SDMS Document ID
1062674

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Andrews/EPR/R8/USEPA/US
08/01/2007 02:14 PM

To jhess@crestedbutte-co.gov, steve@hccaonline.org, tmartineau@frontier.net, steven.renner@state.co.us, wsbrown@frontier.net, ssprott@co.gunnison.co.us,
cc Jerry_Goedert@URSCorp.com
bcc
Subject Standard Mine - Response to Comments on Phase II EE/CA

Hello everyone,
Attached to this email is the EPA response to comments on the Phase II EE/CA document. We can discuss any additional questions you have on this response during our August 8th SMAG meeting or you can send those to me directly anytime. Thanks to everyone who took the time to review and comment on this document.

Also, if you have any problems viewing the attachments, please let me know.

Regards, Gina
Gina Andrews
On Scene Coordinator
U.S. EPA, Region 8, Emergency Response Unit
303-312-6688 (office)
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EPA has moved to a new location.
Please note the following change of address:
1595 Wynkoop St (EPR-SA)
Denver, CO 80202

ATTACHMENT 1- Response to Comments.pdf
COVER LETTER - EPA Response to Phase II Comments.pdf
ATTACHMENT 3 - UOS Technical Memorandum.pdf
ATTACHMENT 2 - A. Herb TES Notification.pdf

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
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Ref: EPR-SA

July 28, 2007

RE: EPA Response to Comments Submitted for Phase II EE/CA for the Standard Mine Site

ATTN: Community of Crested Butte and Other Interested Parties:

Enclosed with this letter is response to comments EPA received regarding the Phase II EE/CA for the Standard Mine Site. We have consolidated and arranged the comments according to subject and provided response to each item. The Phase II EE/CA document was finalized and hard copies have been incorporated into the Administrative Record and they will be incorporated into the local information repository for the Site.

Based on the comments received, EPA selected USFS Site 2 as the final repository location. This structure will be constructed to have a 3:1 side slope, a 2% top slope and will have a soil cover with a riprap top cover as conceptually designed in the Phase II EE/CA.

The Design Specification Report, which further details how the repository will be constructed, has been distributed to all stakeholders for review. This document will be discussed at the next public meeting scheduled for August 8, 2007 but questions can be submitted anytime.

If you have additional questions regarding the EE/CA process or other Site related items please feel free to contact me at 303-312-6688 or via email andrews.gina@epa.gov. We thank you for your continued involvement and support of the Standard Mine project and for taking the time to submit comments on the Phase II EE/CA.

Sincerely,

Gina Andrews
On Scene Coordinator

(Enclosures)

cc: Suzanne Buntrock, USFS
Linda Lanham, USFS
Jim Dawson, USFS

Mark Hatcher, USFS
Barbara Nabors, CDPHE
Jim Lewis, CDPHE
Christina Progess, EPA
Libby Faulk, EPA
Administrative Record
Site File

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ATTACHMENT 1
EPA Response to comments received on the Phase II EE/CA for the Standard Mine Site, near Crested Butte, CO

The comments received and responses given have been organized according to subject matter where possible. For example, all comments received concerning the HELP modeling assumptions used have been grouped together. Where any comment addressed more than one subject, or addressed more generic topics it was addressed in the "General Comments" section of this response.

1. GENERAL COMMENTS

COMMENT: Section 2.2 Site History, it is stated in the document that: "Mining operations began at the Standard Mine (then named the Macawber Mine) in 1931 by the Slate River Mining Company. During 1931 and 1932, 2,400 tons of silver, lead, zinc, and copper ore were removed from the mine by the Slate River Mining Company."

This is incorrect. The "Standard Mine" is a drainage haulage tunnel driven in 1957 to undercut the Micawber Mine workings. There was not a "Standard Mine" until 1957. Refer to Colorado Geological Survey Draft History, Geology, and Environmental Setting of the Micawber Mine and Elk lode in the Ruby Mining District, Gunnison National Forest. August 15, 2005.

RESPONSE: The recommendation has been noted; changes were made to the EE/CA accordingly.

COMMENT: Section 2.3.3 Mine Site Geology, it is stated in the document that: "The Standard Mine is situated in a high mountain valley on the southerly flank of Scarp Ridge, which extends easterly from the Ruby Range. The term "Standard Mine" is applied to a series of five underground mine workings located in Elk Basin. The five workings include four adits and the remnants of a twin compartment shaft. Two of the adits provide access to the mine workings that are open essentially for their mined length."

This is incorrect. The Standard Mine is a tunnel driven to undercut and connect the Micawber Mine workings to the Standard Mine drainage/haulage tunnel. Workings not connected to either the Micawber or Standard Mine tunnel should not be included under the general term "Standard Mine" as this implies that there are other workings, and perhaps other environmental problems associated with those workings, that are not connected to the Micawber or Standard Mine tunnel and this it not the case.

RESPONSE: The recommendation has been noted; changes were made to the EE/CA accordingly.

COMMENT: Section 2.3.5, Mine Site Hydrogeology, it is stated in the document that: "Due to the differing lithologies of the Ohio Creek Formation and the Wasatch Formations, groundwater movement through each formation will differ. The down-thrown side of the fault at the mine site incorporates the Wasatch Formation, which is much less massive in **structure** than the up-thrown Ohio Creek Formation, and exhibits more distinct jointing and bedding."

The word **structure** should be changed to **thickness**.

RESPONSE: The recommendation has been noted; changes were made to the EE/CA accordingly.

COMMENT: Section 2.3.5, Mine Site Hydrogeology, it is stated in the document that: "The Standard Mine was reported to discharge approximately 10 gpm from the adit opening into Elk Creek (Colorado Geological Survey 1998). During field sampling of June 1999 the discharge was estimated to be between 100 gpm and 200 gpm and during a September 1999 field sampling activity the discharge was estimated to be between 1 to 5 gpm (DRMS 2007)."

Where is the reference to substantiate this flow measurement? It was impossible in the past to accurately measure the flow from the adit due to the debris backing up the flow at the adit and/or diverting the flow around the debris. The flow was measured at the portal with a flume, possibly for the first time, on June 22, 2006 at 36 gpm.

RESPONSE: The recommendation has been noted; changes were made to the EE/CA accordingly. This flow rate was deleted.

COMMENT: Section 3.6.1, Evaluations of Risks to Aquatic Receptors from Surface Water, it is stated in the document under the second bullet in this section that: "site specific surface water toxicity tests performed using rainbow trout fry showed high mortality (60 percent to 100 percent) for waters collected from Elk Creek. The highest mortality (100 percent) was observed at the upstream stations closest to the mine, and there was a tendency for a slight decrease in mortality with increasing distance from Standard Mine. Fish exposed to water from Coal Creek immediately downstream of the confluence with Elk Creek showed low mortality, and this level of mortality was not different than that observed in Coal Creek just upstream of Elk Creek." This suggests that waters from Elk Creek are sufficiently diluted by Coal Creek (**word missing**) that site-related

contaminants have only a minimal impact (**word missing**) the survival of fish in Coal Creek."

