UTAH DIVISION OF OIL, GAS AND MINING
STATE DECISION DOCUMENT
For
Phase I Bond Release for the Refuse Disposal Facility
Phase III Bond Release for the Preparation Plant

Plateau Mining Corp.
Willow Creek Mine
C/007/038
Carbon County, Utah

July 20, 2006

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* Other information requested by OSM
    - Sedimentation control calculation
    - Raw water pond specifications and certification
    - Written commitment from Price River Water Improvement District

File in:
☐ Confidential
☐ Shelf
☒ Expandable
Refer to Record No 0024 Date 07202006
In C/0070038 Outgoing
For additional information

ADMINISTRATIVE OVERVIEW

Plateau Mining Corp.
Willow Creek Mine
C/007/038
Carbon County, Utah

May 16, 2006

ACTION

The Permittee is seeking Phase I bond release for the refuse disposal area that contains 45.6 acres. The reclaimed area is located in School House Canyon. The Permittee is seeking a bond release of $ 632,000 (60% of the current bond amount of $1,054,000.)

The Permittee is also seeking Phase III bond release for the preparation plant area that contains 46.2 acres. The area is located in the northern part of the mine site. Most of the area was not reclaimed because the Price River Water Improvement District (PRWID) will use the area for industrial purposes on April 13, 2004. The Permittee is seeking a bond release of $1,503,000. After bond release, the bond for the site will be $0.

The amount of bond that will remain for the Willow Creek Mine is $2,275,111.

BACKGROUND

Willow Creek Mine is located approximately 10 miles north of Price, Utah in Carbon County. The main mine facility is located north east of the intersection State Highway 191 and State Highway 6 and 50. In addition to the main mine facility there are other surface facilities in Crandall Canyon and Gravel Canyon. The Willow Creek Mine contains 14,670 acres within the permit boundary of which 176.35 acres are within the disturbed area boundary.

The main mine facilities for the Willow Creek Mine were constructed in and around areas that had been disturbed by the Castle Gate Mine. Those facilities had been reclaimed to Title V standards or been used by AML for permanent storage of coal refuse.

On April 23, 1996, the Division granted a permit for the Willow Creek Mine. The Permittee encountered difficult mining conditions and went into temporary cessation on December 11, 2000. On September 6, 2002, the Permittee informed the Division that the entire Willow Creek Mine site would be reclaimed.

The Division granted a change in the postmining land use to accommodate PRWID request to use the site for industrial purposes on April 13, 2004. The Division approved the following structures to remain after Phase III bond release:

- Warehouse/bathhouse/office.
- Lab Building.
- Substation.
- Access roads.
- Raw water pond.
- Pump house.

The bond release application consists of a detailed cover letter, a copy of the proposed newspaper advertisement, and copies of letters to local government agencies and owners of adjacent lands. The Division received no public comments about the bond release.

The Division conducted the bond release inspection on May 11, 2006. During the bond release inspection, no problems were found and none of the parties present had any objection to the bond release.

CHRONOLOGY FOR PHASE III BOND RELEASE

Plateau Mining Corp.
Willow Creek Mine
C/007/038

July 20, 2006

April 23, 1996	The Division permits the Willow Creek Mine, part of the Willow Creek Mine overlaps the Castle Gate Mine. Castle Gate Coal Company is the permittee.
July 2, 1996	The permit is transferred to Amax Coal Company, which transfers the company to different subsidiaries until the permit is transferred to Plateau Mining Corporation.
June 1997	The overlapping areas of the Castle Gate and Willow Creek Mines are separated. The refuse pile and the preparation plant are part of the Willow Creek Mine.
December 11, 2000	The Willow Creek Mine goes in to temporary cessation.
September 6, 2002	The Permittee informed the Division that the Willow Creek Mine would go into permanent cessation.
April 13, 2004	The Division approvals a change in the postmining land use for 46.2 acres for industrial. PRWID will use the preparation plant site for industrial purposes.
Spring 2004	The Permittee completed the reclamation work on the refuse pile.
September 22, 2005 to October 13, 2005	Advertisement for bond release for the Preparation Plant and Refuse Pile was published in *Sun Advocate*.
November 13, 2005	End of public comment period, no comments received by the Division.
May 11, 2006	Phase I and Phase III bond release inspection. In attendance: Rich White EarthFax (consultant) Layne Jensen EarthFax (consultant) Henry Austin OSM Dennis Ware Permittee Wayne Western DOGM Dana Dean DOGM Pam Grubaugh-Littig DOGM Joe Helfrich DOGM Sue Berger BLM

	Angela Wadman BLM Phil Palmer PRWID
May 16, 2006	Technical analysis for the bond release finalized. BLM concurred with Phase I bond release at the refuse pile area and Phase III for the PRWID area.
July 20, 2006	The Division prepared the decision document and sent to OSM for concurrence.

