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STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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June 20, 1988

Mr. Mike Glasson
Andalex Resources, Inc.
P. O. Box 902
Price, Utah 84501

RE: Aberdeen Mine Surface Facilities Review, Andalex Resources, Inc., Centennial Project, ACT/007/019, Folder #2, Carbon County, Utah

Dear Mr. Glasson:

The Division has completed its review of the proposed Aberdeen facilities, as per your request of March 11, 1988 (review attached). Although the proposed disturbance at the Aberdeen site is a separate area, in many ways it is impossible to divorce these plans from the total Mining and Reclamation Plan (MRP). Many of the review comments address deficiencies in the revised MRP as a whole, but are issues that must be taken care of before the Aberdeen plans can be properly designed and approved.

Hopefully, the meeting we had on June 1, 1988 to discuss these issues will aid in your understanding of the Division's review comments. Please don't hesitate to contact me or any of the technical staff for further clarification.

Sincerely,

for David W. Darby

Susan C. Linner
Reclamation/Biologist
Permit Supervisor

SCL/as
Attachment
cc: L. Braxton
B Team
1356R/30

COMPLETENESS/TECHNICAL DEFICIENCY REVIEW
Andalex Resources, Inc.
Aberdeen Mine
ACT/007/019

UMC 783.16 Surface Water Information - RS

Quality of the Data

The locations for sample sites PD, PD-1 and PD-2, and outfall 006 are not depicted on any maps.

The water monitoring results are located in various sections of the MRP (i.e. Appendix H and the Appendix of the Vaughn Hansen report of 1981). The application should consolidate and summarize the data (to include all data current to date) into one section and include a discussion of the variablility of seasonal trends and conclusions of the monitoring program to date. Generally, the easiest and most effective way to summarize the data is to plot the data as a time trend and include statistical descriptions of the mean, maximum, minimum, standard error or deviation, and number of samples. This information should be discussed with conclusions in the narrative.

The original application stated that mining operations have produced very little water. However, since the mine has been operating since 1981, the Division is aware of at least one occurence where the mine intercepted groundwater. The application should be updated to include a current discussion of the minewater encountered during the last permit term.

UMC 783.19 Vegetation Information - LK

Complete; however the Division reserves the right to accept or reject the selected reference areas until such time that a site inspection of the selected reference areas can be made. This inspection is tentatively scheduled for some time in June, 1988.

UMC 783.20 Fish and Wildlife Information - LK

The section on raptors (Section H 4.2-1 on page 59 in the MRP needs to be updated to include the results of the USFWS Powerline Survey of February 23, 1983 which concludes that the powerline does not pose as an electrical hazard to raptors. Also, a new active Golden Eagle nest was located on the ridge west of the surface facilities during the Spring of 1988. This needs to be documented in the MRP and the nest location shown on Map 34, Wildlife Distribution Map. Finally, buffer zones around the eagle nests shown on this map are inadequate in that they need to be extended to 0.5 mi from the nest.

Part 5, Impacts of Operations, on pages 59 and 60 states that construction of all roads, powerlines, and surface facilities has been completed. This statement needs to be corrected since the Aberdeen portals and facilities have not yet been completed. Impacts with this construction need to be addressed.

UMC 783.24 Maps: General Requirements - JRH

(a) Surface and subsurface ownership of lands contiguous to the permit area is shown on plates 2 and 3. These plates need to be updated to incorporate the surface modification from the BLM when approval by the BLM is provided for the construction of the Aberdeen facilities which are currently proposed to be located outside of the permit area.

(b) The leases in which the operator has the legal right to conduct mining activities are provided on plate 4. Again this plate needs to be revised to include the Aberdeen surface facilities outside of the exiting permit area.

UMC 783.25 Cross Sections, Maps, and Plans - JRH

(i) The operator has located non-coal waste facilities on Plate 6 of the Mining and Reclamation Plan. However, the operator has not shown the temporary and permanent locations for the storage and disposal of excess spoil and mine development waste materials or other materials such as sediment pond waste which must be disposed of within the permit area. This part of this section of the regulations is not considered to be complete. The operator must provide plans for the temporary and permanent location for storage and disposal of these materials. This deficiency applies to the Centennial Project, including the Aberdeen Mine.

The operator has not indicated where the topsoil from the Aberdeen Mine site was removed to or whether or not topsoil was salvaged at the time of disturbance of this area. The operator should include discussion on this.