The last sentence should be re-written as: "This suggests that waters from Elk Creek are sufficiently diluted by Coal Creek (**and**) that site-related contaminants have only a minimal impact (**on**) the survival of fish in Coal Creek."

RESPONSE: The recommendation has been noted; changes were made to the EE/CA accordingly.

COMMENT: Section 3.6.1, Evaluations of Risks to Aquatic Receptors from Surface Water, it is stated in the document that: "Based on these three lines of evidence, the conclusions regarding risks to aquatic receptors from contaminants in surface water are as follows...Mining-related releases from Standard Mine into surface water are substantially toxic to fish in Elk Creek.

It should be noted in the document that the fish in Elk Creek reside only from the mouth of Elk Creek, at the confluence with Coal Creek to the Kebler Pass Road, and that the fish in Elk Creek are in Elk Creek because of the connection with Coal Creek and the fish that reside in Coal Creek. Elk Creek has never been stocked and to that extent there is not a residing population of fish in Elk Creek.

RESPONSE: EPA recognizes there are currently fish only at the mouth of Elk Creek; however, this language was taken from the Baseline Ecological Risk Assessment so the EE/CA will continue to reflect what is in that document.

COMMENT: Section 4.2.1, the State of Colorado has an environmental covenant that is required at any site where mining-related waste is either re-located or closed in place. This is a State ARAR. A bullet should be inserted into the document as: An environmental covenant, or similar instrument, will be implemented between the State with the United States Forest Service to insure that the repository and repository cover will remain in tact in perpetuity. Table 4.1 should be revised to include the following ARAR:

Colorado Hazardous Waste Act	§ 25-15-321 of the Colorado Hazardous Waste Act, § 25-15-101, *et seq*	The purpose of this Covenant is to ensure protection of human health and the environment by ensuring that constructed portions of the repository and the repository itself remain intact and function as designed.	Location-specific	Potentially applicable. The Forest Service may have another mechanism within their agency that provides for the equivalent long-term protection similar to the State's environmental covenant.

COMMENT: In CDPHE's initial comments on this document, we indicated that the Colorado Environmental Real Covenant Act should be considered "potentially relevant and appropriate". Based on subsequent consultation with our attorney, we would like to clarify that this act should be considered "applicable".

RESPONSE: EPA is unable to include this ARAR at this time. The USFS and State are working toward resolution of this item.

COMMENT: Section 4.3, Removal Action Scope, it is stated in the document on page 31 in Statement 3 infers that water treatment is to be part of the final remedy. This has not been decided. Additionally, construction of the pilot-scale SRBR has just been recently considered and was not a part of the decision to not implement an in-place closure of the waste rock. Statement 3 should be deleted from the document.

RESPONSE: EPA agrees the language is not clear and will refine the sentence.

COMMENT: Section 4.3 Removal Action Scope, page 31 states, "...EPA considered input provided by the stakeholders, including nearby landowners, the Standard Mine Action Group, USFS, and CDPHE **and** determined that..." CDPHE did not, nor does not, have a preference for a repository location. The selection of a repository is based upon factors agreeable to EPA and FS under this removal project. CDPHE in the past has offered suggestions regarding locations that would make the project more feasible and economically viable for the two agencies. Also, the word "and" following CDPHE in the second sentence should be deleted.

RESPONSE: EPA recognizes CDPHE has no preference on the location; however EPA did consider input from the State throughout the planning process and will continue to site this. EPA will alter the language to more clearly articulate this fact.

COMMENT: The SMTAG would like to receive any reports related to Threatened and Endangered Species screening done at the Standard Mine and repository site prior to any work beginning at the site.

RESPONSE: EPA has completed the TES surveys as of July 6, 2007. We received verbal notification of the results upon completion of this work. Per the email provided as Attachment 2, no lynx, shrews, migratory birds or sensitive plants were found in the USFS Site 2 repository area. The written report will be distributed to all stakeholders once it is completed.

COMMENT: What sort of safety precautions are anticipated for diesel storage on site? Is there a spill management or fuel storage containment plan for the site and for any materials stored off site at the trailer on Kebler Pass Road?

RESPONSE: EPA anticipates several (8-10) large pieces of equipment will be used on-site for this year's work. Based on the amount of fuel that will be consumed by these trucks, excavators, dozers, etc., on-site storage of fuel will be necessary. EPA considered numerous options for fuel storage and will be using two fuel tanks, each under 1500 gallon capacity, which will be located on-site in the Level 1 area and contained within an earthen berm. This berm will be constructed by excavating a pit below ground surface that will be sized such that it will hold the entire volume of both tanks and it will be double-lined with plastic liner. EPA does not anticipate storing fuel or other materials for the Removal Action at the trailer on Kebler Pass Road.

COMMENT: The SMTAG requests that official notification be given for any alterations to activities described in the Phase II EE/CA. This can be done through the Grant Administrator and President via phone and email with face-to-face meetings scheduled as needed.

RESPONSE: EPA will keep all stakeholders apprised of work being conducted at the Site. Weekly Activities Reports will be distributed to all stakeholders and public meetings will be scheduled throughout the season. Where possible, changes to the work plan will be done in advance; however, certain situations may require immediate action in which case advance notice to stakeholders will not be possible. Thus, EPA will inform them of changes as soon as possible.

COMMENT: For the purposes of final remediation we would like to see a point of compliance further upstream in Elk Creek than the confluence with Coal Creek. We feel the point of compliance should be in closer proximity to the Standard Mine and repository site. There is considerable dilution of metals from at least two major inflows to Elk Creek above Elk-00. Using Elk-00 sacrifices upstream reaches of Elk Creek where dilution is not taking place. The ideal location for this site would be just above the confluence of outflows from Copely Lake. Considering the EPA does not have historic data from this point the next best location would be just below the confluence with Copely Lake outflows (Elk-08).

RESPONSE: There will not be a point of compliance for the repository. This removal action is not subject to State or Federal Solid Waste or Water Quality Regulations. Although these regulations were taken into consideration for design, there are no permits or samples required to ensure compliance with water quality standards.

The purpose of the calculations presented in Table 5-4 was to put potential metal loading due to the repository in context with recent metal loading in Elk Creek. Whether the metal loading is calculated at Elk 08 or Elk 00, the point that the potential metal loading from the repository is relatively small, is unchanged.

COMMENT: The SMTAG requests a plan be developed should it become evident the repository construction, filling, and capping not be completed this summer. This document should be presented to the SMTAG for review and comment.

RESPONSE: EPA will share with all stakeholders the plans for work at the Standard Mine Site. EPA will attempt to move all waste material during this construction season but recognizes this may not be possible due to weather or other limiting factors. EPA will keep all stakeholders apprised of work progress and of plans to close the Site for the winter if the project cannot be completed this season. However, an official public comment period on such plans will not be possible.

