FINAL ENVIRONMENTAL IMPACT STATEMENT

BITTERROOT NATIONAL FOREST
CANYON LAKE DAM AND WYANT LAKE DAM PROJECT

TABLE OF CONTENTS

	Page
ABSTRACT	
MAP 1	M-1
SUMMARY OF CHANGES BETWEEN DEIS AND FEIS	SC-1
CHAPTER 1: PURPOSE AND NEED	1-1
Introduction	1-1
Purpose and Need	1-2
Proposed Action	1-5
Scope of the Decision and Decision to be Made	1-5
MAP 2	M-2
CHAPTER 2: ISSUES AND ALTERNATIVES	2-1
Introduction	2-1
Scoping and Public Involvement	2-2
Comments on the DEIS	2-2
Issues	2-2
Key Issues	2-3
Development of Alternatives	2-4
Alternatives Considered in Detail	2-4
Mitigation Measures, Terms and Conditions, and Permits	2-6
Environmental Monitoring	2-11
Alternatives Considered But Not Given Detailed Study	2-12
Comparison of the Effects of the Alternatives	2-14
CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1	
Introduction	3-1
Human and Wilderness Environment	3-1
Dams and Dam Safety	3-1
Wilderness, Trails and Recreation	3-7
Heritage Resources	3-18
Economics	3-20
Physical Environment	3-23
Water Resources	3-23

Biological Environment 3-39
Fisheries 3-39
Sensitive Plants and Noxious Weeds 3-50
Wildlife 3-56

CHAPTER 4: CONSULTATION, COORDINATION, AND PREPARATION 4-1
Public Participation Summary 4-1
Public Participation Implementation 4-1
Criteria and Methods by which Public Input is Evaluated 4-3
Consultation with Others 4-3
List of Preparers and Reviewers 4-3

CHAPTER 5: REFERENCES 5-1

CHAPTER 6: RESPONSE TO COMMENTS ON THE DEIS 6-1

APPENDIXES
Appendix A: Condition of Canyon and Wyant Lake Dams and Canyon Creek Irrigation District's Proposed Work to Address Dam Safety Requirements
Appendix B: History of Canyon and Wyant Lake Dams
Appendix C: Authority to Regulate Dams on National Forest System Lands
Appendix D: Canyon Lake Dam site plan, Exhibit A, Montana Renewable Resource Grant and Loan Program Application for the Canyon Lake Dam Rehabilitation, May, 2000, prepared by Canyon Creek Irrigation District, c/o DJ Engineering
Appendix E: Wyant Lake Dam site plan, Exhibit A, Montana Renewable Resource Grant and Loan Program Application for the Wyant Lake Dam Rehabilitation, May, 2000, prepared by Canyon Creek Irrigation District, c/o DJ Engineering
Appendix F: Minimum Requirements Process Summary

CHAPTER 4
CONSULTATION, COORDINATION, AND PREPARATION

PUBLIC PARTICIPATION SUMMARY

Public participation specific to the Canyon and Wyant Lake Dams Project is summarized in this chapter. The summary describes the public involvement, identifies persons and organizations contacted during preparation of the EIS, and specified time frames for accomplishing goals in accordance with 40 CFR 1506.6.

Public involvement in the EIS Process includes the necessary steps to identify and address public concerns and needs. The public involvement processes assists the agencies in: (1) broadening the information base for decision making; (2) informing the public about the Proposed Action and the potential long-term impacts that could result from the project; and (3) ensuring that public needs are understood by the agencies.

Public participation in the EIS process is required by NEPA at three specific points; the scoping period, review of Draft EIS, review of Final EIS, and receipt of the Record of Decision.

- **Scoping:** The public is provided a 30-day scoping period to disclose potential issues and concerns associated with the Proposed Action. Information obtained by the agencies during public scoping is combined with issues identified by the agencies and to form the scope of the EIS.

- **Draft EIS Review:** A 45-day Draft EIS review period is initiated by publication of the Notice of Availability for the Draft EIS in the Federal Register. The Notice of Availability for the DEIS was published on January 17, 2003.

- **Record of Decision:** The Record of Decision will be distributed 30 days following the Notice of Availablity of the FEIS.

PUBLIC PARTICIPATION IMPLEMENTATION

The public participation process for the Canyon Wyant Lake Dams FEIS is comprised of the following components:

Public Scoping Period

Publication of a Notice of Intent (NOI) initiated a public scoping period on June 18, 2001. The NOI summarized the Proposed Action and a determination by the agencies that an EIS would be necessary for analysis of the proposal. The news media and public were notified of the public comment period.

A scoping package that included a project summary was mailed to various agencies, groups, and individuals announcing the scoping period and describing the Proposed Action.

A formal scoping letter was mailed to interested citizens on June 12, 2001. The public scoping period ended on July 19, 2001. During that period the Forest received written responses from five individuals and six organizations.

EIS Mailing List

An EIS mailing list of interested persons was assembled from previous NEPA mailing lists maintained at the Bitterroot National Forest Supervisor's Office in Hamilton, Montana. This list is supplemented by addresses on letters received during the scoping period and members of the Canyon Creek Irrigation District.

Distribution of the Draft EIS

The Draft EIS was be distributed as follows:

- A Notice of Availability was be published in the Federal Register specifying dates for the comment period and the date, time, and location of public open house meetings.
- A news release will be provided by the USFS at the beginning of the 45-day comment period on the Draft EIS.
- The Draft EIS was be distributed to interested parties identified in the updated EIS mailing list.
- Letters and comments received during the public review period for the Draft EIS were included in Chapter 6 of the FEIS.

Final EIS Distribution

The Final EIS distribution was completed after consideration is given to comments received on the Draft EIS. The Final EIS will be released as follows:

- A Notice of Availability will be published in the Federal Register.
- Copies of the Final EIS will be sent to addresses on the mailing list.
- A news release will be issued to the same news outlets used for previous project announcements.

Record of Decision

The Record of Decision will be distributed to people and organizations identified on the updated project mailing list.

CRITERIA AND METHODS BY WHICH PUBLIC INPUT IS EVALUATED

Letters and testimony concerning the Draft EIS were reviewed and evaluated by USFS to determine if information provided in the comments would require a formal response or contain new data that may identify deficiencies in the EIS. Steps would then be initiated to correct such deficiencies and to incorporate information into the Final EIS.

Changes were made from the Draft EIS, and were deemed significant. The USFS decided to prepare a Final EIS.

CONSULTATION WITH OTHERS

The following state and federal agencies were consulted during preparation of the EIS:

- U.S. Fish and Wildlife Service
- Montana State Historic Preservation Office
- U.S Environmental Protection Agency

LIST OF PREPARERS AND REVIEWERS

LEAD AGENCY – BITTERROOT NATIONAL FOREST

Interdisciplinary Team and Technical Specialty

Elizabeth Ballard – Project Lead
Pete Zimmerman – NEPA/NFMA
Terri Anderson – Engineering
Lori Clark – Noxious Weeds and Vegetation
Linda Pietarinen – Botanist
Dave Lockman – Wildlife
Rob Brassfield – Fisheries
Ed Snook – Hydrology
Marty Almquist – Wilderness
Mary Williams – Heritage Resources

CHAPTER 5

REFERENCES

References:

Bitterroot National Forest. 2000. Forest Plan Monitoring and Evaluation Report, Fiscal Year 2000. Bitterroot National Forest, Hamilton, MT.

Castro, J. and F. Renkendorf. 1995. Effects of sediment on the aquatic environment: potential NRCS actions to improve aquatic habitat. Working Paper No. 6. Natural Resource Conservation Service, Oregon state University, Department of Geosciences.

Hicks, B., J. Hall, P. Bisson, and J. Sedell. 1991. Response of salmonids to habitat changes. *In* Meehan W.R. ed., Influences of forest and range, and management on salmonid fishes and their habitats. American Fisheries Society. Special Publication 19: 483-518.

Lackschewitz, L. 1991. Vascular plants of west-central Montana-identification guidebook. U.S.D.A. Forest Service, Intermountain Research Station. Gen. Tech. Rep. INT-277/ Ogden, UT. 648.

Lesica, P. and S. Shelly. 1991. Sensitive, threatened and endangered vascular plants of Montana. Montana Natural Heritage Program. Occasional Publication No. 1, Montana State Library, Helena, MT.

Marcus, M., M. Young, L. Noel, and B. Mullan. 1990. Salmonid-habitat relationships in the western United States: a review and indexed bibliography. USDA Forest Service. GTR-RM-188.

Montana Fish, Wildlife and Parks. 2000. Montana Rivers Information System. Helena, MT.

Montana Natural Heritage Program Database (MTNHP), 1996. Montana State Library, Helena, MT.

Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, CO.

U.S.D.A. Forest Service Region One. 1994 & 1999. Updated Northern Region Sensitive Species List. On file at the Bitterroot National Forest Headquarters, Hamilton, MT.

USDA Forest Service. 1987. Forest Plan: Bitterroot National Forest. USDA Forest Service, Northern Region, Bitterroot National Forest. Hamilton MT.

USDA Forest Service. 2001. Canyon Creek Stream Survey Narrative (and data forms). Bitterroot National Forest. Stevensville, MT.

USDA Forest Service. 1995. Inland Native Fish Strategy (INFISH): Decision Notice and Finding of No Significant Impact. Intermountain, Northern, and Pacific Northwest Regions of the USDA Forest Service.

USDA Forest Service. 2001 Burned Area Recovery Final Impact Statement: Bitterroot National Forest. USDA Forest Service, Northern Region, Bitterroot National Forest. Hamilton, MT.

USDA Forest Service. 1987. Forest Plan: Bitterroot National Forest. USDA Forest Service, Northern Region, Bitterroot National Forest. Hamilton, MT.

Vannote, et al. 1980. The river continuum concept. Canadian Journal of Fisheries and Aquatic Sciences. 37:130-137.

Watkins, J. 2002. Canyon and Wyant Lakes Field Observation. Stevensville Ranger District, Stevensville, MT.

Western Montana Bull Trout Level I Team. 1999. Programmatic Biological Assessment for Trail Maintenance – Bull Trout. National Forests and Bureau of Land Management in Western Montana.

CHAPTER 6

RESPONSE TO COMMENTS ON THE DRAFT EIS

The Draft Environmental Impact Statement was published and made available to the public for review. The Notice of availability for the DEIS was published in the Federal Register on January 17, 2003.

Comments were received in the from of written letters and telephone conversations.

The Forest Service's NEPA handbook (40CFR1503.4) gives direction on what to do with comments received on a DEIS. They are to review, analyze, evaluate and respond to substantive comments on the DEIS.

All comment letters were reviewed by members of the interdisciplinary team. All comments received are important, although many of these do not need a response. These comments are important to the decision maker and will be considered when the decision is made.

The following is a list of people, organizations or agencies who commented and the number assigned to the comment. Unless otherwise noted the comments were letters.

#01 – William Delany – Phone Call.

#02 –Richard Bayles –

#03-Doris Milner

#04- Bill/Terry Doughty

#05 – Bill Grasser

#06- Steven Louden –

#07– Dorothy Logozzo-

#08- Mayor Joe Petrusaitis –

#09 – Shirley Hayes –

#10 – Judy (Lund) and Charles L. Owings.

#11 – Penny E. Crow –

#12 – Kirk Thompson

#13 – Rich Liable, Senator –

#14 – Noreen Johnson

#15 – USEPA – Helena- Steve Potts/John Wardell

#16 - Sharmae Erickson –

#17 – Mike and Shirley Sorenson.

#18 – USDOI, Colorado.

19 – US ACOE, Helena.

#20 – Ren and Betty Cleveland.

#21 – CCID - Tonya Bumbarger-

#22 – Water Cooperative – Wayne Olson

#23 – Wilderness Watch – See Letter

#24 – Montana Fish Wildlife and Parks – No comments

#25 – The Ecology Center –

Following is the response to comments. Each page of each letter appears on the left side of the page. The letter number, and comment number and a vertical line (3-1) indicate the area of the comment that was being responded to. Directly beside the comment appear the comment number and the Agency's response.

1/8/03 10:30 AM

Wiliam Delaney called to comment on the Canyon/Wyant DEIS.
1-2 (2) 1-1 He mentioned alternative 2. He does not want to fix it, he wants to breach both dams.
1-3 He has been enjoined in the CCID, does not get irrigation water.
375-9315 Po Box 297, Hamilton

Re Access to Canyon Lake & Wyant Dams

Richard Bayles
PO Box 539
Corvallis MT 59828
406-961-8337

2-1 These DAMS should be accessed in the most economical manner possible.
2-2 If other means are possible i.e. trucks Alternative 2 should be utilized.

2-3 It should be kept in mind that the mountain Dams are a major factor in protecting the Bitterroot Valley from reverting to high desert.

1-	**William Delaney**
1-1	Comment Noted.
1-2	Decision to breach dam(s) is CCID's and is not a Forest Service decision and is outside of the scope of the FEIS. (FEIS p. 1-6)
1-3	This is outside the scope of a Forest Service decision.

2-	**Richard Bayles**
2-1	The cost of access is one of many considerations in choosing the most appropriate means of access. (FEIS p 2-14 to 2-23).
2-2	
2-3	Comment noted. (Refer to FEIS p. 3-23)

RECEIVED
JAN 14 2003
Stevensville
Ranger District

January 14th,2003

Elizabeth Ballard
BNF
Stevensville Ranger District
Stevenssville, MT 59870

Dear ms Ballard,

I have reviewed the EIS on the Canyonlake Dam and the Wyant Lake Dam which covers the Forest Service obligations for decisions on access to the dams and the safety factors.

3-1 I support Alternative 2. The Alternative would allow CCID to rehabilitate the Canyon Reservoir dam using helicopters for access for supplies and workmen. This use I strongly support as I am familiar with the terrain around the lake and the approach to it. Too tough for horses!! Dragging them over those huge rocks comes under my description of cruelty to animals!

3-2 I support Option B -Major rehabilitation of Canyon Lake Dam.

Sincerely,

Doris Milner

Doris Milner
65 Ricketts Road
Hamilton,MT 59840

3-	**Doris Milner**
3-1	Comment Noted. In the description of Alternative 3 (FEIS p. 2-5) "Canyon trail and trailhead would be reconstructed to safely accommodate this new use [stock access]."
3-2	Decision how to rehabilitate Canyon Lake Dam is CCID's and is not a Forest Service and is outside of the scope of the FEIS. (FEIS p. 1-6)

Stevensville
Montana 59870

JANUARY 14, 2003 (CANYON WYANT DEIS)

DAVID T. BULL
FOREST SUPERVISOR
1801 N. 1ST
HAMILTON, MT. 59840

DEAR MR. BULL:

WE ARE SOMEWHAT RETICENT TO RESPOND TO YOUR LETTER REGARDING THE THREE ALTERNATIVES AS SOLUTIONS TO THE CANYON LAKE AND WYANT LAKE DAMS.

FIRST, WE ARE FAIRLY NEW RESIDENTS OF HAMILTON.

4-1 SECOND, ALTHOUGH WE ARE IN THE CCID GEOGRAPHICALLY, WE DO NOT HAVE IRRIGATION TO OUR PROPERTY. ON THE POSITVE SIDE (1) OUR PROPERTY IS ON CANYON CREEK AND (2) WE KNOW THE SELWAY BITTERROOT WILDERNESS,HAVING LIVED IN COUER D'ALENE, IDAHO FOR YEARS.

4-2 IT HAS BEEN OUR EXPERIENCE TO HIKE THE TRAILS UP THE SELWAY. WHEN THE FOREST SERVICE MADE THESE TRAILS, THEY ALSO PUT SIGNS STATING "NO MECHANIZED VEHICLES". BUT THIS DID NOT STOP THE PEOPLE ON ATV'S OR MOTORCYCLES. APPARENTLY THEIR ENTHUSIASM FOR GOING FURTHER EAST ON THE TRAIL MADE THEM BLIND TO THE ENVIRONMENTAL DAMAGE THEY WERE CAUSING. THIS BLINDNESS WAS JUST AN EXTENSION OF OVERLOOKING THE WARNING SIGNS AT THE TRAILHEADS.

WE SUBMIT THAT CLEANING THE TRAIL TO THE LAKES FOR STOCK IS AN INVITATION FOR ATV'S AND CYCLES TO REPEAT THEIR DAMAGE ON THIS SIDE OF THE SELWAY....NO MATTER HOW MANY SIGNS YOU WERE TO PUT UP. WE CAN STILL SEE AND FEEL THE TRAIL ALONG THE SELWAY - NATIVE PLANTS RUN OVER, RUTS GOING DOWN OFF THE TRAIL - -MUDS HOLES ON THE TRAIL.

4-3 WE WRITE THIS, NOT TO PLAY ON YOUR EMOTIONS, BUT TO APPEAL TO YOURCOMMON SENSE AS NATURALISTS, TO STOP THIS PORTION OF ALTERNATIVE 3. FLY IN WHAT IS NECESSARY TO DO THE JOB IN A SAFE AND ECOLOGICAL MANNER AND THEN LET NATURE HEAL THE WOUNDS.

THANK YOU FOR YOUR ATTENTION.

Terry + Bill Doughty

BILL/TERRY DOUGHTY
145 CANYON CREEK DRIVE
HAMILTON, MT. 59840
PH: 363-4765

4-	**Bill Terry Doughty**
4-1	This is outside the scope of a Forest Service decision.
4-2	It is unlikely that motorized trespass associated with trail improvements would become a problem since there is a high level of public use on Canyon & Blodgett Overlook trails. Possible effects of trail construction, in Alternative 3, were identified. (FEIS p. 3-15 to -3-18).
4-3	Comment Noted

DAM, PUBLIC TRUST AND COMMON SENCE

Dave Bull Forest supervisor
Bitterroot National Forest
Hamilton, Montana

5-1 The wilderness act that was imposed for the Selway- Bitterroot in 1964 is and will always be one of the main sources of mistrust between the Forest Service and land and water users. When enacted, I believe there existed a trust that the Forest Service would exercise common sense in regard to prior uses. This I am sure included, continued use and reasonable and cost effective maintance.

5-2 The rights of these users in my estimation far out way the purest wilderness thinking that exists today, no matter what the law seems to say. The wilderness concepts are outmoded and favor only one group of citizens and have no regard for uses that existed for many years or for the safety issues that now are pressing.

5-3 Dave you must, in all honesty allow Access to these and all other dams within your jurisdiction. These uses where in place long before wilderness and now safety makes you pass judgment and clarify one right over another. The purest concepts must be set aside

5-4 or the trust in the Forest Service will never be valid and the Service will continue to face even more public indifference on any management issue that comes long. As you know I attend lots of Forest Service meetings and it is discouraging to see such little public interest and support that exists. I believe the public simply does not trust or is willing to get involved, when the out come is based entirely on the written law and some judges ideas.

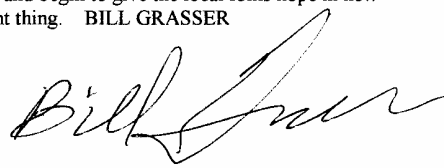
Some of us watched very closely the Tin Cup dam project. What happened there just to meet the wilderness law was unbelievable. Huge amounts of money was spent, Completely wasted and will again be wasted in future years until the users give up. Somehow it seems the Forest Service is no longer in charge, it's the courts or the fear of the courts, which points the course. Be it timber, road less areas, recreation, lynx's, or grazing, or future wilderness, it seems the courts make the decisions and are in total charge. Dave somehow the most pressing issue to me is to build confidence that, the local wisdom that exists here in the valley, is to have a major impact on how the service makes decisions and not just the law.

5-5 On this dam issue on Canyon and Wyant lakes, I would select alternative 3 and allow for a permanent trail to be used for this safety improvement and for future maintance for all time. The use of helicopters is possible but the end cost and future costs just makes

5-6 this questionable beyond reason. It's time to make a stand for common sense and the rights of the local users.

5-	**Bill Grasser**
5-1	Comment Noted
5-2	Comment Noted
5-3	Access is allowed to all dams located in the wilderness.
5-4	Comment Noted
5-5	Comment Noted
5-6	Comment Noted

5-6 Dave you're new to the Bitterroot. Some of us wonder if your someone with new convictions or another Supervisor on the road to retirement elsewhere? Please take a stand on this issue and select alterative 3 and give the local public some confidence in the "new man" and a "New Forest Service" and begin to give the local folks hope in new Forest Service thinking in doing the right thing. BILL GRASSER



January 13, 2003

Steven L. Loudon
130 Deer Haven Drive
Hamilton, MT 59840

Canyon Lake Dam and Wyant Lake Dam Project
Bitterroot National Forest
1801 N. First St.
Hamilton, MT 59840-3114

Forest Supervisor
Mr. David Bull

6-1 **The only interest I have is getting Canyon Creek Irrigation District off my taxes.**

6-2 **I have a friend that is authorized to handle explosives, and my son-in-law is a helicopter mechanic and maintenance director for Skyline Helicopters, and I am sure we could breach both dams for a small portion off what is quoted in the project summary.**

6-3 **Since I receive no water from this district, I feel that the matter of who actually does receive the benefit should be sorted out prior to making suggestions. I feel that if I do offer a response, I am obligating myself as a responsible financial party to this ridicules lawsuit.**

Steve Loudon
Phone #406-363-6928

5-	**Bill Grasser**
5-6	Economics and resource effects will be factors considered by the Forest Supervisor at the time of decision.

6-	**Steven Loudon**
6-1	This is outside the scope of a Forest Service decision.
6-2	Costs and methods of breaching dams are being considered by CCID. Breaching the dams is CCID's decision, not the Forest Service's decision. Please note that safety of dams, engineering and environmental constraints require something more of a breach than simply blasting a hole in the dam. (Refer to FEIS Appendix A.)
6-3	This is outside the scope of a Forest Service decision.

123 Patricia Way
Hamilton, MT 59840
January 17, 2003

RECEIVED
JAN 2 2 2003
Stevensville

David T. Bull
Forest Supervisor
1801 N. First
Hamilton, MT 59840

Dear Mr. Bull:

7-1 I am an interested party in the matter of the Canyon Lake Dam and Wyant Lake Dam Project Draft Environmental Impact on our area. I am wishing to submit these comments to be considered as part of the DEIS.

I have attended almost of the monthly Canyon Creek Dam Commissioner meetings over the past year and half. I have tried to become fairly knowledgeable about the difficulty that is facing those of us in the Canyon Creek Dam District regarding the Dams.

7-2 After attending the Canyon Creek Dam Commissioners' meeting on January 16, 2003 in Hamilton I feel that the first step that I would like to have considered in remediating the problems with the Dams would be to lower the risk of Canyon Creek Dam's High Hazard status by assisting the Commissioners in obtaining the necessary funds, permits, etc. to put in a large culvert or piping so that should the dam break it would not cause damage by an overflow of water over West Side Road.

7-3 I feel that whatever alternative the Commissioners decide to pursue to either breach both dams or repair Canyon Creek Dam the Forest Service should assist the Commissioners in exploring all avenues to make the solution as cost effective as possible. There does not appear to be any large amounts of money available at the federal, state and local levels to entertain 'pie in the sky' type work.

7-4 The idea of draping the dam was briefly described at the January 16 meeting might be a good solution, but there might also be better ones, if the Commissioners are given a bit more time to explore them by having the Hazard Level of the Dam lowered.

7-5 With this in mind I would urge the Forest Service to allow the work to proceed with the use of pack animals, if that is the most cost effective alternative. It is absolutely foolish in this day and age of declining resources to require all work to be done by helicopter, if it can be accomplished in a less expensive manner.

As I understand it the dams were established up in that area before all the 'Wilderness Area' regulations were developed and indeed that area was grandfathered in so it should be reasonable for pack animals to be utilized.