(k) Plate 14 shows the surface configuration of the area to be affected and a series of three sheets for plate 15 indicate the cross sections of the site showing that the operator intends on reclaiming the surface to the exact configuration as the original surface. These sheets also include the surface configuration as currently constructed and as proposed. This part is considered complete, however, refer to section UMC 817.101 for comments regarding backfilling and grading of the site.

Although this section of the regulations is considered to be complete,the following minor deficiencies or technical problems were found on these drawings:

(1) Plate 14 does not include the disturbed area boundary. This should be included on the drawing for reference. Plate 14 also involves earthwork and design criteria and should bear the mark of a registered professional engineer. Reference should also be made as to the plate(s) on which the cross sections are located.

(2) Plate 17, Final Reclamation, should include the disturbed area boundary for reference and indicate the location and the extent of the reclamation to be accomplished during Phase II reclamation on the site.

(3) Plate 5 shows the surface disturbed area boundary but does not include the permit area boundary for reference to the location of the disturbed area. The permit area should be included on this drawing to ensure that the operator is conducting surface activities related to underground coal mining activities in accordance with the regulations. This drawing shall also be certified by a registered professional engineer.

UMC 783.25 Cross - Sections, Maps and Plans - RS

(4) Plate 6 as well as all other plates locating and identifying surface facilities for the mining operations should include the surface disturbed area boundary for reference to the facilities and to indicate that the structures are within the affected area. Please include these boundaries as appropriate on the drawings.

(b) The application states that "monitoring stations for water quality..... were not required for the preparation of this application." The applicant needs to depict water monitoring stations used to collect the baseline information required by UMC 783.16. Additionally, the map should clearly depict and label previously used stations and current stations.

(g) The application states (p. 67) that there exist no surface water bodies in the permit area. All natural ephermal/intermittent channels are depicted on Plates 9 and 21. The application should state that no springs exist within the permit area and adjacent area or depict any springs on an appropriate map. The application should also define the area of the hydrologic inventory in Appendix H.

UMC 783.25 Cross - Sections Maps and Plans - LK

Part b on page 66 needs to be revised to reference Plate 34, Wildlife Distribution Map and Figure 6, Location of the Proposed Ground and Surface Water Monitoring Stations.

UMC 784.12 Operation Plan: Existing Structures - JRH

This section is not considered to be complete. Information found in the Mining and Reclamation Plan does not indicate when the disturbance located in the vicinity of the proposed Aberdeen facilities occurred. It is assumed that this disturbance occurred during the construction and the installation of the other mining facilities located on the site and during the installation of the undisturbed area culverts. The operator must indicate the date and the nature of this disturbance, and, if this disturbance occurred within the scope of the existing permit, provide a description of the activities. The Division's primary concern for the prior activity on this site is topsoil recovery.

The operator has indicated that the area within and surrounding the proposed Aberdeen Mine site was previously disturbed by mining. The maps and plans provided by the operator do not indicate the date, location or extent of these surface disturbances. The operator shall be required to delineate these areas on the drawings to indicate which areas were previously disturbed by earlier mining activities and if possible, indicate the date or the approximate dates in which the disturbances occurred in accordance with the requirements of UMC 771.23(e).

The operator should clarify those existing structures as defined in the Mining and Reclamation Plan. The intent of the requirements of this section of the regulations is to identify and ensure that those structures which were constructed prior to August 3, 1977, be modified or reconstructed in a manner so that they will conform to the requirements of the regulations. The structures currently listed in the operator's plan were constructed under permit in 1980.

UMC 784.13 Reclamation Plan: General Requirements - JRH

This section could be considered complete, however, technical deficiencies exist within the plan regarding the requirements of this section.

The operator has indicated in the reclamation plan that the site will be returned as near as possible to the approximate original contour the area was prior to mining. In those areas where solid rock was excavated in face up of the portals, as well as road cuts and pad development, the swell factor associated in conjunction with these excavations will not allow for total replacement of these materials to their original volume. Additionally, fill areas may not be considered stable if placed back to their original surface contour.

In those areas where steep slopes occur (greater the 2h:1v) or in other locations on the site in which the operator does not intend to completely backfill the site to the original conditions, the operator must provide detailed sections showing the final configuration of the surface and if necessary, stability analysis to ensure long-term stability of the slopes.