COMMENT: What is the plan for erosion control and storm water management plan at the Standard Mine site while removal of tailings and waste rock is taking place? The plan should identify the BMPs to be implemented at the site consistent with the EPA's standards.

RESPONSE: EPA will take the necessary steps to comply with the substantive requirements of State and Federal stormwater regulations. There is a specification in the Design Specification Report about erosion controls.

COMMENT: The analytical data for leaching potentials is reported as Waste Rock and Tailings samples in Table 2-1. It is not clear how many of these samples represent tailings materials. The tailing pond sample (SM-WR-12) is presumed to be the only tailing sample but again this is not clear. It would appear from the results presented in Table 2-2 that the waste rock is the more problematic of the two materials from a leachate potential standpoint. The SMTAG requests a clarification on this point.

RESPONSE: For both tables mentioned, each sample is given a sample location; these locations match the naming conventions used in Figure 2 of the Phase II EE/CA that delineates each waste rock pile. As listed in the Table 2-1, Sample #SM-WR-12 is the only sample collected from the tailings impoundment. Based on SPLP results as presented in Table 2-2, the waste rock material has a higher leaching potential for some metals than material in the tailings pond.

COMMENT: The SMTAG requests a review and comment period on the Final Design for the repository prior to removal actions are underway to evaluate how concerns raised at the meeting and in this document are being addressed.

RESPONSE: EPA has distributed the Design Specification Report final design document to all stakeholders. This document will be discussed at the next public meeting; however a formal comment period will not be possible.

2. REPOSITORY LOCATION & DESIGN COMMENTS

COMMENT: Section 5.2 Description of Alternatives, throughout this section and the sections following this section regarding the repository soil cover and the evaluation of the soil cover there is no mention of what the degree of compaction of the soil cover will be or what was used in the HELP model.

RESPONSE: Design specifications for construction of the repository are described in the Design Specification Report; the EE/CA was not meant to outline such specifications instead it was meant to show design concepts.

COMMENT: Will there be a required compaction specification to be met by the removal program contractor for each lift of waste re-located and placed at the repository? This is not only important for infiltration concerns but also for potential long-term settlement within the repository and the effect of settlement on the repository cover, which translates to potential long-term maintenance costs and issues.

RESPONSE: Design specifications for construction of the repository are described in the Design Specification Report; the EE/CA was not meant to outline such specifications instead it was meant to show design concepts.

COMMENT: The SMTAG concurs that USFS2 is the preferred alternative. Either site is acceptable for placement of the repository from an engineering and technical aspect. USFS 2 will have a smaller footprint, need less roads constructed and maintained, and provide greater protection from surface water infiltration. Area 245 is better situated to minimize the quantity of surface water run-on. For these reasons we concur with EPA on USFS 2 being a slightly better alternative.

RESPONSE: This comment is noted.

COMMENT: The Solid Waste staff at the Department of Health requires a hydraulic conductivity equal to or less than 1×10^{-6} cm/sec for landfill closure covers. This conductivity is to be attained through either compaction of the closure soil cover or utilization of a geotextile in lieu of a soil cover.

At the Bonanza Mining District ASARCO repository the mine waste rock and tailings were re-located and compacted to a hydraulic conductivity of 1×10^{-6} cm/sec pursuant to the Certificate of Designation required for the ASARCO repository and approved through the CDPHE Solid Waste review process. There is the potential, therefore, that the Standard Mine waste rock and tailings can be compacted to a hydraulic conductivity of 1×10^{-6} cm/sec and that would further reduce infiltration into the repository.

RESPONSE: The Colorado Solid Waste Regulations are not applicable to the construction of this repository and a Certificate of Designation is not required, nor will one be obtained. However, EPA did take the State regulation into consideration. To guarantee achievement of the $1x10^{-6}$ hydraulic conductivity rate would require time intensive and expensive processing of the soil, likely to include import and amendment of the soil using bentonite material. Because the Removal Action achieves public health and environmental protection (based on metals loading estimates, the elimination of bulk source loading into Elk Creek, etc) such additional measures and expense are beyond the scope of the Removal Action.

COMMENT: The four alternatives under consideration were modeled for percolation, and the results are summarized in Table 5-2. According to Table 5-2, the preferred alternative for this project (soil cover with riprap) has the highest percolation through the cover, at 0.679 gpm (over 350,000 gallons per year), compared to the other three alternatives. In assessing the various alternatives, this report even states that vertical inflow (i.e., percolation) is a disadvantage for this alternative. Reducing the infiltration of precipitation and the generation of leachate is a key cover performance objective. The Colorado Department of Public Health and Environment (CDPHE) recommends the EPA consider whether a different design that will be more effective in minimizing infiltration should be selected.

RESPONSE: EPA disagrees the selected cover alternative is not effective at minimizing infiltration. Table 5-2 of the Phase II EE/CA does show the soil and riprap cover to have the highest percolation rate of the four cover alternatives evaluated in the document; however, this is not the least permeable alternative considered by EPA. There exists a wide range of alternatives for capping the waste rock material the very least effective of which would be consolidation of the material with no cover/cap. Additionally soil covers with higher percolation rates than those listed in the EE/CA could be designed and constructed.

Although the geomembrane cover alternatives show a percolation rate of 0.00 gpm, this is not truly zero and, when these are used in areas similar to Standard Mine where extreme temperatures and weather conditions exist, a geomembrane cover can actually be less protective than a soil cover because they are prone to cracking, which allows for direct contact between water and waste material, and they may be prone to catastrophic failure. Also considered were Geosynthetic Clay Liners (GCLs). These may also have low percolation rates when modeled but they have also been shown to desiccate and become more permeable over time, rendering them less protective.

Also, a simple conversion of gpm to 350,000 gallons per year does not illustrate the context of the percolation modeled for the cover alternative.

This was done as described in the Phase II EE/CA Section 5.4, Metal Loading. The modeled 0.679 gpm percolation is for the entire 2.5 acre (approximately) surface area of the repository. Using the SPLP (synthetic precipitate leachate procedure) data collected from the waste materials, an estimate of the metals loads associated with the percolated water were calculated. It was estimated that, even if 100% of the leachate created were piped directly into Elk Creek, the resulting metals concentrations would be below State ambient water quality standards. Because we know that 100% of the metal load will NOT go directly into Elk Creek but instead will be attenuated in the ground/soils, EPA expects any metals contribution to Elk Creek to be negligible and it is unlikely this contribution would be measurable.

