Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

March 9, 1992

Mr. Ken A. Kluksdahl
Mine Manager
Tenneco Minerals
P.O. Box 2650
St. George, Utah 84770

Dear ~~Mr.~~ Ken Kluksdahl:

Re: Conditional Approval, Permit Amendment, Covington Pit & Haul Road Development, Goldstrike Mine, M/053/005, Washington County, Utah

The Division has completed its review of Tenneco Minerals request to amend their Goldstrike Mine permit application to include development of the new Covington pit and its access/haul road. The application has been determined conceptually complete and the Division is prepared to grant its conditional approval of this proposal. We anticipate presenting the revised amount of reclamation surety to the Board of Oil, Gas and Mining during the briefing session of the March 25, 1992 hearing. Subject to the Board's approval of surety, the following conditions must be addressed before our final approval can be issued allowing construction activities to commence:

CONDITIONS:

R647-4-105.3 Maps and Drawings - DWH

1. Figure 4.9-1 (Cross-section Typical Haul Road Drainage Crossing) is the only plan reference to the proposed "low-flow" haul road drainage crossings. This conceptualized figure is not sufficient to enable the Division to perform a complete technical design evaluation of the proposed drainage structures. The operator will need to prepare more detailed design drawings showing appropriate cross-sectional and longitudinal "plan view" configurations of the proposed road drainage crossings. An estimate of the volume of fill material to be emplaced in each of these crossings is also requested.

2. Regarding Drawing Nos. GS-018 thru GS-020 (1995 Hydrology Maps).

There should be a reference ("note") to a typical "low-flow" detailed design drawing/figure on these maps.

These maps (or more detailed design drawings) should be revised to clearly show the maximum anticipated extent of fill material to be emplaced in the existing drainages at the proposed low-flow crossings (show upstream and downstream extent).

Drainage directional flow arrows should be shown on the downstream side of each "low-flow crossing" as presently shown for crossing 4A on Drawing No. GS-019.

Drawings GS-018 and 019 do not show proposed locations of silt fence erosion control facilities/structures as referenced in the plan on pages 60 & 62. Please revise the maps in this regard.

Road drainage ditch and direction of flow needs to be shown on Drawing Nos. GS-019 and 020 between haul road culvert #4 and low-flow crossing 1F.

Please place the names of the major (and minor if known) drainages on the hydrology maps.

How will the natural runoff from the uppermost (southern) portion of watershed 1-F be routed past the East-2 Arsenic Pit? Will a "low-flow" crossing or a culvert be used to bypass drainage under/over the haul road accessing this pit (see GS-019)?

On page 62, Section 4.9, the plan indicates that an 8-foot riprapped channel will be constructed to divert natural runoff around the West Arsenic pit. This channel and flow direction should be depicted on Drawing GS-019. Also, how will the natural drainage be routed after the pit is backfilled? Will it continue as designed, or be rerouted over the highwall and through the pit?

3. Are the Ultimate Site Development Maps meant to coincide with the 1995 Hydrology Maps (i.e., same vintage)? If so, perhaps the information contained on both could be overlaid and combined onto a single map(s)? If the combined results were not too "busy", it would help simplify the review and reduce the number of maps required.

R647-4-107.2 &.3 Operational Practices (Drainages & Erosion Control) - DWH

Seven of these "low-flow" drainage crossings are proposed as part of the haul road construction required to access the Covington pit. The Division has serious reservations concerning the long-term stability of this type of drainage crossing, especially with reference to its use in the larger drainage basins (eg., 1F & 2B). Use of these structures could present a long-term maintenance problem.

1. We ***cannot*** support the use of this haul road crossing design in the ***larger*** drainage channels (100 yr. storm discharge >100 cfs). However, upon our receipt of more detailed design drawings, and supporting hydraulic and structural stability calculations, the Division may consider allowing the "low-flow" crossings to be used on the **smaller** watershed drainage areas under an ***experimental-practice*** provision. We suggest that the operator consider a design modification to include some form of supplemental energy dissipation at the critical transition points (eg., bottom of the 3:1 riprapped outslopes, and the upper-most interception of existing channel with the fill).

   The larger drainage low-flow crossings should be culverted (1F and 2B). The culverts must be removed upon final reclamation and the natural drainage channels reestablished to their approximate original drainage configuration. Detailed design drawings and supporting hydraulic calculations must be provided for the culverted crossings.

2. Will the drainage diversion channel immediately above and leading into low-flow crossing 1F be constructed, or is it existing? If constructed, what are the design parameters and dimensions of this channel?

3. The Division cannot support the proposed plan to re-topsoil and revegetate the bottoms of the "low-flow" haul road crossings. It is our opinion that this is not a wise use of the topsoil resource and we question its long-term

integrity and resistance to erosion. Therefore, it is our recommendation (assuming some crossings are approved), that topsoil not be placed in the bottom, erodible sections of these crossings upon final reclamation.

4. The Division is concerned with the use of silt fences as a means to control sediment in the larger ephemeral drainage channels. Placement directly below the riprapped sections of the proposed haul road crossings (pages 60 & 62), could result in ultimate failure under an extreme storm event. Alternative forms of erosion/sediment control should be considered for the larger drainages. Also the maintenance plan does not contain a provision/schedule for removal and disposal of accumulated debris and sediment from these structures.