7-	**Dorothy Logozzo**
7-1	Comment Noted
7-2	New culvert installation on West Side road, to mitigate for lower hazards classification was considered by CCID, but this was not proposed for detailed study by CCID in the FEIS. The West Side road is outside of Forest Service jurisdiction.
7-3	The Forest Service is working with CCID and their engineer to explore safe and cost effective alternatives.
7-4	Please refer to Option D in the FEIS Appendix A, p A-11 to A-25.
7-5	Comment noted. Your description sounds like Alternative 3. (FEIS p. 2-5). Costs of the alternatives are displayed on p. 2-18 and 2-19.

7-6 It would also likely help for future repairs and maintenance of the facilities if a good, safe trail were reconstructed to accommodate men and work animals.

7-7 I believe the water in the dams is a valuable resource to the Valley and would like to see the Commissioners proceed with plans to repair Canyon Creek Dam and see that it is maintained for future use, even though I was 'enjoined' by the District in 2001 without

7-8 my being made aware of the process and need for tax dollars. I am petitioning to be removed from the Canyon Creek Dam District as I do not receive water from it and have not over a period of years.

7-9 I feel those ranchers who need to utilize the water to continue to keep their land productive should have access to the water, but I also feel they should bear the burden of repairing and maintenance.

Thank you for giving consideration to my comments. Thank you for giving me the opportunity to voice some of my opinions about this matter.

Sincerely,

Dorothy B. Logozzo

7-	**Dorothy Logozzo**
7-6	Trail construction and reconstruction is considered in alternative 3.
7-7	Responsibility for repair and maintenance of Canyon and Wyant Lake dam is CCID's.
7-8	This is outside the scope of a Forest Service decision.
7-9	Comment Noted

1-17-03

JAN 2 2 2003
Stevensville
Ranger District

Dear David Bull;

Re; Canyon Wyant DEIS.

8-1 I have hiked up to Canyon Lake many times over the past 25 years. I fully support the alternative # 2. I cannot see having horse or mules haul equipment up that steep grade! Let's get the job done! Thanx, Joe.

Mayor Joe Petrusaitis,City of Hamilton.
223 So. 2nd. St.
Hamilton,Mt.
363-2101.ext. 13.

8-	**Mayor Joe Petrusaitis**
8-1	Comment Noted.

139 West Bridge Rd
Hamilton, Mt. 59840
January 20, 2003

David T. Bull
Forest Supervisor
1801 N. First
Hamilton, Mt. 59840

Dear Sir: Re: Canyon Wyant DEIS

9-1 I am in the Canyon Creek irrigation district and have petioned to be removed from the district as I do not receive water from the dam nor do I want it.

9-2 If there is a high risk for the dam to break why can't a culvert under West Side road be established.

9-3 The water in the dams is necessary for farmers to grow their crops and water their livestock and therefore I believe they should bear the cost of repairing and maintaining the dams

9-4 Alternative 2 would be my choice to allow necessary work to be completed at the dams

9-5 and for the trails to be constructed to accomodate pack stock.

Sincerely,
Shirley D. Hayes

9-	**Shirley Hayes**
9-1	This is outside the scope of a Forest Service decision.
9-2	New culvert installation on West Side road, to mitigate for lower hazards classification was considered by CCID, but this was not proposed for detailed study by CCID in the DEIS. The West Side road is outside of Forest Service jurisdiction.
9-3	Comment Noted
9-4	Comment Noted
9-5	Alternative 3 considers trail reconstruction to accommodate stock.

January 16th, 2003

JAN 24 2003
Stevensville
Ranger District

Canyon Wyant Project
Bittertoot National Forest
1811 N 1st
Hamilton Mt 59840-3114

Judy (Lund) Owings
Charles L Owings
173 Wyant Lane
406-363-4333

Submitted to Canyon Wyant DEIS

10-1 We vote for alternative 2., the cost for our 13½ acres is very high. The use of this
10-2 water is for only about 2½ acres. I would like to be taxed on the water used not the acres owned.

Sincerely
Judy (Lund) Owings

PENNY E. CROW
173 Hawthorne Lane
Hamilton, MT. 59840
(406) 363-0090; (415) 389-9154

RECEIVED
JAN 28 2003
Stevensville
Ranger District

11-1 I support your choice of Alternative 2 presented in the DEIS.

Penny E. Crow

10-	**Judy Owings**
10-1	Comment Noted.
10-2	This is outside the scope of a Forest Service decision.

11-	**Penny Crow**
11-1	Comment Noted

JAN 29 2001

852 WILLOUGHBY LANE
STEVENSVILLE, MT. 59870
JAN. 28, 2003

CANYON WYANT PROJECT !

The following comments are on the Canyon Wyant DEIS.

12.1 I fully support the use of helicopter access for this project. The cost to really make the existing trail suitable to pack in materials probably is significantly underestimated, not to mention the resource impacts associated with heavy reconstruction work in difficult terrain.

12.2

12.3 The proposal to breach rather than fix Wyant dam makes good economic sense. The same is probably true for Canyon dam as well, excluding the effect of tax money for the project.

12.4

12.5 If a breach is done on either dam, once the outlet channel is restored to original grade there should be **no need** to try to retain lake sediments. Let natural processes work.

12.6 The cost and feasibility for hand work, or hand work with very small equipment,

12-	**Kirk Thompson**
12-1	The cost of reconstructing the existing trail was based on the costs of recent projects with similar types of work – reconstructing or relocating short stretches of trail. The cost estimate was based on the objective that reconstruction would be the minimum necessary to accommodate stock transport rather than making the entire trail "easy" for stock use (that cost would have been much higher).
12-2	Resource impacts of trail reconstruction are disclosed in Chapter 3, in discussions of Alternative 3.
12-3	Decision to breach or rehabilitate dam(s) is CCID's and is not a Forest Service decision and is outside of the scope of the FEIS. (FEIS p. 1-6)
12-4	This is outside the scope of a Forest Service decision.
12-5	Dam management regulations do not require retention of lake sediments following a permanent breach. The small rock weir included in the breach proposals is designed to help reduce the remobilization of lake bottom sediments into Canyon Creek and the Bitterroot River. Canyon Creek, with few other human influences and a durable channel capable of high sediment transport without adjustment, would not be substantially affected by the short-term release of lake bottom sediments. (FEIS p. 3-31, 3-32, 3-36 to 3-38). However, with much of the Bitterroot River designated as impaired on the 1996 and 2000 MTDEQ 303 (d) lists, and one of the probable pollutants listed as sediment, this was considered an appropriate mitigation measure.

12-6 should be considered for breach options. Such work may well prove less costly than flying in large equipment.

12-7 The option of rebuilding Canyon dam to a lessor height seems to be worth exploring. The reduction in costs might result in a lower cost per acre-foot of water stored. Any possibility to reduce costs to landowners, improve long term safety, and protect resources is worth pursuing.

12-8 All dam improvements should be designed and built as a long-term fix, to avoid more repair work in the future.

Kirk Thompson
KIRK THOMPSON

12-	**Kirk Thompson**
12-6	The Minimum Requirements Process (see Appendix F) evaluated doing proposed work using a variety of methods, including the CCID's fully mechanized/motorized method, a method using motorized equipment small enough to be broken down and transported with stock and a completely non-motorized/mechanized method. Proposed work included repairing Canyon and breaching Wyant dams. Total project costs were considerably increased (by about 500% in the fully non-motorized/mechanized alternative), primarily due to proposed repair work on Canyon. Cost and feasibility for hand work is being considered by CCID in the temporary partial breach of Canyon Lake dam, Option D, Phase I.
12-7	Option to rebuild to a lesser height would be CCID's decision.
12-8	It is in the interest of both the CCID and Forest Service that any work provides long-term benefits related to dam safety, water storage and resource concerns. From a wilderness perspective, adequate work during this project should reduce the need for future motorized/mechanized "intrusions". The planned major reconstruction in 2004 would bring the Canyon Lake dam to current engineering standards and should last for another generation.

Montana State Senate

SENATOR RICK LAIBLE
SENATE DISTRICT 30

HELENA ADDRESS:
PO BOX 200500
HELENA, MONTANA 59620-0500
(406) 444-4800

HOME ADDRESS:
529 MOOSE HOLLOW
VICTOR, MONTANA 59875
PHONE: (406) 961-8974
FAX: (406) 961-8975
E-MAIL: ricklaible@aol.com

The Big Sky Country

COMMITTEES:
FINANCE
LOCAL GOVERNMENT
NATURAL RESOURCES

David T. Bull
Forest Supervisor
Bitterroot National Forest
1801 N. First
Hamilton, Mt. 59840

January 27, 2003

Re: Canyon Lake and Wyant Lake Dam Projects

Dear Mr. Bull:

13-3 It is fairly obvious, that if we want to maintain our dams in the most efficient and cost effective manner, then Alternative 2 is the only choice and I applaud your preference.

Yes, my vote is for: **Alternate 2!**

Thanks for your consideration in this matter and look forward to spending some time with you regarding forest issues when the session is over.

Most sincerely,

Rick Laible

13-	**Senator Rick Laible**
13-1	Comment Noted

2-10-03

Canyon Wyant Project
Bitterroot National Forest
1801 N. First
Hamilton, Mt. 59840

re: Canyon Wyant DEIS
attn: David Bull

Dear Mr. Bull,

14-1 I support alternative 2, option A (Canyon Lake Dam repair and breach Wyant Lake Dam). I am strongly against breaching both dams. Water

14-2 is very precious and we need to reserve all we can.

Noreen Johnson
373 Blodgett Camp Rd.
Hamilton, Mt. 59840
363-1791

14-	**Noreen Johnson**
14-1	Decision to breach or rehabilitate dam(s) is CCID's and is not a Forest Service decision and is outside of the scope of the FEIS. (FEIS p. 1-6)
14-2	Effects of the project and alternaived on water resources is described in Chapter 3 of the FEIS.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 West 15th Street, Suite 3200
HELENA, MONTANA 59626

RECEIVED
FEB 21 2003
Stevensville
Ranger District

RECEIVED
FEB 13 2003
Bitterroot National Forest

Ref: 8MO

February 12, 2002

Mr. David T. Bull, Forest Supervisor
Bitterroot National Forest
1801 N. First Street
Hamilton, MT 59840

Re: Canyon Lake Dam and Wyant Lake Dam
Draft Environmental Impact Statement

Dear Mr. Bull:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement (DEIS) for the Canyon Lake and Wyant Lake Dams. The EPA reviews EISs in accordance with its responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major federal agency action. EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document. A summary of EPA's rating system is enclosed for your information.

The EPA agrees with the urgent need to reduce the risk of failure of Canyon Lake and Wyant Lake Dams. The EPA does not object to the Bitterroot National Forest's preferred alternative, Alternative 2, for authorizing helicopter access for transporting construction equipment, material and supplies and workers for dam rehabilitation work in the Selway-Bitterroot Wilderness Area. Alternative 2 would allow the dam rehabilitation work to be completed in one season, and would most quickly address the risk of dam failure and safety issue. Alternative 2 would also avoid the additional disturbances associated with the Alternative 3 proposed reconstruction of Canyon Lake trail #525 and construction of a new trail between Canyon and Wyant Lakes, and other impacts associated with an additional season of construction and lengthier periods of disturbance within the Wilderness Area.

The proposed dam rehabilitation work described in the DEIS is likely to need Clean Water Act Section 404 authorization from the U.S. Army Corps of Engineers for placement of dredged or fill material in waters of the U.S. (i.e., 404 permit). It is important that the Canyon Creek Irrigation District (CCID) and the Bitterroot National Forest contact the Corps of

15-	**John F Wardell – US-EPA**
	Comment noted, see response to EPA's detailed comments.

Engineers (i.e., Mr. Allan Steinle or Ms. Vicki Sullivan of the Corps Montana Regulatory Office in Helena, at 406-441-1375) as soon as possible to integrate Clean Water Act Section 404 permitting considerations into the decision making process regarding selection of the appropriate option for rehabilitation of Canyon Lake Dam (i.e., Option A, B, or C).

We recommend preparation of a preliminary 404(b)(1) evaluation for the proposed dredge and fill activities associated with Canyon Lake dam rehabilitation. The 404(b)(1) evaluation is the substantive environmental review that determines whether a proposal constitutes the "least damaging practicable alternative" from a 404 permit perspective. A 404(b)(1) evaluation of the Canyon Lake Dam Repair options will assist in more specifically identifying impacts on aquatic resources, and in deciding and making an informed judgement among dam rehabilitation options, and facilitating subsequent 404 permit review. A draft 404(b)(1) evaluation will help avoid project delays by better assuring that the CCID's preferred option will receive a 404 permit from the Corps of Engineers.

We note that the CEQ's NEPA regulations state that Federal agencies shall to the fullest extent possible integrate other planning and environmental review procedures with NEPA so that all such procedures run concurrently rather than consecutively (40 CFR 1500.2(c) and 1500.4(k)). If CCID and the Forest Service do not integrate these permitting and regulatory requirements into the EIS process, there could be potential inconsistency of regulatory requirements with the selected EIS alternative and project delays.

We recognize the time sensitive and urgent nature of the work that caused the Bitterroot National Forest to publish the DEIS before the CCID announced their specific preferred option for Canyon Lake dam repair. It is important, however, that the final EIS and Record of Decision (ROD) include accurate understanding and evaluation of the actual dam rehabilitation option chosen by CCID (and likely to be permitted by the Corps of Engineers) otherwise the extent of environmental impact will be uncertain, and the associated NEPA analysis may be inadequate. We believe additional details and information regarding the equipment, materials, supplies and dam rehabilitation work for the selected option should be provided in the final EIS (e.g., improved maps, more details of proposed work such as cofferdams-pumping, equipment used, size and location of work camp, life expectancy of dam rehabilitation measures, future dam maintenance, photos, etc.,).

Our more detailed comments, questions, and concerns regarding the analysis and disclosure or potential environmental impacts of the Canyon and Wyant Lake Dams DEIS are enclosed for your review and consideration. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the Canyon and Wyant Lake Dams DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). A copy of EPA's rating criteria is attached.

As can be seen from the enclosed comments, we recommend integrating 404 permitting requirements into decision making process for selecting among Canyon Lake dam rehabilitation options and this access alternatives EIS. We recommend that a preliminary 404(b)(1) evaluation for the proposed dam rehabilitation be prepared for placement of dredged or fill materials in

15-	**John F Wardell – US-EPA**

waters of the U.S., including wetlands. We believe additional information is needed to fully assess and mitigate all potential environmental impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 457-5022 or in Missoula at 329-3313.

Sincerely,

John F. Wardell
Director
Montana Office

Enclosure

cc: Cynthia Cody/Julia Johnson, EPA 8EPA-N, Denver
Allan Steinle/Vicki Sullivan, COE, Helena

15-	**John F Wardell – US-EPA**

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February, 1987.

15-	**John F Wardell – US-EPA**

EPA Comments on Canyon Lake Dam and Wyant Lake Dam Project Draft Environmental Impact Statement

BRIEF OVERVIEW:

The Bitterroot National Forest, Stevensville Ranger District, has evaluated no action, Alternative 1, and two action alternatives, Alternatives 2 and 3 to correct safety hazards associated with Canyon Lake Dam and Wyant Lake Dam. The dams are located approximately 8 miles west of Hamilton, Montana within the Bitterroot National Forest and Selway-Bitterroot Wilderness Area. The use of National Forest lands for both dams was authorized through an easement prior to creation of the Bitterroot National Forest. Both dams are classified as high hazard dams with structural deficiencies that require urgent need of repair. The dams are owned and operated by the Canyon Creek Irrigation District (CCID).

Canyon Lake dam is 21.5 feet high and 430 feet long and stores between 420 and 450 acre-feet of water used for irrigation. It was constructed in 1891. Deficiencies at Canyon Lake Dam includes inadequate spillway capacity, uneven dam crest, and a partially collapsed outlet works. In addition geotechnical investigations identified potential piping failure caused by excessive seepage through the dam embankment, and slope failure caused by saturation of the embankment toe that could occur during high reservoir levels or by earthquake forces. Emergency repairs were carried out to the embankment of Canyon Lake dam in October 2001. There is a risk of loss of life if the dam fails. Public access to Canyon Lake is currently by Trail No. 525 which ascends over 2400 feet in 5 miles to the cirque where Canyon Lake is located, crossing talus below the lake.

Wyant Lake Dam is 18 feet high and currently stores 54 acre-feet of water, and is located one mile upstream of Canyon Lake Dam. It was constructed from 1902 to 1909. Wyant Lake Dam was constructed from log cribs filled with rock and soil. The embankment has developed longitudinal cracks and slabs of soils are breakaway and slumping towards th lake. The integrity of the structure has been compromised because of a reduction in the width of the dam crest, and is progressively getting worse. A failure at Wyant Lake Dam could lead to failure at Canyon Lake Dam. There is no maintained trail to Wyant Lake. Wyant Lake Dam is eligible for the National Register of Historic Places.

Dam rehabilitation work being considered by CCID includes breaching Wyant Lake Dam by lowering the existing primary spillway crest by 8 feet and constructing a weir to retain lake sediments and direct low flows to the existing outlet, and placing riprap along the south side of the spillway to provide erosion protection. Workers will use the Canyon Lake camp to hike to Wyant Lake Dam work site. Three options were evaluated at Canyon Lake Dam at address the dam safety issue. Option A involves repair of critical deficiencies by replacing outlet works and stabilizing embankment and increasing spillway size and armoring with rock. Option B involves major rehabilitation through major overhaul of the embankment, widening the spillway crest, reducing embankment slopes, and placing rock on upstream and downstream faces and building

15-	**John F Wardell – US-EPA**

new outlet. Option C involves breaching the dam. At this time CCID has not identified which of these options they propose to pursue.

The Forest Service must provide access to CCID for operation and maintenance of the dams, but can set terms and conditions governing routes and mode of access, mitigation measures, etc., to protect National Forest resources, including Wilderness values. Three alternatives have been evaluated. Alternative 1 is the no action alternative that would not authorize access to repair the dams, and no additional terms and conditions would be placed on the existing easement. This alternative must be evaluated in accordance with NEPA no action alternative, and to serve as a baseline condition for comparative purposes, but the Forest Service must provide access to CCID for operation and maintenance of the dams.

Alternative 2 is the proposed action which would authorize CCID sufficient access by helicopter to allow for all necessary work to complete the dam repair. Specific terms and conditions and mitigation measures would be specified during access and work periods authorized under this alternative to protect National Forest resources (e.g., perform work from mid-July to mid-October, protect wilderness resource values, use quiet low velocity rock crusher, remove all wastes from National Forest lands, etc.,). All the work would be done in 2003, with some revegetation and reclamation work in subsequent years. Alternative 2 is identified as the preferred alternative in the DEIS.

Alternative 3 would authorize helicopter transport only for equipment and materials too heavy or awkward to transport safely with stock. All other equipment, materials and supplies would be transported with stock, as would most workers. Alternative 3 would also prescribe specific terms and conditions and mitigation measures on that access and work to protect National Forest resources. The dam rehabilitation work would be the same as Alternative 2. In addition, Canyon Creek trail (#525) would be reconstructed to safely accommodate pack stock and a new trail would be constructed between Canyon and Wyant Lake dams. Alternative 3 would take an extra season to complete due to the need for spending the first construction year on trail construction/reconstruction for stock transport, and would be more costly

COMMENTS:

1. Three options for addressing the structural deficiencies and safety issues at Canyon Lake Dam are identified in the DEIS, but CCID has not decided which dam safety remedy they intend to pursue (i.e., option A, B or C). The EPA recognizes the time sensitive and urgent nature of the work that caused the Bitterroot National Forest to publish the DEIS before CCID announced their specific option for Canyon Lake dam repair. It is our understanding that this uncertainty will be resolved and CCID will identify their specific option for Canyon Lake Dam repair before the Forest Service issues the final EIS. The EPA believes it is important that the FEIS and Record of Decision (ROD) include accurate evaluation and disclosure of the actual dam rehabilitation option chosen by CCID, otherwise the extent of environmental impact will be uncertain, and the associated

2

15-	**John F Wardell – US-EPA**

15-1 NEPA analysis may be inadequate. We are particularly interested in more detailed environmental assessment information regarding the work proposed in aquatic areas, including lakes, streams and wetlands.

2. Measure #33 in Table 2.1 (page 2-9) indicates that CCID is responsible for obtaining required State and Federal permits. It is likely that the proposed dam rehabilitation work will involve placement of dredged or fill material in waters of the U.S. (per discussion of water resource impacts beginning on page 3-27, and Appendix A). Placement of dredged or fill material in waters of the U.S., including wetlands, requires authorization from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act (i.e., 404 permit). We recommend that the CCID and the Bitterroot National Forest contact the Corps of Engineers to determine applicability of 404 permit requirements for this proposed project (e.g., contact Mr. Allan Steinle or Ms. Vicki Sullivan of Corps Montana Office in Helena at 406-441-1375). It is important that CCID consult with the Corps of Engineers as early as possible. 15-2-1

If a 404 permit is required, we recommend preparation of a preliminary 404(b)(1) evaluation for the proposed dredge and fill activities associated with Canyon Lake dam rehabilitation (a preliminary 404(b)(1) evaluation can be appended to the FEIS). The 404(b)(1) evaluation is the substantive environmental review that determines whether a proposal constitutes the "least damaging practicable alternative" from a 404 permit perspective. The "least damaging practicable alternative" determination during 404 permit review may be an important factor influencing selection of option A, B, or C for correcting the dam safety issue. The 404(b)(1) evaluation will also assist in more specifically identifying and evaluating impacts on aquatic resources, and in deciding and making an informed judgement among options, and facilitating subsequent permit review. Preparation of a preliminary 404(b)(1) evaluation helps to avoid project delays by better assuring that the CCID's preferred option may receive a 404 permit from the Corps of Engineers.

It would be wise to evaluate and consider such 404 regulatory requirements during this EIS process to assure that the dam rehabilitation work selected by the CCID can be permitted by the Corps of Engineers. We note that the CEQ's NEPA regulations state that Federal agencies shall to the fullest extent possible integrate other planning and environmental review procedures with NEPA so that all such procedures run concurrently rather than consecutively (40 CFR 1500.2(c) and 1500.4(k)). If CCID and the Forest Service do not integrate these permitting and regulatory requirements into the EIS process, potential inconsistency of regulatory requirements with the selected EIS/ROD alternative and project delays could result. We are sending a copy of our DEIS comments to the Corps of Engineers Regulatory Office in Helena.

15-2-2 It may also be helpful and avoid delays to make contacts with other permitting agencies and to list other permits that may be necessary to implement the project, such as a 310

15-	**John F Wardell – US-EPA**
15-1	Refer to Appendix A, and Chapter 3, Water Resources (FEIS p. 3-35 to 38) for additional information. During the permitting process more details will be developed. Also please note that since the DEIS, CCID has submitted a decision to go forward with specific actiona s t the dams. These astiona are described as Option D in the FEIS (Appendix A –p. A-11 to A-24)
15-2-1	CCID is responsible for 404 permitting. CCID has been contacted and the evaluation recommended.
15-2-2	310 and other permits are CCID's responsibility. Information was forwarded to CCID.

15-2-2 permit from the Bitterroot Conservation District, and Water Quality Standards turbidity exemption for short term construction (3(a) authorization) and potential construction stormwater permit from the Montana Dept. of Environmental Quality. The CEQ NEPA

15-2-3 regulations (40 CFR 1502.25) state that the EIS should list all Federal permits and licenses which must be obtained to implement the proposal.

15-3 3. Thank you for including some evaluation of potential effects of dam repair options on wetlands (pages 3-22, 3-31). Wetlands are important environmental resources that provide a wide range of important functions and values, and wetlands have experienced severe cumulative losses nationally. EPA considers the protection, improvement, and restoration of wetlands to be a high priority. Wetlands increase landscape and species diversity, and are important for protection of designated water uses. Possible impacts on wetlands include damage or improvement to: water quality, habitat for aquatic and terrestrial life, flood storage, ground water recharge and discharge, sources of primary production, and recreation and aesthetics. Executive Order 11990 requires that all Federal Agencies protect wetlands. In addition national wetlands policy has established an interim goal of **No Overall Net Loss of the Nation's remaining wetlands, and a long-term goal of increasing quantity and quality of the Nation's wetlands resource base**. Potential impacts to wetlands and to avoid and minimize wetlands impacts should be considered and evaluated further during the 404 permitting process.