Finally, groundwater is not used in the area near the site, which eliminated any exposure pathway from it; therefore, EPA's goal was NOT to eliminate all potential for leachate and metal loading to groundwater. The objectives for the Removal Action were to eliminate bulk source loading of waste materials into Elk Creek; to eliminate the threat of failure of the tailings impoundment dam; and to eliminate/reduce the potential for human and ecological exposures to waste materials located on-site. Because of this, and because of other concerns surrounding use of the synthetic cover alternatives mentioned above, EPA determined these alternatives failed to ensure adequate protection yet would cost much more to install and maintain over time. When all of this information is considered, the soil and riprap cover alternative provides for the most adequate protection of human health and the environment and will perform better long-term.

COMMENT: The side slopes are currently planned as 3:1 (33%) slopes, and the top slope no less than 2%. Would increasing these slopes to be consistent with the solid waste regulations (i.e., slopes no shallower than 5% (20:1) and no steeper than 25% (4:1)) improve the performance of the cover?

RESPONSE: The Colorado Solid Waste Regulations are not applicable to the Removal Action but they were considered throughout the EE/CA process. The minimum and maximum slopes of 5% (20:1) and 25% (4:1) were likely selected based on the engineering properties of the waste material. A 5% minimum slope would improve the performance of the cover by shedding water from the top of the repository; however the difference in infiltration on a 2% slope versus a 5% slope is expected to be negligible. The 5% minimum slope was likely established to deal with differential settlement related to municipal solid waste. The amount of settlement for the waste rock and tailings material from the Site is expected to be negligible at the end of construction; therefore 2% slopes were chosen as the minimum. The 25% maximum slope was likely selected to deal with the low strength associated with municipal solid waste. The 25% (4:1) slopes would improve the slope stability of the cover, while decreasing the run-off

generated and potentially increasing the infiltration. The slope stability analysis for the material from the Site indicates a factor of safety of 1.8 with side slopes of 33% (3:1), meaning the repository will shed water more quickly and still have a stable slope.

COMMENT: The slope stability analysis shows several areas that should be reviewed.

A) Table 5-5 indicates that the "weakest plane or strata" for alternatives 3 and 4, which contains a geotextile overlying a geomembrane, is between the geotextile/protective soil or the compacted soil/waste rock. Without specific data, it is impossible to state for certain, however, based on experience, the weakest plane typically is the geomembrane/geotextile interface. This should be checked if any alternative using geosynthetics is selected.

B) For the stability analysis, the proposed cover was modeled as a single layer of cover material. This is inappropriate for performing a slope stability analysis. In this case, a value of 200 psf was assigned to the "cover material" layer (which includes both soil and riprap) for cohesion. The riprap material has no cohesion, and should be input as such. The unit weights will also change when input separately. It is impossible to predict how the Factor of Safety will change when the analysis is run with inputs more closely representing assumed conditions.

RESPONSE: A) The recommendation is noted.

B) The infinite slope stability analysis addresses the cover stability utilizing the geotechnical parameters for each material type. The deep-seated slope stability was modeled with a uniform cover thickness and material. Based on our experience, adjusting the model to reflect the changes in the 1-foot thick layer of riprap will result in a negligible change in the factor of safety. The layer contributes a very small length along the failure surface and provides little shearing resistance.

COMMENT: The operations and maintenance costs assume one maintenance/repair mobilization over 20 years. This does not appear to be a very conservative assumption. Please elaborate on its basis.

RESPONSE: EPA assumed there would be annual inspections of the repository and that the repository would require cover and runon/runoff control maintenance taking three days for the first year after construction is completed. Because the cover consists of a riprap top cover, there should be minimal damage to the cover over time. It is unlikely that snowmelt and runoff will cause significant damage to the 12+ inches of riprap; therefore the soil cover underneath should remain uneroded. Further because of the slope planned in design the runoff should tend to move off the structure rather than percolating through. The perimeter channels may require more

frequent maintenance but this too is expected to be minimal. The unlikely event of a catastrophic failure to the repository or its cover was not considered an operation and maintenance issue so associated costs were not included.

COMMENT: The SMTAG has two primary concerns with the proposed repository location at USFS Site 2. The first concern has to do with the lack of information regarding the presence or absence of groundwater at the proposed site. Eight test pits were excavated at USFS 2 as part of the Phase I EE/CA, but for the proposed 3 acre site only two test pits exceeded five foot in total depth. While the site investigation indicates no groundwater was encountered in the test pits, no information is currently known about the depth to aquifer or regional groundwater flow patterns. At a minimum, it is fairly safe to assume that during spring run-off conditions soils in the vicinity of the repository are saturated in the near surface zone. While the SMTAG sees no need for a full scale regional groundwater investigation, some information in the vicinity of the proposed repository is warranted. This could be accomplished fairly easily with some small diameter monitoring wells installed at the site. Piezometers might be a more cost effective alternative if site conditions allow. Should funding or construction schedules prevent an adequate groundwater investigation, EPA could always simply incorporate an under-drain into their repository design. This conservative approach would prevent any local rise in groundwater from affecting the stability of the proposed repository.

COMMENT: The SMTAG would like to see groundwater testing adjacent to and downhill of the repository to identify how water is draining from the repository. Water samples from the under drain discharge point will be needed to ensure lateral flows are not contacting the contents of the repository and causing additional exposure and leaching.

RESPONSE: Groundwater monitoring wells are not planned for the repository (please see Response to Comments on the Phase I EE/CA for more information regarding EPA's decision on this subject).

EPA mobilized equipment and personnel on June 26, 2007 to install the requested piezometers. The findings of this work are included with this responsiveness summary as Attachment 3. In short, EPA successfully installed two piezometers near the repository, both of which were several feet below the lowest point of the repository. No evidence of groundwater was found. Additionally, still no evidence of standing water or seeps has been observed in the repository area. We do not expect the water table to rise as a result of the addition of the repository, nor during periods of snowmelt or from lateral flows. This is further explained in the aforementioned Attachment 3.

Also, the mine waste is generally classified as a granular material and is expected to behave as such. In the event such lateral flows or snowmelt should infiltrate into the mine waste, the water is expected to drain freely into the foundation. Slope stability was modeled as a drained system. Secondly, the construction of the underdrain is relatively simple, but long-term maintenance and recovery efforts could prove to be expensive. If the purpose of the underdrain is to intercept rising groundwater from infiltrating the repository, then a low permeability soil liner would need to be constructed over the underdrain to separate water that has infiltrated into the mine waste from the rising groundwater. If this were not done, then contact water from infiltration into the mine waste would collect in the underdrain and discharge with water collected the rising groundwater. For the underdrain system to operate properly, as described in the comment, a low permeability soil liner would need to be constructed over the underdrain with a leachate collection system above the liner to collect leachate generated from water infiltration. To execute this type of repository the leachate would be collected and piped to a water treatment facility.

Based on all information gathered throughout the EE/CA process as described in the Phase I Response to Comments, in this Attachment 3, and herein groundwater tables nor lateral flows are expected to impact the design or estimated leachate from the repository; therefore an underdrain system is viewed to be unnecessary.

