



Date: March 22, 2011
To: DEQ – Shellie Haaland, Bill Kirley, Denise Martin, Dave Bowers; USFS – Beth Ihle
Cc: File 10160 - Pioneer
From: Joel L. Gerhart, P.E. *JLG*
RE: Upper Blackfoot Mining Complex Repository Selection Process Summary and Recommendations (Contract 407038, TO 51, Task 1)

The purpose of this memo is to describe the process used to date to identify and investigate repository options for the Upper Blackfoot Mining Complex (UBMC) and to provide recommendations regarding the process used to select the preferred repository site in the future. The information presented in this memo is based on Pioneer's review of the documents pertaining to the USFS and DEQ repository investigations to date, including the 2007 Engineering Evaluation/Cost Analysis (EE/CA) and Action Memo and referenced documents, the 2009 Geotechnical/Geochemical Evaluation and Alternative Analysis, the 2010 Preliminary Design Report, the 2010 Paymaster/Shave Data Summary Report, the 2010 Impoundment Data Summary Report, the 2010 Section 35 Data Summary Report, and the 2010 Repository Fact Sheet, as well as detailed conversations with DEQ and USFS staff. This summary of the actions and approach taken by the USFS and DEQ to find suitable repository sites identifies missing information noted in the review and provides recommended corrections or clarifications, where applicable, but is not an exhaustive review of all possible information.

Summary of Actions and Decisions to Date:

The Paymaster repository site was identified as the preferred alternative in the 2007 EE/CA for disposing the wastes from USFS and private properties located in the "mining area" (i.e., generally the area of the Upper Blackfoot River above the intersection with Pass Creek). DEQ concurred with the conclusions reached in the EE/CA, but also supported a study to look for other sites located outside the mining area (the 2006 Repository Siting Study included in Appendix E of the EE/CA), and these alternatives were screened and included in the EE/CA evaluation.

DEQ is working on the Draft RI/FS for the portions of the UBMC site that are not on federal lands but a final decision has not been reached. It is possible that additional wastes will be identified for removal and it may be desirable to dispose of these wastes in the same repository as the wastes from federal lands.

After the EE/CA was completed, ASARCO filed for bankruptcy. In the ensuing settlement, funds for cleanup were established and the cleanup process transitioned from a PRP-led effort to a State-led cleanup process. Many of the affected properties in the mining area were transferred to Trust ownership as a part of the settlement. The settlement afforded potential benefits to overall site management and cleanup effectiveness through a coordinated effort between DEQ and USFS, which highlighted the need to ensure the Paymaster site remained a suitable alternative under the new site management scenario.

In early 2009, DEQ began detailed site investigation and site preparatory work necessary to design and implement the selected alternative from the EE/CA. To the extent feasible, DEQ tailored the data collection and the site preparatory efforts to gather the information necessary to determine if the Paymaster site would work for both the coordinated effort and the potential outcome(s) of the State's RI/FS. In order to do this, DEQ made certain assumptions to estimate the amount of waste from non-federal lands to be placed in the repository.

Later in 2009, DEQ and USFS completed the detailed engineering and geotechnical analyses of the Paymaster site to assess constructability, feasibility and costs associated with the Paymaster site based on the existing data available at that time. DEQ and USFS looked very closely at the potential waste volumes, waste material characteristics, and the physical setting of the Paymaster repository site. The agencies subsequently identified significant constructability, space, volume, cost, and protectiveness issues that were not identified at the EE/CA level. In particular, the revised volume estimate for the Mike Horse Tailings Impoundment was much higher than estimated in the EE/CA.

Because of the previously documented limitations of the other potential repository sites located on the mining properties considered in the EE/CA, DEQ and USFS determined that it was necessary to look at additional alternatives in or very near to the mining area. DEQ and USFS identified several additional alternative repository sites based on review of previous information, visual observation, and local site reconnaissance. The new sites included both new potential locations in the mining area and new potential locations on nearby USFS property.

In the fall of 2009, DEQ and USFS determined that the Shave Gulch site had the best potential of the new alternatives and commenced detailed field investigations for both the Paymaster and Shave Gulch sites. These field investigations were completed in 2010 and demonstrated significant technical issues with the Paymaster site, including geochemistry problems with materials available for embankment construction, space, volume, slope stability design complications associated with the fine tailings materials, shallow groundwater, and other issues. The Shave Gulch investigation revealed the same issues and limitations as the Paymaster site and subsequently none of the new sites located in the mining area or the nearby USFS locations were determined to be suitable repository sites.

The EE/CA provides the flexibility to utilize repository sites other than the Paymaster site if significant technical issues are identified with the Paymaster site. Given the significant technical issues identified at the Paymaster site in the 2009 and 2010 studies, DEQ and USFS decided to consider other repository alternatives identified in the EE/CA. The next potential repository alternative from the EE/CA is the First Gulch site located outside of the mining area. After

review of the information in the EE/CA, the First Gulch site was determined to be too small to contain the required waste volume for either the standalone USFS waste volume or the combined waste volume.

The next alternative identified in the EE/CA, and in the 2006 siting study completed by DEQ, is the Horsefly Creek site, which would essentially entail implementing EE/CA Alternative 5. Because Alternative 5 is a much more expensive alternative with a different set of limitations, DEQ, USFS, and other on-site personnel looked closely for other potential repository locations outside the mining area but nearer to the site than the Horsefly Creek site.

During this same time period, Section 35 was identified through visual observation and site reconnaissance as a possible repository site located outside the mining area. The site was subsequently investigated, and has been identified as an alternative which could be cost-competitive with the Paymaster site and which could provide other benefits including reclamation borrow materials and greater overall protectiveness of human health and the environment.