PHASE I and Phase III BOND RELEASE FINDINGS

Plateau Mining Corp.
Willow Creek Mine
C/007/038

Carbon County, Utah

July 20, 2006

SUMMARY OF FINDINGS

The Phase I and Phase III bond release findings the preparation plant and refuse pile area are in the attached Technical Analysis dated May 16, 2006. The Phase I and Phase III bond releases were advertised for four consecutive weeks, starting September 22, 2005 and ending October 13, 2005. No comments were received during the public comment period. The Division and other parties conducted a bond release inspection on May 11, 2006. The inspection party found no problems that would prevent bond release.

The lands to receive Phase I and Phase III bond release are located in:
Township 12 South, Range 9 East, SLB&M, Utah
Section 36: Portions of the
NE1/4, NW1/4,
SE1/4, NW1/4,
SW 1 /4, NW 1 /4, and
SW1/4.
Section 35: Portions of the
NE1/4, SE1/4,
SE1/4, SEI/4, and
SEI/4, NE1/4
Township 13 South, Range 9 East, SLB&M, Utah
Section 1: Portions of the NWI/4, NW1/4,

The Permittee is seeking Phase I bond release for the refuse disposal area that contains 45.56 acres. The reclaimed area is located in School House Canyon. The Permittee is seeking a bond release of $632,000 (60% of the current bond).

The Permittee is also seeking Phase III bond release for the preparation plant area that contains 46.2 acres. The area is located in the northern part of the mine site. Most of the area was not reclaimed because the Price River Water Improvement District (PRWID) will use the area for industrial purposes. The Permittee is seeking a complete bond release of $1,503,000 for this area.

On April 13, 2004, the Division approved a change in the postmining land use from wildlife and grazing to industrial on 46.2 acres in the preparation plant area. PRWID purchased the land so industrial use and committed to maintain the property. See Appendix 3.4L of the MRP.

The roads left in the Phase III bond release area were certified as primary road in Section 4.5.2.3 of the MRP (page 4.5 – 45.)

One impoundment will remain on the site, the Raw Water Pond, located at the northeastern edge of the PRWID bond release area. This pond was built pre-SMCRA, but has been certified and found to comply with all pertinent regulations regarding permanent impoundments (See EarthFax letter to Dennis Ware, dated June 12, 2006).

The Price River Water Improvement District provided a letter (May 30, 2006) taking operation and maintenance responsibility for the Raw Water Pond, and all remaining primary roads on this property.

PHASE I BOND RELEASE RECOMMENDATION

The Permittee demonstrated that the Phase I site is adequate to meet the requirements of Phase I bond release. The site was properly backfilled and graded, restored to approximate original contour, topsoil was placed on the site, and sediment controls were established. Therefore, the Division should grant the Phase I bond release request.

PHASE III BOND RELEASE RECOMMENDATION

The Permittee demonstrated that the Phase III site is adequate for the alternative postmining land use, which is industrial. The site is in an environmentally stable condition. The Division recommends that the area be given Phase III bond release.

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State of Utah

Utah Oil Gas and Mining

Coal Regulatory Program

Willow Creek Mine
Plateau Mining Corporation
Technical Analysis
May 16, 2006

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TECHNICAL ANALYSIS DESCRPTION

The Division ensures that coal mining and reclamation operations in the State of Utah are consistent with the Coal Mining Reclamation Act of 1979 (Utah Code Annotated 40-10) and the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The Utah R645 Coal Mining Rules are the procedures to implement the Act. The Division reviews each permit or application for permit change, renewal, transfer, assignment, or sale of permit right for conformance to the R645-Coal Mining Rules. The Applicant/Permittee must comply with all the minimum regulatory requirements as established by the R645 Coal Mining Rules.