COMMENT: The second concern the SMTAG has with the current design is the perimeter channels. Based on the preliminary site drawing details for USFS 2 the perimeter channels will sit directly adjacent to the waste rock materials. Run-on controls should provide a measure of protection against infiltration of clean water into the waste materials. The SMTAG suggests "clean" storm water and snow melt should be captured, collected and routed around the pile without allowing it the chance to infiltrate into the repository. This is typically accomplished by constructing up-gradient channels into native soils which divert surface waters away from the waste materials. If site conditions warrant, these channels can be lined with geo-synthetic materials which will further prevent infiltration of clean waters into the repository materials.

RESPONSE: The design includes perimeter channels. Though they are adjacent to the repository, the channels are designed to collect run-on and run-off. As such, the construction of one channel is preferable for this operation and is typical of other waste facilities. The design has changed some since the release of the conceptual level effort published in the Phase II EE/CA as a result of on-site reconnaissance with USFS, EPA and its contractors. The construction of channels located at the interface with the adjacent talus slope will be located and constructed in the field, where possible. The perimeter channel at the toe of the repository will be moved to the

opposite side of the road to reduce the potential effects of standing water or high velocity flows. Finally, run-on and run-off flows will be observed during construction to identify areas and patterns of increased flow potentially resulting in an increased exposure to the mine waste repository. Up-gradient diversion channels will be constructed, if needed, to intercept and divert the run-on flows.

Because of the changes made to the conceptual design, the remaining channels are short and are located on slopes having an approximate slope gradient of 33%. These channels are expected to collect and discharge water with minimal infiltration to the repository. Though geosynthetics would reduce the infiltration resulting from the collection and discharge of run-on and run-off, we believe the use of geosynthetics is not warranted due to (1) the velocity of the water within the channels and (2) the relative exposure time. The use of geosynthetics will also create long-term maintenance issues.

COMMENT: How will the repository be anchored into the rock glacier? How could future movement of the rock glacier affect the repository? What prescriptions of this movement will be incorporated into the plan?

RESPONSE: Prior to the placement of mine waste, some of the talus material may be removed provided that the stability of the slope is not compromised. Ideally, removal of the loose rock to the depth of a firm base is preferable. In this situation, removal of the loose rock may create an unstable slope, causing more loose material to slide down gradient. Mine waste rock will be placed directly of the remaining talus material and compacted. Movement of the rock glacier is currently slow to inactive.

COMMENT: Please document the techniques to be employed and results that were achieved on site for repository fill materials. A method specification is probably the best way to control the construction of the repository. This can be detailed in the Final Design once it is known what equipment will be on site. In general, we would expect to see something along the lines of a maximum lift thickness and a number of passes with a sheepfoot vibratory compactor.

RESPONSE: The construction/technical specifications are outlined in the Design Specification Report and will provide a maximum lift thickness and minimum number of passes required for compaction for each of the fill materials. The compaction will be achieved with available on-site construction equipment, likely rubber-tire vehicles, vibratory compactor, and/or tracked vehicles. A method specification will be applied to the fill materials and the compaction effort will be monitored and changed as necessary during the construction.

COMMENT: The one modification to the proposed cover that EPA might want to consider is to specify a high plasticity, low permeability, coarse grained locally available soil for the 12" compacted soil cover if available.

RESPONSE: The soils chosen for the construction of the repository cover were selected based on locally available material. Obtaining a material with a higher plasticity and a lower permeability would require import material or the addition of additives to the locally available material. Both of these options were explored and were found to be more costly than may be warranted for the construction of the repository cover. The perceived benefits of having a higher plasticity and lower permeability do not support the additional cost.

COMMENT: Please incorporate a strategy into the Final Plan to prevent vegetation from interfering with repository liner.

RESPONSE: The riprap will be placed such that the soil cover is not visible when standing atop the riprap cover. As such, vegetation is not expected to grow on the repository cover. However, should vegetation grow on the soil cover beneath the riprap, the plant life is expected to be shallow-rooting and may decrease the quantity of infiltration through evapotranspiration.

COMMENT: ".....and does not invade the airspace available thereby minimizing the overall height of the repository." - This is the first time air space has been mentioned. If it is a limiting factor, then it should be explained. At this time, it is unclear why a repository sitting on NFS land would have a height restriction.

RESPONSE: Air space and height restrictions are not limiting factors. However, the size of the repository could be seen as obtrusive. Therefore, during the design of the repository the final height and the space to be used by the repository were taken into consideration. The intent of the design is to use the smallest space possible with a height that is as unobtrusive as possible. This comment refers to the thickness of the cover, and the more cover material that is used, the more space and height is required by the repository to account for the loss of space taken by the cover. This is only meant to be a disadvantage for thicker cover systems when compared to cover systems having a smaller thickness.

COMMENT: 43. "Straw mulch will be used...." - The FS has built numerous repositories and has learned that straw mulch is a poor cover material. There are better alternatives such as woody debris, straw tubes, scarifying to catch a little water to start the seeds growing, etc. URS should know this. Fix up the proposal with something better than straw. Straw will only will provide poor cover and blow away. The FS doesn't want to do

maintenance on a poorly mulched cover. Also, Steve Way could give you advice on this issue. He did a good job on Bueno.

RESPONSE: Straw mulch was chosen for use in the conceptual level effort as a basis for comparison between each of the cover alternatives. Had the vegetative cover been selected additional mulching and cultivating techniques would have been considered. For comparison purposes, most mulching alternatives cost more than straw mulch. As such, the cost of construction for each of the vegetative covers would increase uniformly between each of the sites selected for comparison.

COMMENT: 49. "....gulley erosion resulting from concentrated flows on the soil cover." - This alternative has riprap. If the riprap is sized right, you shouldn't have gullies forming.

RESPONSE: The riprap cover is sized appropriately for sheet flow from the repository cover. Irregularities in the final cover grading or seasonal snowmelt and flow patterns could cause "concentrated flows" on the repository cover. As such the magnitude, quantity and velocity of those "concentrated flows" are not easily estimated. Therefore, gulley erosion from "concentrated flows" on the soil cover may be a reality.

COMMENT: 64. "Based on the on-site observation of riprap at Area 99, the average rock size is approximately 9 inches in nominal diameter (URS 2007)." - Class 2, US DOT Specification is a good mix for the riprap cover. End dumping and pushing into place should be fine. Class 2, US DOT specification riprap is hard to achieve in the field (versus having it hauled in commercially). Thus, the field riprap should be assorted sizes with very few of the rocks equaling the full 12 inch depth.

RESPONSE: We agree. The riprap should be placed on the compacted soil cover using a track excavator.

COMMENT: 64. "Energy dissipation structures would be constructed at the outlets....." - For the end of the run-on ditches, use hand-placed riprap for the energy disapators. Constructed energy disapators, such as a feature made out of site mixed concrete, is not desirable.