In early 2010 the public was informed that the Section 35 site was being investigated as an alternative repository site through a regular update to the local community council. The public expressed interest and concerns regarding the Section 35 site. DEQ and USFS held a series of stakeholder tours of the potential Section 35 site and many of the other sites previously considered. At the request of local groups and citizens, DEQ and USFS agreed to evaluate McDonald Meadow and a location east of the Continental Divide as potential repository sites. Information on the Section 35 alternative was also published and made available through the November 2010 Mike Horse Messenger.

An addendum to the EE/CA is required if a site other than the Paymaster site is used. USFS agreed to lead the effort to prepare an addendum to the EE/CA. The process of evaluating potential alternative repository sites is ongoing.

List of Issues Identified in Task 1 and Recommendations:

1. The process used to choose the Horsefly Creek repository site through the EE/CA appears logical, but a critical review of the screening process is warranted at this time to verify that other sites identified in the 2006 repository siting study are not better alternatives.
2. It is normal that additional potential locations beyond those identified in the 2006 coarse-filter study could be identified through site reconnaissance. The coarse-filter study is a starting point and experienced personnel often identify sites that computer studies cannot.
3. A new coarse-filtering analysis may not be valuable because the previous study appears adequate within the limits of a coarse-filtering analysis. Time would be better spent doing more detailed analysis of the alternatives.
4. The 2006 coarse-filter study should be updated by manually adding potential sites identified by on-site personnel in the last few years (Section 35, Gravel pit, etc), and adding any new sites that are reasonable to consider.

5. All of the alternatives located outside the mining area, including the manually added sites, should be re-screened to identify the best current alternative located outside the mining area.
6. Once the best repository site located outside the mining area is identified, the off-area alternative should be compared against the Paymaster and/or Shave Gulch locations given the new information. The preferred alternative should be determined by comparing the alternatives using the typical CERCLA criteria, ARAR's, the alternative's ability to accommodate a coordinated effort, and other site-specific criteria.
7. If the evaluations show that the off-area repository site is preferred, the updated screening analysis and alternatives comparison can be used to support the EE/CA amendment.

Other Specific or Technical Issues:

8. Terminology used for each site needs to be corrected in some areas for consistency and readability.
9. Terminology on the Paymaster design alternatives used in the recent reports needs to be carried consistently through any new reports to avoid confusion.
10. The Paymaster stability analysis should be updated with a horizontal acceleration factor (Fh) of 0.11 instead of the 0.09 used in the study. This change may significantly alter the embankment design and could affect the final alternatives analysis.
11. USFS and DEQ appear to be considering different sites east of the Continental Divide. Pioneer recommends that both locations be evaluated in the updated screening analysis.

If you have any questions regarding the information or recommendations provided above, please contact me at (406)457-8252 extension 8302.

Date: May 2, 2011
To: DEQ – Shellie Haaland, Bill Kirley, Denise Martin, Dave Bowers; USFS – Beth Ihle
Cc: File 10161 - Pioneer
From: Joel L. Gerhart, P.E. *JLG*
RE: Upper Blackfoot Mining Complex (UBMC) Repository Selection Process, Suggested Potential Repository Locations (Contract 407038, TO 51, Task 3)

This memo describes the process used to screen potential repository sites and presents the list of potential UBMC waste repository sites recommended for detailed evaluation. Pioneer screened the sites identified from the previous coarse filter analysis and the proposed new sites as described in the March 25, 2011 memo.

As a basis for screening alternatives, Pioneer developed numeric preliminary scoring criteria for available space, slopes, capacity, hydrology, geology, geotechnical concerns, soil suitability, landownership, access, potential for borrow materials, distance from the mining area, distance to human and environmental receptors, visibility, and short-term construction safety concerns for each of the sites. The proposed scoring criteria and brief description of the factors considered are presented in Table 1.

Pioneer then identified several potential repository sites including those within each of the previous study areas, sites identified in the EE/CA, as well as new potential sites. These sites were then screened using the numeric preliminary scoring criteria. Pioneer assessed all of the criteria for each site and entered the scores into the scoring matrix presented in Table 2. If an individual criterion showed that the site was not at all suitable for use as a repository based on that single criterion, that alternative was designated as a “no go” alternative.

The preliminary scores given are based on the best available information, data sources, the site visits and a helicopter flyover. An exhaustive evaluation of each site was not possible at this stage of the study and the matrix is helpful to eliminate sites that are clearly not suitable. The sites with the highest overall score represent the locations with the highest potential to be suitable/feasible repository locations. The final repository rankings and sites recommended for detailed analysis are presented in Table 3. Design level data collection including; test pitting, drilling, water sampling, etc. may adjust the rankings of any of these sites up or down from their rank on this coarse filter analysis.

The top two sites for each area are recommended for further analysis, with the exception of the Blackfoot area where only one site was selected due to the poor scores of the other site alternatives within the area. Also considered in the selection of the final sites, was the

availability of existing data to provide quantifiable comparison and observations made from an aerial visual survey of the sites on April 25th, 2011.