5. What is the final Covington Pit drainage channel configuration? Will an engineered channel be designed to route drainage over the highwall, through the backfilled pit and ultimately downslope to the receiving channel? If so, what are the design parameters? Are they the same as those proposed for the engineered channel below the haul road? Please clarify with additional plan language, supporting designs and calculations as necessary.

6. The drainage channel angle of interception at the 1F low-flow crossing as depicted on Drawing No. GS-019, may be too steep (insufficient design detail to evaluate). A smoother transition may be required to avoid erosion and stability problems.

7. Table 4.9-1, Page 61 - References drainage basin ID #'s 1T and 1V. These alpha-numeric designations could not be found on the referenced hydrology drawings GS-018 thru GS-020. Are 1T and 1V meant to correspond with 1F and 1G? Please clarify if this is just a typo.

R647-4-110.2 Roads, Highwalls, Slopes, etc. - HWS

To what degree will the haul roads be regraded at reclamation? The Division suggests that where possible, all roads be reclaimed to achieve the approximate original contour. At a minimum, the Division will require that roads are reclaimed in a manner which promotes successful revegetation and prohibits vehicular access by recreationists.

R647-4-110.5 Revegetation Planting Program and Topsoil Redistribution - HWS

The Division recommends that the operator amend the revegetation seed mixture slightly. The amended mixture should include the following species:

Common Name	Species Name	*Rate lbs/ac (PLS)
Shrubs		
Bitterbrush	Purshia tridentata	2
Serviceberry	Amelanchier utahensis	1
Rabbitbrush	Chrysothamnus viscidiflorus	1
Mountain mahogany	Cercocarpus montanus	2
Trees		
Pinyon pine	Pinus edulis	1
Juniper	Juniperus osteosperma	1
Forbs		
Globemallow	Sphaeralcea grossulariaefolia	2
Sweetclover	Melilotus officinalis	2
Lewis Flax	Linum lewisii	2
Grasses		
Indian Ricegrass	Oryzopsis hymenoides	2
Thickspike Wheatgrass	Agropyron dasystachyum	3
Bluebunch Wheatgrass	Agropyron spicatum	3
Crested Wheatgrass (Ephraim var.)	Agropyron cristatum	2
Sand Dropseed	Sporobolus cryptandrus	0.5
		Total 23.5 lbs/ac

*This is the recommended broadcast ratio. If the species are to be drill seeded, reduce the broadcast rate by 1/3.

On page 73, of the Reclamation Section, the operator indicates that the furrows created by the drill seeder will provide adequate erosion control on slopes of 2.5:1. This stabilization technique will be acceptable to the Division on an ***experimental basis***. If the technique proves unsuccessful on areas of the site to be reclaimed in 1992 and 1993, then Tenneco must commit to upgrading the technique.

R647-4-111.1.15 Reclamation Practices, Berms, Fences, Barriers - AAG

Because of the steep terrain and lack of developed access above the highwall of the Covington Pit, it is the Division's opinion that the proposed safety berm is not necessary at final reclamation.

R647-4-111.2 Reclamation Practices, Natural Stream Channels - HWS/DWH

The "low-flow" stream channels crossings may be approved for the smaller drainages as an ***experimental practice*** (see previous comments R647-4-107). The performance of any approved "low-flow" crossings would be evaluated during the remaining mine life for stability and structural integrity. At final reclamation, the Division would make a decision whether these structures could remain, or if the natural drainage configurations would need to be restored. The reclamation surety must reflect this "worst-case" scenario of recontouring and reestablishment of the approximate original drainage configuration, or to a stable, engineered channel.

R647-4-111.3 Erosion/Sediment Control - HWS

How will runoff be directed off of the road and pit areas after reclamation and how will it be treated? Are the 1995 Hydrology Maps (Drawing Nos. GS-018 thru GS-020), intended to depict the final drainage patterns? Depending upon the final configuration of the reclaimed haul roads, waterbars may or may not be needed. What will be the location of sediment/erosion control structures at final reclamation?

R647-4-112 Variance.

All variance requests, as proposed on page 77 of the plan are accepted by the Division. However, under section 7.0 , Rule R613-4-111.9, no reference is made regarding the sediment dam impoundment upon final reclamation. Will this structure be reclaimed such that it will no longer impound water? Please clarify the post-mining plans for this facility and whether it should also be considered under the variance provision.

R647-4-113 Surety. - DWH

Tenneco must provide the Division with an updated reclamation surety to reflect the additional costs to reclaim the new disturbances associated with this amendment.

Once Tenneco Minerals has satisfied these conditions, the Division will be prepared to forward our final approval of this permit amendment request. Thank you for your continued cooperation in finalizing this permitting action. Please contact me or Wayne Hedberg of my staff should you have remaining questions or concerns in this regard.

Sincerely,

Lowell

Lowell P. Braxton
Associate Director, Mining

jb
cc: Debra Brannum, Tenneco (Corporate)
Debra Pietrzak, BLM, Dixie RA
Elliott Lips, JBR
M053005.1