RESPONSE: Site mix concrete is not an item mentioned in the Phase II EE/CA. Energy dissipation structures will be constructed with riprap and placed using a track excavator, or equivalent, or by hand.

3. HELP MODEL COMMENTS

COMMENT: Local meteorological data contradicts the EPA's predictions for snowfall and snow water equivalent for the repository site. The mean annual precipitation data used in the report reflects only a third of the possible snow received in Elk Creek basin. The concerns we raise are based on

snowpack data alone and do not include summer rainfall which would elevate the precipitation estimates below. Two lines of evidence lead to the fact that the mean annual precipitation data being used is wrong:

1) The Rocky Mountain Biological Laboratory (RMBL) had 347 inches of precipitation last winter as snow. Using conservative estimates of snow water equivalent, we estimate 12 inches of snow are equal to 1 inch of water. This indicates 29 inches of precipitation. For further information, please see the winter summary webpage http://rmbl.org/home/index.php?module=htmlpages&func=display&pid=82 The long term average is 27.54 inches of water content. Estimates by RMBL researchers show the water content of snow ranging from 11.60 inches (winter of 1976-1977) to 45.06 (1994-1995) inches of precipitation.

2) SNOTEL data from Schofield Pass, only a few linear miles to the northeast, indicates snow water equivalent of 32.3 inches. The long term average is 41.6 inches of water per winter. http://users.frii.com/global-cgi-bin/cgiwrap/cpacheco/work/prec/prec_update_1.cgi?area=colo&format=1

Based on the University of Delaware data (11 inches), the EPA is using the snowfall (and rain) of the lowest snow year in the last 32 years (based on evidence 1 above). None of the Colorado mountain SNOTEL sites show such a low annual precipitation. URS's data from the University of Delaware is incongruous. Based on these lines of evidence the SMTAG requests a re-evaluation of precipitation estimates which should then be used to reevaluate how this affects the final parameters (thickness of the rip rap and soil covers, metal loads from the repository, lateral flows, drainage, etc).

COMMENT: The HELP model was used for the modeling effort. HELP is currently not considered state-of-the-practice for water balance modeling of engineered waste containment facilities. In addition, several modeling parameters appear to not reflect "worst-case" conditions.

A) The weather data used was the most recent set (January 2002 – December 2006). Rather than recent data, cycles that contain wetter than normal precipitation should be used.

RESPONSE: Based on our experience, the HELP model estimates infiltration as well as other models without the complexities and with fewer input parameters. We believe the HELP model provides reasonable results.

A) The precipitation data is limited to a 5-year period. The data represents precipitation over what may be considered a drier period. When the infiltration results are presented as a percentage of the precipitation, we expect that percentage to remain the same or potentially

decrease with an increase in the average annual precipitation. The infiltration is controlled by the hydraulic conductivity of the soil. In other words, the soil will only transmit water through at a rate equivalent to the hydraulic conductivity with an applied pressure head. The model assumes the soil is saturated and an increase in the pressure head at the soil cover surface will result in infiltration. The pressure head at the cover surface will be relatively small due to the slope of the cover. The soil will only transmit a finite amount of water, therefore an increase in the average annual precipitation will likely result in an increase in the run-off and a decrease in the infiltration, both as a percentage of the precipitation. We recognize the total quantity of infiltration may increase with an increase in average annual precipitation; however the concentrations at the point of discharge to Elk Creek (the exact location of which is unknown may actually be expected to decrease because higher than normal precipitation will result in higher runoff volumes in Elk Basin and thus greater dilution of the leachate metal loading. Relatively speaking the increased repository metal loading may be more than offset by increased flows in Elk Creek.

COMMENT: The Leaf Area Index (LAI) used in the analysis was 1.0. This may not be conservative. At the Rocky Mountain Arsenal, a Front Range Superfund site with extensive soil covers, values between 0 and 0.44 were selected as appropriate inputs. The range of LAI reflects the time of the year under consideration, where lower values are typical in winter months and higher values are typical in the summer months.

RESPONSE: In accordance with the HELP model, a leaf area index of 1 refers to a poor stand of grass, on a scale of 1 to 5. We expect the vegetation, once established, to perform equal to or better than a poor stand of grass. The HELP model accounts for the change in growing season, which is based on the average daily temperature. The growing season is that period of time when the average daily temperature is above 50 degrees Fahrenheit.

COMMENT: 37. "An EZD of eight inches was used for the vegetative support material in Alternatives 1 and 3." - The growth medium layer is only 6 inches and below that is compacted material (90% or higher compaction). A depth of 6 inches should be used.

RESPONSE: Based on the root depths of established vegetation observed in the field during the geotechnical investigation, root depths exceeded 12 inches in depth. As such, a conservative depth of 8 inches was selected as the root depth for the infiltration analysis. The root penetration is expected to penetrate the compacted soil cover. Based on the HELP model guidance manual the Evaporative Zone Depth (EZD) can be estimated by the root penetration depth.

COMMENT: 39. "To satisfy the requirements of the HELP model, the protective layer beneath the riprap was modeled as a drainage layer." - The layer below the riprap is compacted soil and should not be providing much drainage at all.

RESPONSE: This comment is in reference to the infiltration analysis conducted on cover systems that included a geomembrane cover. To model these scenarios, the geomembrane was input to the model as a barrier material. The material directly over the geomembrane was modeled as a drainage material (geonet), overlain with a compacted soil modeled as a drainage layer, overlain with riprap which was modeled as a drainage layer. The geomembrane is nearly impermeable as is shown by the results of the infiltration test. As such, water that infiltrates into the cover system above the geomembrane results in drainage. This drainage will travel laterally through all of the overlying drainage materials. The rate of drainage is obviously controlled by the hydraulic conductivity of the drainage material. Therefore, most of the drainage is likely to occur within the riprap and geonet, with little drainage occurring in the compacted soil.

ATTACHMENT 2
Email Notification Outlining Results of TES Assessment

Hi Gina.

Just a quick summary of the survey work that I've done for the FS #2 repository site at Standard Mine this year:

Lynx Den Survey (June 1 and 2, 2007) —I surveyed the entire site and a 500-foot buffer for potential lynx denning locations. This involved a pedestrian survey to identify areas of downed logs and brush piles. I found five somewhat suitable sites in the site itself and 19 somewhat suitable sites in the buffer area. No denning lynx were observed. Due to the availability of better denning habitat elsewhere, the somewhat regular human disturbance in the area, and the lack of ideal conditions, none of the 24 sites were expected to contain a lynx den. I will include a map of the sites in the final report.

Shrew Survey (July 2—4, 2007) —A total of 16 traps in three locations were installed and monitored every 4 to 6 hours for 48 hours. The traps were "pits" or plastic buckets buried flush with the ground surface and baited with earthworms. No shrews (or any other mammals) were captured. As a result of the lack of captures and the site being somewhat marginal habitat, the shrews of concern are not expected to be present.