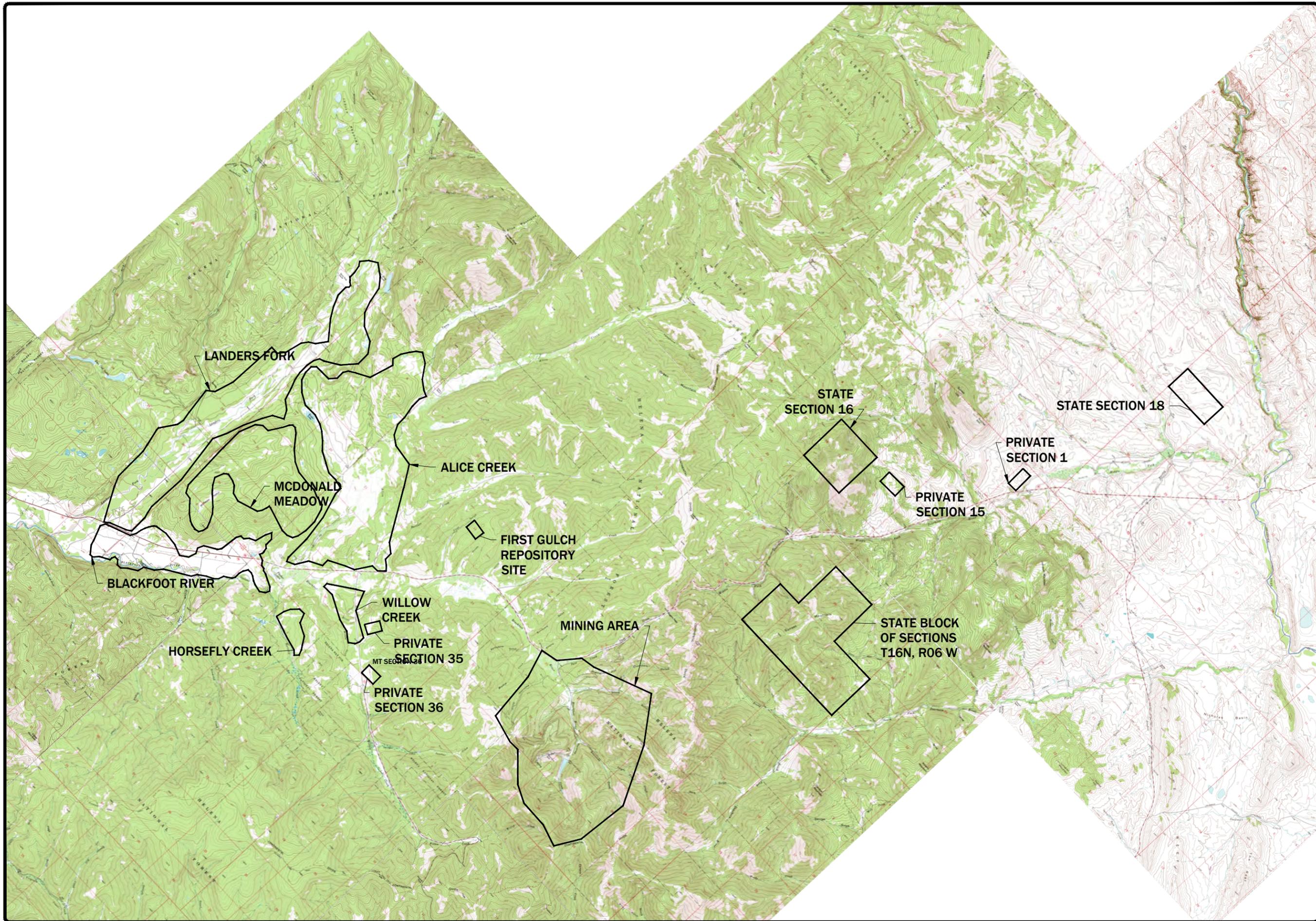
Pioneer proposes to complete a detailed analysis and comparison of the site alternatives identified in Table 3. Please note that identified sites are being evaluated for their suitability as potential repository sites and that areas not carried forward in the analysis may be appropriate for other uses such as; cover soil borrow, aggregate borrow, vegetative borrow, etc. If you have any questions regarding the information or recommendations provided above, please contact me at (406)457-8252 extension 8302.

TABLE 1 - RECOMMENDED POTENTIAL REPOSITORY SITES FOR FURTHER ANALYSIS

**2011 SCREENING PROCESS REVIEW AND UPDATE
UPPER BLACKFOOT MINING COMPLEX (UBMC)**

Prepared by Pioneer Technical Services, Inc. for Montana Department of Environmental Quality (DEQ)
3/25/2011

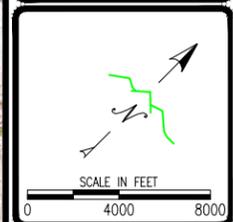
Site name	When Identified	Location	Notes
Previously Identified Sites			
Horsefly Creek	2006 TT-EM study	Single Site, See Figure 1	Previously evaluated and characterized as a suitable site. Included in EE/CA Alternative 5.
McDonald Meadow	2006 TT-EM study	Multiple, See Figure 1	Several potential sites on state and private land. Identify the best 2-3 sites in the area and carry forward for additional analysis.
Blackfoot River	2006 TT-EM study	Multiple, See Figure 1	Several potential sites on state and private land. Identify the 2 best sites in the area and carry forward for additional analysis.
Alice Creek	2006 TT-EM study	Multiple, See Figure 1	Several potential sites on state and private land. Identify the best 2-3 sites in the area and carry forward for additional analysis.
Willow Creek	2006 TT-EM study	Multiple, See Figure 1	Two potential sites on private land, evaluate if landowner interest is positive.
Landers Fork	2006 TT-EM study	Multiple, See Figure 1	Several potential sites on state and private land. These sites are the furthest from the mining area and should only be evaluated if all of the closer sites are screened out.
New Sites West of Continental Divide			
Private Section 35	2009/2010 Field Work	Section 35 T15N R 07W, See Figure 1	Private property, Land Trade or purchase needed.
Private Section 36	2009/2010 Field Work	Section 36, T15N R07W, See Figure 1	Private portion, 3/4 section owned by State of Montana, land trade or purchase needed.
New Sites West of Continental Divide			
State Section 16	2011	Section 16, T16N R06W, See Figure 1	Consider because of proximity and current state Ownership, even though it is steep with limited access.
Private Section 15	2011	S15, T16N R06W, See Figure 1	Possible location east of the Continental Divide in potentially reasonable proximity to site, land trade or purchase would be needed.
State Block of Sections, T16N, R06 W	2011	Sections 34 (por), 35, 36, 26 T16N R06W, See Figure 1	Consider because of proximity to mining area and current State ownership, even though it is steep with limited access.
Private Section 1	2011	S1, T16N R06W, See Figure 1	Potential location east of the Continental Divide identified by USFS.
State Section 18	2011	S18, T17N R5W, See Figure 1	Potential location east of the Continental Divide identified by DEQ.



