



**State of Utah**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF OIL, GAS AND MINING

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December 15, 1999

TO: File

THRU: Pamela Grubaugh-Littig, Permit Supervisor *pgl*

FROM: Sharon Falvey, Senior Reclamation Specialist *SXF*

RE: Permit Amendment, Willow Creek As-Built, Pond 001 Changes, Plateau Mining Corporation, Willow Creek Mine, ACT/007/038-98G File # 2, Carbon County, Utah

**SYNOPSIS:**

Cyprus Plateau Mining Corporation, (CPMC) submitted an amendment to obtain approval for changes made during the mine construction at the Willow Creek Mine. The changes are included four volumes submitted to the Division on April 30, 1999, and revised pages submitted on August 3, 1999 and on October 29, 1999. The October 29, 1999 submittal also included minor changes to disturbed area drainage at DD-40B and DD-40A. While replacing the primary spillway coal fines were uncovered within the embankment. As a result the Permittee is provided design changes to raise the pond embankment and replace the coal fines with clean fill on December 7, 1999. This memo updates the review completed on November 8, 1999.

Information regarding the K-Seam in- mine water will be updated when the Permittee completes the Probable Hydrologic Impacts for proposed K-seam dewatering. Information including the Willow Creek construction details were submitted but will be handled as amendment 99H. Willow Creek relocation design maps and design information contained in the plan should be retained by the Division until the as-built survey is reviewed. Additionally, a review is now required for the reclamation plan due to the changes made to the operations configuration; reclamation design information was not considered during this review.

**TECHNICAL ANALYSIS:**

**ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR Sec. 783., et. al.

**MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

**Analysis:**

### **Surface Water Resource Maps**

Lakes, streams, ponds, and springs within and adjacent to the proposed permit area are shown on Maps 15 and 16. Vegetation and soils associated with watersheds draining to the Willow Creek Mine disturbed area and drainage controls at the mine are now shown on Map 16A.

### **Water Monitoring Location Maps**

Ground water and surface water monitoring stations are shown on Map 15 in Volume 15. Map 15 now includes wells B-11, B-12 and UG-B312 drilled in association with the K-seam mine water investigations.

### **Findings:**

The submitted amendment meets the minimum requirements of this section.

### **OPERATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### **Analysis:**

#### **Stream buffer zones.**

The approved plan shows the 100 foot buffer zone along Willow Creek would be maintained through the facilities area except in a 200 foot segment at the main access road bridge crossing, and along a 800 foot length of Willow Creek reconstruction. The final construction resulted in reduced buffer zones of 600 feet along two 300 foot linear stretches, in addition to, the 800 linear feet of Willow Creek reconstruction. The existing segments disturbed within the 100 foot buffer zone are delineated on map 18. The final configuration information will be included in Exhibit 14. The north east Willow Creek buffer zone area was used to divert drainage around the disturbed area perimeter.

### **Diversions.**

The approved plan, prior to construction, provided ditch and culvert designs sized for the 25-year, 24-hour precipitation event. Following construction the applicant provided designs meeting the 10-year, 6-hour event. In accordance with Utah State rule R645-742.314 the Division required the greater peak flow; from the 10-year, 24-hour event; or from the 10-year, 6-hour event to be provided for the disturbed area perimeter drainage and undisturbed perimeter ditches. Maintenance standards are to be held to this design measure. These measures were required to: 1) ensure the pond volume is retained for the design event by reducing the potential for undisturbed upstream drainage contributing runoff to the sedimentation pond, and 2) ensure the perimeter ditches adjacent to Willow Creek will continue to discharge to the pond for the 10 year, 24-hour event (minimum design requirements for the sedimentation pond). The applicant submitted the plan showing these design criteria are met. The applicant also provided additional drainage plan changes to decrease their potential for impact on and off the permit area.

### **SEDIMENT CONTROL MEASURES:**

#### **Sedimentation Ponds**

The constructed sedimentation ponds varied from the approved designs and some construction features on pond 001 and 002 did not fully meet standard design practices. Pond design information was also provided for pond 12A, and 12B since pond 003 was not constructed. This application provided design changes to improve the function of ponds 001 and 002. Information on pond 001 is contained in Table 1 and summarizes the initial approved permit design information, information for the existing pond, and information for the proposed configuration.

Coal fines were uncovered within the embankment while replacing the primary spillway to meet design criteria on pond 001. As a result, the Permittee provided design changes to raise the pond embankment and replace the coal fines with clean fill. The application does not include adequate information to describe the sites condition, or the engineering practices that will be conducted on site.

In a phone conversation on December 10, 1999 Mr. Johnny Pappus, Environmental Engineer - Plateau Mining Corporation, relayed the following information to Sharon Falvey, Reclamation Hydrologist.

- 1) Coal waste was found in a layer between compactable fill material.
- 2) Coal waste was found within a 5- 8 foot depth below the embankment surface.
- 3) From observations gathered during the primary spillway excavation the coal lense was expected to diminish near drainage ditch DD-25 (Map 24).
- 4) The current objective is to excavate the coal waste material from the embankment and replace it with clean fill along the area between the pond access road and just past drainage ditch DD-25.

