
734	GALE, MARY,	1
735	KING, NANCY,	1
736	MILLER, JEFFREY,	1
737	ERSKINE, PETER,	1
738	BARNICLE, DANIEL,	1
739	STOCKS, MRS W,	1
740	BRINKERHOFF, FRANCES,	1
741	REICHARDT, DOROTHY,	1
742	KENT, CATHERINE,	1
743	STRONG, DANIEL,	1
744	ROOS, ARVIN,	1
745	LATTERELL, RICHARD,	1
746	TUREK, THOMAS,	1
747	RUSSELL, KATHLEEN,	1
748	ISZARD, DOUGLAS,	1
749	YCAS, LAVINIA A,	1
750	FORNSTROM, CINDY,	1
751	SMITH, EMIL,	1
752	ESCHBACH, SCOTT,	2
753	JOHNSON, BLAIR,	1
754	PADUCH, RITA,	1
755	WHITMAN, ARIANNA,	1
756	FISK, TERRY,	1
757	KERN, ALBERT,	1
758	LARSEN, DENNIS,	1
759	RUSK, RUTH,	1
760	ROHEN, ROBERT,	1
761	MCMILLEN, STEW & MIMI,	1
762	LABOUVIE, ERIC,	1
763	HANCE, JUDITH,	1
764	HAAK, RUTH,	3
765	MOON, B DALE,	2
766	DAVIS, DELBERT,	1
767	SEATENA, SANDRA,	1
768	BARTHA, GREGORY,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
769	DACKEN, ELAINE,	1
770	RATZER, LEO,	1
771	ALIS, RAYMOND,	1
772	COOLEY, DR. DAVID R.	See #244
773	CONLEY, RONALD,	1
774	WEXLER, MERIDA and JOSEPH	See #244
775	MICHAUD, JENNIFER,	1
776	DAYTON, KEN,	1
777	COFFEY, DAVID,	1
778	VOLPE, FRANCIS,	1
779	SCHLAMM, RHODA,	1
780	RATHER, NORVAL,	1
781	CHILDS, CATHERINE,	1
782	STEINBERG, DOROTHY,	1
783	VALERIO, PAUL,	1
784	PATTERSON, CYNTHIA,	1
785	DUBENDORFF, JOHN,	1
786	FICKER, A,	1
787	WILKINS, BOB,	1
788	PFANNKUCHE, SUSAN,	1
789	SEAY, TINA,	1
790	VANALSTYNE, JAYNE,	1
791	RICHARDSON, JOHN & GAIL,	1
792	OESCH, RONALD,	1
793	UNFRIED, MILDRED & DOUGLAS,	1
794	NOTHSTEIN, FRED,	1
795	ESPY, J BRUCE & JUNE,	1
796	STILES, CHRISTIE & TODD,	1
797	LOGAN, RICHARD,	1
798	BOLSTAD, DONALD,	1
799	CHAMBERLAIN, KENT CLAIR,	1
800	FRAZIER, JAMES RICHARD,	1
801	BLAKE, RONALD,	1
802	LUSINSKI, GREGG,	1
803	LADD, BERTHE,	1
804	ANDERSON, VAUGHN,	1
805	BOWERS, CHET,	1
806	ANON,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
807	SZCZEPKOWSKI, MR & MRS STANLEY,	1
808	WEEDEN, HESTER,	1
809	STEUBER, SARI,	1
810	RICCI, DEBRA,	1
811	HANDELSMAN, ROBERT,	1
812	GOUGH, FRANCIS,	1
813	AROESTE, JEAN,	1
814	JOHNSTON III, JOHN,	1
815	WORTHY, CRISTA,	1
816	ZALES, WILLIAM,	1
817	HOGUE, NOEL,	1
818	MAERTZ, BERNICE,	1
819	DAWSON, AGNES,	1
820	KAUFMAN, KEN & BARBARA,	1
821	SHITAMA, CELESTE,	1
822	PARKS, ELIZABETH,	1
823	KENSINGER, ROBERT,	1
824	LEDMAN, DOROTHA,	1
825	FUCHS, ESTER,	1
826	CONE, FRANCES,	1
827	CORELLI, NINA,	1
828	DONAHOE, JOYCE,	1
829	WILLIAMS, JAMES R & SHARELYNN,	1
830	LINABURY, SANDRA,	1
831	HATCHER, GILBERT,	1
832	KELLAM, JANET,	2
833	LARSEN, GREGG,	2
834	SHORES, ROBERTA CHENEY,ERIC,ANNE, RICHARD & KAREN,	1
835	HILL, MARILYN,	1
836	HARRIS, CHARLES,	1
837	BYCZEK, MAESTRO L,	1
838	VINING, CARL,	1
839	BARRETT MD, PETER,	1
840	STANLEY, LOUISE,	1
841	BROSNAN, BARBARA,	1
842	YATES, MARGARET,	1
843	BOULDING, BONNIE & RUSS,	1
844	BAKER, JENNIFER,	1
845	DEMOTS, DENNIS,	1
846	MERRILL, RICHARD,	1
847	DEMARCO, JEAN,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
848	HOLCOMB, KATHERINE,	1