15-4 4. It is stated that Wyant Lake Dam is eligible for listing on the National Register of Historic Places (page 3-17). We recommend that National Historic Preservation Act Section 106 consultation with the State Historic Preservation Officer in regard to potential breaching of Wyant Lake dam occur concurrently with the NEPA review and evaluation process along with the 404 permitting process, so that all applicable environmental and planning considerations can be evaluated together (as noted in regard to 40 CFR 1500.2(c) and 1500.4(k)).

15-5-1 5. Additional details and information regarding the proposed construction work should be provided to better understand and evaluate impacts and compare alternatives (i.e., particularly in relation to the final selected Canyon Lake dam repair option). Is it known how much materials and supplies, and what types of equipment (bull dozers, excavators, backhoes, etc.,) are proposed for use in the construction work? Where would cofferdams be used? What types of cofferdam materials would be used? What types of motorized pumps and generators would be used? How many workers will be involved? How large will the work camp be? Where would the work camp and fuel storage areas be located in relation to streams and wetlands? Will the same equipment be used and work carried out in Alternative 3 for dam rehabilitation as would occur in Alternative 2? What additional equipment is needed in Alternative 3 for trail construction/reconstruction that is not needed for Alternative 2? Can the estimates for total costs of the work

15-5-2 options/alternatives shown on page S-14 be further itemized to allow better understanding of the specific work to be performed, and how the cost estimates were determined?

15-	**John F Wardell – US-EPA**
15-2-3	A list of required permits has been added to the Hydrology Report (Consequences of Alternatives), and to the FEIS. (FEIS p. 3-27)
15-3	This evaluation process shall be undertaken during the 404 permitting process (FEIS p. 3-27).
15-4	The Montana State Historic Preservation Officer determined Wyant Lake Dam (24RA0549) Eligible for the National Register of Historic Places on February 3, 2003. On the same date, Montana SHPO concurred that the proposed breaching via deepening of the existing spillway (previously enlarged in 1971) and the opening of the outlet gate would constitute No Adverse Effect to the Wyant Dam historic property. This was the only alternative submitted to SHPO for consultation, since it was the only alternative for which the Bitterroot National Forest Heritage Program Manager had received a detailed proposal. If a different alternative is identified, consultation with Montana SHPO must be reopened prior to implementation. Any new alternative will require its own determination of effect and, if necessary, appropriate mitigation measures to be designed in consultation with the Montana SHPO. (FEIS p. 3-18, 19)
15-5-1	Information requested is operational, and has to do with specifics of implementation. CCID will prepare a final design and award a contract for this work after the Record of Decision is signed. Since the DEIS, additional details have become available. Where available, these are disclosed in the FEIS (Appendix A, Option D). Yes, the same equipment will be used and work occur in Alternative 3 for dam rehabilitation as would occur in Alternative 2, except with some stock transport replacing some helicopter transport in Alternative 3. Basic trail construction tools are similar to those that would be used on the dam project work, including picks, pulaskis, shovels, explosives and stock transport.
15-5-2	Cost estimates were based on CCID's engineer's estimate (PF# 3.8)

15-6-1 6. It is stated that for Alternative 2 sufficient helicopter access would be authorized to allow for necessary work to be done at Canyon and Wyant Lake Dams (page 2-4). It is not clear if additional clearings, landing pads, or other disturbances may be needed to accommodate additional helicopter use in Alternative 2 vs. Alternative 3. This should be clarified in the FEIS. Also, it would be helpful if the extent to which helicopter use would be less in Alternative 3 vs. Alternative 2 could be quantified or at least discussed further. Can the number of helicopter trips in Alternatives 2 vs. 3 be estimated for improved comparative evaluation between alternatives? Is it known what types of helicopters will be used?

15-6-2

15-7 7. For Alternative 3 it is stated that helicopter transport would only be authorized for equipment and materials too heavy or awkward to transport safely with stock, and all other equipment, materials and supplies would be transported with stock, as would most workers. It is further stated that 20 to 60 stock trips, each with 20 head of stock, would be required for Alternative 3 (depending upon dam repair options, page 3-15). It is not clear, however, if any equipment, materials or supplies or workers would be transported to work sites with stock in Alternative 2, or if helicopters would be the sole source of transport for all equipment, materials, supplies and workers in Alternative 2. Additional information is needed to clarify if any equipment, materials, supplies, and workers would be transported via stock in Alternative 2?

15-8-1 8. Is our understanding correct that a new trail between Canyon and Wyant Lake dams is only proposed for Alternative 3? Is the new proposed trail between Canyon and Wyant Lake dam only needed to accommodate the stock carrying equipment, materials and supplies, and not workers? Are there any stream crossings associated with the reconstruction of trail #525 or for the new trail between Canyon Lake and Wyant Lake dams?

15-8-2 Also, it would be helpful if an enlarged map showing trail #525 in relation to Canyon Creek and to Canyon Lake and Wyant Lake and the proposed new trail between the lakes could be provided. Environmentally sensitive areas and areas where disturbances from trail reconstruction should be highlighted. Photographs of the dams and lakes and trail #525 would also be helpful.

15-9 9. The additional season that it would take to complete dam rehabilitation work in Alternative 3 as well as the additional disturbances associated with reconstruction of trail #525, additional parking at the trailhead, and construction of a new trail between Canyon and Wyant Lake dams (to safely accommodate pack stock) are disadvantages of Alternative 3 in comparison to Alternative 2. Alternative 3 would, therefore, appear to result in additional adverse effects in comparison to Alternative 2. The additional adverse effects of Alternative 3 include:

15-	**John F Wardell – US-EPA**
15-6-1	No clearing is anticipated for helicopter landing pad. There would be no additional clearings, pads or disturbances in Alternative 2 vs. 3. The exact transport requirements can't be quantified because of unknown conditions that will be evaluated after work begins. For comparison purposes, in the Minimum Requirements Process used to evaluate proposed work, Alternative 2 would have required approximately 10 transport days and 30 helicopter trips. Alternative 3 would have required approximately 30 transport days, with about 8 days and 20 trips using helicopters and about 22 days and almost 1000 trips using stock (PF 1.2). FEIS Appendix A p. A-15, A-16, A-20 and A-21 provide details on estimated number of helicopter trips for Alternative 2, Option D.
15-6-2	See response to 15-6-1.
15-7	Estimates were based on helicopters as the sole source of transportation in Alternative 2. It is likely most material will be transported by helicopter in alternative 2. Alternative 2 does not preclude the use of packstock, riding animals or foot travel. The CCID has the right to use stock for transport needs as they determine necessary and may use them during work. In that case, stock containment locations would be approved. Minor trail work could occur in alternative 2 to accommodate minimal stock transport. (FEIS p. 2-5).
15-8-1	The new trail is only proposed for Alternative 3 and is primarily needed for transport of equipment and supplies. However, the CCID has the right to use stock for transport needs and may use them for transporting people. There is a small stream crossing in the existing trail just below Canyon Lake. (S-18) Depending on the route selected for any new trail between canyon and Wyant Lakes, there may be another small stream crossing. Neither the original or new trail would cross Canyon Creek.
15-8-2	Cover shows Canyon Lake Dam. Photos were provided to EPA. when we met with Steve Potts to discuss the EPA's comments on March 12, 2003. See Map 2 in FEIS (p. M-2).

-less timely correction of the dam safety problem (and thus increased period of risk of dam failure);

-additional disturbances associated with trail construction/reconstruction;

-longer period of construction related disturbances that increase duration and extent of impacts on wilderness recreation, remoteness and solitude;

-additional stock damage to fragile vegetation;

-additional campsites and quantities of solid and human wastes and refuse to remove;

-additional cost.

Are there any additional impacts (adverse or beneficial) associated with the comparative evaluation of Alternative 2 vs. Alternative 3 that we have neglected to identify here?

15-10 10. The EPA agrees with the urgent need to reduce the risk of failure of Canyon Lake and Wyant Lake Dams. The EPA does not object to the Bitterroot National Forest's preferred alternative, Alternative 2, for authorizing access for dam rehabilitation work via helicopters in the Selway-Bitterroot Wilderness Area for construction equipment, material and supplies. In accordance with our preceding comment No. 9, Alternative 2 would allow the dam rehabilitation work to be completed in one season, and would most quickly address the urgent risk of dam failure and the safety issue. Alternative 2 would also avoid the additional disturbances associated with the Alternative 3 proposed reconstruction of Canyon Lake trail #525 and construction of a new trail between Canyon and Wyant Lakes, and other impacts associated with an additional season of construction and lengthier periods of disturbance within the Wilderness Area.

15-11 11. The breaching of Wyant Lake dam and the option C breaching of Canyon Lake Dam would appear to be long term solutions to dam safety issues at both of these dams, that would require little if any future maintenance work. What is the life expectancy of the proposed option A and option B Canyon Lake dam repair proposals? What future maintenance activities would be expected in association with options A and B (annual or less frequent intervals)? Are there any anticipated future environmental impacts associated with subsequent repeated intrusions into the Wilderness Area that may occur during dam operation and maintenance activities with options A or B?

15-12-1 12. In regard to potential use of helicopters and heavy equipment in Class 1 air quality areas (Selway-Bitterroot Wilderness Area) we did not see any air quality impact analysis associated with helicopter or equipment air pollutant emissions. We recommend that the FEIS include at least a brief analysis and discussion of potential air pollutant emissions of equipment used in or near the Class 1 area, and potential impacts on Class 1 air quality

15-	**John F Wardell – US-EPA**
15-9	As identified in the FEIS, Alternative 3 would have the following effects: Apparent naturalness would be affected by the visual impacts of the trail to Wyant Lake.(FEIS p 3-14) The lake basin's problem area status would be affected by increased impacts at existing campsites and additional campsites. Natural integrity would be affected by the introduction of non-native and noxious weeds.(FEIS p. 3-15) A trail to Wyant Lake and a larger parking area would provide easier access for backpackers and stock users to the lake basin.(FEIS p. 3-16) Cumulative increase in foot and stock use (FEIS p. 3-17).
15-10	Comment Noted
15-11	The planned major reconstruction in 2004 would bring the Canyon Lake dam to current engineering standards and should last for another generation. Future maintenance is expected to include routine annual maintenance, including such activities as cleaning debris from spillway, removal of brush from dam, lubricating the headgate, and performing annual inspections. See Chapter 3, p 3-10 to 3-18 for discussion of effects to wilderness resource.
15-12-1	Air quality will be protected, with proposed dam reconstruction alternatives being well within National Ambient Air Quality Standards for all criteria pollutants, and air quality related values, visibility and lake water chemistry will not be impaired. An air quality analysis is in the project file (FEIS PF- K-30).

and National Ambient Air Quality Standards (NAAQS).

15-12-2 The EPA encourages the Forest Service and CCID to promote use of newer "cleaner" construction equipment, and to properly maintain construction equipment, reduce construction-related traffic trips, and avoid unnecessary idling of equipment to reduce pollutant emissions. We also encourage use of equipment and/or alternative fuels technology that may reduce air pollutant emissions (e.g., electric engines; engines using fuel cell technology; engines using liquified or compressed natural gas; diesel engines that meet the proposed EPA 2007 regulation of 0.01 g/bhp-hr (grams per brake horsepower hour); diesel engines outfitted with catalyzed diesel particulate filters and fueled with low sulfur (less than 15 ppm sulfur) fuel; diesel engines fueled with low sulfur fuel). We also encourage installing air pollution control equipment on diesel construction equipment (particulate filters/traps (DPTs), oxidizing soot filter, oxidation catalysts, and other appropriate control devices). A particulate filter ("P-trap" or oxidizing soot filter) may control approximately 80% of diesel PM emissions. An oxidation catalyst reduces particulate emissions by only 20%, but can reduce CO emissions by 40%, and hydrocarbon emissions by 50%. Different control devices may be used simultaneously.

15-13 13. There was no discussion in the DEIS regarding potential project trade-offs associated with water conservation and improved irrigation water management by CCID irrigators to reduce irrigation water use, and potentially reduce the need for reservoir storage capacity. Are there any practical opportunities to reduce the size and scope of the dam rehabilitation project or perhaps reduce the need for these dams in association with improved water conservation and irrigation water management? Is anything being done by CCID to monitor irrigation water use and management, and to assure that efficient irrigation water management methods are being used?

15-	**John F Wardell – US-EPA**
15-12-2	Comment Noted
15-13	Water conservation is outside of the scope of the Forest Service decision. Opportunities to reduce the size and scope of the dam rehabilitation project or the need for the dams is beyond the scope of the Forest Service decision. CCID does employ a ditch rider when needed to monitor water use. CCID has lined 800 feet of ditch with plastic pipe and liner. Some properties have installed sprinkler systems.

February 18, 2003

RECEIVED
FEB 19 2003
Stevensville
Ranger District

Sharmae Erickson
42 Ricketts Road
Hamilton, MT 59840

Canyon Wyant Project
Bitterroot National Forest
1801 N. First Street
Hamilton, MT 59840

RE: Canyon Wyant EIS

Project Manager:

I am a member of the Canyon Creek Irrigation District. Having read your EIS regarding this project, I feel that the best option is Alternative II. I feel that this alternative will best serve those in the irrigation district as well as
16-1 members of the surrounding community. My reasons for this decision are that the time line is reasonable and access is granted due to prior easements established with the forest service by the district. If you feel you need to contact me regarding this statement you may reach me at (406)375-2519. Thank you for your time.

As a side note...I would like to express my gratitude, as a district member, to the forest service. I feel that you have been more than patient with this irriation district and I for one greatly appreciate it.

Sincerely,

Sharmae M. Erickson

16-	**Sharmae M Erickson**
16-1	Comment Noted

Mike & Shirley Sorenson
224 Sorenson Trail
Hamilton, Montana 59840
Home Phone 406-363-2214

February 26, 2003

David T. Bull, Forest Supervisor
Bitterroot National Forest
1801 N. First
Hamilton, MT. 59840

Re: Canyon Wyant Project

Dear Mr. Bull:

We strongly urge you to pursue the repair of Canyon Lake Dam. The operation of our ranch is totally dependent on this irrigation water. Due to the ~~grant and loan funding~~ available for this option there really should not be a question about the feasibility of this action.

The conservation and control of the water run off as a result of the dam will not only facilitate the ~~irrigation process~~ it will maintain our water tables for the water wells. It will also provide drinking water for the wildlife. The goal in our opinion should be to make certain the land is productive and remains productive for generations to come.

Thank you so much for your concern and assistance in making certain that the necessary steps are taken to conserve the water supply.

Sincerely,

Mike and Shirley Sorenson

17-	**Mike & Shirley Sorenson**
17-1	The decision regarding rehabilitation of the dams is CCID's decision. Grant and loan funding were considered in the economic analysis of alternatives (p 3-20 to 3-22)

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
P.O. Box 25007 (D-108)
Denver, Colorado 80225-0007

February 25, 2002

ER 03/0045

David T. Bull, Forest Supervisor
Bitterroot National Forest
1801 N. First
Hamilton, Montana 59840

Dear Mr. Bull:

The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Canyon Lake Dam and Wyant Lake Dam Project, Ravalli County, Montana and has no comments.

Sincerely,

Robert F. Stewart
Regional Environmental Officer

18-	**US-Dept Interior – Robert Stewart**
18-1	Noted

U.S. ARMY CORPS OF ENGINEERS
HELENA REGULATORY OFFICE
10 WEST 15TH STREET, SUITE 2200
HELENA, MONTANA 59626

February 26, 2003

REPLY TO
ATTENTION OF:
Helena Regulatory Office
Phone (406) 441-1375
Fax (406) 441-1380

RE: Corps File No. 2003-90-009

U.S. Forest Service Bitterroot National Forest
Attn: David Bull
1801 North First Street
Hamilton, Montana 59840

Dear Mr. Bull:

Reference is made to the Canyon Lake Dam and Wyant Lake Dam project located about eight miles west of Hamilton in the Selway-Bitterroot Wilderness in Ravalli County, Montana.

The Corps does not object to the Bitterroot National Forest Service's preferred alternative, Alternative 2 as descried in the Draft Environmental Impact Statement (DEIS). As proposed in the DEIS, it appears that Alternative 2 would have the least environmental impact compared to the other proposed alternatives. However, until sufficient detail and evaluation of the alternatives is completed for the Final Environmental Impact Statement and Record of Decision, an accurate understanding of the impacts cannot be determined at this time.

Under the authority of Section 404 of the Clean Water Act, Department of the Army permits are required for the discharge of fill material into waters of the United States. Waters of the United States include the area below the ordinary high water mark of stream channels and lakes or ponds connected to the tributary system, and wetlands adjacent to these waters. If your final design requires the placement of fill material in any of the jurisdictional areas mentioned above, then a Section 404 permit would be required for your project.

Based on the information provided, this office is unable to ascertain jurisdictional authority at this time. Please be advised that if no fill material will be placed either temporarily or permanently in a water of the United States, no Department of the Army permit is required for this project. However, this does not eliminate the requirement to obtain other applicable federal, state, tribal and local permits.

If you have any questions, please call Vicki Sullivan of this office at (406) 441-1375, and reference Corps File No. 2003-90-009.

Sincerely,

Vicki Sullivan

Vicki Sullivan
Project Manager

CF:
Steve Potts, EPA, Helena

RECEIVED
FEB 27 2003

19-	**US Army Corps of Eng Vicki Sullivan**
19-1	CCID is responsible for 404 and 310 permitting. CCID has been contacted and the evaluation recommended. (FEIS p. 3-27)

March 2,2003

To
Canyon Wyant Project
Bitterroot National Forest
1801 N First
Hamilton Mt.
59840-3114

We support alternative No. 2.
Helicopter access is the only reasonable way to access the dams if you have to maintain the dams with the present Dam safety standards.
We have made many trips to Canyon Lake with livestock and have walked it a great number of times. The trail is hazardous for livestock with loads on them.
We worked with Canyon Dam repair in 1996 and with other engineering studies that have been done since and believe the airlift of supplies and equipment will have less impact on the Forrest than the rebuilding of the trail for livestock access.
The work on the dam will be done within the easement that the Canyon Creek Irrigation District has filled with the BLM office in Billings Mt.
We believe the reconstruction of Canyon Dam will help by storing water for the benefit of all lands in the district. The ecologic system that we live with today is one that has been created by over 100 years of irrigation. The recharge of the ground water and springs that are fed by the water and the late stored water are a benefit to the Bitterroot valley
We also know that it has it benefit for fire suppression, as all of us who live in the Bitterroot know since the 2000 fire season know.

Sincerely
Ren L. Cleveland
Ren L Cleveland

Betty R. Cleveland
Betty R Cleveland

Ren and Betty Cleveland
248 Ricketts Rd.
Hamilton Mt.
59840

20-	**Ren & Betty Cleveland**
20-1	Comment Noted

February 26, 2003

MAR 1 3 2003

Bitterroot National Forest

Canyon/Wyant Project
Bitterroot National Forest
1801 N. 1st Street
Hamilton, Montana 59840

Re: Draft Environmental Impact Statement for Canyon Lake Dam and Wyant Lake Dam Project.

Dear Sir(s):

21-a The Canyon Creek Irrigation District, through its Commissioners Ren Cleveland, Robert Crane and Thomas Brader, on behalf of the Canyon Creek Irrigation District, hereinafter, ("CCID") files these comments to the above referenced Draft Environmental Impact Statement("DEIS"), 40 C.F.R. Sec. 1503.1, 1503.3. The CCID is an Irrigation District organized under the laws of the State of Montana to further the interests of irrigation on private property downstream from the Canyon and Wyant storage facilities, and to promote the public welfare.

21-b The CCID has a substantial interest in the management of the national forests surrounding the Canyon and Wyant storage facilities that are owned by the CCID. The ability to access the Canyon and Wyant storage facilities and to conduct rehabilitation, operation, and maintenance activities in compliance with dam safety law and regulation is essential for the CCID to fulfill its legal obligations under applicable Federal and Montana law. The Proposed Alternative contains the CCID proposals to address dam safety concerns at the Canyon and Wyant storage facilities.

21-c The Proposed Alternative as presented by the Forest Service in the DEIS in general is problematic in that it contains a legally incorrect premise that CCID has no access to its facilities other than a permissive one subject to terms and conditions imposed by the United States. As correctly stated in the DEIS, Canyon Dam was constructed in 1891. *See Historical Events,*

CCID Comments DEIS 1

21-	**CCID - Tonya D Bumbarger**
21.a	Comment Noted
21.b	Comment Noted
21.c	We agree to CCID's legal right of access, for reasonable use, but maintain that it is still subject to "authorization" under the noted acts. In this case the difference appears to be somewhat immaterial, in practical terms, since we also agree that this "authorization" is non-discretionary on the agency's part once the access is determined to be for a reasonable use (FEIS p. 1.2)

21-c *Appendix DEIS, page B-1.* By definition, CCID or its predecessors created the access, thereby acquiring access by construction to the storage facility which is a property right protected by federal and state law. Other federal legislation affecting land use activities in national forests also grants access rights to CCID.

EXECUTIVE SUMMARY

1. Access

21-1.1 The Forest Service states that it must authorize CCID access to their easements at Canyon Lake Dam and Wyant Lake Dam, and will condition that access with certain terms and conditions so that CCID can make their facilities safe consistent with federal dam safety laws and regulations, and consistent with CCID's rights and responsibilities under the terms of their easements. The facilities of CCID are not "land-locked" within the boundaries of the Bitterroot National Forest. No permission to access the facilities is needed by CCID. The DEIS appears to be structured as though the decision to allow or disallow access by CCID to its storage facilities is the driving major federal action or decision creating the need for preparation of statements under NEPA. The correct decision to be made by the Forest Service is whether it is going to acknowledge that CCID's proposal to address dam safety issues, including access

21-1.2 methods is what is reasonable and necessary. 42 U.S.C. Sec. 4332, (C) requires federal agencies to comply with NEPA "to the fullest extent possible", regardless of whether a major federal action is occurring or not. In this case, a major federal action may not exist, the action affecting the environment is that of CCID. A major federal action prompting CCID to act is the notification to CCID by the Forest Service that the dam is out of compliance with federal dam safety law and that measures to abate the dam safety problem are required. Even without the existence of a

CCID Comments DEIS 2

21-	**Tonya D Bumbarger**
21.1.1	See 21.c above

21-1.2 ajor federal action, the Forest Service is still likely required to consider a range of alternatives to address the type of action CCID is required to take. 42 U.S.C. Sec. 4332,(E). The DEIS cites adequate legal basis for the need to prepare an environmental impact statement in Chapter 3, page 9 citing the Bitterroot National Forest Plan Amendment #7, Section II, M-2(PF3.7):

> "Environmental assessments or environmental statements will be prepared for all reconstruction and heavy maintenance work on reservoirs within the wilderness...."

21-1.3 CCID comments that some form of analysis of CCID's proposal is legitimate under EPA, but further comments that permission to access CCID facilities is not a legitimate basis. CCID also comments that the Forest Service may reasonably regulate CCID access rights even when access rights are not permissive in nature. *Adams v. U.S.* , C.A.9 (Nev.) 2001, 255 F.3d 787.

21-1.4 The right of free and uninhibited access to secure reasonable use and enjoyment of property located on federal land is protected by 16 U.S.C. Sec. 3210(a) and 16 U.S.C. Sec. 478. This right supercedes all other authority the Forest Service may feel it has to give permission to CCID to access its facilities by necessary means for the project. Any permission the Forest Service gives CCID to access its facilities is therefore purely superlative. CCID has never formally or through counsel requested access to their facilities for work required to meet the requirements of federal dam safety standards or other applicable dam safety law. CCID has informed the Forest Service of what access methods are necessary to complete necessary work at its facilities, a proper and lawful activity of CCID. The Forest Service authority is limited to regulating the access rights of CCID already provided by Congressional act. The reasonable access needs of CCID for its proposed work are not limited to the reasonable access needs of the

CCID Comments DEIS 3

21-	**Tonya D Bumbarger**
21.1.2	Comment Noted
21.1.3	Please see our response to comment 21.c. We appear to be in agreement as to the agency's authority to reasonably regulate the access. Accordingly, that authority has been the focus of the EIS and frames the discretionary scope of the proposal and the decision that needs to be made (FEIS pg 1-5).
21.1.4	Please see our response to comments 21.c and 21-1.3.