- 5) The remaining embankment along the road between the pond and Willow Creek will be core drilled to determine if additional coal waste is present.

The core drill information will be used to determine if additional embankment work needs to be completed. If the embankment along the road between the pond and Willow Creek contains a lense of coal waste the operator will be required to maintain the water level at a safe distance below the waste until the waste is replaced with clean compacted fill. If waste is present in excessive amounts the embankment may need to be re-worked immediately. It was indicated by Mr. Pappus that excessive waste in the embankment along the road between the pond and Willow Creek was not believed to include coal waste because it is adjacent to a re-aligned section of Willow Creek; Mr. Pappus felt the waste was probably removed and relocated during construction along the channel.

**Table 1.**

<b>Sediment Pond 001 Proposed Design v.s. As-built and Proposed</b>			
<b>Element</b>	<b>Approved Initial permit</b>	<b>As-built April 30, 1999</b>	<b>Proposed Changes December 7, 1999</b>
<b>Area Draining to Pond</b>	26 acres	40.92 acres	44.78
<b>Max Capacity Elevation/volume</b>	6168.5 ft 6.88 acre feet	6169.2 ft 9.7 acre feet	6171.0 ft. 11.55 Acre Feet
<b>Max sediment capacity elev./vol.</b>	0.33 acre feet	1.32 acre feet	6163.9 ft./4.7 AF 1.34 AF- 3 yr storage capacity
<b>60% sediment clean out level</b>	unknown	unknown	2.8 AF 6161.5
<b>Design capacity</b>	25-yr, 24-hr 2.97 AF	10-yr, 24-hr 3.16 AF	10-yr, 24-hr 4.25 AF includes 3.36 AF plus 0.89 AF mine water over a 24 hour period.
<b>Mine water discharge</b>	0.1 cfs / five day period	0.17 cfs/three day period	See design capacity above and table 2 below.
<b>Excess Storage</b>	2.58	4.88	Without mine water discharge (0.89 AF) and assuming a 3 year sediment storage the excess storage is 5.96 AF.
<b>Primary Spillway</b>	6168.5 vertical riser 18"	6169.2 vertical riser 18"	6171.0 ft vertical riser 24"
<b>Decant</b>	6165.5 3-Orifice	6165.5 3-Orifice	6163.9 ft. Single 10 inch decant elbow with gate shutoff valve.
<b>Oil skimmer</b>	Oil skimmer with trash rack	Trash rack only	Oil skimmer to be placed on the primary spillway.

### Sediment Pond 001 Proposed Design v.s. As-built and Proposed

Element	Approved Initial permit	As-built April 30, 1999	Proposed Changes December 7, 1999
Emergency Spillway	6168.5	6169.5	6172.0
Minimum freeboard	1.37	0.99 (text pg 4.5-50)	1.5 ft (between emergency spillway and embankment).
Embankment top width	40 ft	20ft	Elements for stability should be reviewed by an engineer.
Side slopes	All impoundments not steeper than 2H:1V	Commitment removed: actual steepest side slope not provided.	Elements for stability should be reviewed by an engineer.
Pond Embankment	Not found.	6170.95 ft.	6173.5 ft. minimum

A 4" pipeline is provided to transfer water from pond 001 to 013 and other ponds as necessary. Mine water discharge may be routed to five ponds 001, 12A, 12B, 13, and the Thickener Tank. Excess water may be pumped into the mine for use in the water make-up system by tying into the raw water tank supply line. The pond capacity information is presented in Table 2 below. In general the amendment allows for mine water storage in the ponds up to the decant elevation. Total available volume is based largely on the storage remaining beyond that occupied by sediment. Mine water discharge may include the inflow rate plus the decant rate if water quality meet the discharge standards of the UPDES discharge permit.

**Table 2.**

### Mine Water and Storage in Sedimentation Ponds

Element	Pond 1	Pond 12A	Pond 12B	Pond 13	Thickener Tank Over Flow
Max Sediment capacity/elevation	4.8 AF 6164.0 ft.	0.64 AF 6103.6 ft.	0.64 AF 6093.5 ft.	5.82 AF. 6200.5 ft.	None.
60% Sediment Capacity/elevation	2.88 AF 6161.6 ft.	0.38 AF 6102.6 ft.	0.38 AF 6092.7 ft.	3.49 AF 6196.4 ft.	None.
Runoff volume 10 year-24 hr event.	3.36 AF plus 0.89 AF mine water discharge.	Storage for 0.47 AF of 1.44 AF	0.97 AF from pond 12A and 1.04 AF from 12B	3.18 AF 6205.0 ft.	None. 5.42 AF provided to contain a spill from the thickener tank.
Decant Elevation.	6163.9 ft.	6103.7 ft.	6093.4 ft.	6200.5	None.

