WSI Weiland, Inc.
Environmental & Engineering

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Environmental Support for:

- Transportation
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Eric Scott – Environmental Protection Specialist
Colorado Division of Mining Reclamation & Safety
1313 Sherman St., Room 215
Denver, CO 80202

Re: Turnpike Mining Resource M-2004-009-AM-2 responses to adequacy review items from emails dated December 10, 2012 and January 29, 2013

Dear Eric,

Below you will find your adequacy comments followed by our responses in italics. We have omitted your comments regarding water quality, due to your statement in the January 29, 2013 email,

"…we have decided to fully review and consider Asphalt Specialties' proposal for an "engineered backfill" of the stockpiled shale material in lieu of analytical monitoring requirements"

Rule 3.1.7 (4) b states "If there is a reasonable potential to exceed groundwater quality standards promulgated by the WQCC, the Operator shall modify the permit as necessary to implement such standards in compliance with this Subsection, 3.1.7". We believe geotechnical analyses and backfill specifications given below will result in an engineered clay backfill area that will be essentially impermeable ($K<10^{-6}$cm/sec) and as such there would be no reasonable potential for exceedance of the groundwater quality standards from a clay backfill area which does not transmit water.

On December 10, 2012 Eric Scott Wrote Via email:

WATER QUANTITY ISSUES

What is the location and elevation of the benchmark used to survey the elevations given in this report? We need to have this survey be repeatable if necessary.

The vertical benchmark is the National Geodetic Survey benchmark LL1418, the vertical datum is NAVD 88.

DRMS rule clearly states that DRMS has been directed to protect the prevailing hydrologic balance with respect to water quality and quantity.. The "threshold levels" presented in this plan are clearly stated to be at least 3.5 to 8.5 feet above the "predicted seasonal high water table elevations" which would make these levels clearly outside the "prevailing" ranges.. That being said, DRMS would be willing to allow up to two feet of deviation from the calculated "seasonal high water (and low) table levels" as a "trigger level" to account for some seasonal variation, the inherent uncertainty in the manner of how they were calculated, and knowing that even at those elevations there would still be minimal risk of damage to adjacent structures.

The report has been edited to include trigger levels 2ft above approximate historic seasonal high water levels.

There has also been NO mention of how low groundwater will be allowed to fall on the "shadow" side of the permit before corrective actions may be taken. (Andreason domestic well/MW-2) Please address.

The Andreason domestic well has been addressed in the enclosed revised plan.

Please keep in mind that reaching a "trigger level" does not automatically require installation of mitigation such as a french drain.. If specified as such, it could also just mean increased monitoring frequency (for instance monthly to weekly etc) to determine if there is a continuing trend. Also keep in mind that there also has to be enough time upon reaching a "trigger level" to design and implement a mitigation solution if there is reason to believe it will be necessary in order to avoid exceeding the provided "not to exceed threshold" levels. Because no mitigation design has been provided at this time, this necessitates a lower trigger level to allow for the increased time to implement.

This is understood.

ASCI may also enter into any outside agreements with surrounding property owners that it deems in it's interest. HOWEVER outside agreements do not/will not supersede the DRMS mandate to maintain the prevailing hydrologic balance should the issue arise. It may be in ASCI's interest to remove references to outside agreements from this plan.

This is understood and reference from outside agreements have been removed from the plan.

On January 29, 2013 Eric Scott Wrote Via Email:

After our meeting/discussion this morning (thanks again Peter for your time), we have decided to fully review and consider Asphalt Specialties' proposal for an "engineered backfill" of the stockpiled shale material in lieu of analytical monitoring requirements. Obviously, it is your goal that this proposed geotech submittal demonstrate convincingly that analytical groundwater sampling is not necessary at this site, so it will need to include some fairly specific/compelling information. I am obviously skeptical at this time that simply backing up and end-dumping the existing material from the edge of the pit and then driving over the top of this (~20' deep?) "fan" as deposition progresses into the excavation will result in effective compaction of more than the top foot or so of material, or prevent the "self-sorting" of the larger material to the bottom of pile resulting in a preferential flow path/settling. Therefore, I think this method is is not likely to provide the desired results.. Feel free to prove me wrong, or provide a different method of backfill material preparation/placement.