REVISION:	BY:	DESC:

DRAWN BY: CR
 DESIGNED BY: TW
 CHECKED BY: JG
 APPROVED BY: TR
 PROJECT NO: 0000
 DATE: 3/25/11

DISPLAYED AS:
 COORD SYS/ZONE: NAD 83
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER



MONTANA DEQ
 UPPER BLACKFOOT MINING COMPLEX
 2011 REPOSITORY SITES EVALUATION

FIGURE 1
 PROPOSED REPOSITORY SITES
 FOR ADDITIONAL STUDY


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SHEET
 1 OF 1

Date: March 25, 2011
To: DEQ – Shellie Haaland, Bill Kirley, Denise Martin, Dave Bowers; USFS – Beth Ihle
Cc: File 10160 - Pioneer
From: Joel L. Gerhart, P.E. *JLG*
RE: Upper Blackfoot Mining Complex (UBMC) Repository Selection Process, Fresh Look at Potential Repository Locations (Contract 407038, TO 51, Task 2)

The purpose of this memo is to provide the list and map identifying the potential UBMC waste repository locations outside the mining area that are proposed for further evaluation. Per the March 22, 2011 memo that summarized the selection process used to date and provided recommendations on the selection process, instead of completing a new coarse-filter analysis, the previous coarse filter analysis was updated with new potential locations identified in the field and new potential locations east of the Continental Divide. These new sites, when evaluated with those identified previously, will provide a “fresh look” for potential repository locations located outside the mining area. Figure 1 shows the locations of the general areas identified previously and the new sites to be considered. Table 1 summarizes the locations and provides a brief description of the reasons for selection.

The previous coarse filter analysis combined with the proposed new sites provides numerous (greater than 60 total) potential locations that may be suitable repository sites. Pioneer proposes to:

1. Revisit the previous study, update information as available, and screen all locations to select a subset of sites with the best potential.
2. Complete a comparative analysis of the screened subset of sites based on space, slopes, capacity, hydrology, geology/mineralization, soils, landownership, access, potential for borrow materials, distance from the mining area, distance to human and environmental receptors, visibility, potential public acceptance, and short-term construction safety concerns for each of the sites with the best potential.
3. Pioneer will propose up to five (5) locations for detailed evaluation and cost analysis based on the comparison described in Item 2, and will then meet with DEQ and USFS to discuss the alternatives proposed for further evaluation.

Once the best location outside the mining area is identified, it will then be compared to the Paymaster/Shave gulch sites as described in the March 22, 2011 memo.

If you have any questions regarding the information or recommendations provided above, please contact me at (406)457-8252 extension 8302.

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Table 1 - Upper Blackfoot Mining Complex Proposed Repository Site Screening Evaluation Criteria and Scoring