The regulatory requirements for obtaining a Utah Coal Mining Permit are included in the section headings of the Technical Analysis (TA) for reference. A complete and current copy of the coal rules can be found at http://ogm.utah.gov

The Division writes a TA as part of the review process. The TA is organized into section headings following the organization of the R645-Coal Mining Rules. The Division analyzes each section and writes findings to indicate whether or not the application is in compliance with the requirements of that section of the R645-Coal Mining Rules.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The Permittee met the general requirements for Phase I and Phase III bond release.

I General Requirements for Bond Release

Certification: The Permittee met the requirements by providing an affidavit notarized signature by a responsible official of the permittee, certifying that the information contained in the request is true and correct to the best of the official's information and belief; and all applicable reclamation activities have been accomplished in accordance with the requirements of the Act, the Regulatory Program,

Newspaper Advertisement: The Permittee met the requirements by providing a copy of the newspaper advertisement for Phase I and Phase III bond release. The newspaper advertisement was adequate because it contained the following:

- The permit number, name of the permittee, and the permit approval date.
- A description of the precise location of the land affected.
- The number of acres to be considered for release.
- The amount and type of bond the Division currently holds.
- The amount of bond being sought for release.
- A description of the type of reclamation work performed and the dates when the work was performed and completed.
- A description of the results achieved in relation to the mining and reclamation plan (i.e. stability, restoration of drainages, vegetation establishment).
- A statement indicating written comments, objections and requests for public hearings or informal conferences may be submitted to the Division of Oil, Gas and Mining.

Notificaiton Letters: The Permittee met the requirements by providing copies of the notification letters sent to all parties who have a valid interest in the bond release. The notification letters contained the same information as the newspaper advertisement.

II GENERAL TECHNICAL REQUIREMENTS

- The Permittee met the requirement to include a legal description of the permit area in the bond release application.
- Maps. The Permittee met the requirements by including maps and cross sections of the area.
    - Map 3.4-13AB, shows the area for which Phase III bond release is proposed.
    - The Permittee must show the Phase I bond boundaries. The Division addressed this deficiency in the maps section.
    - Map 3.4-13AB shows the topography of the Phase I and Phase III areas. The map is at a scale of 1 inch = 200 feet. The Division prefers maps to be at a scale of 1 inch = 100 feet. Due to the size of the disturbed area a map at a scale of 1 inch = 100 feet is not practical. Therefore, the Division will accept the smaller scale map. The cross sections in the Phase I bond release area are on 200-foot centers. The Division recommends that cross section be on 100-foot centers. However, the Division will accept the cross sections on 200-foot centers due to the size of the project.
    - The maps need to show the dates and acreages when reclamation was completed.
    - The maps need to show the operation or reclamation status.

Phase I Bond Release: The specific requirements for Phase I bond release are as follows:

- Postmining Contour Topographic Maps showing detail including:
    - Postmining hydrologic features including restoration of natural drainages. Note: no sediment ponds will remain after Phase I bond release.
    - Cross sections showing important topographic features including but not necessarily limited to, approximate original contour, roads, etc.
    - Dates of backfilling and grading activities are not shown. The deficiency will be noted in map section.
    - Dates of topsoil replacement are not shown. The deficiency will be noted in topsoil section.
    - Topsoil replacement depths not shown. The deficiency will be noted in topsoil section.

- Overburden chemical analyses results, and discussion on potential adverse affects on plant growth or water quality. The Division considers that those conditions have been met if the topsoil requirements have been met.

- Evaluation of topsoil or substitute soil including chemical and physical analyses and replacement depths (if included in this phase of bond release). The Division considers that those conditions have been met if the topsoil requirements have been met.

- Evaluation of subsoil including analyses and replacement depths (optional). The Division considers that those conditions have been met if the topsoil requirements have been met.

III GENERAL ALTERNATIVE POSTMINING LAND USE

Because the Permittee proposes that Phase III bond release be granted because the alternative postmining land use has been achieved some of the requirements for Phase III bond release were modified. The modified requirements include:

- The requirements that site be backfilled and graded and that topsoil be placed can be waved because the Permittee showed that the alternative postmining land use was implemented. The Division can only approve the alternative postmining land use if the site will be stable.
- The vegetation requirements were waived because the alternative postmining land use was implemented. The alternative postmining land use will minimize erosion and off site impacts therefore revegetation is not needed.