21-1.4 ıblic to hunt, fish, or camp. *Adams I*, 3 F. 3d at 1259-1260. If a contract is negotiated between CCID and the Forest Service regarding access in this project, its purpose is to serve as the documentation of the exercise of Forest Service discretion to reasonably regulate the access right, not as the source of the access right. *U.S. v. Jenks* C.A. 10 (N.M.)1994, 22 F.3d 1513, *Fitzgerald v. U.S.*, D. Ariz. 1996, 932 F. Supp. 1195.

The Wilderness Act itself, at Section 5(a), provides for "adequate access", 16 U.S.C. Sec.1134(a):

> In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this chapter as wilderness, such State or private owner shall be given such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture: Provided, however, that the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

The term "adequate access" is not defined in the Act, but the legislative history makes clear that the term includes access not consistent with wilderness uses. For example, in both the Senate and House debates, repeated references were made to road construction for motorized vehicles. *See, e.g.*, 107 Cong. Rec. 18105 (1961); 109 Cong. Rec. 5,925-26 (1963). Accordingly, your [Forest Service] regulation defining "adequate access" does not limit access to established uses or to means consistent with wilderness uses. It includes access which "will serve the reasonable purposes for which the state and private land is held or used." (Citing 36 C.F.R. 293.12, (1980)which contains the exact same language in the July 1, 2002 edition), *Opinions of Office of Legal Counsel, Volume 4A*, 1980, page 49, 50.

CCID Comments DEIS 4

21-	**Tonya D Bumbarger**

21-	Tonya D Bumbarger

21-1.4 Benjamin R. Civiletti, the author of the above cited Opinion summed up Section 5(a) of the Wilderness Act as follows:

> "In sum, if uses were well-established prior to wilderness designation, they may be permitted to continue. In addition, all existing private rights of access are preserved. Even if the landowner has no prior existing right to access not consistent with wilderness uses, the Wilderness Act requires that "adequate access" be given or that an offer be made to the landowner to exchange the land for federal land of approximately equal value. As a result of Section 5(a), therefore, the in holder actually may possess more access "rights" than were possessed prior to wilderness designation. If the landowner rejects an offer of land exchange, he may retain title to the in holding and exercise access rights consistent with wilderness uses, or he may consent to acquisition of his land by the federal government."

Id at. 54.

Civiletti also made clear that his reference to "private in holders" in the opinion included all nonfederal in holders. Id at page 31, footnote 3. Irrigation Districts are also political subdivisions of the State of Montana.

Other sections apply to uses consistent with wilderness preservation. In Section 5(b), 16 U.S.C. Sec. 1134(b), Congress provided that where valid mining claims or other valid occupancies are surrounded by a national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress to and egress from such surrounded areas by means which have been or are being customarily enjoyed with respect to similarly situated areas.

Id. at footnote 41.

2. Discussion of Alternatives

The alternatives developed by the DEIS for the Canyon Lake Dam and Wyant Lake Dam Project are designated: (1) No Action; (2) Proposed Action, and ; (3) Proposed Action with

Modified Access.

21-2.1 A. No Action

The No Action alternative states that CCID would not be authorized access to repair their facilities, that no additional terms or conditions would be placed on CCID's existing easements and that routine maintenance would be allowed to continue under the existing easement. The No Action alternative states that the result would be that both Canyon and Wyant Dams would remain in the present deteriorated condition, and be out of compliance with federal dam and safety laws and regulations. The No Action alternative does not accurately state the resulting actions CCID will likely have to take if the deficiencies for both dams are not addressed through a designed repair.

The Engineer Dave Jones has described the Canyon Dam as in a "rapid state of decline". The No Action Alternative will at some point require the District to do more than "routine maintenance". At some point, the dam will overtop again, resulting in an emergency repair similar to that which occurred in 1996, if the dam survives the event. It is known that the outlet is caving in which will eventually cause internal collapse of the dam. The other deficiencies listed in Appendix A will likely cause CCID to do much more than routine maintenance at some point in the near future. CCID does not support the No Action alternative.

B. Proposed Action

21-2.2.1 The Proposed Action proposes to address the purpose and need for the action to be taken by CCID. The alternative states it was developed to authorize adequate access to Canyon Lake Dam and Wyant Dam, in response to CCID's plans to perform work at Canyon and Wyant Lake Dams, while limiting effects to wilderness and other resources. The Proposed Action contains a

CCID Comments DEIS 6

21-	**Tonya D Bumbarger**
21.2.1	The Forest Service does not support the No Action alternative and agrees that the condition of the dam would deteriorate to an unacceptable level. The Forest Service promotes fixing or breaching the dams to a level that no longer presents a hazard to downstream life and property in the event of failure. The Forest Service by regulation must include an evaluation of the no action alternative (40CFR 1502.14c).

21-2.2.1 faulty legal premise since CCID already has access rights consistent with whatever necessary acts it must do to take care of its storage facilities. *See CCID Comments DEIS, 1. Access, supra.* Congress clearly intended that the creation of the Wilderness did not impede what ever acts the dam owners on the east face of the Bitterroot Mountains found necessary to take care of their facilities. Cong. Rec., Sept. 5, 1961, 18108,18107, S.R. No. 109, 88th Cong. 1st Session, April 3, 1963, H.R. No. 1538, 88th Cong. 2nd Session, July 2, 1964.

21-2.2.2 CCID can only limit the effects of the necessary work to wilderness as long as dam safety specifications are not compromised and if the limitations are reasonable and do not impair the exercise of CCID's existing easements for the Canyon and Wyant Dams and CCID's access rights. It is unresolved whether the work proposed by CCID can be completed in 2003, or if

21-2.2.3 some of the work will need to be done in 2004.

21-2.2.4 CCID supports the Proposed Action to the extent it reflects the actual proposal submitted by CCID to the Forest Service, with the exception of the posture taken by the Forest Service in the DEIS on access.

C. Proposed Action with Modified Access

21-2.3 This alternative proposes to address the purpose and need for action and to address the issue of access and mechanized transport. The proposal requires CCID at its own expense to rebuild the trail to its storage facilities. The proposal is unreasonable as it requires the CCID to invest a substantial amount of money into a trail that the United States has claimed and is claiming in this document that CCID has no interest in. CCID should not be required to pay for rebuilding and constructing a trail for this project that the United States and the public will enjoy as a much improved access route to the Canyon and Wyant reservoirs for many years in the

CCID Comments DEIS 7

21-	**Tonya D Bumbarger**
21.2.2.1	Congress clearly intended that the creation of the Wilderness did not impede whatever acts may be necessary for the dam owners to take care of their facilities. Please also see our response to comments 21.c and 21-1.3.
21.2.2.2	Yes, we agree with this comment .
21.2.2.3	Comment noted.
21.2.2.4	Comment noted, please also see our response to comments 21.c and 21-1.3.
21.2.3	CCID should pay for the trail construction work, because the trail would be improved solely for the reconstruction or breach of the dams, not for Forest Service purposes.

21-2.3 future. Canyon reservoir in particular is a very popular hiking destination and hunting destination. The Forest Service has known at least since 1996 that major repair work would be necessary at the CCID storage facilities. The Forest Service has the ability to budget for and schedule trail rehabilitation projects and has chose to do nothing on the Canyon Creek trail. This Proposed Action with Modified Access alternative. will increase the long term effects and impacts on Wilderness as it will make the area more accessible. CCID does not support the Proposed Action with Modified Access alternative.

21-2.4 D. Mitigation Measures, Terms and Conditions, and Permits

CCID comments that these Mitigation Measures, Terms and Conditions, and Permits are reasonable to the extent they were in fact developed by the Engineer Dave Jones and that engineering standards are not compromised or the full exercise of CCID's easements are not compromised by those Mitigation Measures, Terms and Conditions, and Permits.

21-2.5 E. Environmental Monitoring

CCID comments that these Environmental Monitoring measures requiring action on the part of CCID are reasonable if the additional on-site monitoring to be conducted by the Wilderness Ranger is what is being referred to in tables 2.1 and 2.2 on pages 2-6 and 2-7, and with the understanding that CCID has not submitted any final plans or specifications.

21-2.6.1 F. Summary of Effects

1. Comparison of Effects on Access

CCID comments that Alternative 1 will require access by CCID to its storage facilities.

21-2.6.2 2. Comparison of Effects on Wilderness Character, Trails and Recreation

CCID agrees with this comparison of effects except for the statement that the use of

CCID Comments DEIS 8

21-	**Tonya D Bumbarger**
21.2.4	Comment Noted
21.2.5	Items that the Forest service is responsible for, including monitoring, are listed on p 2-9 of FEIS
21.2.6.1	Comment Noted
21.2.6.2	Please see our response to comments 21.c and 21-1.3.

21-2.6.2 mechanized transport and motorized equipment authorized on this and other wilderness dams would have a cumulative effect on the wilderness resource. The use of mechanized transport and motorized equipment is not authorized by the Forest Service, it is authorized by Congress in the Wilderness Act and through other Congressional Acts which legally classify the water storage facilities owned by CCID as in holdings, valid existing rights or valid occupancies not subject to the prohibitions on mechanized and motorized equipment contained in Wilderness Act. The Forest Service has acknowledged that mechanized transport and motorized equipment use on dams within the wilderness is necessary for the dam owners to fully exercise either their easement rights or water rights. *See Dam Coordination Agreement, CCID and Forest Service 1996.*

21-2.6.3 3. Comparison of Effects on Dam Safety

CCID agrees with this comparison of effects on dam safety.

21-2.6.4 4. Comparison of Effects on Trails and General Recreation

CCID agrees with this comparison of effects on trails and general recreation.

21-2.6.5 5. Comparison of Effects on Heritage Resources

CCID comments that Wyant Lake Dam is not eligible for the National Register. Major alterations were made to Wyant Dam when it was partially breached or an auxiliary spillway was created in reducing the storage capacity from approximately 200 acre feet to the present storage capacity of approximately 54 acre feet. *See notation in Appendix B, page 2, DEIS.* CCID comments further that it has engaged in discussions with entities interested in participating in restoring Wyant to its historical storage capacity which will likely require major alteration to the current facility. CCID comments further that its easements under the Act of 1866 and/ or the Act of 1891 are conveyable and will allow no listing that impairs that element of those Congressional

CCID Comments DEIS 9

21-	**Tonya D Bumbarger**
21.2.6.3	Comment Noted.
21.2.6.4	Comment Noted.
21.2.6.5	The Montana State Historic Preservation Officer determined Wyant Lake Dam (24RA0549) Eligible for the National Register of Historic Places on February 3, 2003. On the same date, Montana SHPO concurred that the proposed breaching via deepening of the existing spillway (previously enlarged in 1971) and the opening of the outlet gate would constitute No Adverse Effect to the Wyant Dam historic property. This was the only alternative submitted to SHPO for consultation, since it is the only alternative for which the CCID had submitted a detailed proposal. If a different alternative is identified, consultation with Montana SHPO must be reopened prior to implementation. Any new alternative will require its own determination of effect and, if necessary, appropriate mitigation measures to be designed in consultation with the Montana SHPO. Determination of eligibility is done by the State Historic Preservation Office. This FEIS does not cover rebuilding Wyant Lake dam, since it is not part of CCID's current proposal

grants or devalues those assets of CCID.

21-2.6.6 6. Economics

a. Comparison of Estimated costs to CCID.

CCID comments that these costs are indeed estimates as costs have and will fluctuate based on information gathered and final design parameters.

b. Comparison of Estimated costs to Forest Service.

CCID has no comments on these costs.

21-2.6.7 7. Comparison of Effects on Wildlife, Fish and Water, and Sensitive Plants and Noxious Weeds. CCID agrees with the statements of effects.

21-2.7 G. Comment regarding Chapter 2 Issues and Alternatives, table 2.1, page 2-8

Sediment retention weirs will need to be placed in breaches, not below them. Locating sediment retention weirs downstream would cause significantly more disturbance of the area and would not effectively trap sediment movement from upstream out of the reservoirs, or trap sediment in the reservoir.

21-3.1 II. The DEIS is Adequate

The DEIS is more than adequate to address the scope of the proposal and decision to be made as stated at page 1-5 of the document. Again, CCID has not requested authorization to access its facilities at Canyon and Wyant Dams. The CCID has proposed to the Forest Service to address dam safety issues at Canyon and Wyant Dams and has stated that access by helicopter will be necessary. The Forest Service decision to be made is an acknowledgment of this needed access and work proposal and to reasonably regulate those access methods and the work proposal to protect the National Forest. In this respect, the DEIS exceeds what is required for adequacy.

CCID Comments DEIS 10

21-	**Tonya D Bumbarger**
21.2.6.6	Comment Noted
21.2.6.7	Comment Noted
21.2.7	This is correct and a change has been made for FEIS, Table 2.1, item 18: "The breach would be engineered with a low flood-resistant rock weir near the upstream toe of the dam, to help retain reservoir sediments." Appropriate for Options A, B, C, or D. (FEIS p. 2.-9).
21.3.1	Comment Noted

21-3.1 40 C.F.R. 1502.9 (a):

> "Draft environmental impact statements shall be prepared in accordance with the scope decided upon in the scoping process. The lead agency shall work with the cooperating agencies and shall obtain comments as required in Part 1503 of this chapter. The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action."

The DEIS does address the view of the CCID as expressed in its proposal submitted to the Forest Service in Appendix A. The DEIS also addresses the concerns of the public related to the Wilderness setting of the CCID facilities to the extent that a public interest to be considered exists.

21-4.1 III. NEPA Compliance

NEPA is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. 40 C.F.R. sec. 1500.1(c). Environmental information must be of high quality. 40 C.F.R. Sec. 1500.1(b).

1. Discussions of environmental consequences shall include "[p]ossible conflicts between the proposed actions and the objectives of Federal, regional, State, and local. . . land use plans, policies and controls for the area used." 40 C.F.R. Sec. 1502.16(c).

The DEIS at Chapter 3 contains an adequate discussion of the relationship of the Alternatives presented to existing Forest Plans and other land, resource, and public safety management directives and policies that are relevant at a federal, regional, and state level. At Appendix C-1 the DEIS notes the Memorandum of Understanding between the State of Montana

21-4.1 and U.S. Forest Service which details a long standing arrangement between the two sovereigns regarding dam safety and public safety issues related to dams within or on federal lands.

2. The DEIS must include information relevant to reasonably foreseeable significant adverse impacts.

The DEIS does include information relevant to reasonably foreseeable significant adverse impacts. 40 C.F.R. Sec. 1502.22(a). Discussions of the No Action Alternative reflect this throughout the document. Also included are the discussions regarding Alternatives considered but then eliminated due to the unreasonable nature and costs of them to CCID.

3. Environmental information must be of high quality.

NEPA requires analysis of economic considerations. 42 U.S.C. Sec. 4332(2)(B). CCID comments that the costs associated with the Proposed Alternative reflect the data available at the time the DEIS was written. There are significant costs associated with the No Action Alternative but it would be speculative to analyze the costs of the potential eventual dam failure and resulting damages other than to state the costs would likely be very high. CCID comments that the costs associated with the Modified Access Alternative, particularly the cost of trail construction and reconstruction appear to be low and that the true costs of such an alternative would render it as unreasonable and too much of a burden on CCID financially. The District Engineer estimated the costs of trail construction and reconstruction at $300,000.00 plus. *See Rehabilitation Feasibility Study for Canyon Lake Dam,* DJ Engineering, May 2000. The economic analysis are part of the consideration of environmental consequences, and must be of high quality. 40 C.F.R. Sec. 1500.1(b).

4. The DEIS Adequately Addresses Alternatives

CCID Comments DEIS 12

21-	**Tonya D Bumbarger**
21.4.1	The cost of reconstructing the existing trail was based on the costs of recent projects with similar types of work – reconstructing or relocating short stretches of trail. The intent used in the estimate was that reconstruction would be the minimum necessary to accommodate stock transport rather than making the entire trail "easy" for stock use (that cost would have been much higher).

NEPA requires that a full range of alternatives be considered, including a true "no action" alternative. *California v. Bergland,* 513 F. Supp. 105 (E.D. Cal. 1979) *(rec'd in part, aff'd in part sub nom); California v. Block,* 690 F.2d 753(9th Cir.1982); 40 C.F.R. Sec. 1502.14.

The DEIS details the eventual consequences of the No Action Alternative as a continuation of the status quo: a dam in deteriorating condition, out of compliance with dam safety law and a public safety hazard, and an owner who will be faced with ever more costly emergency and ineffective band-aid repairs .

The DEIS also presents the environmental impacts of the alternatives in comparison form, another requirement of NEPA. 40 C.F.R. Sec. 1502.14.

21-5.1 *I.* CCID occupancy of Federal Land, National Forest Management, Wilderness proximity and Community Stability objectives

The DEIS recognizes that CCID or its predecessors in interest were in existence many years before the Forest was reserved and subsequent land management designations were made by Congress. The availability of water is and always has been a large contributor to the stabilization of the local economy. The Organic Administration Act of 1897 has long been interpreted as requiring that National Forest lands be managed to promote the local stability of the dependent communities. The debates surrounding the Organic Act centered on protecting the forests from fire and insect damage, ensuring that the forests served to conserve water resources for the arid West, and that the forests were managed for economic purposes. S.Rep. No. 105, 10,19.

S. Rep. No. 105 went on to conclude:

> A study of the forest reserves in relation to the general development of the welfare of the country, shows that the segregation of these great bodies of reserved lands cannot be withdrawn from all occupation and use and that they must be made to perform their part for the interpretation of the rulings of the

21-	**Tonya D Bumbarger**
21.5.1	Comment Noted

21-	**Tonya D Bumbarger**

21-5.1 Department of the Interior, no one has the right to enter a forest reserve, to cut a single tree from its forest, or to examine its rocks in search of valuable minerals. Forty million acres of land are then theoretically shut out from all human occupation or enjoyment. Such a condition of things should not continue, for unless the reserved lands of the public domain are made to contribute to the welfare and prosperity of the country, they should be thrown open to settlement and the whole system of reserved forests be abandoned.

Id. at 22.

The Organic Act remains the primary management directive from Congress to the Forest Service for management of the Bitterroot National Forest. The purposes for which wilderness areas exist are within and supplemental to the purposes for which national forests are established and administered. 16 U.S.C. Sec. 1133(1) provides: "Nothing in this chapter shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained Yield Act of June 12, 1960 (74 Stat.215[16 U.S.C. 528-531]".

RESPECTFULLY SUBMITTED this 26th Day of February, 2003, on behalf of Canyon Creek Irrigation District.

Tonya D. Bumbarger
Bumbarger Law Office, PLLC
298 2nd Street
P.O. Box 670
Corvallis, Montana 59828

Water Cooperative
c/o Wayne Olson
3221 Miller Hill Road
Stevensville, Montana 59870
February 28, 2003

MAR - 3 2003
Bitterroot National Forest

RECEIVED
MAR - 4 2003
Stevensville Ranger District

RECEIVED
MAR - 3 2003
Bitterroot National Forest

Canyon/Wyant Project
Bitterroot National Forest
1801 N. 1st Street
Hamilton, Montana 59840

RE: Draft Environmental Impact Statement for Canyon Lake Dam and Wyant Lake Dam Project

Dear Sir(s):

The Water Cooperative, through its President Wayne Olson, files these comments to the above referenced Draft Environmental Impact Statement ("DEIS"), 40 C.F.R. Sec. 1503.1,1503.3. The Water Cooperative is a Montana General Cooperative which exists to address issues common to most of the water storage facilities located within the boundaries of the Bitterroot National Forest. The Water Cooperative and its members have a substantial interest in the management of the national forests as it affects water storage facilities.

The Water Cooperative adopts the comments submitted by Canyon Creek Irrigation District as its comments, and hereby incorporates them by reference, and in addition makes the following additional comments:

1. It is imperative that owners of dams located within wilderness be permitted to conduct rehabilitation projects using the same modes and methods as dams located in any other setting.
2. These dam owners are not exempted from dam safety and engineering standards because of the location of the dams.
3. Helicopters should be allowed to transport equipment and crews to the work site. There is no other mode of access that is practical or reasonable for the CCID

Sincerely,
Water Cooperative

By Wayne Olson President
Wayne Olson, President

22-	**Water Cooperative – Wayne Olson**
22	Comment Noted. See responses to Comment #21.

WILDERNESS WATCH
KEEPING WILDERNESS WILD

P.O. Box 9175 • Missoula, MT 59807 • p: 406.542.2048 • f: 406.542.7714 • wild@wildernesswatch.org • www.wildernesswatch.org

Board of Directors
William A. Worf
President
Montana

Dr. Melissa Walker
Vice President
Georgia

Joe Fontaine
Secretary
California

James
Trea
Montana

Stewart Brandborg
Montana

Dr. Joyce Kelly
Maryland

William C
Mor

Michael Frome, Ph. D.
Washington

Howie Wolke
Montana

Executive Director
George Nickas

Advisory Board
Magale
Dr. Derek
Dr. M. Rupert
Dr. Luna B. Leopold
Clifton Merritt
Dr. Roderick Nash
Dr. Mark Woods

Counselor
Stewart Udall

Trustee Emeritus
Orville Freeman

100% post-consumer
min. chlorine bleached

March 3, 2003

MAR - 4 2003

RE: Canyon Wyant Project
Bitterroot National Forest
1801 N. First
Hamilton, MT 59840-3114

Wilderness Watch is providing these comments on the **Canyon Lake Dam and Wyant Lake Dam Project Draft Environmental Impact Statement.**

23-1 We are pleased that the Canyon Creek Irrigation District has decided to breach the man-made dam on Wyant Lake. We are also pleased that the analysis considered breaching as an alternative for the man-made dam on Canyon Lake. Failure to consider such an alternative has been a serious shortcoming in the analysis on similar dam reconstruction projects in the Selway-Bitterroot Wilderness. Had this approach been used on the Tin Cup Dam, for example, the Forest Service might have saved the American taxpayers (and maybe…eventually) the Tin Cup water users nearly $1 million. We believe the Canyon-Wyant DEIS at least gives the water users and the public a better perspective of the available options.

23-2 We are disappointed, however, that the proposed action and the alternative clearly favored by the Forest Service is again the maximum motorized alternative. This has been the *modus operandi* in the Selway-Bitterroot Wilderness since the reconstruction of the Bass Lake dam. Every major project and most minor ones (usually referred to as "emergencies") have relied almost entirely on motorized equipment and transport. Only the Holloway Lake dam project was done the "wilderness way," and then only after an administrative appeal and fieldtrip showed how skewed and incorrect the Forest Service's analysis was. For the last several years the *wilderness character* of the Selway-Bitterroot Wilderness has been seriously compromised on a routine basis because of near-complete lack of leadership on the part of the Forest Service where these dams are concerned.