Monday, May 02, 2011		Proposed Scoring							Basis of Evaluation
Evaluation Criteria	4 points	3 points	2 points	1 point	0 point	-1 point	No Go		
Available Area	>50 acres	>40 acres	>30 acres	>20 acres	<20 acres	<10 acres	--	Based on the best available data, does the site have enough space to dispose waste and/or conduct site operations?	
Slope	<5%	5% - 10%	10% - 15%	15%-20%	>20%	>30%	--	Based on the best available data including USGS Quad Maps, DEM contours and survey data, what is the typical slope of the site?	
Available Capacity (cy)	>1,000,000	750,000 - 1,000,000	500,000 - 750,000	250,000 - 500,000	<250,000	--	--	Assuming a typical capacity of 20-25,000 cubic yards per acre, how much waste can be disposed at the site?	
Groundwater Concerns	--	--	>50'	>20' but <50'	Unknown	Seasonally Saturated Areas	<20'	Based on the best available data including test pits, well logs, and topography, what is the anticipated depth to groundwater at the site? Does vegetation suggest seasonally saturated areas?	
Surface Water Concerns	--	>100'	<100' but >50'	<50' but >10'	Unknown	Seasonal Surface Drainages	<10'	Based on existing mapping and aerial photography, are there surface water expressions, wetlands, stream channels or other surface water drainage concerns at the site? What is the approximate distance to the nearest surface water receptor?	
Geotechnical Concerns	--	--	--	No	Unknown	Yes	--	Based on the best available data including SSURGO Soils data, test pits, well logs, boring logs, geotechnical reports, design reports, and local geologic setting, does the site have obvious stability, seismic, or constructability concerns?	
Geochemistry Concerns	--	--	--	No	Unknown	Yes	--	Based on the best available data including SSURGO Soils data, test pits, well logs, boring logs, geotechnical reports, design reports, and local geologic setting, does the site have obvious mineralization or other geologic concerns that would compromise effectiveness of the site or cause release of metals?	
Suitable Soils	--	--	--	Yes	Unknown	No	--	Based on the best available data including SSURGO Soils data, test pits, well logs, boring logs, geotechnical reports, design reports, and local geologic setting, does the site appear to have soils suitable for repository construction?	
Potential Borrow Source	--	--	--	Yes	Unknown	No	--	Based on the best available data including SSURGO Soils data, test pits, well logs, boring logs, geotechnical reports, design reports, and local geologic setting, does the site have the potential to produce clean backfill materials for reclamation work in the mining area?	
Land Ownership	--	--	Trust	Public	Private	--	Unlikely to sell	Based on current Montana NRIS GIS landowner data, CAMA Data, previous reports, and communications with agencies who currently owns the site?	
Accessibility	--	--	--	Current road to site	No current road to site	--	Inaccessible	Based on the best available data including USGS Quad Maps, Aerial photographs, GIS Data, visual and topographical survey data, previous reports and communications with agencies, is road access to the site currently available?	
Haul Distance	--	On Area	<5 miles	5-10 miles	10-15 miles	>15 miles	--	What is the estimated haul distance to the site on existing roads from the mining area?	
Distance From Residences	>5000'	2500-5000'	1000-2500'	500-1000'	250-500'	<250'	receptors on site	Based on the best available data including USGS Quad Maps and Aerial photography, what is the estimated distance to nearby buildings, business, or residences?	
Visibility	--	--	--	Not visible from Main Roads	Visible from Main Roads	--	--	Based on the best available data including USGS Quad Maps and Aerial photography, is the site visible from main (paved) roads?	
Short-Term Impacts	--	--	--	Limited to Mining area	Off-Area Impacts	--	--	Is the site located inside or outside the mining area?	
Human Health and Safety	--	--	--	Limited to Mining area	Off-Area Impacts	--	--	Is the site located inside or outside the mining area?	
Environmental Protectiveness	TBD	TBD	TBD	TBD	TBD	TBD	TBD	To be determined in detailed evaluation, if applicable.	
Feasibility	TBD	TBD	TBD	TBD	TBD	TBD	TBD	To be determined in detailed evaluation, if applicable.	
Cost	TBD	TBD	TBD	TBD	TBD	TBD	TBD	To be determined in detailed evaluation, if applicable.	

TBD = To be determined in the detailed evaluation

Note: Tables are not intended to provide stand-alone basis for judgment and must be used in conjunction with the attached report.

Table 2 - Upper Blackfoot Mining Complex Preliminary Repository Site Screening Matrix