Cut and fill calculations do not include the amount of swell or the compaction of the materials as they are relocated on the site. No adjustments in the mass balance are seen within the Mining and Reclamation Plan.

The bond estimate as provided by the operator does not include productivity calculations for the equipment selected. In order to determine the calculations complete, equipment sizing and productivity calculations should be included in the Mining and Reclamation Plan.

UMC 784.13 Reclamation Plan: General Requirements - RS

(b)(1) The reclamation timetable (page 90a-b) is incorrect. UMC 817.46 requires that the sedimentation pond be left intact until UMC 817.111-117 revegetation requirements are complete. Water monitoring (including a site to monitor the drainage entering the sedimentation pond) should be included in this list as a reclamation activity.

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance - RS

(b)(3) The location of the gauging station discussed on page 116 should be depicted on the map of water monitoring stations. A description of the gauge type, collection and recording of the data, and gauge maintenance should be included.

The application states that the water encountered in the mine will be monitored if significant amounts are produced (p.132). The application should define this significant level with a specific gpm.

According to UMC 817.46(u), the applicant should establish a monitoring station at the entrance to the sedimentation ponds for the reclamation period and commit to sampling applicable state and federal water quality requirements for the receiving stream. The discussion should include method of sample collection, any devices, reporting format and frequency of sampling. This discussion should be inclusive for all postmining monitoring sites.

The parameter list given in the application on page 116 (section 3.1-2) needs to have the following field parameters added: flow, field determined pH, specific conductivity, and field temperature.

The application must commit to collection of a complete baseline parameter sample(s) during the year preceding each repermitting action. For surface sites, two samples should be taken with one at high flow and one at low flow. For springs and wells, one sample should be taken at low flow or water table conditions.

The application should commit to including in the sample reports the following: date and time of sample, date of analysis, a cation-anion balance analysis, distinction if analysis is for total or dissolved, field parameters for each sample, parameter units, and sampler's intitials or name.

The application should describe and commit to collection and preservation of all samples in accordance with E.P.A. standards. These are to include onsite filtration of samples for dissolved constituents, purging of wells until temperature, conductivity, and pH are constant prior to sampling, use of appropriate containers for samples (i.e. glass for oil and grease). The application should also commit to analysis of the collected samples within the allowable holding times as given in EPA guidelines (attached).

UMC 784.15 Reclamation Plan: Postmining Land Use - LK

This section needs to be revised to identify that reclamation will restore the high priority wildlife habitat that existed prior to mining.

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments - JRH

This section of the regulations could be considered complete. However some logistical and design questions need to be addressed in the plan.

The operator has indicated that sediment pond E will be enlarged during Phase I reclamation construction in order to allow the reclamation of ponds B and C. Design for this pond enlargement is not included in the Mining and Reclamation Plan. Due to the existing limitations on the site, the operator should consider constructing sediment pond E to a size which could allow for the immediate removal of ponds B and C during mining operations.

The location of the emergency spillway for sediment pond C is directly over the embankment. This is not considered to be the most suitable configuration for a spillway. It appears that the emergency spillway could be relocated to discharge over natural materials and into the undisturbed drainage diversion adjacent to the pond.

The culvert discharge structure as proposed for sediment pond E does not allow for the decanting of the pond. Since the undisturbed drainage culvert passes directly beneath the pond, the operator may wish to consider the installation of a riser from the undisturbed culvert. This vertical riser would allow for the installation of a decant valve to drain the sediment pond when necessary and eliminate the additional installation of a culvert through the embankment.

The operator should consider the above suggestions in modifications of the sediment pond design. In any event, the operator shall be required to incorporate into the design for sediment pond E, a method for decant of the pond.

Other deficiencies regarding sediment pond design and structure are found in the technical deficiencies under UMC 817.46.

UMC 784.21 Fish and Wildlife Plan - LK

It is recommended that the employee wildlife education sessions to instruct employees of the values of wildlife and how to minimize or avoid impacts be made part of the annual employee training program.

Herbicides and pesticides need to be approved by the Division prior to their use (see rule UMC 817.97(d)(7)). Please revise part 5.7 on page 105 to identify that the Division's approval will be obtained prior to their use.

The operator needs to provide a commitment to prevent, control, and suppress range, forest, and coal fires which are not approved by the Division (see rule UMC 817.97(d)(8)).