For Phase III bond release, the following information must be must be included in the bond release package or referenced in the MRP:

A detailed demonstration that the approved postmining land use is achieved. This may include, but not be limited to, lease agreements, zoning information, contracts, and letters of commitment for industrial/commercial or residential uses; information on water availability and suitability for developed water resources; vegetation productivity; livestock use; wildlife counts; and recreational use.

The Permittee did not include documents in the bond release package that showed they had achieved the postmining land use. The Permittee instead reference Appendix 3.4L, which contains the purchase agreement by Price River Water Improvement District. The Division used the information in the MRP to evaluate the postmining land use.

Findings:

The information in the bond release application is considered adequate to meet the bond release requirements.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The Permittee met the requirements for the postmining land use. The Permittee does not plan to change the postmining land uses as part of the bond release application. The Division approved an alternative postmining land; industrial for the area sold to PRWID. (See the sales agreement is in Appendix 5.4L of the MRP.) Because of the sale, the Division finds that the postmining land use will be implemented and that Phase III bond release should be granted if all other requirements have been met.

The post mining land use for the preparation plant area for Phase III bond release is for industrial use by the Price River Water Improvement District, (PRWID), to the address immediate and long term expansion of its water treatment and distribution system. The area is stable and shows no signs of erosion or off-site deposition of additional suspended solids. The expansion includes the construction of additional treatment ponds and use of the existing buildings associated with the expansion of the water improvement district. The Permittee reclaimed the refuse pile area that contains approximately 46.76 acres; the postmining land use is wildlife habitat. The Barn Canyon shaft facility area, (2.34acres), was not disturbed and the bond can be released as part of a mine plan modification (remove the site from the disturbed area.)

Findings:

The information provided is adequate to meet the requirements of this section of the regulations.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The Permittee met the minimum requirements for Phase I and Phase III bond release in the areas mentioned. The requirements for approximate original contour restoration for the different phase are:

Phase I Bond Release: The general requirements for achieving the apporimate original contour restoration for are:

- Eliminate all spoil piles. All spoil material was properly backfilled and graded.
- Eliminate all highwalls: There are no highwalls in the area. Some cutslopes will remain because the Permittee cannot eliminate all cutslopes without either increasing the slope angles so that the minimum 1.3 safety factor cannot be achieved or placing so much fill in the area that the hydrologic requirements could not be meet (interference with stream flows.)
- Hydrology: The Division considers that the site meet all the AOC hydrology requirements if all the hydrology requirements have been met. See hydrology section of the TA for details.
- Postmining land use: The postmining land use for the area is wildlife and grazing. The reclamation plans were designed to allow the postmining land use to be achieved.

Phase III Bond Release, Alternative Postmining Land Use: The AOC requirement for an alternative postmining land use is that the site will be restored to a higher and better use. The Division approved the alternative postmining land use. In order for the Division to grant Phase III bond release the Permittee showed:

- There is a reasonable likelihood that the alternative postmining land use will be achieved. The Price River Water Improvement District (PRWID) has purchased the site for use in a water treatment facility.
- The use does not present any actual or probable hazard to public health or safety, or a threat to water diminution or pollution. The site will be operated by a public entity that will use the site to upgrade the water treatment facilities. The Division approved the alternative postmining land use after they determined that those requirements would be met.
- The use will not be impractical or unreasonable, inconsistent with apprilicable land use policies or plans, involve unreasonable delay in implementation, or cause or contribute to violation of Federal, State or local law. The alternative land use has been implemented.

Findings:

The information in the bond release application is adequate to meet the bond release requirements for the approximate original contour restoration.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

The Permittee met the backfilling and grading requirements for Phase I and Phase III bond release.

Phase I

The backfilling and grading requirements for Phase I bond release include all of the AOC requirements plus the following:

The slope will be at the angle of repose or such lesser slope as is necessary to achieve a minimum long stability. A minimum static safety factor of 1.3 or greater. The Permittee met those requirements because the as builts for the Phase I areas have been certified by a professional engineer.

Phase III

The backfilling and grading requirements for Phase III bond release include all of the AOC requirements plus the following:

All slopes whether reclaimed or not will be at the angle of repose or such lesser slope as is necessary to achieve a minimum long stability. All slopes will have a static safety factor of 1.3 or greater.

- The Permittee met those requirements because the as builts for all reclaim slopes and slopes left in the operational phase have been certified by a professional engineer.