849	PLETCHER, TERESA,	1
850	RUBEN, ADAM,	1
851	HERINK, MAX & MARY,	1
852	PILBURN, ELIZABETH,	1
853	DEGENKOLB, JOAN,	1
854	VUKMANIC, PAUL,	1
855	BUNKER, ANN,	1
856	HASHIMOTO, CARLA,	1
857	TROY, GAIL RITA WIENEN,	1
858	WIER, J,	1
859	STEVENS, BOB & HOPE,	1
860	SCHUESSLER, BILL,	1
861	DOBSON, M,	1
862	STIGEN, LEE,	1
863	BRAGG, SANDRA,	1
864	HARRELL, MARTHA ANN,	1
865	HUNT, DONALD,	1
866	SINCLAIRE, PETER,	1
867	BARLOW, RICK,	1
868	GHICADUS, CHRISTOPHER,	1
869	HUSKINS, SHIRLEY,	1
870	STRATTON, JIM,	1
871	MURDOCK, LOUIS,	1
872	BLASSINGHAM, ELIZABETH,	1
873	RESIDENT, ,	1
874	CEDARLEAF, JACK,	1
875	RICHMOND, DAVID & KATHY,	1
876	PETELLE PH D, MICHAEL,	1
877	HAIGH, KATHY,	1
878	NEMES, JOSEPH,	1
879	PRYOR, BARBARA,	1
880	TAYLOR, CAROLYN,	1
881	MARTIN, STEPHEN,	1
882	CROLY, GEORGE,	1
883	ANGELL, KATHE,	1
884	FOLGER, HELEN WHITNEY,	1
885	FLETCHER, WILLIS,	1
886	ADAMS, JEAN,	2
887	KOSTER, DOROTHY,	1
888	HUTCHINSON, JOHN,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
889	PETERSON, B,	1
890	TICE, SID,	1
891	MCGEEHAN, CAROL,	1
892	SEARING, CLAIRE,	1
893	BENJAMIN, PAUL,	1
894	BALL, KENNETH,	1
895	HARPER MD, DANIEL,	1
896	DUNKUM, JOHN,	1
897	HURD, YOUIK,	1
898	DAY, CONNIE,	1
899	BENTON, RICHARD,	1
900	MURRAY, RAY,	1
901	HILL, GERLADINE,	1
902	MILLER, CARLYN,	1
903	YOUNG, MILLICENT,	1
904	VOSS, ERIC,	1
905	AMEND, ANDREA & RICHARD,	1
906	SWENTON, ANDREW,	1
907	EDWARDS, LUCY S & CHARLES,	1
908	ROCKWELL, DONALD,	1
909	AMBROSE MD, KENNETH,	1
910	KURTZ, DR PETER,	1
911	BUCHER PHD, THERESA,	1
912	HARMON, ROGER,	1
913	SAUER, GREG,	1
914	MECHALKE, MINDY,	1
915	LUEHRMANN, PAUL,	1
916	BROCKIS, GWENDOLYN,	1
917	WIES, JIM,	1
918	GIRARDEAU, LAURA,	1
919	SMITH, INGEBORG,	1
920	DEAN, MICHAEL,	1
921	DALY, DR CHRISTOPHER,	1
922	DAVIS, SUSAN,	1
923	BALDES, RICHARD,	1
924	MAURER, MICHAEL,	1
925	GUESNON, PIERRE,	1
926	DICKINSON, PATRICIA,	1
927	HUM, JEANNE,	1
928	HUGHES, LARRY,	1
929	LABERGE, GEORGI,	1
930	JELLUM, DR LYNNE,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
931	CLIFFORD, STEPHEN,	1
932	ZURN, JAMES,	1
933	BAIN, THOMAS,	1
934	HULTGREN, INGRID,	1
935	PFEIFFER, STEVEN,	1
936	CROWELL, VIVIAN,	1
937	GRIVNA, BRIAN,	1
938	LEWIS, CAROLE,	1
939	COPP, EUGENIE,	1
940	SCHIFFERLE, JAMES & ANNE,	2
941	RAPP, JULIE,	1
942	SCHUPBACH, SHERRY,	1
943	DUNLAP, KENNETH,	1
944	GILOTH, KIRK,	1
945	WILLIAMS, LINDA,	1
946	HARLIB, AMY,	1
947	HEPLER, WINIFRED,	1
948	ALLEN, BARBARA,	1
949	WHITE, LORNIE,	1
950	HOYT, MARV, GRTR YELLOWSTONE COALITION, and WALD, JOHANNA, NRDC	502
951	SCHMIDT, DR JUDITH,	1
952	MATTHEWS, MARY ANN,	1
953	MCDOUGAL, SUZANNA,	1
954	WALZ, K,	1
955	GADSKI, MARY ELLEN,	1
956	LYON, RICHARD,	1
957	NEWMAN, NANCY,	1
958	SMITH, CAROL RAE,	1
959	JOHNSON, BARBARA,	1
960	DENNIS, MARY ANN & RALPH,	1
961	MUNDT, DANIEL,	1
962	WILLIAMS, GEORGE WOODS,	1
963	DAVID, CHRISTOPHER,	1
964	LIVINGSTON, KEN & MRS,	1
965	BREESE, PAULA,	1
966	BEESON, ELIZABETH,	1