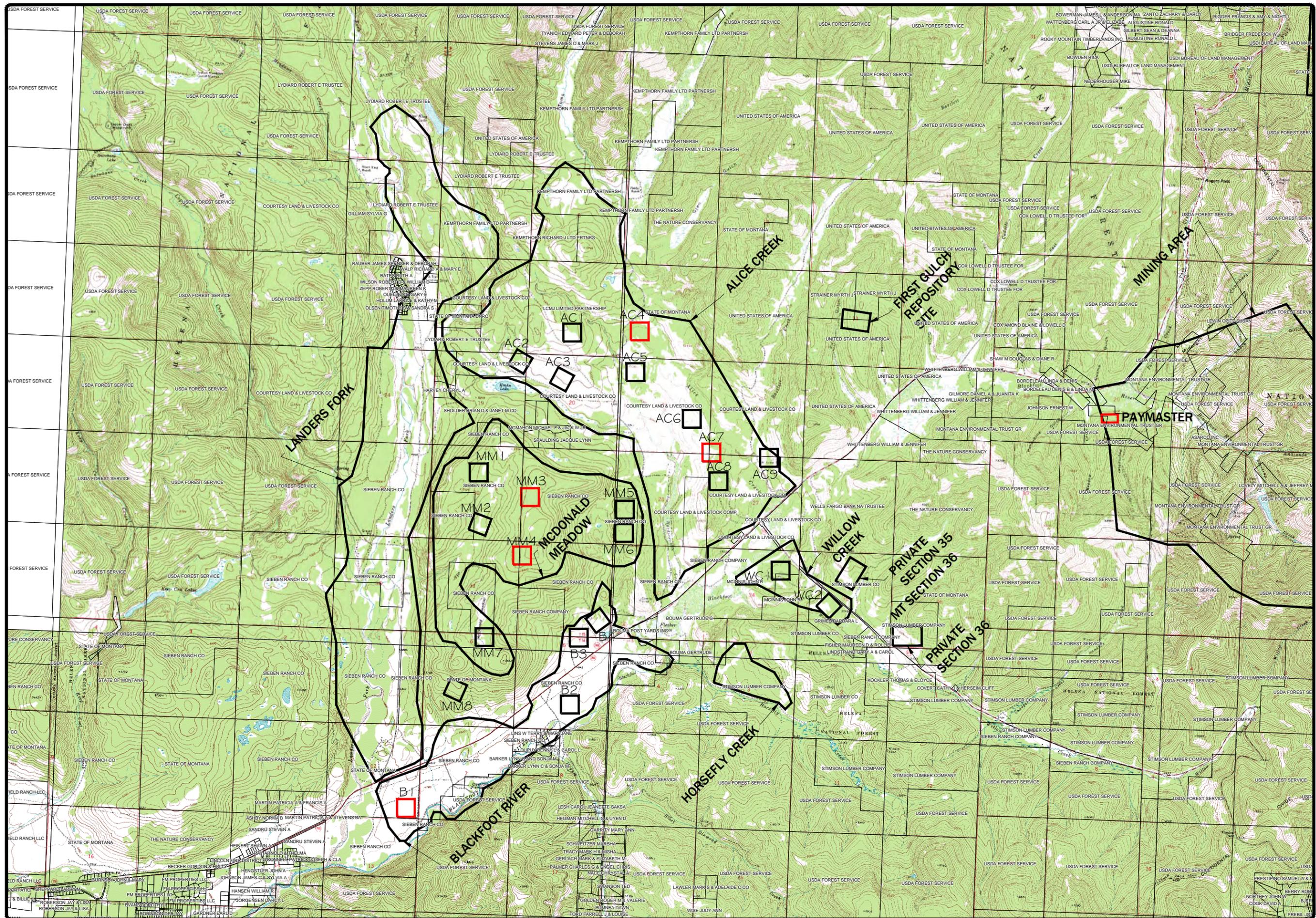
Monday, May 02, 2011		Screening Evaluation Criteria and Score																	
General		Screening Evaluation Criteria and Score																	
Potential Repository Site Name	Location (Section, Township, Range)	Available Area (acres)	Slope	Available Capacity (cy)	Groundwater Concerns	Surface Water Concerns	Geotechnical Concerns	Geochemistry Concerns	Suitable Soils	Potential Borrow Source	Land Ownership Score	Access	Haul Distance	Distance From Residences	Visibility	Short-Term Impacts	Human Health and Safety	Total Points	Notes
Sites Considered in EE/CA																			
• Southwest Repository Site		-1	0	0	2	1	1	1	1	1	2	1	3	3	1	1	1	18	
• South Mike Horse Ridge		-1	3	0	2	1	-1	1	1	1	2	1	3	4	1	1	1	20	
• Old Townsite		-1	0	0	2	2	1	1	1	-1	2	1	3	3	1	1	1	17	
• East of Paymaster Creek in Section 20		-1	3	0	0	1	-1	-1	-1	-1	2	1	3	4	0	1	1	11	
Sites Eliminated in EE/CA																			
• West Impoundment		-1	-1	0	No Go	1	-1	1	1	1	2	1	3	2	1	1	1	No Go	Shallow GW related to local groundwater seeps
• Reclaimed Stevens Gulch		-1	1	0	0	0	0	0	0	0	2	1	3	4	1	1	1	No Go	Reference EE/CA Appendix E
• Stevens Gulch Area		-1	2	0	0	1	-1	-1	-1	-1	2	1	3	4	1	1	1	No Go	Reference EE/CA Appendix E
Sites Identified from 2006 Coarse Filter Analysis																			
McDonald Meadow Area																			
• MM1	S30, T15 N, R07 W	3	2	4	-1	3	0	0	1	1	0	1	0	3	1	0	0	18	
• MM2	S30, T15 N, R07 W	4	2	4	-1	3	0	0	1	1	0	1	0	1	1	0	0	17	
• MM3	S29, T15 N, R07 W	4	3	4	-1	3	0	0	1	1	0	1	0	3	1	0	0	20	
• MM4	S31 AND 32, T15 N, R07 W	4	2	4	-1	3	0	0	1	1	0	1	0	3	1	0	0	19	
• MM5	S28, T15 N, R07 W	4	2	4	-1	3	0	0	1	1	0	1	0	2	0	0	0	17	
• MM6	S28, T15 N, R07 W	4	2	4	-1	3	0	0	1	1	0	1	0	2	0	0	0	17	
• MM7	S31, T15 N, R07 W	2	2	4	-1	3	2	0	1	1	1	1	0	-1	0	0	0	13	
• MM8	S06, T14 N, R07 W	1	2	4	-1	3	0	0	1	1	1	1	0	-1	0	0	0	12	
Alice Creek Area																			
• AC1	S17, T15 N, R07 W	4	3	4	0	-1	0	0	1	1	0	1	1	3	1	0	0	18	
• AC2	S19, T15 N, R07 W	4	2	4	No Go	-1	0	0	1	1	0	1	1	1	1	0	0	No Go	No Go based on 4/25/11 Field Trip - Surface Water Concerns
• AC3	S20, T15 N, R07 W	4	3	4	No Go	-1	0	0	1	1	0	1	1	2	1	0	0	No Go	No Go based on 4/25/11 Field Trip - Surface Water Concerns
• AC4	S16, T15 N, R07 W	4	3	4	0	1	0	0	1	1	1	1	1	4	1	0	0	22	
• AC5	S21, T15 N, R07 W	1	3	4	No Go	-1	0	0	1	1	0	1	1	4	1	0	0	No Go	No Go based on 4/25/11 Field Trip - Surface Water Concerns
• AC6	S21, T15 N, R07 W	2	3	4	0	1	0	0	1	1	0	0	1	2	1	0	0	16	
• AC7	S22, T15 N, R07 W	4	2	4	0	3	0	0	1	1	0	1	1	1	1	0	0	19	
• AC8	S27, T15 N, R07 W	4	2	4	0	3	0	0	1	1	0	0	1	1	0	0	0	17	
• AC9	S27, T15 N, R07 W	-1	3	0	No Go	1	-1	1	1	1	0	1	1	1	0	0	0	No Go	No Go based on 4/25/11 Field Trip - Surface Water Concerns
Blackfoot River Area																			
• B1	S12, T14 N, R08 W	4	4	4	1	3	0	0	1	1	1	1	1	2	0	0	0	23	
• B2	S05, T14 N, R07 W	4	4	4	1	3	0	0	-1	-1	0	1	1	2	0	0	0	18	
• B3	S05, T14 N, R07 W	2	3	3	-1	-1	0	0	1	1	0	1	1	-1	0	0	0	9	
• B4	S32, T15 N, R07 W	1	3	3	No Go	-1	0	0	1	1	0	1	1	1	0	0	0	No Go	No Go based on 4/25/11 Field Trip - Surface Water Concerns
Willow Creek Area																			
• WC1	S34, T15 N, R07 W	3	4	4	0	No Go	0	0	1	1	No Go	1	1	3	0	0	0	No Go	
• WC2	S35, T15 N, R07 W	2	4	4	0	3	0	0	1	1	No Go	1	1	1	0	0	0	No Go	
New Sites West Of Continental Divide																			
• Montana Section 36 next to Stimson	S36 T15N R 07W	1	3	3	1	3	0	0	1	1	1	1	1	2	0	0	0	18	
• Section 36 Private (Stimson)	S36 T15N R 07W	2	2	4	1	3	0	0	1	1	0	1	1	2	0	0	0	18	
New Sites East Of Continental Divide																			
• State Section 16	S16 T16N R06W	-1	-1	0	0	1	0	0	0	-1	1	1	1	3	1	0	0	5	
• Private Section 15	S15 T16N R06W	3	2	4	0	0	0	0	0	-1	0	1	1	2	1	0	0	13	
• State Block of Sections	S24, 34-36 T16N R06W	-1	-1	0	0	1	0	0	0	-1	1	1	1	2	1	0	0	4	
• Private Section 1	S1 T16N R06W	3	2	4	0	1	0	0	0	0	1	1	0	0	0	0	0	12	
• State Section 18-1	S18 T17N R5W	4	3	4	0	3	0	0	0	-1	1	1	-1	4	1	0	0	19	
• State Section 18-2	S18 T17N R5W	4	3	4	0	3	0	0	0	-1	1	1	-1	4	1	0	0	19	
Previously Investigated Repository Sites																			
• Paymaster		2	0	4	1	1	-1	-1	-1	-1	2	1	3	4	0	1	1	16	
• Shave Gulch		2	2	2	1	3	-1	-1	-1	-1	2	1	3	4	0	1	1	18	
• First Gulch		0	0	2	2	3	1	1	1	-1	1	1	3	4	1	0	0	19	
• Horsefly Creek	S03, T14 N, R07 W	4	3	3	-1	-1	1	1	1	1	0	1	1	3	0	0	0	17	
• Section 35 (Stimson)	S35 T15N R 07W	4	2	4	1	3	1	1	1	1	0	1	1	3	0	0	0	23	