Previously Mined Areas

The only issues that affect previously mined areas in volve highwall remnants. There are no highwalls in either the Phase I or Phase III areas.

Findings:

The information in the bond release application is adequate to meet the bond release requirements for backfilling and grading.

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

The Permittee met the requirements for closing all mining openings. There are no mine openings in either the Phase I or Phase III areas.

Findings:

The Permittee met the requirements for properly sealing all mine openings.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

The requirements for Phase I bond release are outlined in R645-301-880.310. Requirements for Phase III bond release are described in R645-301-880.330. The Rule specifically states "no bond will be fully released under provisions of this section until reclamation requirements of the Act and the permit are fully met. The industrial post mining land use area is outlined on Plate 3.4-13AB.

Reclamation plans in Vol. 10; Ex 19 sections 3.4-6, 3.4-7 and 3.4-8 for the site were reviewed by the Division under tasks 1788 and 1875. Final soil placement over the waste in Schoolhouse canyon averaged 36 inches. The waste was sampled before placement and during reclamation (App. 3.4M and Map 3.4-12). The soil cover came from the Gravel Canyon stockpile and from the embankment of pond 013.

The preparation plant was reclaimed using "in site" soils that were sampled in 1991 and again in 1994. The results of the 1991 analyses are shown on Map –8-4 and located in App. 8-2. The 1994 analyses are shown on Ex. 3.4-12 and in App. 3.4M.

Topsoil salvaged from the coal stockpile location was returned to the slope at a depth of 20 inches.

The 1.17-acre train loadout reclamation plan shown on Ex. 3.4-17AB and described in Vol. 11, Sec. 3.8 has yet to be completed. Bonding for the unit train loadout is described in Vol. 11, Section 3.8-8. This area does not fall within the Phase III bond release portion of the site.

Findings:

The information provided meets the requirements for Phase I and Phase III bond release, except that the Division should withhold from Phase I bonding an amount adequate to reclaim the unit train loadout. Vol. 11, Section 3.8-8.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

Reclamation

The Permittee met the requirements for bond releases on all reclaimed roads in the areas, which they applied for Phase I, and Phase III bond release. All roads within the Phase I and Phase III areas that are not needed for the postmining land use have been reclaimed. The Permittee reclaimed those roads by:

- Removing all culverts not needed for the postmining land use.
- Disposing of road-surfacing materials.
- Grading the roads so that blend into the reclaimed topography.

Retention

Primary roads P-1, P-2, P-4 and P-5 are retained to support the postmining land uses as followings:

- Roads P-1 and P-4 are used by Utah Power and Light, Helper City, Price City and PRWID for facility access.
- Roads P-2 and P-5 are used by Utah Power and Light to inspect and repair power lines that traverse Barn Canyon.

Findings:

The Permittee met the requirements for reclaiming or retaining roads.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

Hydrologic Reclamation Plan

The Permittee met the requirements of R645-301-731. The bond release application includes maps and descriptions, indicating how they met the relevant hydrology requirements. The approved reclamation plan takes into account site specific hydrologic conditions, and contains the steps the Permittee took during coal mining and reclamation operations, to meet the minimum requirements for Phase I (refuse pile) and Phase III (prep plant) bond release, by:

- Minimizing disturbance to the hydrologic balance within the permit and adjacent areas.
- Preventing material damage outside the permit area.
- Supporting approved post mining land use in accordance with the terms and conditions of the approved permit and performance standards of R645-301-750.
- Complying with the Clean Water Act (33 U.S.C. 1251 et seq.)
- Meeting applicable federal and Utah water quality laws and regulations.

The plan also includes the measures the Permittee took to:

- *Avoid acid or toxic drainage.*
- *Prevent, to the extent possible (using the best technology currently available.) additional contributions of suspended solids to stream flows.*
- *Provide water treatment facilities when needed.*
- *Control drainage.*

The approved reclamation plan (MRP) specifically addresses any potential adverse hydrologic consequences identified in the PHC, and includes preventative and remedial measures.

The Division has not required additional preventative, remedial or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented.

The following sections of this technical memo discuss the specific ways in which the Permittee has met the regulations, as they pertain to the application.

Diversions: Perennial and Intermittent Streams

The Permittee met the requirements of R645-301-742.320 and subsections by designing all permanent diversions for intermittent flows (CGRD-1 through CGRD-5) to safely pass the runoff from a 100-year, 6-hour precipitation event. They present all design calculations and other pertinent information in Appendix 3.4N of Exhibit 19.