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
967	ROBERTSON, STEPHEN,	1
968	PARKER, PETER,	1
969	BLAINE, EDMO, CHAIRMAN, FORT HALL BUSINESS COUNCIL/SHOSHONE-BANNOCK TRIBES	See Chapter 6 Cons. & Coord.
970	COLCLASURE, DOUG,	2
971	WYLD, JEANNE MARIE,	1
972	LOUT MD, ROBERT,	3
973	CARPENTER, DAVID,	9
974	ROBERTS, ROBERT,	1
975	GROVER, ELDENA,	3
976	SIEGRIST, TONI,	5
977	KLINE, DANIEL, AGRIUM	9
978	ROBISON, JOHN, ID CONSERVE LEA	17
980	TURIANO, THOMAS,	3
981	BERTRAND, ROSE,	2
982	LOWICHIK, AMY,	2
983	JONES, LOU ELLEN,	2
984	GUTHRIE, ALETHEA,	2
985	HOLLIER, DAWN,	1
986	ADAMS, CAROL,	5
987	WIND, DONALD,	5
988	EALEY, LAURI LYNN,	5
989	HOWARD, JAMES,	2
990	HANSON, BRUCE,	2
991	FOLEY, KELLY,	9
992	BUEHLER, ROSE, JR SIMPLOT CO	5
993	YOST, JAY,	4
994	YERGOVICH, CHERYL,	5
995	YERGOVICH, TOM,	5
996	DAVIS, DANIEL,	5
997	FURLONG, ROGER,	5
998	ROBBINS-SMITH, JENNIFER,	2
999	KIPPHUT, JOE,	2
1000	SCHAREN, ALBERT L & VICTORIA,	3
1001	WESTWOOD, PAUL,	4
1002	WEBSTER, JEFFREY,	4
1003	BLOXHAM, DEVON,	4
1004	SMITH, THAYLE,	4
1005	BAKER, WAYNE,	4

LETTER NUMBER	LAST, FIRST, AFFILIATION	# OF COMMENTS
1006	NEIDER, KEN, WESTERN STATES CRCT BREAKERS INC	2
1007	COYNE, NORMAN,	2
1008	DURHAM, SONYA,	2
1009	DOUGLASS, TERRY,	4
1010	KOTRABA, MICHAEL,	4
1011	LIND, MONTE,	2
1012	KNIGHT, BOYDE,	2
1013	SERVOSS, JOHNNY,	6
1014	BLOXHAM, RONNIE,	6
1015	HANSEN, JIM,	6
1016	AUSTIN, JULIE,	4
1017	BURRINGTON, WENDY,	4
1018	MEEKS, MARK,	1
1019	CLAITOR, DIANA,	1
1020	KLINE, NORMA,	1
1021	BESOLD, BOBBE,	2
1022	FIELDS, GARY,	1
1023	URBAN, DOLORES,	4
1024	HUTCHINGS, LORI,	1
1025	PONCZEK, LAWRENCE,	1
1026	WILES, JEFFREY,	1
1027	ELLIOTT, MARY,	1
1028	FISHER, RICHARD,	1
1029	BOLTEN, VIRGINIA,	1
1030	JOHNSTON, FLORENCE,	4
1031	HUEBSCH, PENNY,	1
1032	FACER, DENNIS,	21
1033	LENAGHEN, MIKE,	1

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1034	FACER, BETTY,	1
1035	WEBB, DAVID,	2
1036	MCMULLEN, ROB & CAROLE,	1
1037	DICOLLI, CAROL,	1
1038	CLARK, MICHAEL,	3
1039	STARLIGHT, SAMANTHA,	2
1040	LOSH, ROBERT,	2
1041	HANSEN, KIRK, MAYOR, CITY OF SODA SPRINGS	See #603
1042	WYBERG, KENNETH,	1
1043	MCNEELY, S,	1
1044	PINTI, BEN,	1
1045	BERNET, MAURITA,	1
1046	GROESCHEL, CHRISTA,	1
1047		0
1048		0
1049		0
1050	TONER, KEVIN,	22
1051	HOFFSIS, EARL,	1
1052	BYINGTON, DAVID,	6
1053	BARMORE, JUNE,	1
1054	WICHERS, BILL, WYOMING GAME AND FISH	2
1055	CORRA, JOHN, WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY	1