Nesting Bird Survey (July 2—5, 2007) —Nesting bird surveys consisted of sitting and walking through and around the site early in the morning, late in the evening, and throughout the day. A total of 14 species of birds were observed in or near the site during the surveys. No active nests were found. One large grass nest was found near the existing access road, but no activity was observed during the four day survey.

Rare Plant Survey (July 5, 2007) —Pedestrian surveys were completed on the entire site (including adjacent talus slope areas) for various rare plants. The target species were *Astragalus molybdenus, Eriogonum coloradense, Machaeranthera coloradensis, Listera borealis,* and *Botrychium echo* . No rare plants were found.

I'll have all the details in the final report. I hope you are doing well. See you on the 23 rd .

Thanks.

Andy.

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ATTACHMENT 3

Technical Memorandum
Standard Mine Site
Investigations of Seeps and Shallow Groundwater In and Near USFS Site 2
7/12/2007

EPA performed investigations at the Standard Mine site area during 2006 and 2007 to determine a suitable area for a mine waste repository. Surface water influx and the presence of shallow groundwater at the proposed repository location is an important aspect to understand to evaluate potential negative impacts to the repository stability and leaching of metals from the mine waste. Therefore field surveys were performed and piezometers were installed to investigate the occurrence of surface water and shallow groundwater at the USFS Site 2. These investigations and the results are summarized below; all information collected to date suggests lateral flows and/or shallow groundwater are not likely present at the USFS Site 2, nor would these be expected to cause any sort of instability or additional leachate at the repository cell.

USFS Site 2 encompasses approximately 2.5 acres within a closed depression, roughly oval in shape, about 250 feet wide, 400 feet long, and approximately 8 feet deep. The depression was created by deposition of glacial moraine material and it has a surface elevation of approximately 10,790 feet AMSL based on the LIDAR survey performed in 2006 (URS 2007).

A wetlands assessment for the potential repository areas was performed during July 2006. Six wetland areas totaling slightly over 1 acre within the 26-acre study site were identified and their characteristics documented and described (Phase I EE/CA). Wetlands were delineated at Mine Levels 1, 2, 5, and 98. No wetlands or other water features were observed at USFS Site 2 during the wetland survey.

Shallow groundwater occurrence and the nature of subsurface soils were investigated during the first week of August 2006 at five potential repository locations including Area 99, Area 225, Area 245, Standard Mine Level 2, and USFS Site 2, and one potential material borrow area, USFS Site 1 (Figures 4-1 thru 4-6, Phase I EE/CA). Forty-four test pits in total were excavated with hydraulic excavator equipment. Surface soil depths were reported to be, for the most part, very thin (approximately 1 foot thick). Suspected landslide and debris flow material was encountered to depths of 22 feet bgs at proposed repository location Area 99 and at proposed borrow material location USFS site 1, however, bedrock refusal was typically encountered at approximately 4 feet bgs (Figures 4-7 through 4-12, Phase I EE/CA).

Eight test pit excavations were performed at USFS Site 2 which ranged in depth from 4 to 8 feet with refusal met in each pit. The upper 12 inches of material encountered in the test pits consisted of an organic silt growth medium. Soils encountered below the organic silt generally consisted of silty to clayey gravel or sand with cobbles and boulders.

Excavation refusal was encountered at each test pit in the investigation when large cobble and boulder sized material, with appreciable amounts of soil within the excavation, was encountered. This soil description is consistent with fractured bedrock, coarse colluvium, and glacial debris material. Groundwater is not easily retained by such coarse material and will filter through to the water table. No groundwater influences were observed in any of the test pit excavations by URS.

All locations that were investigated by test pit excavations were within an approximate 1.5 square mile area. The lack of observed groundwater influence at all test pits done, for all potential repository sites, infer that the water table consistently occurs at a depth greater than the base of the test pits throughout the site area. These all incorporated a wide coverage area and varying pit elevations. USFS Site 2 is not expected to vary from that site-wide observation therefore any water table influence at that location is expected to be deeper than the repository base.

In conjunction with a threatened and endangered species survey performed on June 1, 2007, observations were made concerning the presence of seeps and pooled water within the USFS Site 2. Snow was present within the area although the peak of spring runoff had likely passed. A thorough examination of the slopes leading into the depression and of the depression itself revealed no indication of seeps or of standing water in the depression.

Soil coring and piezometer installation was performed by UOS on June 27, 2007 on the perimeter area west of USFS site 2; this was done using a Geoprobe® direct push hydraulic soil coring probe (2-inch OD). The following items were completed, please see Figure 1 for locations:

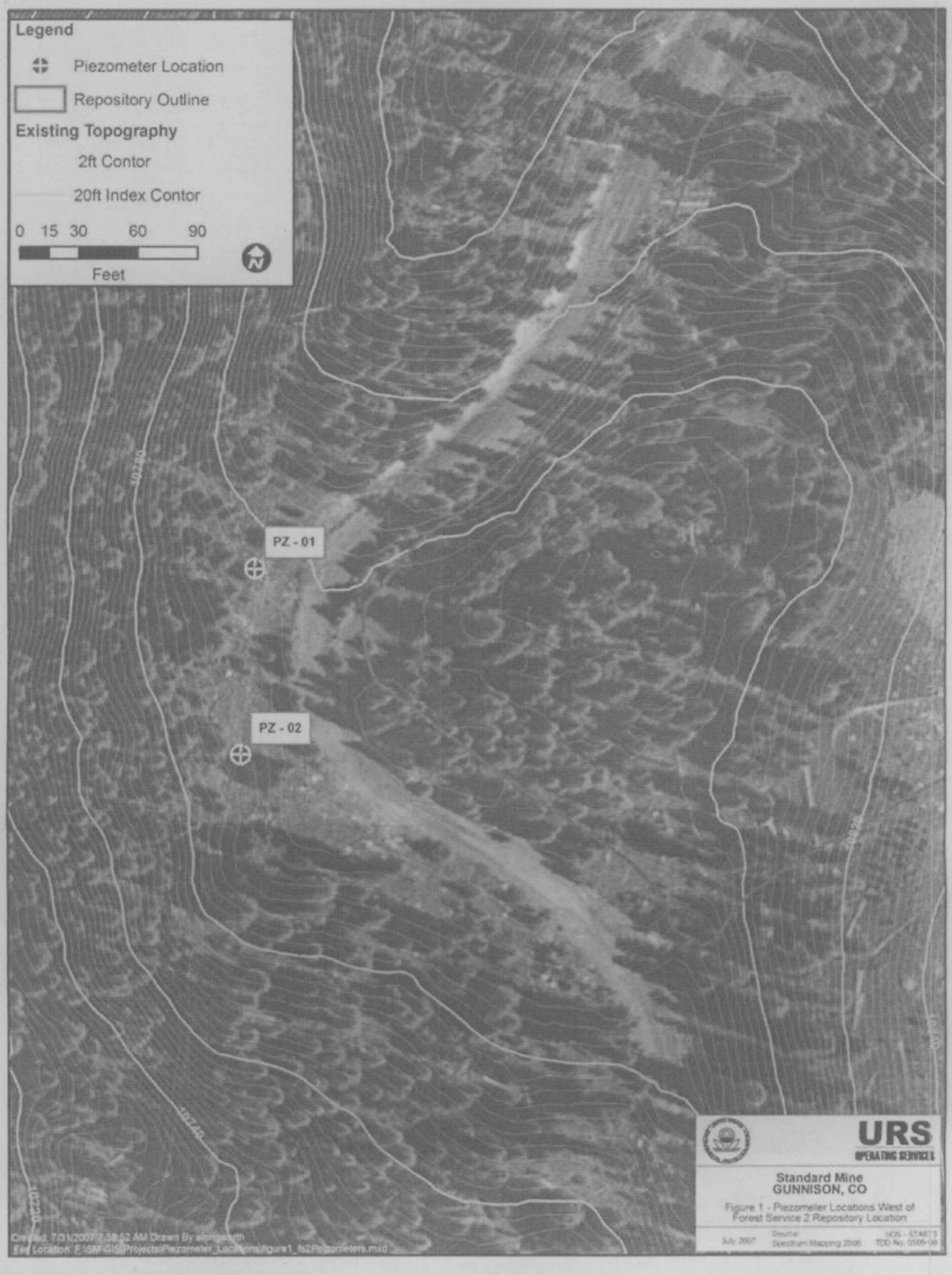
- At location PZ-01 (surface elevation 10,803 AMSL) a piezometer was installed 28 feet bgs depth, which is 15 feet below the lowest point in the repository area. A soil core was obtained at location PZ-01.
- At location PZ-02 (surface elevation 10790 feet AMSL) a piezometer was installed to 24 feet bgs depth. This location is approximately 100 feet south of PZ-01.
- Piezometer installation was attempted at a third location approximately 100 feet southeast of PZ-02 but was met with refusal at 4 feet bgs after 3 attempts. Equipment malfunction negated further work during this investigation.