**Mine Water and Storage in Sedimentation Ponds**

<b>Element</b>	<b>Pond 1</b>	<b>Pond 12A</b>	<b>Pond 12B</b>	<b>Pond 13</b>	<b>Thickener Tank Over Flow</b>
<b>Mine water discharge /elevation.</b>	6166.8 ft.	0.64 AF 6103.6 ft.	0.64 AF 61093.4 ft.	5.91 AF 6250.2 ft.	2.45 AF 6123.2 ft.
<b>Total Capacity.</b>	11.55 AF	1.11 AF	2.65 AF	9.0 AF	7.87 AF
<b>Excess Storage.</b>	2.4 AF above decant invert.	None if full to maximum sediment capacity.	None if full to maximum sediment capacity.	None if full to maximum sediment capacity.	None 2.4 AF if full to 6123.2 ft.

The text in the permit states the MSHA pond 013 will be inspected monthly as authorized by MSHA. An MSHA authorization was included in Volume 10 Exhibit 10 and allows inspections to be conducted every 30 days, effective through March 1, 2000, with attached conditions. In summary the conditions include: 1) immediate inspection after a seismic activity occurs in the vicinity, any report of instability hazard or unusual condition occurs, a reservoir spill occurs, or rainfall equal to 1.2 inches occurs within a 6 hr period, 2) a precipitation event of 1 inch in a six hour period requires inspection within 24 hrs, 3) all inspections will record the amount of water and depth behind the embankment and the freeboard measurement, and 4) a record of daily rainfall will be maintained. Note: the request letter to MSHA stated the pond water level was not expected to increase above 4 inches of water while the present plan indicates mine water storage may need to be contained in the pond.

**Alternate Sediment Control Measures**

The submitted plan identifies five ASCA's (Alternate Sediment Control Areas). The ASCA's are shown on the Drainage and Sediment Control Plan maps while the Alternate Sediment Control Measures are provided in Appendix F. The applicant provided standard practices for these areas. Standards for success and effectiveness for implementing and maintaining these measures will be determined by the inspector in the field.

**Water quality standards and effluent limitations.**

The transfer of mine water from Sediment Pond No. 001 to Sediment Pond 003 is shown on Map 18B. If the water does not meet UPDES discharge requirements, this pipe is proposed to be used to transfer water to other ponds as well. On page 4.5-29, the following commitments are made: 1) the applicant will not discharge mine water from the K-seam, and 2) water will be discharged from the decant only if it meets UPDES discharge requirements. Similar information is found on pp. 4.7-10 and Ex13-18.

Mine water discharge may be routed to five ponds 001, 12A, 12B, 13, and the Thickener Tank. Pond storage and pond capacity for mine water storage are provided in Table 2 under **Sedimentation Ponds** in this TA.

**Findings:**

This amendment does not meet the minimum regulatory requirements because the plan needs to incorporate all design changes conducted to upgrade the pond. However, to facilitate identifying the coal waste extent in the embankment and to facilitate coal waste removal the amendment should be approved with conditions attached to the approval.

The core drill information will be used to determine if additional embankment work needs to be completed. If the embankment along the road between the pond and Willow Creek contains a lense of coal waste the operator will be required to maintain the water level at a safe distance below the waste until it is replaced. If waste is present in excessive amounts the embankment may need to be re-worked immediately. It was indicated by Mr Pappus that excessive waste in the embankment along the road between the pond and Willow Creek was not believed to be present because it is adjacent to a re-aligned section of Willow Creek, and he felt any waste present was probably removed and relocated during construction along the channel. Engineering design certification and coal waste removal from the embankment needs to be completed prior to determining this section complete.

The following permit conditions need to be implemented during construction:

- 1) Provide a silt fence berm and straw bales to prevent sediment contributions to Willow creek.
- 2) Coal waste, transported to the School House refuse pile, and Non coal waste should be handled according to the approved plan.
- 3) The embankment fill must be properly compacted.
- 4) The core drilling should be conducted prior to demobilizing equipment incase there is coal waste present requiring immediate removal.

The following permit conditions need to be provided to the Division immediately following construction:

- 1) The remaining embankment along the road between the pond and Willow Creek will be core drilled and the information will be submitted to the division immediately following drilling so the Division can determine if additional coal waste is present.
- 2) Certificating that all design standards in the R645 regulations were met during pond construction.

The following permit conditions need to be provided within a month following construction:

- 1) Provide slope stability analyses as required under R545-301-533.

- 2) Provide changes to text applicable to design changes approved for embankment enlargement.

**RECOMMENDATION:**

The applicant has requested that maps 16, 27, 28, and 29 be removed from the plan. These maps contained the proposed Willow Creek channel configuration and design information that was used to re-construct the channel. Design maps and design information should be retained at the Division until a review on the submitted "as-built" survey information provided for the Willow Creek relocation can be completed. Inform the operator that the "as-built" survey information provided for the Willow Creek relocation will be reviewed as amendment 99 H.

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