UMC 784.24 Transportation Facilities - RS

The application does not address the specific drainage requirements (UMC 817.153, 163, and 173) for the roads in the permit area described in section UMC 784.24, beginning on page 183.

UMC 817.22 Topsoil: Removal - JSL

Section 2.2, page 61 of the Mining and Reclamation Plan (MRP) should be updated to reflect the depth of topsoil removal as specified in section 4.3, page 87 of the MRP (e.g. 11 inches).

UMC 817.23 Topsoil: Storage - JSL

During the December 1981 complete inspection, the operator received NOV 81-3-23-1 for failure to mine in accordance with the approved mine plan. In short, NOV 81-3-23-1 was issued because the amount of topsoil salvaged was not sufficient. After several meetings between the operator and the Division (March 16, 1982, Memo to File; June 29, 1982, Inspectors Memo) it was determined that there was a deficit of approximately 4.2 acre feet. According to the June 29, 1982 Inspection Memo, the operator submitted information that determined that the topsoil deficit could be made up by removing from the bath house pad approximately 0.67 acres of topsoil material at an average depth of 6.3 feet. No further discussion on the volume was found in the files.

Due to various operational constraints, the operator subsequently proposed using the soil materials in the dike of decommissioned sediment pond A instead of the pond materials (April 14, 1987, Memo to File; March 24, 1987, Memo to File). The Division approved this modification such that the equivalent amount of material (6728 cubic yards) would be protected and utilized as topsoil. Plate 36 shows that only 6221.5 cubic yards (cyd) of material has been established as topsoil. This must be corrected. Plate 36 must be updated to reflect a minimum value of 6728 cyd of material. The straw berm should be moved accordingly to adequately protect the topsoil.

Further analysis of the topsoil volume requirements indicate a deficit. The total volume available (including that proposed at the Aberdeen development) is:

Topsoil Stockpile	Volume (cyd)
A	1323.4
B	509.5
C	252.9
F	2333.0
G	6221.5
H & J (proposed)	5592.6
TOTAL	16,131.9

The final depth of topsoil redistribution based on this total is:

$$\frac{(16131.9)(12)}{(34.2)(43560)(0.037037)} = 3.5 \text{ inches}$$

The plan indicates that six inches of material will be redistributed. The total volume required for six inch redistribution is:

$$(34.2)(43560)(0.037037)(0.5) = 27{,}588 \text{ cyd}$$

Thus, there is a deficit of approximately 11,456 cyd of topsoil. Note however, that no findings have been documented in the file or the plan to justify the reclaimability with a six inch topsoil redistribution plan. The operator has stated in previous submittals that topsoil will be redistributed to a depth comparable to that of the surroundings. According to the two soil surveys, the surrounding topsoils are approximately 11 inches in depth. An even greater amount of topsoil would be required to establish this commitment. Therefore, the recovery of soil materials from the Aberdeen development should be maximized.

All but portions of the Aberdeen site have already been disturbed; there is no further topsoil to be salvaged. Therefore, to insure reclamation feasibility with the in-situ disturbed soils a field-site test plot program must be implemented. The test plots should be implemented in the same manner as reclamation proposed in the MRP reclamation plan. The location of the test plots must be identified on Plate 7. Specific plans to implement this program must be included within the text of the Mining and Reclamation Plan. The test plot program should begin in the fall of 1988.

Test plot designs must be submitted to prove reclamation feasibility with the disturbed soil materials by July 30, 1988. Include a narrative/discussing the operative specifics and location of the test plots. The narrative must identify where the deficit substitute topsoil will be salvaged for final reclamation redistribution. Include a mass balance and cross-sections.

UMC 817.24 Topsoil: Redistribution - JSL

Section 5.3, page 104, and section 3, page 101 should be updated to include the specific depth of topsoil redistribution as stated in section 2.2, page 61 of the MRP.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations - RS

The application must present a map that specifically identifies the small areas that do not report to a sedimentation pond. The map should show the specific location for the proposed treatment structure for each area(s). The map should also include the drainage areas to the sedimentation ponds. All disturbed areas should be accounted for on this map. The application should state the area of each, estimated runoff volume, and treatment structure for the drainage. The Division typically allows a maximum of approximately 10% of the total disturbed area to be granted a variance under the Small Area Exemption regulation. The Division feels that the applicant should treat the drainage from the office area in sediment pond E.