During coring of PZ-01 several very moist to wet intermittent sandy clay horizons ranging in thickness up to 3 inches thick were observed, predominantly from 8 to 24 feet bgs (see following PZ-01 boring log). The sandy clay horizons became wetter with increased depth, however no measurable or "free" water was observed within the soil cores. Material encountered during the soil coring activities was coarse with predominant sand sized particles. Boulder and/or cobble sized impediments were encountered during coring activities which caused the core string to be deflected within the subsurface. The coarse material encountered during the coring activities did not indicate an ability to retain any appreciable amount of groundwater and would likely

release it downward to the established water table depth within a fractured crystalline rock aquifer. Because of the lack of homogonous clay material that may retard groundwater flow an under-drain is not believed to be necessary at the USFS Site 2.

On June 28, 2007 UOS checked the piezometers for the presence of water. Neither piezometer contained water. Based on the piezometer ground surface elevations and depth, the groundwater elevation for PZ-01 and PZ-02 is lower than 10,775 feet AMSL and 10764 feet AMSL, respectively. Comparing these elevations to the ground surface elevation of the depression within USFS Site 2 (10,890 feet AMSL) provide another indication that groundwater may be from 15 to 26 feet further below the ground surface of the repository area.

Also, because Elk Creek is encountered approximately 120 feet below USFS Site 2 on a slope with an approximate gradient of 48% from USFS Site 2, the local water table is not anticipated to be near the land surface in the area of USFS Site 2. Rather, the water table, which is visible at Elk Creek, will typically become deeper as one travels upgradient toward the top of the mountain. No appreciable groundwater was observed during piezometer installation, and the piezometers were observed by UOS to be dry one day following installation.


Legend
Piezometer Location
Repository Outline
Existing Topography
2ft Contor
20ft Index Contor
0 15 30 60 90
Feet
PZ - 01
PZ - 02
URS
OPERATING SERVICES
Standard Mine
GUNNISON, CO
Figure 1 - Piezometer Locations West of Forest Service 2 Repository Location
July 2007
Source:
Spectrum Mapping 2006
UOS - STARTS
TDD No. 0505-08

URS Operating Services

SOIL BORING LOG / MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: **PZ-01**	TDD Name/Number: **Standard Mine 0608-07**	Site Location:
Boring Depth (ft) X Diameter (in): **28.0 x 2-inch**		Drilling Method: **Geoprobe macrocore**
Well Contractor Name: **URS Operating Services**		Logged by: **C. Schmidt**
Ground Surface Elevation (ft): **10803 est**	Top of Casing Elevation (ft): **10805 est**	Lat. / Long. / Northing (ft) / Easting (ft)
Date Started: **6/27/07**	Date Completed: **6/27/07**	Additional Comments:

Lithologic Description	USCS	Graphic Log	Depth (feet b.g.s.)	Well Construction Details	Sample Type*	Sample Recovery	FID (ppm)	PID (ppm)
Organic debris. Dark brown to black, dry.	OL		0	3/4 inch OD blank PVC. Bentonite and native slough in annular space.				
Clayey Silt. Med brown, soft, pebble to 1.5 inch dia, sli moist, roots in upper foot, clay content decrease w/ depth.	ML							
Inferred, no samp.	SC							
Clayey Sand. Med brown, 30% clay, 60% sand, 10% pbl, sand angular, fine to med grains of qtz monzonite coated in clay/silt, Abdt trace pyrite, some FeOx stn, moist, trace altered argillaceous frags; black to dk brown, frm to sft, up to 3/8 inch dia.	SC		5		MC			
As above. 35% clay, 55% sanded, 10% pbl, clay occurs throughout but concentrates in layers up to 3 inch thick, sandy. Course material incl qtz monz frags/pbl, abdt FeOx stn most dominant in coarse material, trace black to brown argilaceous frags, moist.	SC		10		MC			
As above.	SC				MC			
Clayey Sand. 35% clay, 60% sand, 5% pbl, clay med brwn dominant in non-uniform zones, Tr black clay likely altered argil shale. Sand angular, med to crs gr, qtz, qtz monz. Pbl is qtz monz. Abdt FeOx in sand, less in clay, v moist to wet in clay zones.	SC		15		MC			
As above.	SC				MC			
Inferred, no samp.	SC		20	3/4 inch PVC, .010 slot w/ end cap 10/20 mesh silica sand filter pack.	MC			
Core lithology appears to be glacial debris material.	SC		25	Log TD = 24 feet.	MC			
				Piezometer TD = 28 feet				

* SS (split spoon) HSA (hollow stem auger) MC (Geoprobe macrocore) CT (cuttings)

Observations	Date:	6/28/07				
Static Water Level (from TOC)	Level:	Dry				
Static Water Level (ASL)	Level:					