23-3 The analysis, and more importantly the allowance for motorized access, lacks an essential historical context. The Canyon Creek Irrigation District (and its predecessors) chose to build a dam several miles up a remote canyon, far away from motorized access. In doing so they made a decision that enjoying the benefits of the dam also meant a commitment to travelling to and maintaining the dam by primitive means. In 1964, Congress designated the Selway-Bitterroot Wilderness with the intention that the Wilderness would be managed and used without the use of motorized equipment. The Forest Service was charged with ensuring that the *wilderness character* of the Selway-Bitterroot Wilderness would be preserved. The law provided for continued access to the dams "by means which have been or are being customarily enjoyed with respect to other such areas

23-	**Wilderness Watch – George Nickas**
23-1	For clarification, the EIS did not consider breaching as an alternative, only as a possible connected and cumulative action related to alternatives. As noted on FEIS p. 1-5, the decision whether to breach or repair the dams is solely within the discretion of CCID.
23-2	Comment Noted.
23-3	Refer to history in FEIS Appendix B, History of Canyon and Wyant Lake Dams and FEIS Appendix C, Authority to Regulate Dams on National Forest System Lands

similarly situated." The Secretary of Agriculture assured Congress that these dams have traditionally been accessed by non-motorized means and that they would continue to be accessed in that fashion.[1] Unfortunately, neither the water company nor the Forest Service have lived up to their respective responsibilities to maintain the dams and keep them in safe operating condition, nor to ensure that the operation of the dams doesn't impair wilderness character beyond that which occurred prior to 1964. To the extent there is an "emergency" at Canyon Lake dam, it is an emergency of the dam owner's and Forest Service's making. To the extent motorized access and equipment are now necessary is simply the result of a failure on the part of Forest Service management at both the Regional and Forest level to meet their Wilderness stewardship obligations. The water users and the Forest Service have certainly learned that delay has its rewards. But every single time, the Selway-Bitterroot Wilderness has paid the price.

23-4 In many respects we found the DEIS well written and concise. It was surprisingly easy to keep straight the various alternatives and the options within the alternatives. Appendix A was very helpful for understanding the conditions of the dams. It would have been very helpful if the "minimum requirement / minimum tool" evaluations had been included as an appendix. As near as I can tell it is the primary analysis document used for addressing one of the two key issues—Wilderness—so that part of the analysis should have been included.

23-5 There are also a couple of other serious shortcomings in the DEIS. The DEIS doesn't provide the information that reviewers need to determine whether the alternatives considered nor the proposed action are the best solutions. There's reference to the need for "heavy equipment," but nothing that describes what is meant by that term. Is it a generator, a bobcat backhoe or a 60,000 lb. tracked excavator? Nor is there anywhere in the DEIS that describes the amount of material that must be hauled to the site and the weight of those materials, making it impossible for reviewers to determine whether motorized access is justified.

23-6 The DEIS lacks an analysis of a non-motorized alternative, a rather surprising decision given that Wilderness is one of two major issues in the document! The only non-motorized alternative considered were rejected without due consideration essentially because they would take too long (more than 90 days) to complete the project. This finding appears to be based on a number of potentially flawed conclusions and assumptions, though it is difficult to tell because information supporting these assumptions and conclusions is missing from the DEIS. It isn't even clear whether the "necessary" timeframe (90 days) is based on completely reconstructing the dam on Canyon Lake or temporarily or permanently breaching it. There is also a potentially significant difference in the amount of work required to breach the dam on Canyon Lake from that which is

[1] The Secretary of Agriculture stated to Congress:

> **"Water developments.**-Water developments for the storage and diversion of water for irrigation, domestic, and other uses have been allowed in these wilderness-type areas. The works generally have been constructed and maintained by means which did not involve motorized transportation. There are 144 such projects. We would construe the provisions of S.4 as permitting the continued maintenance of these existing projects by means which would not involve motorized transportation as in the past."

S.Rep. No. 109 p.29, 88th Cong. 1st session (1963).

23-	**Wilderness Watch George Nickas**
23-4	A summary of the Minimum Requirements process has been included in the final EIS. The full Minimum Requirements documentation is in the Project File. As part of a request for Project File documents, George Nickas was mailed the Minimum Requirements File documents. On April 15, 2003.
23-5	Refer to Appendix A, A-13 to A-24) for additional information.
23-6	To be considered, an alternative must assure that dam safety needs are met. Today's dam safety standards and construction quality control practices requires mechanized equipment for embankment compaction, welding piping materials, grouting around leaking outlet pipes, dewatering the work area, processing filter rock, and moving large rock or riprap. Primitive, non-mechanized reconstruction techniques result in inferior dam structures as compared to those repaired with modern mechanized earth-moving, materials processing and compaction machinery. The use of mechanized equipment and modern technology is an important part of a major reconstruction project (Phase 2) under the weather and time restraints imposed by the location of these dams. We evaluated doing proposed work using a variety of methods (see Appendix F), including the CCID's fully mechanized/motorized method, a method using motorized equipment small enough to be broken down and transported with stock and a completely non-motorized/mechanized method. Proposed work included repairing Canyon and breaching Wyant dams. Total project costs were considerably increased (by about 500% in the fully non-motorized/mechanized alternative), primarily due to proposed repair work on Canyon. Also please refer to Alternatives considered but not given detailed study (FEIS 2-12, 2-13). Cost and feasibility for hand work is being considered by CCID in the partial breach of Canyon Lake dam, Option D, Phase I. See p. 2-13 for additional information regarding multiyear implementation schedule for rehabilitation of Canyon Lake Dam.

23-6 continued	Please note that Phase 1, Option D, now includes a minimal tool and intensive manual labor effort using the Montana Conservation Corps to complete a partial breach of Canyon Dam. This work is limited in scope, and therefore, appears to be feasible to accomplish the limited amount of work (as compared to Phase 2) within the limited season. However, a backup plan will be initiated if progress falls behind, or if difficulty accomplishing the work is encountered. A range of possibilities, for the amount of work involved, are presented in the FEIS. The original estimate of 700 cubic yards was based on the more conservative, or flatter slope, for a full breach. However, the partial breach has reduced the amount of material to a range between 200 and 400 cubic yards (preliminary estimate from CCID engineers).

presented in the DEIS. For instance, there's reference to a 15 to 20 feet wide breach (at the base) and slopes laid back at approximately 2:1 or 1.5:1, with the total amount of material to be removed estimated at 700 cubic yards. There's a big difference in the amount of material to be moved if the breach is 15 feet wide and sloped at 1.5:1 versus a breach 20 feet wide and sloped at 2:1. The 700 cubic yard estimate could be substantially higher or lower depending upon which assumptions were used. This would obviously have a significant impact on the amount of time, work and money needed to accomplish the project.[2]

23-7 The DEIS lacks any supporting evidence to show why the rejected non-motorized alternative would take 6-7 years, or why the non-motorized transport alternative would take 3-4 years to complete. Nor is there any evidence to support the conclusion in the DEIS that "financial costs…would likely be unreasonable." Nor is there any consideration as to why, with more than 200 shareholders, the CCID couldn't complete the project entirely with volunteer labor. It begs the question as to why the public should allow the Selway-Bitterroot Wilderness to be breached with helicopters and heavy equipment, and its stillness shattered, if the water users themselves aren't willing to expend a little energy to maintain or rebuild their dam.

23-8 There is ample precedent for completing even larger projects in Wilderness without mechanized transport or equipment. Obviously both Canyon Creek and Wyant dams were both built without motorized equipment, as was every other dam in the Selway-Bitterroot Wilderness. Second, more than a dozen dams in this Wilderness have been breached over the years without the use of motorized equipment. Third, there have been numerous, larger projects in Wilderness completed in recent years by primitive, non-motorized means. For example, the Weminuche Ditch project in 1996 required excavating more than 2,600 cubic yards of rock and earth using mule drawn slips; hauling 40,500 lbs of Quickcrete and hand mixing all of the concrete. The project was 7 miles from the nearest trailhead and at an elevation of 10,600 feet. The amount of material excavated was nearly 4 times greater than the estimate for Canyon Creek Dam and it was completed in only 8 months. It is also worth noting that it was completed for less cost than the estimated cost to complete the project using mechanized access and tools.

A recent story in the Albuquerque Journal described how two men are building a 40-ft. dam in the San Pedro Parks Wilderness without motorized equipment. With three packhorses they have hauled 20,000 lbs of sand, 90,000 lbs of rock and 100 bags of cement to the site. One of the workers is quoted as saying, "I've worked with [heavy] equipment, and to be honest with you, I'd rather do this. It's good work."[3]

In 1998, a private contractor excavated and moved 1500 cubic yards of material to repair the Cabin Creek airstrip in the Frank Church-River of No Return Wilderness. The work also included redirecting a nearby creek, rehabilitating the creek bed, and reconstructing and recontouring of the entire length (1750') of the airstrip. The entire project was completed in only 22 weeks using draft horses, a modified fresno, and a wheelbarrow. The entire workforce consisted of the contractor, his wife and three children.

[2] The DEIS indicates that the entire 430-ft. long dam contains 3,500 cubic yards of material. Thus, the estimate of 700 cubic yards to complete a 15-20 foot breach seems high.

[3] http://mg9889126@www.abqjournal.com/news/772263news09-22-02.htm

3

23-	**Wilderness Watch George Nickas**
23-7	Please see Appendix F for a summary of the Minimum Requirements process. See p. 2-13 for additional information regarding multiyear implementation schedule for rehabilitation of Canyon Lake Dam.
23-8	CCID has investigated using Montana Conservation Corps. Work to be done is tied to engineering standards. We agree that the dams were constructed without the use of motorized equipment. However, more stringent dam safety laws have come into effect since the dams were constructed and the 1964 Wilderness Act was passed. These laws include the Federal Dam Inspection Act of 1972 (P.L. 92-367), Presidential Memorandum of October 1979 and federal Guidelines for Dam Safety, Water Resources Development Act of 1992, the National Dam Safety Program Act of 1996 (P.L. 104-303), and the recent National Dam Safety and Security Act of 2003 (P.L. 107-310). It is difficult to compare these examples with the reconstruction of a high hazard dam. A high hazard dam presents liability issues to the dam owner in the event of dam failure. A high hazard dam would likely result in loss of life, personal and private property damage, and serious environmental damage. Because of these responsibilities of the dam owner, prudent engineering and construction practices are required to meet today's dam safety standards and construction quality control measures.

23-8 These examples leave us wondering why the dams on Canyon Creek and Wyant can't be breached and / or repaired without "heavy equipment" and a helicopter assault? The answer can't be found in the DEIS.

23-9 These questions and concerns have become even more relevant given that the water company has now decided that it would breach the dam and that the water users would be without water from the dam for at least two years.[4] This is a significantly changed condition from the overriding rationale the Forest Service used in the DEIS: a single project that must be completed in 90 days. Instead there is the possibility of approaching it as several smaller projects that can be completed independently over the course of three or more years: 1) breaching Canyon Creek dam; 2) breaching Wyant dam; 3) reconstructing Canyon dam. The Forest Service needs to take another hard look at whether the non-mechanized alternatives really are infeasible, or whether it was convenient to reject these options out-of-hand by relying on an artificial and now-defunct 90-day completion schedule.

23-10 Similar to the Holloway Dam EA in 2001, the Canyon and Wyant DEIS goes to lengths to explain why using packstock in the Wilderness will result in dire consequences to the existing trails, require new trails, and ultimately lead to long-term increased use and impacts to the area. Our experience at Holloway leaves us uncertain about the veracity of the claims, as does the fact that the EIS notes that the area has already been allowed to degrade over the years, apparently without corrective actions being taken to bring the impacted area into compliance with forest plan standards. We appreciate the new-found dedication to prohibit new impacts in the area, but why must it come at such a heavy price to the character of this Wilderness?

Even if one accepts that a new trail would have to be built, it doesn't necessarily follow that further impacts are inevitable. The trail could be a temporary trail, closed and rehabilitated when the project was complete. The use of stock in the drainage could be prohibited for a period of time until rehabilitation was complete. Camping closures could be instituted for a season or two until the sites were rehabilitated. No doubt there are myriad other mitigation measures that could be taken to protect the area. The assumption in the DEIS that terrible damage is the only outcome from a non-motorized alternative only biases the analysis toward a motorized approach. Lastly, there's nothing in the DEIS that explains why materials and equipment can't be hand carried over the short stretch where pack stock use is of concern. This would eliminate the "need" to build a new trail to Canyon Lake.

23-11 It appears that the man-made part of the Wyant dam will be partially breached and the headgate will remain permanently in the open position. This indicates that in some important respects the dam will continue to operate as it has in the past, filling when spring runoff exceeds the outlet capacity of the open pipe, then draining dry in the summer and fall. It seems this would continue to interfere with the area's natural hydrology and maintain a near-permanent mudflat behind the dam. Rather than rely on the "hazard assessment" to determine the level to which the dam will be breached, the Forest Service should require that the dam be breached to its natural level and the outlet works blocked shut.

[4] "District to temporarily breach Canyon Creek Dam. Ravalli Republic. February 16, 2003.

4

23-	**Wilderness Watch George Nickas**
23-9	Based on the new CCID proposal (Option D, partially breaching in Phase 1 and thereby reducing dam safety concerns, then repairing in Phase 2), CCID is proceeding forward with an initial plan utilizing manual labor and minimal mechanized tools for the Phase 1 partial breach. If progress falls behind schedule and affects the ability to accomplish the work in the required timeframe, then a backup plan utilizing excavation equipment will be utilized. This backup plan has been analyzed in this analysis. Phase 2 involves a more extensive scope of work, which presents a greater challenge to accomplish the work with minimal tools within the limited season and leave the dam in a safe condition during the following spring runoff and snowmelt season (FEIS Appendix A).
23-10	Working backwards to address comments in these two paragraphs: The existing trail to Canyon Lake would be reconstructed and the "new" trail would be between Canyon and Wyant Lakes. The stretch of existing trail that is particularly hazardous to stock is ½ to ¾ miles from Canyon Lake and the closest level area for unloading/repacking/loading is about 1 mile. Any equipment or materials needed at Wyant Lake would have to go almost a mile further and would still require a new trail between the lakes. The cost of unpacking the approximately 1,000 stock loads and reloading into approximately 3,000 backpack loads, the difference between mule and human transport costs, and the equivalent stock costs to get supplies up to the hazardous location would far exceed trail reconstruction costs. Options that include stock and campsite restrictions were considered. Managers recognize that the general public is resistant to restrictions on use and Selway-Bitterroot Wilderness General Management Direction gives preference to less restrictive measures when possible. Managers also recognize that once use is established – on trails or in campsites – it is difficult to enforce restrictions.

23-10 Continued	In addition, the CCID would be paying for trail reconstruction/construction to access the site and would reasonably expect their investment to provide long-term access. Evaluation of helicopter vs. traditional transport included consideration of both the expected "philosophical" and physical impacts to wilderness character. The "philosophical" impacts are limited and within allowances based on Forest Service direction and the Minimum Requirements process. The physical impacts to wilderness would likely be irreparable. Chapter 3 p-3-10 to 3-18.
23-11	It is CCID's proposal to breach Wyant Lake Dam. Forest Service may impose terms and conditions on this proposal. A balance between heritage, wilderness, dam safety, economics and water resources is included in the final proposal.

23-12 Under the Purpose and Need section, the DEIS states that, "the Forest Service is required by… the Alaska National Interest Lands Conservation Act to authorize access to valid occupanices such as these easements held by the CCID." ANILCA, Sec. 1323. This is not correct. ANILCA speaks only to non-federally owned land, it does not apply to "occupancies" such as these dams which lie entirely on federally owned land.[5] The Purpose and Need section fails to note that the Wilderness Act limits access to "occupancies" to that which is customarily enjoyed to areas similarly situated. In this case, that would be by non-mechanized means.

23-13 The economic analysis states that the cost borne by the Forest Service to monitor the project will be between $6,000 to $10,000. Why does the public have to bear this cost? Why is this cost not paid by the dam owners?

23-14 We urge the Forest Service to reconsider its preference for allowing the use of motorized transport and equipment for this project, and to supplement the DEIS with a meaningful analysis of non-motorized and non-mechanized options for completing the work.

Sincerely,

George Nickas
Executive Director

[5] ANILCA, Section 1323(a): "Notwithstanding any other provision of law, and subject to such terms and conditions as the Secretary of Agriculture may prescribe, the Secretary shall provide access to nonfederally owned land within the boundaries of the National Forest System as the Secretary deems adequate to secure to the owner the reasonable use and enjoyment thereof; *Provided*, That such owner comply with rules and regulations applicable to ingress and egress to or from the National Forest System."

5

23-	**Wilderness Watch George Nickas**
23-12	We believe your interpretation of ANILCA underestimates the degree and nature of the rights inherent in CCID's easement. An easement is a form of, or interest in, real property.
23-13	The Forest Service is responsible for oversight of Federal Dam Safety laws on National Forest Lands. These costs include inspections to check progress on the work and gather information regarding the interior embankment condition, particularly the rock crib or core, which is expected to affect future engineering designs.
23-14	See Option D.

Montana Fish, Wildlife & Parks

Region 2 Headquarters, 3201 Spurgin Road, Missoula, MT 59804-3099
Phone 406-542-5500 • Fax 406-542-5529

MAR 0 6 20

March 4, 2003

David Bull, Forest Supervisor
Bitterroot National Forest
1801 N. First
Hamilton, MT 59840

Dear Mr. Bull:

Reference: Canyon Lake & Wyant Lake Dams Project—Draft EIS

24-1 We have reviewed the draft EIS for this proposal to allow the Canyon Creek Irrigation District to access their dams in the Selway Bitterroot Wilderness, and we have no comments. Thank you for providing the opportunity for FWP to comment on this project.

Sincerely,

Mack Long
Regional Supervisor

ML/sr

RECEIVED

24-	**MT FW&P – Mack Long**
	No Comment noted.

The Ecology Center, Inc.
801 Sherwood Street, Suite B
Missoula, MT 59802
(406) 728-5733
(406) 728-9432 fax
ecocenter@wildrockies.org

RECEIVED
MAR 0 6 2003

March 3, 2003

David Bull, Supervisor
Bitterroot NF-FS-USDA
1801 N. First
Hamilton, MT 59840

Supervisor Bull:

The following are comments on the Canyon Lake and Wyatt Lake Dam DEIS.

25-1 The DEIS states that the dams are in deteriorated conditions. How did the dams get into such deteriorated conditions? Have the permittees taken the appropriate safety requirements or conducted the appropriate maintenance activities to maintain the dams in safe condition? Have permits been continuously in effect and have the permittees taken the appropriate steps to remain in compliance and protect human and environmental health?

25-2 What is the connected nature of dams and diversions, ditches, and other developments. Connected activities should be recognized. Many of the aquatic ecosystems in the Bitterroot Valley have been altered over many generations by dams, diversions, irrigation ditches, and other development, including some development on public land. What are the impacts of that development?

25-3 We would have liked to have seen the FS evaluate whether dams are appropriate on public lands, wilderness areas, and roadless areas at all. An alternative should have been considered that evaluated taking down this dam or buying out the rights to this dam, if a willing seller could be found.

25-4 How have bull trout and other TES and MIS aquatic species been impacted by the dams? Please evaluate the cumulative effects of dams, irrigation, and other cumulative activities on bull trout and other aquatic species. If any of the reaches are proposed for designation as bull trout habitat, how will dam operation affect bull trout habitat? The DEIS assumes that a washout is not a matter of question, but is an inevitability if the dams are not repaired (DEIS S-17). If the dams are this risky, they are indeed of high concern. What other dams in the Bitterroot valley are at high risk of washout and what is the risk to native fish populations? Is there a plan to address safety issues across the Bitterroot valley?

25-5 The DEIS assumes changes in fish populations will be "short term and negligible" for both action alternatives (DEIS S-17). Does this analysis consider all past, present, and reasonably foreseeable impacts? What changes did establishment and operation of the dams lead to and how do these affect fish populations, particularly TES species?

25-6 Forest fires occurred in the vicinity of the project area(s). How have these fires affected the two stream systems on which the dams are located?

25-7 Who benefits from the dams? What are the net public benefits of the dams?

Sincerely yours,
Sherman R. Bamford
Sherman Bamford
The Ecology Center

RECEIVED

25-	**Ecology Center – Sherman Bamford**
25-1	Canyon and Wyant Dams are each over 100 years old, which far exceeds the expected service life of these structures. Routine maintenance, minor repairs, and emergency repairs have been completed in the past (reference Appendix B for the major historical events on Canyon and Wyant Dam). A recent geotechnical investigation of Canyon Dam (fall of 2001) provided additional information regarding the deteriorated condition of the dam embankment, in addition to the dam safety deficiencies discovered by DJ Engineering during emergency repairs (after the 1996 overtopping event) and subsequent engineering inspections. Previous emergency repair work has not been sufficient to address the major rehabilitation work required to meet today's more stringent dam safety laws and regulations, which have come into effect after the Wilderness Act was passed in 1964 (reference Appendix C for a list of dam safety laws).
25-2	On private lands below the forest, development and irrigation diversion have created various impacts. While some flow from Canyon Creek is diverted for agricultural use, it generally maintains its hydrologic connection with the Bitterroot River throughout the year. Proposed alternatives and options that include breaching would provide for more natural flow regimes for the life of the breach. Those options that include dam reconstruction would maintain the status quo for flow regimes. (p.3-36, 3-37 FEIS). Canyon Creek has not been identified as a water quality-limited stream on the MTDEQ 303(d) list, which suggests that the present level of cumulative impacts is not limiting beneficial uses. It also suggests that Canyon Creek is not a major sediment contributor to the Bitterroot River. Only one developed road-crossing (the paved West Side Road) shows up on local and Forest maps, limiting sediment from road sources. Some sediment is likely from private home building, but the number of sites under construction that have hydrological connected disturbed areas at this time is unknown. The streamside areas along Canyon Creek below the Forest boundary are mostly in developed mixed rural and residential status and tend to be well vegetated, reducing potential sediment inputs. (p. 3-36, 3-37, FEIS).

25-3	The appropriateness of these two dam and the associated rights of their owners, have long since been established by Congress through several laws including the Wilderness Act itself (FEIS p 1-1 to 1-4).
25-4	The U. S. Fish and Wildlife Service concurred with the determination of may affect, not likely to adversely affect bull trout and of no effect on proposed critical habitat. P. 3-39
25-5	With very little existing human impact in the upper watershed, and little possibility of substantial effects from this project, only short-term and negligible changes in aquatic habitat or fish populations in Canyon Creek watershed are expected. P 3-46
25-6	Please see discussion on p 3-23 in the FEIS. Fire acreage in Canyon Creek watershed was very limited.
25-7	A valley-wide discussion of water development is beyond the scope of the decision and the EIS. Water rights are controlled by the State of Montana and the Forest Service has little discretion in how they are applied.

APPENDIX A

CONDITION OF CANYON AND WYANT LAKE DAMS AND CANYON CREEK IRRIGATION DISTRICT'S PROPOSED WORK TO ADDRESS DAM SAFETY REQUIREMENTS

Introduction

Canyon Lake dam and Wyant Lake dam are located in Section 27, T6N R27W, P. M. Mt., which is approximately 8 miles west of Hamilton. Both dams lie just inside the Selway-Bitterroot Wilderness boundary at the head of Canyon Creek. Wyant Lake Dam is located less than one mile upstream of Canyon Lake Dam. Canyon Lake Dam is currently 21.5 feet high and 430 feet long, and currently stores between 420 and 450 acre-ft of water. The dam was originally constructed in 1891. Wyant Lake Dam is approximately 18 feet high and currently stores about 54 acre-feet of water. Canyon and Wyant lake Dams are owned and operated by the Canyon Creek Irrigation District. The use of National Forest lands for both dams was authorized through an easement established by the Acts of 1866 and 1891.

Purpose for Canyon Creek Irrigation District Proposal

The main objective of the work proposed by Canyon Creek Irrigation District is to bring two high hazard dams into compliance with current federal dam safety laws and regulations. Among these requirements are the Federal Dam Inspection Act of 1972 (P.L. 92-367), Federal Guidelines for Dam Safety of 1979, and the National Dam Safety Program Act of 1996 (P.L. 104-303). The final plans and specifications for the project shall be reviewed by the Regional Engineer in accordance with Forest Service Manual (FSM) 7500 – Water Storage and Transmission and Forest Service Handbook (FSH) 7509.11 – Dams Management Handbook. Applicable laws and regulations governing the operation, maintenance and reconstruction of dams on National Forest lands are listed in Appendix C.