Diversions: Miscellaneous Flows

The Permittee met the requirements of R645-301-742.330 and subsections by designing all permanent diversions for ephemeral flows (CGRD-6 through CGRD-10) to safely pass the runoff from a 10-year, 6-hour precipitation event. They present all design calculations and other pertinent information in Appendix 3.4N of Exhibit 19.

Sediment Control Measures

The Permittee met the requirements of R645-742 and relevant subsections by using the best technology currently available (BTCA) to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area, met the applicable effluent limitations, and minimize erosion to the extent possible.

The sediment control measures the Permittee used include (Sec. 3 .4-6(4)AB of Appendix 3.4N):

- Incorporation of hay and/or straw mulch into the soil.
- Deep gouging.
- Seeding.
- Mulching after seeding.
- Chemically anchoring the final mulch layer.

Findings:

The Permittee has met the minimum requirements of the Reclamation Plan: Hydrologic Information section of the Regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: Standards For Success

Site visits to evaluate the erosion potential of the property the Permittee transferred to the Price River Water Improvement district were completed on April 6, 2005 and March 16, 2006. The reclaimed areas have established vegetation. The eastern portion of the property slopes toward the reclaimed roughened area and a well-graded rip rapped diversion ditch. Recent snowmelt and previous precipitation events have shown no signs of erosion. The remaining portion of the property slopes to the southwest into a portion of the reclaimed area and a well-vegetated ditch. Runoff from all locations on this property will remain inside the reclaimed area and does not show signs of developing erosion. The property to be evaluated for erosion potential was walked in its entirety and photos were taken. The School House refuse pile was reclaimed in 2005 and shows established vegetation. The application which includes the refuse pile is has been reviewed for Phase I bond release.

Findings:

The information provided is adequate to meet the requirements of this section of the regulations.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

The regraded topsoiled site was covered with hay (2 tons/ac.) that was gouged into the surface before seeding. The hydroseeding operation was followed by a surface application of 1.5-tons/ac hay mulch and 500-lbs/ac tackifier. Locations of the gouging and seeding treatments are shown on Ex. 3.4-17AB.

Findings:

The Permittee has adequately applied best management practices to control erosion and prevent sediments from leaving the site.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Reclamation Backfilling And Grading Maps

The Permittee met the requirements for backfilling and grading maps by providing certified as-builts (Exhibit 3.4-13AB.)

Reclamation Facilities Maps

The Permittee met the requirements for reclamation facilities maps by providing certified as-builts (Exhibit 3.4-13AB.)

Final Surface Configuration Maps

The Permittee met the requirements for the final surface configuration maps by providing certified as-builts (Exhibit 3.4-13AB.)

Reclamation Surface And Subsurface Manmade Features Maps

The Permittee met the requirements for reclamation surface and subsurface manmade features by providing certified as-builts (Exhibit 3.4-13AB.)

Reclamation Treatments Maps

The Permittee met the requirements of R645-301-731.720 by depicting all diversions and treated areas on Exhibit 3.4-17AB.

Certification Requirements.

The Permittee met the requirements for certification by having all appropriate maps certified.

Findings:

The Permittee met the requirements for the map information required in the maps, plans and cross sections reclamation operations

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

Determination of Bond Amount

The Permittee met the bonding requirements by including detailed reclamation cost estimate for the Phase I and Phase III areas. The bond calculations showed:

Which structures can receive Phase I bond release and which structures can receive Phase III.

- Which earthwork costs that can receive Phase I bond release and those which can received Phase III bond release. The earthwork costs estimates must included maps that show:
    - The dates and acreages when reclamation was completed.
    - The operation or reclamation status.
    - What areas are part of Phase I and Phase III bond release.
- Which revegetation cost can received Phase III bond release.

Findings:

The information provided in the bond release application is considered adequate to meet the requirements of this section.