UMC 817.43 Hydrologic Balance: Diversions - RS

(a) A complete map of the surface diversions and drainage structures does not exist in the permit. The information appears to be included on plates 6, 7, and 8. However, the Division requests that the map entitled "Support Facilities-Surface Area Drainage and Topography" include all diversions, disturbed drainage culverts, slotted drains, etc. that exist on the site. The Division is aware of at least one diversion (located above the office facilities) that exists on the site that is not included on the Plates. Each structure should be labeled with an identification number. For example, the culvert used to discharge water into the old works across from C-6 should be identified.

Diversions should all be completely delineated. For example, the north diversion from the office area drains down the access road and is depicted as simply ending after it makes the turn. Each diversion should be extended to show the fate of the drainage from source to discharge off the permit area. Culverts on this map appear as a hatched line with no labels or identification legend. A legend should be added to the Plate for the structures and the structures labeled with appropriate size. Diversion UD-5 is depicted on Plate 9 as extending to culvert C-12, whereas Plate 8 depicts the diversion only partially that length.

For each diversion, a drainage boundary should be depicted. However, if the applicant chooses, designs for the structures may be for the worst case (i.e. complete disturbed area) and applied to all structures.

(f)(3) Page 137 states that discharge points will be protected. The application should include specific designs for each structure and include specific locations for the structures.

Each culvert that will utilize a trash rack (as described on page 137) should be specifically identified.

The culvert sizing determination on page 138 should reference the equation used. Typically, Manning's equation is used only for culverts flowing under open channel conditions. It appears as though many of the culverts on the site will flow under inlet or outlet control conditions. Therefore, the use of Manning's equation will not be appropriate.

The use of a Manning's n-value of 0.038 to 0.04 for unlined channels is incorrect. Exhibit 1 shows most values for native soils ranging between 0.022 and 0.026.

The calculation of channel velocities is extremely sensitive to the slope value. The application must insure that the maximum slope to be encountered in construction of the diversion be used for the calculation of velocities and ultimately riprap sizing. These values, when approved, are considered to be a portion of the permit and may be verified during Division inspections. Enforcement action may occur if the values are in gross error.

A map should be referenced on pages 149 - 159, and included in the MRP, that was used to determine the drainage area, ditch slope, land slope, and hydraulic length values presented in the Tables.

Page 157 states that the locations of the reclaimed channels are depicted on Plate 17. The channels are not located or labeled on this map. Additionally, the map should specifically depict the exact extent of the reclaimed channel and not simply be a map of the premining drainage.

On page 167, the application states that a filter layer under all riprap will be essential unless the bank material meets the filter requirements and refers to section 2.7. Section 2.7 was not included in this permit application. The application must contain a design justification for the filter blanket rather than simply stating the size of the blanket. This design should be justified upon the size fraction of the channel material. That same page discusses wire-enclosed riprap. This should be removed if not applicable to the site plans. This section should be referenced as a source and not included in the permit narrative to avoid confusion.

Page 180 references the reader to page 145 for allowable velocities for diversion designs. Page 145 discusses sediment control for the office area and powder magazine area.

The undisturbed culvert system designs are not adequate. The application uses Manning's equation for open channel flow to design the system. An analysis of the first culvert in the system indicates that a head is required to pass the expected peak flow. Therefore, the use of Manning's equation is not appropriate. Additionally, the design should include a complete analysis of the system to include standard design considerations such as analysis of inlet or outlet control for each pipe, bend and friction losses, pipe pressure controls. The Division has discussed this matter with the applicant on several occasions (most recent: meeting of June 1, 1988) and it appears we have agreed upon a solution for the design. The applicant has agreed to submit a drainage system analysis to demonstrate the ability of the system to pass the design event.

UMC 817.46 Sedimentation Ponds - RS

(a) The application must commit to construction of sedimentation pond E prior to any disturbance of the drainage area to the pond.

(b) The design sediment storage for the pond is in error. On page 128, line 8 correctly calculates the sediment storage for 6.4 acres as 0.64 acre-feet. However, line 10 utilizes 60% of that value for the final pond design. The value in line 8 should be used for the design.

(c) The application does not contain a map of the drainage area to the pond(s). This area must be delineated with all drainage divides clearly depicted (i.e. berms, diversions, topographic breaks). The application should include assumptions for the use of a curve number of 70 for undisturbed areas (vegetation cover, vegetation type, hydrologic soil group). It is recommended that this map be combined with the small area exemption map requested previously. This will insure the application has accounted (i.e treated) for all disturbed site drainage.

