



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

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August 27, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor *DH*

FROM: Sharon Falvey, Senior Reclamation Specialist *SFE*

RE: Willow Creek As-Built, Permit Amendment, Plateau Mining Corporation, Willow Creek Mine, ACT/007/038-98G, Folder #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 in four volumes submitted to the Division on April 30, 1999 and in revised pages submitted on August 3, 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 will be submitted when completed. Willow Creek relocation design maps and design information contained in the plan should be retained by the Division until the as-built survey is provided. Additionally review is now required for the reclamation plan due to the changes made to the operations configuration; reclamation 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 K-seam in-mine water investigation.

### **Findings:**

The submitted amendment meets the minimum requirements for the R645 regulations.

## **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 along two linear stretches, 300 feet long, totaling 600 feet plus the 800 linear feet 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 but, was not submitted at this time (see: pg 4.7-8 in this amendment). The area north east of the site is disturbed within the Willow Creek buffer zone to divert drainage around the disturbed area perimeter.

#### **Diversions.**

The plan approved 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**

Sedimentation pond construction varied from the approved pond 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 as 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.

**Table 1.**

<b>Sediment Pond 001 Proposed Design v.s. Approved and As-built</b>			
<b>Element</b>	<b>Approved Initial permit</b>	<b>As-built April 30, 1999</b>	<b>Proposed Changes August 3, 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	6168.8 ft. 9.30 Acre Feet
<b>Max sediment capacity elev./vol.</b>	0.33 acre feet	1.32 acre feet	6164.0 ft./4.8 AF 1.34 AF- 3 yr storage capacity
<b>60% sediment clean out level</b>	unknown	unknown	2.88 AF 6161.6
<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 minewater discharge at 0.45 cfs over a 24 hour period.
<b>Minewater discharge</b>	0.1 cfs / five day period	0.17 cfs/three day period	See design capacity above and table 2 below.

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

<b>Element</b>	<b>Approved Initial permit</b>	<b>As-built April 30, 1999</b>	<b>Proposed Changes August 3, 1999</b>
<b>Excess Storage</b>	2.58	4.88	Without minewater discharge (0.89 AF) and assuming a 3 year sediment storage the excess storage is 4.66 AF.
<b>Primary Spillway</b>	6168.5 vertical riser 18"	6169.2 vertical riser 18"	6168.8 ft vertical riser 24"
<b>Decant</b>	6165.5 3-Orifice	6165.5 3-Orifice	6164.0 ft. Single 6 inch decant with shutoff valve.
<b>Oil skimmer</b>	Oil skimmer with trash rack	Trash rack only	Oil skimmer to be placed on the primary spillway.
<b>Emergency Spillway</b>	6168.5	6169.5	6169.81
<b>Minimum freeboard</b>	1.37	0.99 (text pg 4.5-50)	0.97 ft (between emergency spillway and embankment).
<b>Embankment top width</b>	40 ft	20ft	Elements for stability were not reviewed. Elements for stability should be reviewed by an engineer.
<b>Side slopes</b>	All impoundments not steeper than 2H:1V	Commitment removed: actual steepest side slope not provided.	Elements for stability were not reviewed. Elements for stability should be reviewed by an engineer.
<b>Pond Embankment</b>	Not found.	6170.95 ft.	6171.25 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 Overflow. The pond capacity information is presented in Table 2 below. In general the amendment allows for minewater storage in the ponds up to the decant elevation. Total available volume is based largely on the storage remaining beyond that occupied by sediment.

**Table 2.**

<b>Mine Water and Storage in Sedimentation Ponds</b>					
<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>Max Sediment capacity/elevation</b>	4.8 AF 6164.0 ft.	0.64 AF 6103.6 ft.	0.64 AF 6093.5 ft.	Not found in plan. 6250.2 ft.	None.

**Mine Water and Storage in Sedimentation Ponds**

Element	Pond 1	Pond 12A	Pond 12B	Pond 13	Thickener Tank Over Flow
<b>60% Sediment Capacity/elevation</b>	2.88 AF 6161.6 ft.	0.38 AF 6102.6 ft.	0.38 AF 6092.7 ft.	Design information not found in plan.	None.
<b>Runoff volume 10 year-24 hr event.</b>	3.36 AF plus 0.89 AF minewater discharge.	Storage for 0.47 AF of 1.44 AF	0.97 AF from pond 12A and 1.04 AF from 12B	Design information not found in plan.	None. 5.42 AF provided to contain a spill from the thickener tank.
<b>Decant Elevation</b>	6164.3 ft.	6103.6 ft.	6095.05 ft.	Design information not found in plan.	None.
<b>Minewater discharge capacity/elevation</b>	0.45 cfs over 24 hours. 5.6 AF/ 6164.3 ft.	0.64 AF 6103.6 ft.	0.64 AF 6093.4 ft.	5.91 AF 6250.2 ft.	2.45 AF 6123.2 ft.
<b>Total Capacity</b>	9.3 AF	1.11 AF	2.65 AF	Design information not found in plan.	7.87 AF
<b>Excess Storage</b>	0.3 ft. above decant invert.	None if full to maximum sediment capacity.	None if full to maximum sediment capacity.	Design information not found in plan.	None 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 in the vicinity, any report of instability hazard or unusual condition, a reservoir spill, or rainfall equal to 1.2 inches 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 minewater 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 minewater 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 Overflow. Pond storage and capacity for minewater storage are provided in Table 2 under **Sedimentation Ponds** above.

**Findings:**

This amendment does not meet the minimum regulatory requirements. The amendment must include the following:

**R645-301-120.** Provide a plan that is complete, clear and concise: 1) Page 4.5-29 does not match with 4.5-30. 2) The information presented for Pond 013 can not be reviewed because the section for design calculations are not provided within the plan in the Divisions Public Information Center: The referenced location for designs contains information for Pond 011. 3) The information provided regarding handling minewater and sediment pond design information is not clearly presented in the plan text.

**RECOMMENDATION:**

The applicant is encouraged to correct the remaining deficiencies outlined in this amendment. It is suggested the applicant come to the Division with the recommended changes and be prepared to show the amendment can be compiled into the existing plan to obtain approval.

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 detailed "as-built" survey is provided for Willow Creek relocation.