Both Canyon Lake Dam and Wyant Lake Dam are classified as high hazard dams. This classification is based on the potential consequences if the structure(s) failed. Failure of either structure would "likely result in loss of human life or excessive economic loss", FSM 7511.2. After an overtopping event of Canyon Dam in the spring of 1996, Laurence Siroky, State of Montana Water Operations Bureau Chief, completed a breach analysis Aug. 29, 1996 (PF 3.6), which confirmed the high hazard rating of Canyon Dam and the potential for loss of life. The inundation area includes a section of the West Side Road and a residence located next to this road where it crosses Canyon Creek. Because of the progressive deterioration of both dams, there is a sense of urgency to complete the work in an efficient manner as soon as possible to ensure protection of wilderness resources and public safety.

Regulatory Responsibility

The primary responsibility for the agency, in this case the Forest Service, in a dam safety regulatory role, charged with protecting public safety through a successful dam safety program, is to ensure that appropriate and necessary action is taken to modify the dam embankment. This will be accomplished by: 1) reducing the hazard potential from a high to a moderate or low risk hazard potential in year 2003, then 2) correcting the dam safety deficiencies and rehabilitating Canyon Dam in year 2004. A two-phase project is a realistic and viable approach to addressing both the immediate hazards, and correcting the long term needs which include spillway capacity and embankment stability at restored reservoir capacity within historical rights of the Canyon Creek Irrigation District.

Inspection Reports for Canyon and Wyant Lake Dams

The latest inspection reports include documentation of the current condition of Canyon and Wyant Dams, and recommendations to address dam safety requirements. Engineering representatives for both the Canyon Creek Irrigation District and the U.S. Forest Service prepared inspection reports. David Jones, DJ Engineering, P.E., prepared inspection reports for both Canyon and Wyant Lake Dams – "Dam Safety Inspection Report, Canyon Lake Dam," Jan. 27, 2000 (PF 3.2) and "Dam Safety Inspection Report, Wyant Lake Dam," Jan. 27, 2000 (PF 3.5). The U.S. Bureau of Reclamation conducted onsite inspections for Canyon and Wyant Dams in September 1998 and completed their final reports dated June 1999 (PF A.1).

Observations during emergency crest repairs in 1996 and the DJ Engineering inspection report disclosed several significant deficiencies of Canyon Dam. These deficiencies included an inadequate spillway capacity, an uneven dam crest, and a partially collapsed outlet works (reference section describing deficiencies below). After the discovery of these deficiencies, CCID submitted an application and feasibility study for a Renewable Resource Grant Loan through the State of Montana, Department of Natural Resources and Conservation. This feasibility study, entitled Rehabilitation Feasibility Study for Canyon Lake Dam", DJ Engineering, May 2000 (PF 3.4), was based on Mr. Jones' earlier inspections. CCID was awarded a $200,000 grant and $300,000 low interest loan for the purpose of preserving water resources by rehabilitating the dams.

Two other reports describing past emergency repairs to Canyon Lake Dam are also included in the project files. These include "Construction Report on Repairs to Canyon Lake Dam, October 2001," David Jones, Jan. 2002 (PF A.2) and "Construction Report on Repairs to Canyon Lake Dam, September-October 1996," David Jones and Lee Hofferber, Oct. 1996 (PF A. 3).

Results of Recent Geotechnical Investigation of Canyon Lake Dam

In a recent geotechnical investigation of Canyon Dam, data was gathered to evaluate potential seepage and instability problems within the existing embankment ("Canyon Lake Dam Improvements Project Geotechnical Investigation," Hydrometrics, Inc., October 2002 (PF 3.3). Hydrometrics evaluated additional dam failure mechanisms based on new information obtained by exploratory drilling (Sept. 2002) within the dam embankment. The drilling investigation provided the materials properties necessary to evaluate: 1) potential piping failure caused by excessive seepage through the dam embankment, and 2) slope failure caused by saturation of the embankment toe, typically occurring during high reservoir levels or earthquake forces. These evaluations resulted in additional deficiencies associated with the long-term stability of Canyon Dam during extreme events, such as a severe flood or earthquake. The deficiencies evaluated by Hydrometrics, Inc. are described in detail below (Deficiencies of Canyon Dam Recently Discovered in Geotechnical Investigation, Hydrometrics, Inc.).

CANYON LAKE DAM

Emergency Repairs to Canyon Dam in October 2001

In July of 2001, the dam tender observed unusual seepage flows exiting the existing outlet works conduit. Later in August 2001, a sinkhole was discovered on the upstream side of the dam, located directly above and downstream of the intake gate. Initially, the sinkhole was 2 feet deep and 9 feet in diameter. The District's engineer determined that the flow was bypassing the intake gate and eroding embankment fill into the conduit. In October 2001, emergency repairs were made to prevent further deterioration of the upstream embankment. These repairs exposed the suspected piping occurring within the embankment. The temporary grouting repairs provided some protection against the internal erosion, but additional work will be necessary to ensure the integrity of the structure. A report covering the details of this work was completed by David Jones and is included in project files (Construction Report on Repairs to Canyon Lake Dam, October 2001, David Jones, P.E., Jan. 2002, PF A.2).

After these repairs were completed, the irrigation district's engineer recommended the installation of an Early Warning System to provide warning time in case of a dam failure emergency. This warning system became a mandatory requirement by the Forest Service because of the potential failure mode and lack of certainty associated with the emergency repairs completed October 2001. Warning systems are routinely used to provide adequate warning time to the downstream population at risk from dam failure. The sensor station was placed outside the Wilderness boundary, and this location provided the minimum warning time of 30 minutes to the first affected residence, located along the West Side Road. The warning systems are required until the final repairs or breach are completed.

Dam Safety Deficiencies of Canyon Dam Addressed in DJ Engineering Feasibility Study

The purpose for the project at Canyon Lake Dam is to rehabilitate its deteriorated condition and to bring the dam into compliance with current laws regulating dams on National Forest lands. David Jones addressed three primary dam safety deficiencies in his feasibility study, "Rehabilitation Feasibility Study for Canyon Lake Dam," DJ Engineering, May 2000. These deficiencies include the following:

1. The first deficiency of Canyon Lake Dam is the inadequacy of the spillway to pass the required inflow design flood. The existing spillway on Canyon Lake Dam is undersized based on present Federal Dam Safety and Forest Service Manual spillway sizing criteria. There is not adequate freeboard to protect the dam embankment from wave action and an overtopping event such as a large flood. In addition, the existing spillway does not have adequate capacity to bypass a Wyant Dam failure if Canyon Lake Dam was at full pool. If Canyon Lake Dam is left in its current condition, there is an increased risk of overtopping and failure of the structure during high runoff conditions and/or a Wyant Dam failure. Canyon Dam has previously overtopped, and these events have washed out sections of the dam crest (reference dam history in Appendix B). During overtopping events, erosion typically begins on the downstream side of the embankment. This occurs where flows are concentrated in low sections of an uneven dam crest. As the erosion progresses upstream through the embankment, the velocity of the flow increases and eventually causes an uncontrolled breach of the embankment.

Because Canyon dam is a high hazard dam, the spillway shall be sized to pass the Probable Maximum Flood or PMF (FSM 7524.31 Spillway Sizing Standards). The Probable Maximum Flood is defined as: "the most severe flood, measured in cubic feet per second, that is considered reasonably possible at a site as a result of meteorological and hydrologic conditions" (FSM 7523.05 Definitions). During periods of high runoff, the water level in the reservoir typically increases and the overflow is discharged through the spillway. Because the existing spillway is not adequately sized, severe flood or snowmelt conditions could cause an overtopping event and potentially breach, or fail, the structure. The inadequacy of the spillway has been confirmed as a result of past overtopping events, including the most recent event in 1996 when the dam was overtopped during high runoff conditions, which washed out a 40-foot wide section of the dam crest (Construction Report on Repairs to Canyon Lake Dam, September-October 1996, David Jones, P.E. and Lee Hofferber, Oct. 1996, PF A.3). Records in the files and inspection reports indicate that there has been inadequate freeboard and evidence of overtopping dating back to 1956. In order to pass the PMF through the spillway and provide adequate freeboard for wave action against the dam crest, the dam embankment needs to be raised to a uniform level (approximately 2 feet), which would be within the historical height of the embankment.

2. The second deficiency is an uneven dam crest, which varies up to 2 feet in elevation along its longitudinal profile. Raising the low sections in the dam crest and leveling the entire length of the crest to a uniform level will provide increased spillway capacity and freeboard. A consistent, uniform crest elevation also minimizes the risk of concentrating flows in an overtopping event. The concentration of flows in an overtopping event accelerates erosion through the dam crest and increases the risk of dam failure. Exact dimensions of the proposed design, including spillway dimensions and dam crest elevation would be included in the final engineering design, which has not been completed at this time. All modifications to the dam embankment shall be accomplished in such a manner so that the reconstructed embankment shall not exceed the maximum historical height of the structure authorized under original easement documents.

3. The third deficiency is the failing outlet works conduit. The existing conduit is a 20-inch high by 14-inch wide by 55-feet long rectangular rock masonry conduit. The conduit roof is grouted slab rock, and approximately 15 to 18 feet downstream of the slide gate, a rock has fallen from the roof and partially blocked the outlet works. This hazard was discovered in 1996 by probing and interior photographs (Dam Safety Inspection Report Canyon Lake Dam, David Jones, Jan. 27, 2000, PF 3.2). Another large obstruction in the outlet works conduit was found by probing in 1998. This obstruction is located approximately 27 feet downstream of the gate, which is under the dam crest. These restrictions in the outlet works not only increase the potential risk of dam failure caused by overtopping, but also increase the risk of dam failure by internal piping or erosion. The collapsing roof structure removes the support for the overlying embankment material. The movement of this material into the conduit could induce internal piping, or erosion, and eventually lead to an uncontrolled breach. This condition has continued to progress, and, if nothing is done to correct this situation, the likely consequences will be to eventually result in loss of integrity and failure of the structure, uncontrolled failure of the embankment and potential loss of life. This type of failure is insidious because it could occur when it is least expected - under clear and sunny skies, or “clear weather breach” conditions. Therefore, the rehabilitation of this deficiency on Canyon Lake Dam is the highest priority. (Note: Emergency repairs were made in the fall of 2001 to prevent continued deterioration of the upstream embankment resulting from the collapsing outlet works conduit - refer to page A-3 for additional information).

In order to correct the deficiencies listed above, an alternative was proposed by engineering representatives for the Canyon Creek Irrigation District. This proposal, developed for the purpose of addressing immediate dam safety needs, is described below as “Option A” (refer to section below entitled “Proposal from Canyon Creek Irrigation District”). Option A includes increasing the spillway capacity to meet current standards, leveling the dam crest and boring a new outlet works.

Dam Safety Deficiencies of Canyon Dam Discovered in Recent Geotechnical Investigation, Hydrometrics, Inc.

In September 2002, Hydrometrics Inc. conducted a drilling investigation of the Canyon Dam embankment materials. Five exploratory holes were drilled using a 6-inch hollow stem auger. The findings of this geotechnical investigation were submitted to the Canyon Creek Irrigation District in a report entitled "Canyon Lake Dam Improvements Project, Geotechnical Investigation," Hydrometrics, Inc., October 2002. Additional deficiencies associated with the long-term stability of the embankment materials were disclosed in this report:

4. The fourth deficiency is primarily concerned with the ability of the existing embankment to resist internal erosion, particularly under high reservoir levels and saturated embankment conditions. The drilling investigation and materials testing results indicated that the embankment is composed of a significant amount of silty sands and heavy silts. The drilling investigation also confirmed the presence of a rock core, approximately 12 feet high in the center of the embankment. Using data provided from materials testing results, Hydrometrics completed seepage and piping analyses to determine the potential for internal erosion problems due to seepage flow through the embankment. Hydrometrics, Inc. concludes:

> "at high reservoir levels, the dam embankment saturates and that over time this condition could lead to problems with instability of the upstream saturated slope or erosive seepage from the downstream face of the dam. Although there is flowing seepage escaping from the toe of the dam, it is not in such a great quantity to suggest that piping is a significant problem at this time. Alternatives for addressing these seepage concerns include construction of a wider dam cross section with flatter slopes and installation of filter layers on both sides of the silty sand core.
>
> An improved dam cross-section is proposed in Figure 3-1 that will accomplish these objectives. The cross-section pictured includes construction of a new zone in the dam consisting of a wide, graded section that gradually transitions from coarse sand near the core to quarry spall sized bedding stone near the rock shell. Because the availability of coarse sand and gravel is very limited at the site, this proposed treatment will likely require the crushing of approximately 1000 cubic-yards of these filter zone materials."

Hydrometrics, Inc. presented the use of filter fabric as a potential alternative to replace the coarse sand next to the dam core to protect it from erosion. Their report also recommends, that prior to completing designs to rehabilitate the dam, the seepage analysis should be verified by measuring the water levels in the dam embankment during full reservoir conditions. (After the drilling was completed, open piezometers were installed in the bore holes).

5. The results of the Hydrometrics' slope stability analysis indicate that the embankment width is too narrow, and the upstream and downstream slopes are too steep. As described in the section above, the drilling investigation confirmed the presence of large rock, encountered at a depth of approximately 12 feet in the center of the embankment. The width of this rock core, or crib, is not known. Therefore, conservative estimates of the core width were utilized in completing the stability analysis. Hydrometrics concludes that a wider cross-section would provide an increased factor of safety against slope failure, particularly during events such an earthquake or a prolonged flood.

In conclusion, another alternative, or option, was proposed by Hydrometrics Inc. to address dam safety concerns caused by 1) elevated seepage levels in the dam during full reservoir levels, and 2) long-term instability of the dam resulting from the existing embankment geometry, which is a narrow, steep cross section. This option is described in detail below as "Option B". Option B consists of an improved wider, flatter embankment with a filter zone to protect the fine, silty sand core from internal and external erosion. However, there may be other materials options to address potential static stability and piping problems within the dam embankment. This would require additional engineering analyses by the dam owner's engineering representative, which was outside the original scope of the Hydrometrics' geotechnical investigation. If CCID chooses to pursue rehabilitation of the dam, additional engineering feasibility studies and conceptual plans will be required from the dam owner.

PROPOSAL FROM CANYON CREEK IRRIGATION DISTRICT (CCID)

The Canyon Creek Irrigation District is required to comply with federal dam safety laws and regulations. These laws and regulations have become more stringent because of dam failures such as Teton Dam in 1976 and Lawn Lake Dam Failure in 1982 (PF A-4, video) The majority of these laws were not in effect when the Wilderness Act was passed in 1964 (reference Appendix C in the FEIS for a list of applicable federal laws and regulations governing dam safety). The ownership of Canyon Dam, which is currently in an unsafe condition, presents the Canyon Creek Irrigation District with responsibilities and attendant downstream liabilities (environmental damage, real property, personal property and loss of life) in the event of dam failure.

The engineering representatives for CCID presented the CCID board members with three alternatives, or options, to address the dam safety deficiencies associated with Canyon Dam and Wyant Dams. These options and associated costs were presented in a letter dated November 25, 2002 to the board members. The three alternatives, or options, are presented as Options A, B and C. Option A addresses critical safety concerns of Canyon Dam and includes minimal requirements, primarily associated with the failing outlet works and inadequate spillway capacity, to prevent an uncontrolled dam failure. Option B addresses longer-term needs and significantly improves embankment stability - in addition to repairing the critical deficiencies included in Option A. Option C is the full breach option, which eliminates ongoing maintenance, repairs, and potential liabilities associated with an aging dam. Therefore, the Canyon Creek Irrigation District requested that the following possible options be considered in this analysis:

Option A. Repair Critical Deficiencies of Canyon Dam,
Option B. Major Rehabilitation of Canyon Dam,
Option C. Breach Canyon Dam

A more recent option has been proposed and endorsed by the CCID engineering representatives. This Option is a two-phased approach, or Option D:

Option D Partial Breach Canyon Lake Dam in 2003, Major Rehabilitation of Canyon Lake Dam in 2004

All four options include a partial breach of Wyant Dam. The proposed work for Wyant Dam is described in detail below under “Wyant Lake Dam”.

Option A

This option addresses the critical deficiencies of Canyon Dam identified in the Feasibility Study completed by David Jones, DJ Engineering, May 2000. Option A primarily focuses on repairs urgently needed in order to avoid a potential emergency situation, or uncontrolled failure of the dam. The failing masonry outlet works would be replaced with

a new bore through competent rock in the dam foundation, then lined with new pipe and sealed with grout between the pipe and new bore. The old collapsed masonry outlet works would be sealed shut with grout to prevent further deterioration of the dam embankment. Some minor amount of earthwork is required to repair the upstream section of the embankment around the outlet pipe, where a sinkhole was discovered and repaired in the fall of year 2001. Proposed borrow areas are located below the high water mark (See Appendix D for Canyon Lake Dam Site Plan). Any disturbed areas would be shaped and blended back to the natural lake bed contours. The area around the outlet works would be armored with riprap, which would be collected from loose rock areas below the high water mark. A new outlet works gate and trashrack would be installed.

Option A includes increasing the size of the existing spillway to meet current spillway sizing criteria in accordance with federal laws and regulations for high hazard dams. Canyon Dam has a history of overtopping events, which verifies the existing, inadequate spillway capacity. In order to pass the required flood event through the spillway, a combination of widening the existing spillway and leveling the uneven dam crest will be necessary. The modified structure shall remain within the historical embankment height. The spillway flow channel would be armored with rock, and a new log boom would be constructed.

Option B

Based on information from the geotechnical drilling investigation and analyses completed by Hydrometrics Inc. (October 2002), the proposed repairs were recently modified to address the instability of the embankment caused by seepage and extreme flood events. The primary change in the proposed repairs of Canyon Dam involves the additional amount of material that will be required to stabilize the embankment for a longer period of time (approximately 50 years). In order to resist seepage and instability problems exacerbated by loose, saturated sands and silts found in the embankment, the recommended design geometry would require a wider crest width and flatter slopes on the upstream and downstream sides of the dam. Additional material includes approximately 1000 cy of filter drain rock and 750 cy of rock shell, or riprap, which requires about a 50% increase in the overall volume of the material already in place on the existing dam. The filter rock is used to allow seepage to flow through the filter zone without causing the migration of the silty sand material in the core. Basically the filter rock retains the finer materials and decreases the pore pressure within the embankment.

Option B involves a major overhaul of the embankment and provides long-term stability by widening the crest, reducing the embankment slopes, and placing filter rock on the upstream and downstream faces to protect the fine, silt core from erosion. This option includes heavy earthwork to excavate the existing embankment and place the new embankment materials, primarily the filter rock and rock shell. The existing rock shell, or riprap, would be removed and stockpiled prior to the rehabilitation work, then re-used to armor the improved embankment. The existing outlet works would be replaced by

excavating a new channel then installing new pipe within this channel. The new embankment would then be placed and compacted in lifts above the new pipe installation. A new outlet works gate and trashrack would be installed.

The Canyon Creek Irrigation District considered two options for the source of the filter rock. The first option was to fly the material in with a medium sized helicopter. Based on preliminary cost estimates, the cost of the filter rock and delivery to the site would be about $550 per cubic yard, or a total of $550,000 - just for the filter rock. This option would also require approximately 500 medium-sized helicopter trips, exclusively for the purpose of supplying the 1000 cubic yards of filter rock. Because this option is cost prohibitive for the Canyon Creek Irrigation District, they proposed using existing rock sources. Therefore, Option B includes the development of a rock source and crusher operation within the vicinity of the embankment.

The preliminary plan is to break down and fly in a crusher and generator (approximately 3 to 4 medium-sized helicopters) to utilize existing rock sources and crush it into suitable filter, or drain rock. The proposed rock source is primarily along the south shoreline near the right abutment and a rocky outcropping near the dam within the high water mark. Additional source areas located along the north shore below the high water mark may also be utilized. The crusher would be located within 500 feet of the existing dam embankment below the high water mark. The reservoir pool would be lowered, and the area selected for the crusher site would be located to minimize impacts and promote efficiency of the operations.

Option B includes increasing the size of the existing spillway to meet current spillway sizing criteria in accordance with federal laws and regulations for high hazard dams. Canyon Dam has a history of overtopping events, which verifies the existing, inadequate spillway capacity. In order to pass the required flood event through the spillway, a combination of widening the existing spillway and leveling the uneven dam crest will be necessary. It may be necessary to construct and auxiliary spillway to route the required design flood, or probable maximum flood. This determination would be made in the design process. The modified structure shall remain within the historical embankment height. The spillway flow channel would be armored with rock, and a new log boom would be constructed.

Option C

Option C is to breach Canyon Dam and eliminate the risk of loss of downstream life and property. The breach is required to pass the 5000-year flood event at the natural stream channel. This requires excavation down to the level of the original ground surface, and the sides of the breach excavated to a slope that is stable. The initial estimate of the size of the breach is approximately 15 to 20 feet wide at the base with side slopes laid back approximately 2:1 or 1½:1 (2 horizontal units to 1 vertical unit). The riprap on the existing upstream embankment and rock shell on the downstream side would be utilized

to armor the sides and bottom of the breach. The height of the dam at the natural stream channel is approximately 22 feet high. A rock-armored, weir-type structure, approximately 1 to 2 feet high, shall be required to retain natural lake sediment and prevent it from flushing downstream into Canyon Creek. The channel through the breached section would be a "stepped-down" rock chute to safely conduct the water to a lower elevation from the weir to the stream channel below. Based on initial estimates, the amount of material to be excavated from the breached section is approximately 700 cubic yards, based on the flatter side slopes (2:1) of the breach.

The waste material excavated from the embankment would be placed along the upstream side of the embankment, primarily in areas to enhance erosion protection of the remaining breached structure. The waste material from the breach shall be carefully placed and blended into the surrounding topography to enhance erosion protection of the breached structure and prevent ponding within the pool area. The existing soil cement core has been determined to be a friable, easily crushed material; therefore, it should mix well with other natural waste material from the embankment.

Option D

Background Information

On February 13, 2003, the Commissioners for the Canyon Creek Irrigation District resolved to address immediate dam safety hazards. The Canyon Creek Irrigation District's decision includes a two-phase project.

First, their decision includes completion of an engineered partial breach of Canyon Lake Dam during the next field season, or summer of 2003. This work is further described below as Phase I. This decision was made by the CCID Board to address the urgent hazard presented by their unsafe dams in the summer of 2003. Failure of the dam would likely cause loss of life and considerable property damage as well as environmental damage. These immediate dam safety concerns are described earlier in this section. Second, the Board decided that Canyon Dam would be reconstructed during the summer field season of 2004 to maintain reservoir capacity for irrigation uses in the future (described below as Phase II).

The option of a full breach of Canyon Dam to the natural stream channel was considered and discussed in depth with the Canyon Creek Irrigation District and their engineering representative. The Board of Commissioners, acting on behalf of interests within the District, decided that a partial breach to reduce the hazard classification, yet maintain some storage capacity for irrigation purposes, would best meet their legal obligations and irrigators' interests within the District. The proposed partial breach essentially eliminates the public safety hazard, provides some storage for irrigators' interests and provides a retention structure for lake sediments.

Several factors influenced the decision to incorporate a two-phase project. These factors are discussed under Phase II below.

Phase I - Partial Breach of Canyon Dam in Year 2003

Criteria for Partial Breach Design

The design criteria for the partial breach at Canyon Dam will be required to accommodate a Wyant Dam failure without overtopping Canyon Dam. Wyant Dam is currently classified as a high hazard dam – based on the inadequate spillway capacity at Canyon Dam. In the event of a failure at Wyant Dam and a full pool reservoir condition at Canyon, Canyon Dam would likely overtop. A failure of Wyant Dam could potentially result in a second dam failure at Canyon Dam. This modification to Canyon Dam is expected to change the hazard classification of Wyant Dam to a low or moderate hazard rating, which will be confirmed by a breach analysis.