(d) The design for sediment pond E does not contain provisions for a decant device.

(g) The application has not provided calculations and justification of the primary spillway design capacity for the 10 yr - 24 hour event. Typically, the submittal of a stage-discharge curve including all assumptions will demonstrate compliance with this subsection.

The application does not contain complete information concerning the calculation of design peak flow events. The following additions are needed for the 10 yr - 24 hr and 25 yr - 24 hr events:

1) a map of the disturbed drainage area reporting to each pond;
2) a map of the hydraulic length of each basin;
3) a reference map used to determine the the slope of the drainage basin(s), and
4) a calculated time of concentration value.

The application uses the rational formula to determine peak flow events. The rainfall intensity value (i) used in that calculation is incorrect. The period used to determine the rainfall intensity value (i) is to be equal to the time of concentration for the watershed.

(i) Page 122 states the pond(s) will be constructed with primary overflows 2 feet from the top of the embankment and emergency spillways 1.5 feet from the top. This results in a 0.5 ft. difference between the structures. This subsection requires a minimum of 1.0 foot.

Page 121, Section 2.2-4 implies the ponds were designed for a 25 yr - 6 hr peak flow event. This subsection requires a 25 yr - 24 hr design.

The design for the emergency spillway for sediment pond E is incomplete. The following information is needed:

(1) a cross-section of the spillway (it appears Figure IV-6 may apply, but it is not mentioned in the text or design notes),

(2) the peak flow information requested previously,

(3) calculation of expected exit velocities,

(4) demonstration that the energy dissipator will reduce the exit velocities to non-erodable velocities prior to discharge into the natural channel,

(5) the width of the stilling basin,

(6) size of the material to be used for the apron and side channel protection (including calculations),

(7) the depth of flow in the spillway flowing at the design peak (25 yr - 24 hr),

(8) demonstration that the top of the embankment will be a minimum of one foot above the design flow depth.

(k) The applicant must state that the constructed height for sediment pond E will include a 5% settling factor. The MRP should specify the proposed construction elevation and the final design elevation.

(r) The application must commit to submission of as-built certified drawings of sediment pond E within 30 days of structure completion.

(t) The application must commit to quarterly inspections of the sediment ponds. Page 121 states the ponds will be inspected "regularly". The application should also commit to maintain these inspection reports onsite and submit those reports on an annual basis.

(u) Based on the meeting held in the Division offices on June 1, 1988, it is the Division's understanding that the reclamation drainage and treatment plan will be revised. Therefore, a complete review of the current reclamation plan was not conducted during this review.

Page 144 states the pond will remain in place until revegetation efforts are complete. This should be revised to include a commitment to retain the pond until the drainage entering the pond meets applicable limitations.

UMC 817.48 Hydrologic Balance: Acid-Forming and Toxic-Forming Materials - JSL

There was not sufficient data to determine the extent or variability of any potential acid-or toxic-forming materials. The exact physio-chemical characteristics of the mid-seam, roof and floor materials and/or any potential underground development waste must be quantified to determine the extent of such materials and to determine an adequate management plan to mitigate any potential adverse effects. As defined in the final draft "Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining", Table 6, the roof, mid-seam and floor materials must be analyzed for the following parameters: PH; electrical conductivity; saturation percentage; texture, soluble calcium, magnesium and sodium; sodium adsorption ratio; selenium: total nitrogen; nitrate-nitrogen; boron; maximum acid potential (total pyrite-S and organic-S); and, neutralization potential. The analysis should follow the suggested methods outlined in Table 6 of the guidelines.

UMC 817.59 Coal Recovery - JRH

Prior to permit approval, the operator should check and revise the acreage figures provided on page 1 of the Mining and Reclamation Plan to match the acreages provided for in the state, federal, and fee leases and easements as presented in the plan.

UMC 817.100 Contemporaneous Reclamation - LK

The Division will assess the need to establish interim vegetation on the slope below the office and/or the need for surface stabilization during the inspection of the proposed reference areas. Test plot designs must be submitted to prove reclamation feasibility with the disturbed soil materials by July 30, 1988. Include a narrative discussing the operative specifics and location of the test plots. The narrative must identify where the deficit substitute topsoil will be salvaged for final reclamation redistribution. Include a mass balance and cross-sections.

SCL/as
1538R1-15