Notes: Tables are not intended to provide stand-alone basis for judgment and must be used in conjunction with the attached report
 The Horsefly Creek groundwater score could increase if the repository is moved upslope away from the floodplain

Table 3 - Upper Blackfoot Mining Complex Preliminary Repository Site Ranking

Sites Considered in EE/CA	Score	Complete Detailed Analysis?	Notes
• South Mike Horse Ridge	20	No	Eliminated from detailed analysis in EE/CA
• Southwest Repository Site	18	No	Eliminated from detailed analysis in EE/CA
• Old Townsite	17	No	Eliminated from detailed analysis in EE/CA
• East of Paymaster Creek in Section 20	11	No	Eliminated from detailed analysis in EE/CA
Sites Eliminated in EE/CA			
• West Impoundment	No Go	No	Eliminated from detailed analysis in EE/CA
• Reclaimed Stevens Gulch	No Go	No	Eliminated from detailed analysis in EE/CA
• Stevens Gulch Area	No Go	No	Eliminated from detailed analysis in EE/CA
Sites Identified from 2006 Coarse Filter Analysis			
McDonald Meadow Area			
• MM3	20	Yes	Keep based on Score
• MM4	19	Yes	Keep based on Score
• MM1	18	No	Eliminated from detailed analysis based on Score
• MM2	17	No	Eliminated from detailed analysis based on Score
• MM5	17	No	Eliminated from detailed analysis based on Score
• MM6	17	No	Eliminated from detailed analysis based on Score
• MM7	13	No	Eliminated from detailed analysis based on Score
• MM8	12	No	Eliminated from detailed analysis based on Score
Alice Creek Area			
• AC4	22	Yes	Keep based on Score
• AC7	19	Yes	Keep based on Score
• AC1	18	No	Eliminated from detailed analysis based on Score
• AC8	17	No	Eliminated from detailed analysis based on Score
• AC6	16	No	Eliminated from detailed analysis based on Score
• AC3	No Go	No	Eliminated from detailed analysis based on Score
• AC5	No Go	No	Eliminated from detailed analysis based on Score
• AC2	No Go	No	Eliminated from detailed analysis based on Score
• AC9	No Go	No	Eliminated from detailed analysis based on Score
Blackfoot River Area			
• B1	23	Yes	Keep based on Score
• B2	18	No	Eliminated from detailed analysis based on Score
• B3	9	No	Eliminated from detailed analysis based on Score
• B4	No Go	No	Eliminated from detailed analysis based on Score
Willow Creek Area			
• WC1	No Go	No	Eliminated from detailed analysis based on Score
• WC2	No Go	No	Eliminated from detailed analysis based on Score
New Sites West Of Continental Divide			
• Section 36 Private (Stimson)	18	No	Eliminated from detailed analysis based on Score
• Montana Section 36 next to Stimson	18	No	Eliminated from detailed analysis based on Score
New Sites East Of Continental Divide			
• State Section 18-1	19	Yes	Evaluate 18-1 /2 as one alternative
• State Section 18-2	19	Yes	Evaluate 18-1 /2 as one alternative
• Private Section 1	12	No	Eliminated from detailed analysis based on Score
• Private Section 15	13	No	Eliminated from detailed analysis based on Score
• State Section 16	5	No	Eliminated from detailed analysis based on Score
• State Block of Sections	4	No	Eliminated from detailed analysis based on Score
Previously Investigated Repository Sites			
• Section 35 (Stimson)	23	Yes	Keep based on Score
• Shave Gulch	18	Yes	Keep as baseline alternative
• First Gulch	19	Yes	Keep as baseline alternative
• Horsefly Creek	17	Yes	Keep as baseline alternative
• Paymaster	16	Yes	Keep as baseline alternative