The method of backfill described during our meeting whereby haul trucks dump over the edge, will not occur. The following means and methods has been developed by operations in conjunction with the geotechnical engineer from Earth Engineering Consultants, LLC (EEC) for backfilling:

Means and Methods for Backfilling with Stockpiled Shale:

1. *An area of approximately 8 acres shall be backfilled at a time following mining of that same 8 acre area.*
2. *Stockpiled shale is loaded out from the top of the stockpile with a loader into tandem (16-ton) haul trucks.*
3. *Haul trucks backup to the far face of the mined area pit floor and dump 4 ft. to 4.5 ft. high stockpiles. When approximately a third of the floor is covered with the stockpiles and before the shale is able to dry out much, the 23 –ton wheeled compactor is used to grade the shale piles into 2 ft. to 3 ft. lifts. The compactor will then make 4 to 5 passes over all of the shale backfill material.*
4. *A water truck is used at this stage to moisten condition the top of the shale backfill and for dust control. The haul trucks start the cycle all over again with deposition of shale material as backfill and with an additional 16-tons of weight passing over the previously compacted/condensed shale. (This is the exact same process that was used to put up the shale stockpiles in the Fall and Winter of 2010-2011). This process is repeated approximately 5 to 6 times until the desired depth/elevation is reached. Overburden is then placed*

over the compacted shale and then a 6 in. layer of topsoil is placed to achieve the pre-mine grade elevation and to prepare the surface for revegetation. With 4 haul trucks providing backfill and the compactor working continuously, the whole backfill process can be completed within approximately 2.5 weeks or less for an 8 acre "block" of backfill.

We will need to know for the backfill material to be placed (at a minimum, and with supporting data) the overall particle size distribution, % fines passing No.200 sieve, plasticity, the proposed optimal moisture content and % of maximum density for the backfilled material, as well as the expected resulting porosity, and overall hydraulic conductivity for the backfilled material.

Please see Attached Geotechnical letter Report for this information

We will need specific information describing how Asphalt Specialties plans to prepare/place this material to meet those specifications, the type and frequency of CQA testing that will be conducted throughout backfill activities to insure the proposed specifications are met, and how this QA/QC information will be reported to the Division. The placement plan and the subsequent QA/QC reporting will need to be certified by a qualified engineer.

The plan for preparation/placement of the shale material is specified above in the means and methods for backfilling and is supported by the Geotechnical Engineering Letter Report from EEC. The report also includes a QA/QC plan and testing Summary table. QA/QC information will be reported to the DRMS in the annual report.

The previous list should be considered a minimum. Additional information - such as relevant alluvial water quality data, comparisons of the hydrologic characteristics of the proposed backfill to the surrounding native alluvium, additional chemical analysis of the backfill material, proposed monitoring for water within the backfilled material, or any other relevant information that may serve to support this proposed option by further demonstrating that analytical monitoring will not be necessary - will be welcome. It would also be useful at this point to know what the proposed timeline for this submittal will be. In the meantime it may be useful to finalize the bond calculations.

In November of 2000, Rocky Mountain Consultants installed a monitor well near Boulder Creek (MW-25). Water was sampled and analyzed in February of 2000. The results are given in Attachment A.

Regarding the Trout Pond on the west side of Boulder Creek, this pond was included and approved in the previous M-74-120 permit reclamation plan for the property. On March 29, 1995, Dick Wolfe of the State Engineers office signed off on all of the exposed groundwater for the permit area as covered under a District 6 water users agreement (see Attachment B). In Mr. Wolfe's first letter (Sept 28, 1994) to the operator (given in Attachment B) he requests an areal photo for the site and therefore he was well aware of the pond on the west side prior

to his issuance of the final letter on March 29, 1995. M-74-120 was released by the Mined Land Reclamation board in January 1996. ASCI has no plans to mine the trout pond area, significant vegetation is established, slopes are no steeper than 3:1 and the area is stable. There should therefore be no reason to perform any additional reclamation for that area.

Sincerely

Peter Wayland

Peter Wayland
President

Encl. Groundwater Mounding/Shadowing Plan Turnpike Mining Resource, EEC Geotechnical Report, Attachment A – Water Quality Sampling by RMC from 2000, Attachment B – Letter from Dick Wolf,