The partial breach of Canyon Dam will be restricted to a reservoir storage capacity to that which no longer presents a risk of loss of life in the event of a Canyon Dam failure – which will also change the hazard classification of Canyon Dam from a high hazard to a moderate or low hazard classification (FSM 7511.2). In addition to restricting the reservoir level, the partial breach will also function as the principal spillway during the following spring snowmelt and runoff season. Therefore, it shall also be designed to route the required inflow design flood (5000-year storm event) without overtopping the dam. Channel stabilization and grade control will be necessary to safely conduct water through the breach and to prevent erosion from undercutting the side slopes of the remaining embankment.

The breach elevation will be below the upper portion of the dam embankment, which primarily consists of fine silty sands as noted in the drilling investigation by Hydrometrics, Inc (fall 2002). These weak materials are not suitable for the breach channel, and any exposed surfaces adjacent to the flow channel shall be armored with suitable material, or rock riprap. Filter fabric will be used to cover the weak embankment materials prior to placement of bedding rock and armor stone to protect the breach channel from the design storm event. The embankment will be excavated to a depth that exposes or penetrates the rock core, which was encountered typically between 10 and 12 feet during the drilling investigation. The rock fill and concrete core can reasonably be expected to provide a non-erodable sill, which will add stability in the partial breach design. The width of the concrete core and rock fill remains an unknown dimension. Therefore, contingency plans are necessary in working with the unknown quality and quantity of these core materials within the dam (Canyon Lake Dam Improvements Project, Dam Partial breach – 2003 Work Plan, Hydrometrics, April 2003, PF A-6).

In summary, the primary design criteria for the partial breach is the reduction in hazard classification of Canyon Dam so that an uncontrolled catastrophic failure would no

longer present unacceptable risks to downstream life and property. The reduction in hydraulic height, from over 20 feet down to 7 feet (preliminary estimate), represents a reduction of over two-thirds in hydraulic height. This significantly reduces the available head, or amount of energy, that would be released in the event of dam failure, in addition to the reduction in storage capacity from approximately 450 to 200 acre-feet. The natural lake storage capacity is approximately 100 acre-feet. This natural lake storage would remain, regardless of the presence of the dam.

Time Constraints to Complete the Work

The priority for this project is the elimination of unacceptable risks presented by the deteriorated condition of the high hazard to downstream life and property. The proposed schedule includes the preparation of preliminary designs, submittal and review, and completion of the final design before actual construction begins. Because of dam safety issues, the embankment cannot be left in an open, or exposed condition through the winter. The work must be completed within the limited field season at the dam site. Therefore, some latitude in the method and manner of construction methods is reasonably necessary, in order to allow for variables that may be associated with the unknown condition of the rock fill core.

The proposal is to complete the partial breach with the minimal tools necessary and 7-man work crews from the Montana Conservation Corps as soon as the snow melts at this high elevation (approximately 7500 feet), which could occur in mid to late July. This work using manual labor and gasoline-powered rock drills is expected to continue in shifts through the first week of September. If necessary, other small, mechanized tools may also be utilized (see “Initial Plan” below). However, the engineering representative for the Canyon Creek Irrigation District recommends that a backup, or contingency, plan is included in case difficulties are encountered with the ability to complete the breach within the limited season.

Phase I Description of Work

In order to minimize impacts to Wilderness, engineering representatives from the Canyon Creek Irrigation District and the Forest Service met with the Montana Conservation Corps to pursue an option that utilizes minimal tools to complete a partial breach of Canyon Dam during the summer field season of 2003. Qualifications of the Montana Conservation Corps includes past experience moving rocks and earth materials with minimum tools. The MCC plans to work in two week cycles, nine days on a shift, or “hitch”, followed by five days off, beginning in mid to late July and ending in the beginning of September.

The basic plan is separated into three parts:

1. The rock shell must first be removed from the embankment in the area of the proposed breach area, located over the existing outlet works.

2. Remove material to the required elevation (Hydrometrics engineering estimate is 350 cubic yards material, including rock and soil).
3. Armor the breach with rock removed from the embankment and temporarily stockpiled (on the upstream and downstream sides of the embankment adjacent to the partial breach location).

A combination of rock drills and explosives, or Boulder Buster™, may be necessary to break up the larger rock located on the embankment which cannot be moved by manual labor. (The outer protective shell consists of rock that varies in diameter - up to 18 inches on the upstream side and up to 3 to 5 feet on the downstream side of the embankment). The rock will be temporarily stockpiled, then re-used and placed back onto the embankment to armor the breach after excavation is completed to the required level. The use of explosives will be controlled by smaller, more frequent shots to minimize impacts to fisheries and prevent scattering material all over the landscape.

The material from the breach will be stockpiled on or near the upstream embankment. Excess material from the breach will be blended into the surrounding topography or stockpiled for repairs the following season. The stockpile location will be at least 50 feet away from the partial breach location and protected from erosion. The stockpiles will also be located below the old high water mark and above the new high water mark for the modified dam **(**Refer to FEIS p 2-9 for associated terms and conditions**).** (The hydraulic height of the structure will be reduced by approximately 2/3rds, and therefore, the new high water mark will be significantly lower than the high water mark for the existing structure). The rock will be re-used to armor the breach, and therefore, it will be important to control the use of explosives and limit the break-up of rock to that which is not feasible to move manually. Once the rock shell is removed, the fine silts and sands, located in the upper section of the embankment, should be removed by manual methods without difficulty - until the rock crib is encountered. These finer materials in the upper dam crest were logged 10 to 12 feet in depth during the drilling investigation; however rock was encountered at that point, which prevented further drilling to the foundation.

At this point, there remains some unknown factors associated with the rock crib as described earlier under the breach criteria section. The unknown size and amount of rock within the core of the dam presents a variable that directly affects the method and manner to perform the work. From a dam safety perspective, it is important to complete the work before winter. It is not acceptable to begin excavation into the embankment and not be able to complete the work associated with armoring the embankment before the winter weather conditions begin. The breach must be completed to the level that eliminates the public safety hazard, and the exposed surfaces of the breach must be armored to protect the fine silts and sands from erosion. It is critical that this work be accomplished prior to the onset of winter weather because the partial breach will function as the principal spillway during the following spring snowmelt and runoff season. Because of the limited timeframe in which to complete the work, the range of impacts addressed in the analysis

will include a contingency plan for the use of mechanized equipment for removing the upper portion of the rock crib.

Two plans are described below – an initial plan utilizing manual labor crews and minimal mechanized tools, and a backup plan utilizing traditional excavation equipment if manual labor and minimal tools are not adequate to complete the required work.

1. Intial Plan Utilizing Manual Labor and Minimal Mechanized Tools

Equipment List for Montana Conservation Corps
Hand Tools (rock picks, shovels, pry bars)
Wheelbarrows
Come-Along
Rock Sling
Chainsaw
Camp and Misc. Supplies

Equipment to Breakup Large Rock (Hydrometrics oversight)
Gasoline-Powered Rock Drills or Electric Drills and Generator
Fuel and Spill Containment Kit
Boulder Buster, TM
Explosives

Possible Equipment List if process falls behind schedule and requires speeding up
Motorized Wheelbarrow or Six-wheel ATV
Small, mechanized mining equipment ("slusher", or bucket and winch system)

Total of 5 to 8 Trips using a Light Helicopter*
(Note: The Montana Conservation Corps plans to pack in the lighter-weight hand tools and supplies. The engineering representative for CCID requested a reasonable number of helicopter trips for the heavier equipment listed above under "Possible Equipment List". The Forest Service has promoted the use of experienced outfitters and backpacking materials into the site. However, there are concerns regarding the suitability of the trail for stock. Some sections of the rocky trail and crossings over talus slopes present unsafe conditions for stock use. These potential hazards regarding the use of stock will be within the discretion of the Canyon Creek Irrigation District and available experienced outfitters. Therefore, a minimal number of helicopter trips may be required and are included in this analysis.)

2. Final Backup Plan Requiring Expediency to Complete the Work

In a worst-case scenario in which unforeseen problems are encountered (ie: if the work gets delayed because of unusual weather events, or manual labor methods are not adequate), the engineering representative for the CCID requested that a backup plan be

available and analyzed. The Canyon Creek Irrigation District and the engineering representative, signing off on the breach design, assume certain liabilities in the event of unforeseen circumstances and a possible dam failure, and therefore this is a reasonable request. This final backup plan is strictly for a situation that requires urgency to complete the required work, and will only be utilized if the above non-mechanized means are not adequate. This final backup plan utilizes traditional excavation equipment for the primary purpose of expediency to complete the work.

Final Backup Plan and Possible List of Equipment (includes return trips)

Small excavator, John Deere 80 (14,000 lbs.)	6 trips, medium size helicopter
Skid steer loader or Mini-excavator	2 to 4 trips, medium helicopter
Rock drills and compressor	2 trips, medium size helicopter
Camp, Fuel and Misc. Tools and Supplies	2 to 4 trips medium size helicopter

Total of 12 to 16 trips with a Medium-Size Helicopter or 13 to 18 trips with a Light Helicopter***

*Light Helicopter carries approximately 2000 to 2500 lbs
**Medium Size Helicopter carries approximately 5000 to 5500 lbs
(Range of Lifting Capacities depends on Density Altitude)

In summary, the primary overriding dam safety issue is the ability to accomplish the work in the required timeframe. Limited use of motorized equipment will be used in the first phase of the project. If the work progress falls behind schedule, or there is difficulty removing the materials in the crib core of the dam, then the engineering representative for the CCID shall make the determination that additional motorized equipment will be required to speed up the process in order to accomplish the task within the specified timeframe – primarily dictated by the limited work season at this high elevation dam. This analysis includes reasonable and foreseeable problems that could be encountered during the completion of a partial breach at Canyon Dam.

Phase II – Long Term Reconstruction of Canyon Dam in Year 2004

Background Information

The Canyon Creek Irrigation District's decision includes a two-phase project. First, the decision was made by the CCID Board to address the hazard presented by their unsafe dams in the summer of 2003. Second, the Board decided that Canyon Dam would be reconstructed during the summer field season of 2004 to maintain reservoir capacity for irrigation uses in the future.

Several factors influenced the decision to incorporate a two-phase project:

1. The reduction in hazard classification in the first phase would address the primary issue related to a public safety hazard and potential risk of loss of life and property. The deteriorated and unsafe condition of Canyon Dam is the driving issue that demands an action on the part of the Canyon Creek Irrigation District within the next field season, or the summer of 2003. The dam safety deficiencies are presented earlier within Appendix A.

2. During the drilling investigation of Canyon Dam (Hydrometrics, Inc.) in the fall of 2002, a rock barrier was encountered 10 to 12 feet in depth from the top of the dam. This rock barrier, or crib, prevented further drilling to the bedrock foundation. Early records describe a "*concrete core to the height of 17 feet*" and "*behind the core is a rock fill and in front a fill of 2000 cubic yards of earth covered with rock to prevent washing*". There remains some unknown information associated with this rock crib, or concrete core, that could be utilized for a more efficient and effective reconstruction design in the long term.

   For example, conservative estimates of the width of this rock crib were assumed in the stability analysis (Canyon Lake Dam Improvements Project Geotechnical Investigation, Hydrometrics, Inc., October 2002, PF A-5). The stability analysis affects the estimated amount of material that would be necessary to guard against failure mechanisms as described in the Hydrometrics' report. The existing instability problems are caused by: 1) the narrow geometry and 2) the fine, silty sand materials surrounding the internal rock crib. The actual width and integrity of the rock fill core, which will be determined in the partial breach, will likely influence the design of the permanent repairs on the dam – such as the amount of filter rock necessary to stabilize the dam embankment (refer to "Option B" in Appendix A for an in-depth description of the amount of filter rock and rock shell required to stabilize the dam embankment). Therefore, information gathered from the partial breach will be utilized in a more efficient design based on actual field data rather than conservative assumptions.

3. Option B included a long-term, major reconstruction of the dam embankment to address the instability problems that were included in the Geotechnical Investigation report (Hydrometrics, Inc., October 2002, PF A-5). These instability problems include internal erosion or piping, exacerbated by the loose, saturated sands and silts, in additional to the steep, narrow embankment cross-section. Hydrometrics, Inc. presented the need for additional material (approximately 1000 cy of filter drain rock and 750 cy of rock shell, or riprap) to stabilize the embankment and resist seepage and instability problems. They also recommended that the existing steep and narrow embankment should be improved by increasing the cross-section of the embankment to a wider crest width and flatter slopes on the upstream and downstream sides of the dam. Option B includes a preliminary plan to break down and fly in a crusher and generator in the development of onsite filter rock necessary to address the instability problems associated with the steep narrow embankment (reference Canyon Dam Improvements Project Geotechnical Investigation, Hydrometrics, Inc., Oct. 2002, PF A-5). The use of an onsite crusher was presented as an alternative to flying the filter rock in by helicopter (approximately 500 trips).

   Since this proposal was presented, the Forest Service recommended that the engineering representatives for the Canyon Creek Irrigation District consider other options, such as the use of geomembrane/compacted clay composite (GCL) or polyvinyl chloride (PVC) liner, on the upstream face of the embankment. The purpose for additional engineering feasibility studies to investigate the use of an impermeable liner system is: 1) to address the susceptibility of the embankment with respect to slope failure and liquefaction potential related to the saturated condition of the embankment, and 2) to potentially reduce the amount of material necessary to stabilize the embankment.

   However, in order to assess the feasibility of this option, additional engineering efforts would be required to overcome constructability and long-term performance problems that would be presented with this option. In a letter dated January 14, 2003, Hydrometrics, Inc. pointed out these problems to the Forest Service. Some of these problems include removing the existing riprap from the upstream embankment, methods of subgrade preparation and compaction to protect the liner, particularly with respect to the excessive slopes on the embankment. Excessive slopes typically result in failure of liner applications, as well as maintainability and long-term performance concerns. Therefore, the existing steep slopes of the embankment will likely require some modification to the cross-section, regardless of whether a liner is used or not.

   Consideration of the liner option will require additional engineering studies to address whether or not this option is feasible with respect for the constraints at Canyon Dam. The purpose for additional investigation of the liner installation is the possibility of reducing the amount of material that would have to processed

onsite or carried in by helicopter. This affects both the cost to the Canyon Creek Irrigation District and impacts to Wilderness. Because of the uncertainty associated with the liner option, conservative assumptions have been made related to reasonable and foreseeable construction methods that would be utilized in correcting the long-term deficiencies noted in past inspection reports and the recent geotechnical investigation.

4. The timeframe to complete a comprehensive design, which would include an engineering feasibility study for the liner alternative, requires a longer timeframe in which to complete the work. A long-term reconstruction project for Canyon Dam would require additional engineering analyses and additional time to prepare more complex designs and specifications, as compared to the proposed partial breach in year 2003. It is not practically feasible to complete more complex engineering designs and a more extensive reconstruction project in time for completion of the project next field season. As described in previous sections of this document, the urgent nature of the circumstances requires work on the dams this next summer because of their deteriorated condition. The long term reconstruction needs for the dam would include correcting the deficiencies that were described in detail in Appendix A. The schedule would have to include adequate time for the development of preliminary and final engineering plans, Forest Service review, preparation of contract documents, advertisement for bids and, finally, the actual execution of the construction project. The Canyon Creek Irrigation District is also currently in the process of determining funding based upon irrigable acreage within the district. This could affect the long-term decisions, primarily affecting Canyon Dam.

Phase II Description of Work

The purpose of the long-term reconstruction is to rehabilitate Canyon Dam to meet federal dam safety standards and correct the deficiencies noted in past engineering inspections by DJ Engineering, and the recent geotechnical investigation of the embankment by Hydrometrics, Inc (October 2002). The information provided by Hydrometrics, Inc. and DJ Engineering regarding the rehabilitation option is a general, preliminary overview. The Hydrometrics geotechnical report explains that, in order to bring the dam up to current standards, a significant amount of heavy earthwork is required to widen the crest, reduce the slopes of the embankment, and provide rock filters on both faces of the dam to protect the fine, silt core from erosion. This work would be in addition to the repairing the outlet works and increasing the spillway capacity, which was previously addressed by DJ Engineering (FEIS Appendix A, p. A-4 to A-5).

The following list of estimated equipment and materials needs is based on the rehabilitation option proposed by Hydrometrics, Inc. and DJ Engineering. The preliminary plan is to break down and fly in a crusher and generator to utilize existing rock sources and crush it into the graded aggregate filter material to broaden the top

width of the dam crest and flatten the existing embankment slopes. The crusher option eliminates approximately 500 medium-sized helicopter trips, exclusively for the purpose of supplying the 1000 cubic yards of filter material. The following list is an estimate based on preliminary conceptual plans, and a conservative approach in order to analyze reasonable and foreseeable construction methods that may be utilized to repair the dam. As discussed in the previous section, other options to reduce the amount of material to be processed onsite or carried in by helicopter will be investigated. This includes further investigation into the possible use of an impermeable liner on the upstream embankment of Canyon Dam.

Phase II Rehabilitation – Equipment and Supporting Helicopter Trips

The following list includes estimates of equipment, materials and number of supporting helicopter trips for several categories of work. The supporting helicopter trips will utilize either a Medium Lift Helicopter OR heavy lift (such as Sky Crane) helicopter. This list was developed and recommended by CCID Engineering Representatives. The number of helicopter trips includes the return trips to carry equipment and tools back out.

1. Cut and Cover Work Associated with the Outlet Works

Precast sump and trashrack
Outlet works pipe (conduit) and gate
Cement backfill (upper end of conduit) and drainrock, or gravel (lower end of conduit)
Generator, compressors, pumps, tools, drills, compactors, mixers, HDPE fusion-welder

Supporting Helicopter Trips for Cut and Cover Operations:
24 trips using Medium-Lift Helicopter** OR
12 trips using Heavy Lift Helicopter***

2. Spillway (To route the required design flood through Canyon Dam, an Auxiliary Spillway may be required)

Precast interlocking blocks (52,000 lbs)
Boomlogs, Concrete and Hardware
Geotextile

Supporting Helicopter Trips for Auxiliary Spillway:
14 trips using Medium Lift Helicopter** OR
8 trips using Heavy Lift Helicopter***

3. Crusher and Embankment Materials

Crusher (10,000 lbs – can break down into 2500 lbs, approximate)
Compactor
Geotextile Fabric
Impermeable Liner

Supporting Helicopter Trips for Crusher and Embankment Materials
12 trips using Medium Lift Helicopter** OR
7 trips using Heavy Lift Helicopter***

4A. Earth and Rock-Moving Equipment, Loader for Crusher Operations Using Smaller, Specialized Equipment (Preferred over 4B)

Cat 902 Loader (2)
Skid Steer Loader (Bobcat)
Mini-Excavator
Mini-Dozer
Fuel and Tools

Supporting Helicopter Trips for Equipment including Loader (4A)
38 trips using Medium Lift Helicopter**

OR

4B. Earth and Rock-Moving Equipment, Loader for Crusher Operations

Cat 320 Excavator (may be needed for reach capabilities since once the liner is placed, the material including rock will have to be placed without the equipment tracking over the liner)
John Deere 80 (needed to put larger excavator together)
John Deere 450H Dozer
Cat Integrated Tool Carrier (Front End Loader)
Fuel and Tools

Supporting Helicopter Trips for Equipment including Loader (4B)
21 trips using Heavy Lift Helicopter***

5. Weekly transfer of supplies (food, parts, garbage, etc.)

12 to 18 trips using Light Helicopter*

NOTE: This equipment list, and the number of supporting helicopter trips, was provided by the Engineering representatives for the CCID, based on preliminary conceptual plans. After a more detailed design is developed, less impactive methods of construction will be investigated, including some use of manual labor, where feasible. Other potential helicopter options, such as the use of KMAX helicopters for reducing noise and impacts to Wilderness may be considered. (These specialized helicopters carry 5000 lbs. at 8000

feet elevation, and are more environmentally friendly and safer to operate beneath, because they have the lowest noise signature and lowest rotor downwash of any medium-to-heavy lift helicopter).

***Light Helicopter** = 2000 to 2500 lbs capacity, depending on density altitude
****Medium Helicopter** = 5000 to 5500 lbs capacity, depending on density altitude
*****Heavy Helicopter (ie: Sky Crane)** = 10,000 lbs capacity, depending on density altitude

Timing

Time to complete the work in Phase II is estimated to be 35 to 45 days.

WYANT LAKE DAM

Wyant Lake Dam existing condition

Wyant Lake Dam is capable of storing approximately 54 acre-feet. The dam is located less than one mile upstream of Canyon Lake dam, and the access between the two dams includes a 400-foot climb, with no trail, up a steep rock face. The dam was constructed from log cribs filled with rock and soil. Engineering inspection records indicate that the dam historically stored up to 200 acre-feet. It is unclear as to the maximum historical water storage, but the dam had additional storage capacity prior to the installation of the principal spillway. The deteriorated condition of the dam has warranted restrictions on storage capacity, and the outlet works gate has recently remained in the open position. The upstream crib logs, which provided support to the embankment crest at one time, have rotted away. The embankment is developing cracks, and slabs of soil are breaking away and slumping towards the lake. Other deficiencies include a failing outlet works, uneven dam crest, and sections of the embankment that need resloped and riprapped.

Wyant Lake Dam was also originally constructed at the outlet of a natural cirque lake. The dam is an earth embankment dam constructed in two sections. The main embankment near the right abutment was constructed from rock placed by hand, stacked and mortared almost vertically from the streambed to the crest. . Downstream of the mortared wall is a berm of hand placed rubble rock while the upstream portion is rock filled timber cribs. The left side of the dam, or “saddle dam section”, was constructed between the left abutment of the main embankment and a rock outcropping on the right side of the spillway. This is the primary section of concern because of the rotting timber cribs and sloughing embankment towards the reservoir.

A slide gate, located on the upstream side of the dam, controls flows through the 60-foot long, rectangular rock masonry conduit. Interior photos of the conduit indicate that it “appears to be in surprisingly good condition considering nearly 100 years of service.

The only evidence of roof distress was a fractured and slight slump of a roof slab rock" (Dam Safety Inspection Report, Wyant Lake Dam, David Jones, P.E., Jan. 2000, PF 3.5).

Dam Safety Deficiencies of Wyant Lake Dam

The primary concern at Wyant Dam is the earth embankment, which has developed longitudinal cracks and slabs of soil are breaking away and slumping towards the lake. The upstream crib logs, which provided support to the embankment crest at one time, have rotted away in a 40-foot section of the upstream section of the dam. The integrity of the structure has been compromised because of a reduction in the width of the dam crest. This deterioration on Wyant Lake Dam is also progressively getting worse. A dam failure of Wyant Lake Dam could then lead to a second failure at Canyon Lake Dam (see section below entitled "Breach Standards for Wyant Dam).

In order to leave Wyant Dam in a safe condition, the dam either needs to be rehabilitated to current standards or breached to a level that does not present a risk of loss of life – which is a moderate hazard classification. Because Wyant Lake has less storage capacity in comparison to Canyon Lake, the Canyon Creek Irrigation District decided that it would be more cost effective to breach Wyant Lake Dam rather than completing an expensive rehabilitation for less storage capacity. Therefore, the Canyon Creek Irrigation District has decided to reduce the storage capacity of Wyant Dam to a level that does not present a public safety hazard.

Breach Standards for Wyant Dam

The hazard classification of Wyant Lake Dam is based on downstream factors. These factors are: 1) Canyon Dam is located downstream of Wyant Dam, 2) Canyon Dam is currently classified as a high hazard dam, 3) Canyon Dam's spillway is undersized, and 4) Canyon Dam has a history of overtopping events, which confirms the inadequacy of Canyon Dam's spillway. Finally, if severe flood conditions caused a dam failure event at Wyant Dam, and, if Canyon Dam is at full reservoir level, then Canyon Dam could overtop and fail as a result of the upstream Wyant Dam failure. Therefore, Wyant Dam is currently classified as a high hazard dam because of its potential domino effect on Canyon Dam.