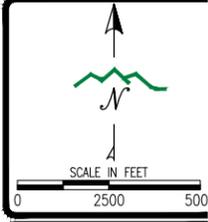
Note: Tables are not intended to provide stand-alone basis for judgment and must be used in conjunction with the attached report.



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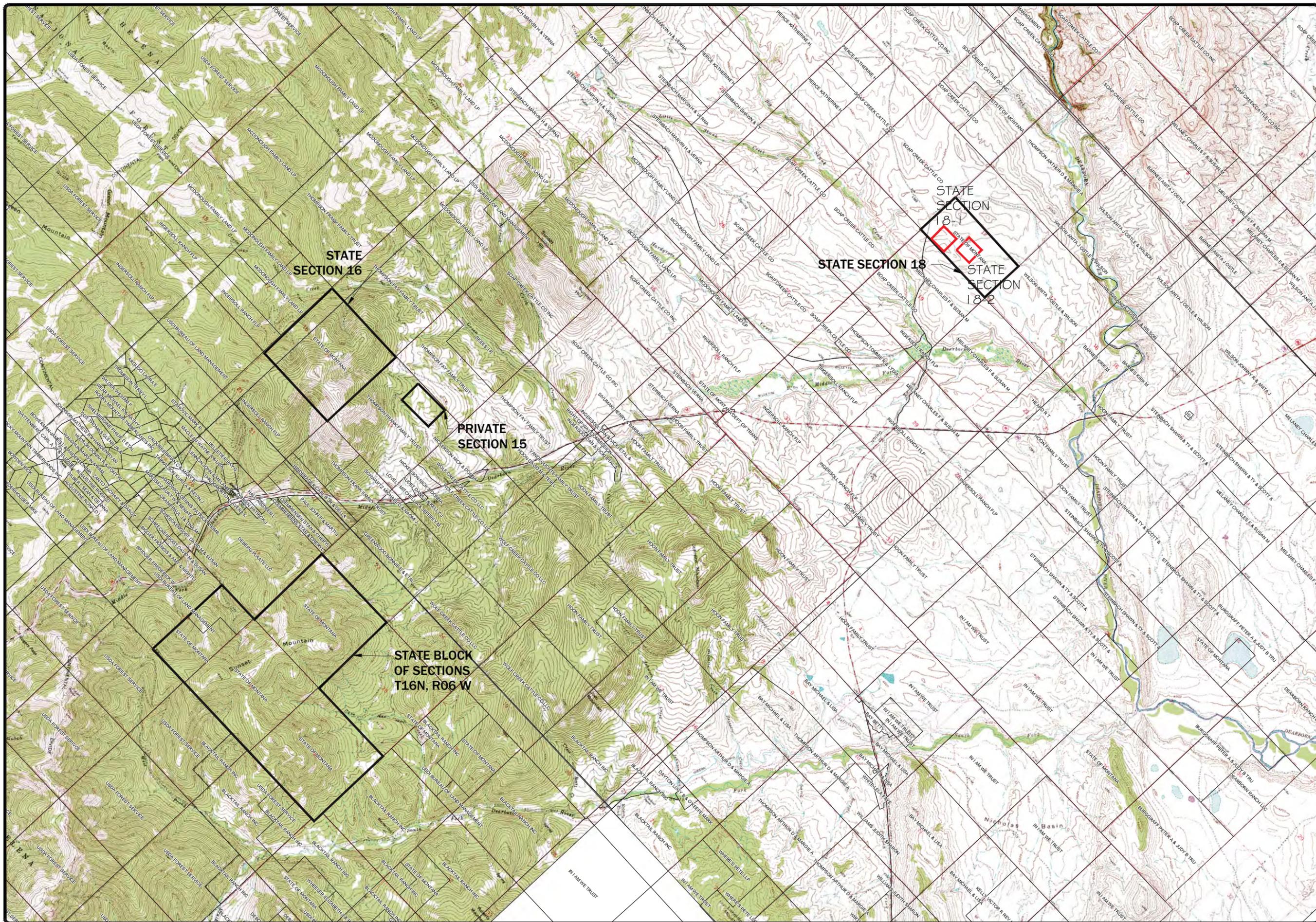
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MONTANA DEQ
 UPPER BLACKFOOT MINING COMPLEX
 2011 REPOSITORY SITES EVALUATION

FIGURE 1
 SUGGESTED POTENTIAL
 REPOSITORY LOCATIONS

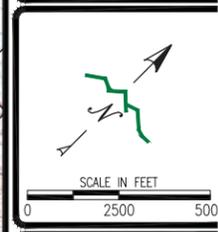




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MONTANA DEQ
 UPPER BLACKFOOT MINING COMPLEX
 2011 REPOSITORY SITES EVALUATION

FIGURE 2
 SUGGESTED POTENTIAL
 REPOSITORY LOCATIONS