If Canyon Dam is breached, then the hazard classification of Wyant Lake Dam becomes unknown. Wyant Dam stores significantly less water than Canyon Dam, and a hazard assessment has not been completed for this dam, exclusive of Canyon Dam. Therefore, an additional analysis will be required to determine the consequences of a failure at Wyant Dam if Canyon Dam is breached. In any case, the structure shall be left in a condition where dam failure would not likely result in loss of human life. The hazard assessment will determine the level to which the dam shall be breached. The preliminary plan is to breach the structure by lowering and widening the principal spillway to the level determined by the hazard assessment. If unforeseen problems are encountered at the

principal spillway location, such as extensive rock that interferes with the constructability of the breach, then another location may be selected. The alternative breach location would most likely be in the vicinity of the outlet works near the natural stream channel.

Economic considerations for rehabilitating or breaching Wyant Lake Dam

Rehabilitation of Wyant Lake Dam was considered but eliminated from further study. Canyon Creek Irrigation did not suggest this alternative. There are several deficiencies requiring reconstruction to bring Wyant Lake Dam into compliance with current standards. This project would require a major overhaul on the embankment and dam crest, armoring sections of the upstream embankment with riprap, slip-lining the existing conduit, replacing existing slide gate and possibly enlarging the spillway. The cost to rehabilitate Wyant Dam alone is approximately $190,000. Canyon Creek Irrigation District has limited funds provided by shareholder's tax assessments. Canyon Lake Dam currently stores between 420 and 450 acre-ft of water, and Wyant Lake Dam currently stores about 54 acre-feet of water. If Wyant Lake Dam were rehabilitated, a significant portion of the funding would be applied to 12-13 % of the overall irrigation storage. Therefore, from a practical, economics perspective, it is more cost efficient to apply the funding towards Canyon Lake's storage capacity and breach Wyant Lake Dam.

Proposal from Canyon Creek Irrigation District (CCID) for Wyant Dam

The proposal at Wyant Lake Dam is to lower the existing, primary spillway crest approximately 12 feet and construct a small weir to retain lake sediments and direct low flows to the existing outlet works conduit. Therefore, base creek flows will continue to flow in the historic channel below the dam. The existing primary spillway channel is well armored with large rock and discharges flows away from the embankment. The estimated dimensions of the spillway would be approximately 12 feet at the base and 18 feet at the top. However, an additional flood routing study may be required to determine final dimensions. Some of the spoil from the excavation will be used to reinforce a portion of the upstream slope of the dam to protect it from flood events. Riprap will be placed along the south side of the spillway to provide erosion protection. The excavation area, rock sources and spoil areas are shown on the "Wyant Lake Site Plan" in Appendix E. The existing gate catwalk and gate stem would be removed, and the gate would remain blocked in the open position. Workers will use the Canyon Lake camp and hike between the sites.

Appendix B History of Canyon and Wyant Lake Dams

A brief overview of the primary historical events for both Canyon and Wyant Lake Dams is listed below. Records indicate that Canyon Lake Dam has a history of overtopping events, dating back to the early 1930's. Evidence of inadequate freeboard and inadequate spillway capacity has been documented in inspection reports beginning in 1956. In a Forest Service Dam Maintenance inspection report for Canyon Lake Dam, dated Jan. 1975, the Canyon Creek Irrigation District was directed to correct these deficiencies as follows: "*Dam will have to be raised to original height and slope facing placed on the reservoir side or the spillway lowered to provide adequate freeboard*". After an overtopping event in July 1972, Forest Service personnel removed rock and debris in the spillway channel to lower the reservoir pool elevation and increase the freeboard. A report by the Forest Engineer, dated July 17, 1972, documents that the Forest Service removed rocks to a depth of 6 inches in the control section of the spillway. Subsequent inspections included recommendations to increase the freeboard by lowering the spillway and increasing the dam embankment height. The spillway was lowered a second time in 1979 (letter from Canyon Creek Irrigation District dated Jan. 1980).

Historical Events - Canyon Lake Dam

1891 Canyon Lake Dam constructed.

1903 Survey approved by the Secretary General of the Department of Interior, General Land Office, granting an easement for Canyon Creek Reservoirs on May 26, 1903 under the Act of March 3, 1891. This easement is recognized by the US Forest Service.

1938 Dam repaired as a result of prior overtopping event and wash out in dam crest.

1956 Forest Service begins routine dam maintenance inspections of Canyon Dam.

1966 SCS prepared plans for major maintenance and reconstruction for both Canyon and Wyant Dams, but there are no records of project completion.

1970 Maintenance and minors repairs completed under Cooperative Agreement between Canyon Creek Irrigation District (CCID) and US Forest Service.

1972 Canyon Lake Dam overtopped and washed out a section of the dam crest.
See note below*

1996 Canyon Lake Dam overtopped and washed out a center section of the dam in spring.
*See note ** below*

1998 US Bureau of Reclamation inspected Wyant Dam, September 1998.

1998 Collapsed roof rock discovered in outlet conduit during October 1998 (reservoir at low water level) and July 1999 (high water level) inspections by David Jones, P.E.

2001 Emergency repairs completed in October for the purpose of repairing a large sink hole and associated piping of the embankment, discovered earlier in the year.

2002 Hydrometrics, Inc., conducted geotechnical drilling investigation of Canyon Dam.

* *In 1972 the dam was overtopped, which washed out a section in the dam crest approximately 20 feet wide and 3½ feet deep. According to a report signed by the Forest Engineer, dated July 17, 1972, the spillway was free of debris during this overtopping event. To increase the spillway capacity, the spillway crest was lowered by removing rock to a depth of approximately 6 inches.*

** *In 1996 heavy runoff conditions (160% of normal snowpack) lead to an overtopping event and crest erosion to Canyon Lake Dam. According to the engineering report that was prepared by David Jones, P.E., "Erosion Damage Report" dated August 1996, the crest erosion was caused by an inadequate spillway size and inadequate dam freeboard. Emergency repairs were completed September and October 1996. These emergency repairs were made specifically for the purpose of repairing the 40-foot wide breach caused by runoff overtopping the dam - not to bring the dam up to federal safety standards. This overtopping event provides evidence of the inadequacy of both the existing spillway capacity and the available freeboard.*

Historical Events – Wyant Lake Dam

Early 1900's Wyant Lake Dam constructed.

1903 Survey approved by the Secretary General of the Department of Interior, General Land Office, granting an easement for Canyon Creek Reservoirs on May 26, 1903 under the Act of March 3, 1891. This easement is recognized by the US Forest Service.

1956 Forest Service begins routine dam maintenance inspections of Canyon Dam.

1961 Large sinkhole near outlet works repaired; cutoff wall installed around outlet works.

1966 SCS prepared plans for major maintenance and reconstruction for both Canyon and Wyant Dams, but there are no records of project completion.

1970 Maintenance and minors repairs completed under Cooperative Agreement between Canyon Creek Irrigation District and US Forest Service.

1971 Wyant Dam spillway enlargement.

1998 US Bureau of Reclamation inspected Wyant Dam, September 1998.

1998 David Jones, P.E. inspected Wyant Dam at request of CCID during low water in October 1998 and during high water in July 1999.

Appendix C

Authority to Regulate Safety of Dams on National Forest System Lands

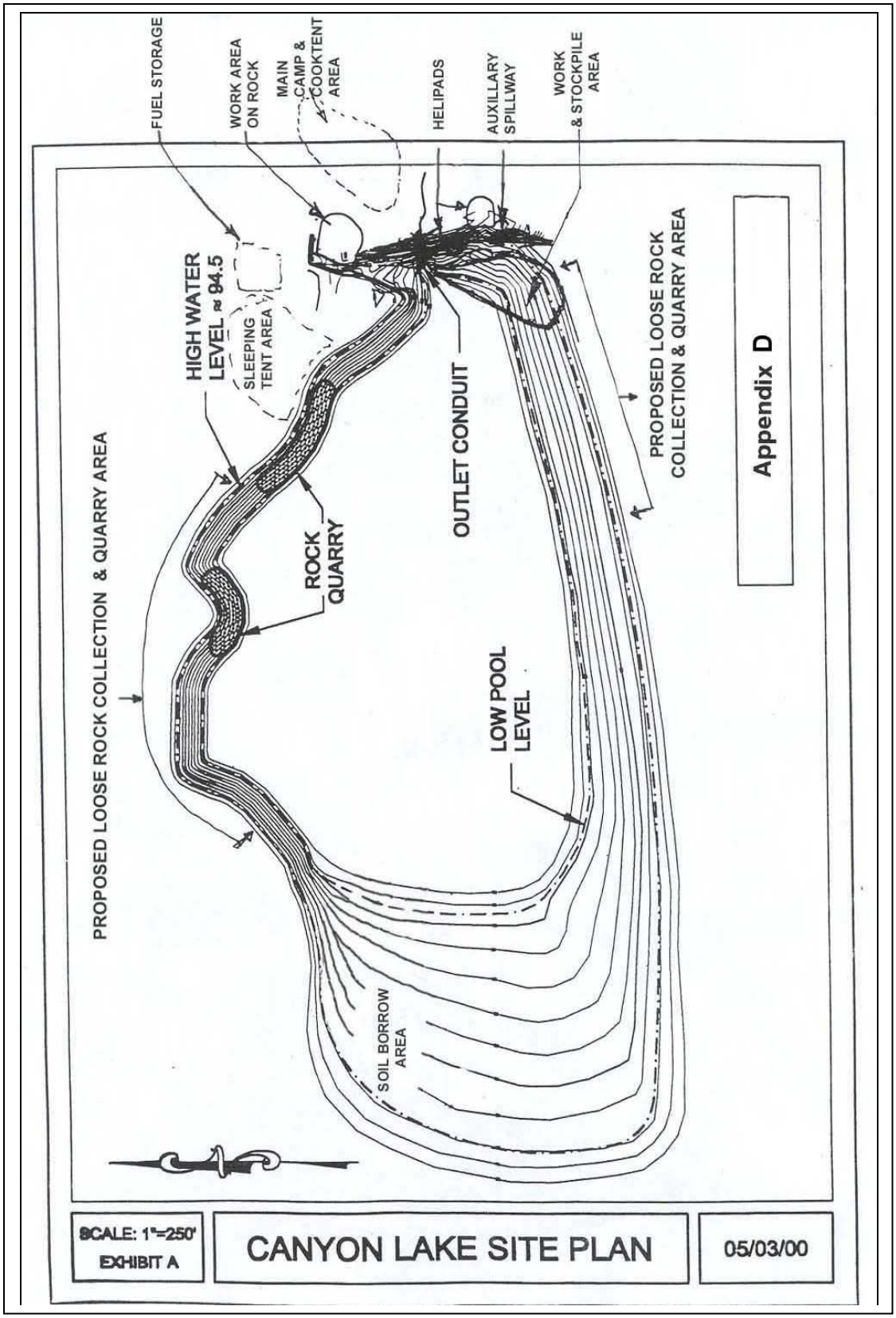
The authorities through which the U.S. Forest Service regulates safety of dams on National Forest lands are as follows:

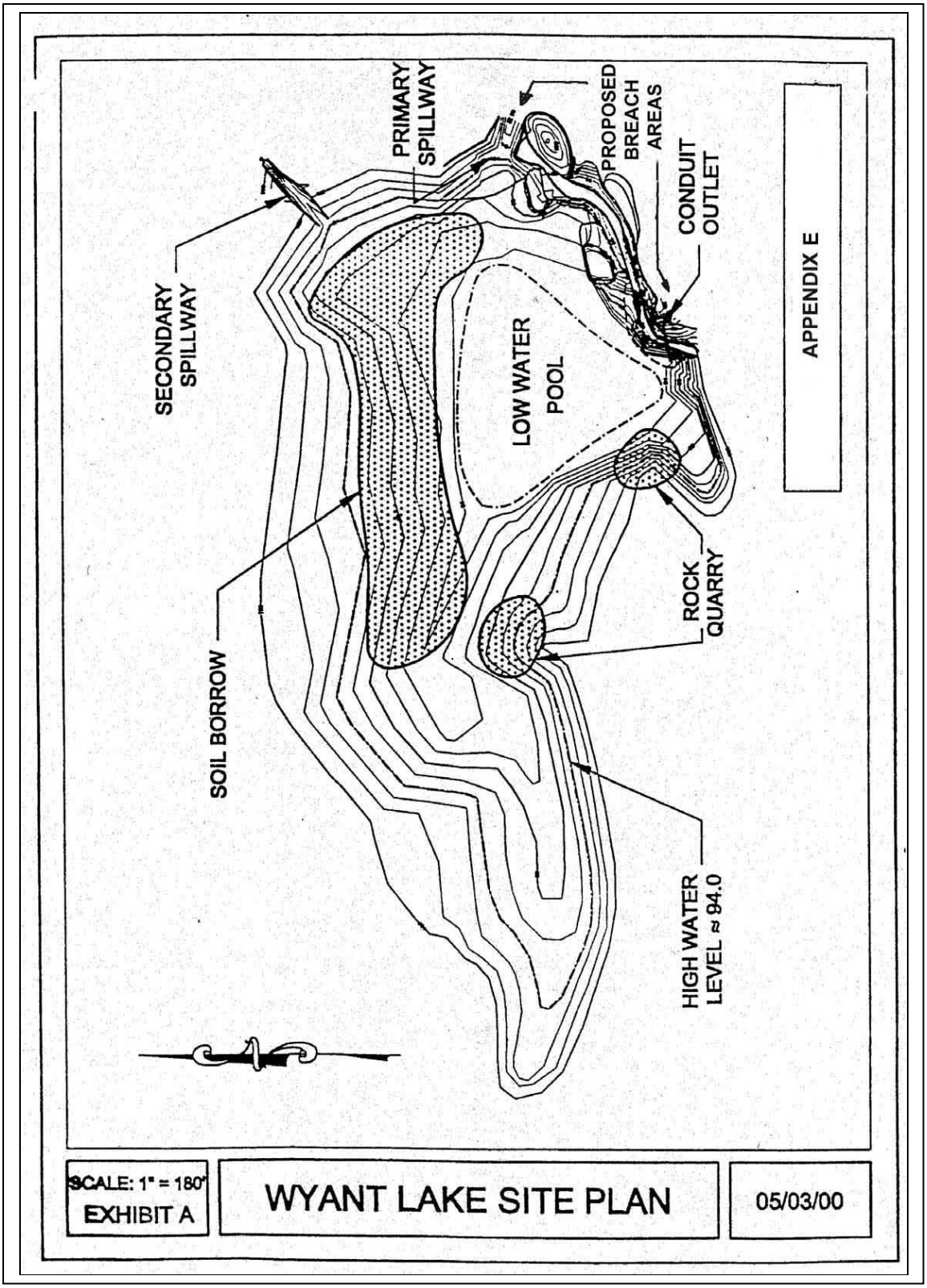
National Dam Safety and Security Act of 2003 (P.L. 104-303)
National Dam Safety Program Act of 1996 (P.L. 104-303)
FSM 7500 Forest Service Engineering Requirements for Water Storage and Transmission Projects, August 1993 (Note: Section 7501 of this manual lists applicable authorities, up to Aug. 1993).
FSH 7509.11 Forest Service Dams Management Handbook, August 1993
Water Resources Development Act of 1992 (33 US.C. 2201)
Presidential Memorandum of October 1979 and Federal Guidelines for Dam Safety, pub. June 1979
Federal Dam Inspection Act of 1972 (P.L. 92-367)
Departmental Regulations 1043-18 (USDA)
Title 36, Code of Federal Regulations, Part 251 and FSM 2700
Title 18, Code of Federal Regulations, Part 4
Title 33, Code of Federal Regulations, Part 208

Memorandum of Understanding between the State of Montana, Department of Natural Resources and Conservation, and USDA Forest Service, Northern Region, March 2000

Bureau of Reclamation Technical Publications

Design of Small Dams, 2nd Edition, 1973; Rev. Reprint 1977
Manual for Safety Evaluation of Existing Dams, 1st Edition, 1977
Ground Water Manual, 1st Edition, 1977
Concrete Manual, 8th Edition, 1975
Earth Manual, 2nd Edition, 1974


FUEL STORAGE
WORK AREA ON ROCK
MAIN CAMP & COOKTENT AREA
HELIPADS
AUXILLARY SPILLWAY
WORK & STOCKPILE AREA
HIGH WATER LEVEL ≈ 94.5
SLEEPING TENT AREA
PROPOSED LOOSE ROCK COLLECTION & QUARRY AREA
ROCK QUARRY
OUTLET CONDUIT
PROPOSED LOOSE ROCK COLLECTION & QUARRY AREA
Appendix D
LOW POOL LEVEL
SOIL BORROW AREA
SCALE: 1"=250'
EXHIBIT A
CANYON LAKE SITE PLAN
05/03/00


SECONDARY SPILLWAY
PRIMARY SPILLWAY
PROPOSED BREACH AREAS
CONDUIT OUTLET
APPENDIX E
LOW WATER POOL
SOIL BORROW
ROCK QUARRY
HIGH WATER LEVEL ≈ 94.0
SCALE: 1" = 180'
EXHIBIT A
WYANT LAKE SITE PLAN
05/03/00

APPENDIX F

SUMMARY OF THE MINIMUM REQUIREMENTS PROCESS

In 2002, a Minimum Requirements process was completed in response to CCID's request for mechanized transport on Canyon/Wyant Dams. This process has been developed to help managers evaluate methods or actions that minimize impacts to wilderness character. The process also helps determine the level of NEPA required. While it may become part of a project file, it is not a substitute for NEPA.

Regional Forest Service Manual Supplement 2300-98-1 requires proposals for use of mechanized transport to be evaluated based on the "minimum tool" necessary to accomplish the project AND that one or more of the following conditions be met in order to approve requests for use of motorized transport or mechanized tools in association with wilderness dams:

- Emergencies (Immediate threat to life and property)
- Where impacts to wilderness/resources would be greater using non-motorized/non-mechanical methods
- Where physically infeasible to use non-motorized methods
- When costs make the use of primitive tools infeasible.

The first part of the Minimum Requirements process uses a series of yes/no questions related to legislative and management compatibility. In certain instances, the first part of the process leads to either recommending approval or not proceeding with the activity. For instance, an emergency such as an aircraft accident would lead to approval while a project that could meet it's objectives outside wilderness would not gain approval. Some projects will go on to the second part of the process. A range of alternatives (from fully motorized/mechanized to fully non-motorized/mechanized) is developed and then evaluated based on a series of considerations (economic, biophysical/recreation/social effects, health & safety concerns, etc.). It is then used to recommend a preferred method/action that will minimize impacts to wilderness.

At that time, the CCID's proposed work included:

- Replacing the outlet (to insure efficient releases). This would be accomplished by boring a new outlet and sealing the existing outlet OR by excavating down to the existing outlet and replacing it - cut and cover - to be determined by exploratory work in 2002.
- Building an auxiliary spillway (for flood protection).
- Restoring the crest to the original 25' height (for flood protection and for retaining full storage rights).
- Breaching Wyant Dam.

The requested access made it to the second part of the process, where four alternatives were developed:

1. CCID Proposal: Requested use of mechanized transport and motorized tools summer/fall of 2003 at Canyon and Wyant Dams would be authorized. This alternative is described in the FEIS as Alternative 2.
2. Motorized transport would be authorized only for heavy equipment or materials too heavy to transport with stock. All other equipment, materials, supplies and people would be transported with stock. All use of motorized tools would be authorized. This alternative is described in the FEIS as Alternative 3.
3. Mechanized transport would not be authorized. All equipment, materials, supplies and people would be transported with stock. The only motorized equipment that would be authorized are those that can be transported with stock (compactors, generators, pumps, etc.). Approximately 93 stock trips (each with 20 stock) would be needed to transport all equipment, materials, supplies and laborers.

4. No mechanized transport or motorized equipment would be authorized. All equipment, materials, supplies and people would be transported with stock. Approximately 122 stock trips (each with 20 stock) would be needed to transport all equipment, materials, supplies and laborers.

In addition, two alternatives were considered but not looked at in depth:

- Building a 5' wide trail bed to accommodate mechanized transport. This alternative would require Presidential approval, would have permanent impacts on the wilderness resource, would greatly increase the potential for motorized trespass in the wilderness, and would add several months and @$90,000 to the cost of the project.
- Breaching Canyon Lake Dam.

The full Minimum Requirements process is documented in the project file, as well as spreadsheets used to calculate time and costs. Issues related to the CCID request that were evaluated included the use of traditional vs. mechanized equipment, length of time required to complete the work, timing associated with the CCID's funding sources and NEPA guidelines, cost, federal dam safety requirements and level of impact created by access (reconstructing and constructing trails to accommodate traditional transport vs. helicopter transport). Effects on wilderness character, recreation, safety and the physical resource were also evaluated.

	Estimated transport costs		**Estimated days for access**		**Estimated transport, equipment and labor costs**		**Estimated seasons for project completion**	
	Bore	**Cut & Cover**	**Bore**	**Cut & Cover**	**Bore**	**Cut & Cover**	**Bore**	**Cut & Cover**
1	**105,600**	**221,300**	**10**	**10**	**414,332**	**456,950**	**1**	**1**
2	**223,867**	**373,524**	**30**	**30**	**532,399**	**611,184**	**2**	**2**
3	**NA**	**217,135**	**NA**	**93**	**NA**	**2,061,154**	**NA**	**4-5**
4	**NA**	**256,402**	**NA**	**122**	**NA**	**2,160,511**	**NA**	**8-9**

The following chart is a comparison that was developed of economic, logistical and timing considerations. Note that the costs are NOT total project costs, which would include supplies and materials. Also note that the third and forth alternatives required a cut and cover. A "mining shaft" (the traditional equivalent to a "bore") was considered but dropped from the evaluation because it would cost more than a cut and cover.

As a result of the Minimum Requirements process, the recommended action was to give approval for the CCID's requested mechanized transport. Based on the evaluation, it would meet two of the Regional Forest Service Manual Supplement 2300-98-1 requirements for proposals to use mechanized transport and/or motorized tools:

- **Where impacts to wilderness/resources would be greater using non-motorized/non-mechanical methods.** Trail "improvements" in all other alternatives would substantially affect wilderness character – both short and long-term. On-going stock use would accelerate degradation of campsites in an area that already exceeds Forest Plan standards for campsite impacts. Natural integrity would be threatened by the probable introduction of noxious weeds associated with a new trail. Wildlife displacement would be greatly increased in the third and fourth alternatives, based on the additional seasons required to complete project work.

- **When costs make the use of primitive tools infeasible.** While costs of the second alternative would not be significantly higher than the proposed mechanized transport, there would be unacceptable costs to wilderness character (see above). Financial costs to the CCID in the third and fourth alternatives would likely be unreasonable and timing constraints would cause existing grants and conservation project loans to be unavailable.

The CCID's requested mechanized transport also most quickly met Federal Dam Safety requirements (an area of high concern) and would affect visitor experience for the shortest amount of time (although this would be offset by the affects of motorized & mechanized use).

In the spring of 2003, the CCID submitted a revised proposal that is described in the FEIS as a Phase 1 partial breach of Canyon Lake Dam in 2003 (with Federal Dam Safety requirements met in this phase) and a Phase 2 repair of Canyon Lake Dam and partial breach of Wyant Lake Dam in 2004. Using the Minimum Requirements documentation completed in 2002 and the chart on the preceding page, the costs and timing considerations are reasonably similar between the first and second alternatives (described in the DEIS as Alternatives 2 and 3). However, the other rationales for approving mechanized transport are still considered valid - trail "improvements" would substantially affect wilderness character – both short and long-term. On-going stock use would accelerate degradation of campsites in an area that already exceeds Forest Plan standards for campsite impacts. Natural integrity would be threatened by the probable introduction of noxious weeds associated with a new trail. The third and fourth alternatives (fully non-mechanized transport and – in the fourth – non-motorized equipment) would still result in greatly increased costs and times. In summary, the recommended action would still be to approve mechanized transport using a "minimum tool" evaluation.