State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas & Mining

JOHN R. BAZA
Division Director

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Inspection Report

Representatives Present During the Inspection:	
	Pamela Grubaugh-Littig Environmental Manager
OGM	Dana Dean Environmental Scientist III
OGM	Joe Helfrich Environmental Scientist III
OGM	Wayne Western Environmental Scientist III
Federal	Henry Austin
Federal	Sue Berger Mining Engineer Technician
Company	Dennis Ware Controller

Permit Number:	**C0070038**
Inspection Type:	BOND RELEASE
Inspection Date:	Thursday, May 11, 2006
Start Date/Time:	5/11/2006 8:00:00 AM
End Date/Time:	5/11/2006 11:30:00 AM
Last Inspection:	Wednesday, April 12, 2006

Inspector: Wayne Western, Environmental Scientist III

Weather: Clear to partly cloudy skies mild temperatures

InspectionID Report Number: 950

Accepted by: pgrubaug
6/9/2006

Permitee: **PLATEAU MINING CORP**
Operator: **PLATEAU MINING CORP**
Site: **WILLOW CREEK MINE**
Address: **PO BOX 30, HELPER UT 84526-0030**
County: **CARBON**
Permit Type: **PERMANENT COAL PROGRAM**
Permit Status: **ACTIVE**

Current Acreages

14,670.00	**Total Permitted**
176.35	**Total Disturbed**
	Phase I
	Phase II
	Phase III

Mineral Ownership

- [x] Federal
- [ ] State
- [ ] County
- [x] Fee
- [x] Other

Types of Operations

- [x] Underground
- [ ] Surface
- [x] Loadout
- [ ] Processing
- [ ] Reprocessing

Report summary and status for pending enforcement actions, permit conditions, Division Orders, and amendments:

On May 11, 2006, the Division met with the Permittee, BLM, OSM, EarthFax Engineering, and PRWID to evaluate the refuse pile and preparation plant to determine if the sites meet the requirements for Phase I and Phase III bond release respectively. The group determined that the on the ground contitions were suitable for bond release.

Other attendies, Layne Jensen from EarthFax, Rich White from EarthFax, Angela Wadman from BLM, Phil Palmer from Price River Water Improvement District.

Inspector's Signature **Date** Friday, May 12, 2006

Wayne Western, Environmental Scientist III
Inspector ID Number: 42

Note: This inspection report does not constitute an affidavit of compliance with the regulatory program of the Division of Oil, Gas and Mining.

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • *www.ogm.utah.gov*

REVIEW OF PERMIT, PERFORMANCE STANDARDS PERMIT CONDITION REQUIREMENTS

1. *Substantiate the elements on this inspection by checking the appropriate performance standard.*
   a. *For COMPLETE inspections provide narrative justification for any elements not fully inspected unless element is not appropriate to the site, in which case check Not Applicable.*
   b. *For PARTIAL inspections check only the elements evaluated.*
2. *Document any noncompliance situation by reference the NOV issued at the appropriate performance standard listed below.*
3. *Reference any narratives written in conjunction with this inspection at the appropriate performace standard listed below.*
4. *Provide a brief status report for all pending enforcement actions, permit conditions, Divison Orders, and amendments.*

	Evaluated	Not Applicable	Comment	Enforcement
1. Permits, Change, Transfer, Renewal, Sale	☑	☐	☐	☐
2. Signs and Markers	☑	☐	☑	☐
3. Topsoil	☐	☐	☐	☐
4.a Hydrologic Balance: Diversions	☑	☐	☑	☐
4.b Hydrologic Balance: Sediment Ponds and Impoundments	☑	☐	☑	☐
4.c Hydrologic Balance: Other Sediment Control Measures	☑	☐	☑	☐
4.d Hydrologic Balance: Water Monitoring	☐	☑	☐	☐
4.e Hydrologic Balance: Effluent Limitations	☐	☑	☐	☐
5. Explosives	☑	☐	☑	☐
6. Disposal of Excess Spoil, Fills, Benches	☑	☐	☑	☐
7. Coal Mine Waste, Refuse Piles, Impoundments	☑	☐	☑	☐
8. Noncoal Waste	☑	☐	☑	☐
9. Protection of Fish, Wildlife and Related Environmental Issues	☐	☐	☐	☐
10. Slides and Other Damage	☑	☐	☑	☐
11. Contemporaneous Reclamation	☐	☑	☐	☐
12. Backfilling And Grading	☑	☐	☑	☐
13. Revegetation	☐	☐	☐	☐
14. Subsidence Control	☑	☐	☑	☐
15. Cessation of Operations	☐	☐	☐	☐
16.a Roads: Construction, Maintenance, Surfacing	☑	☐	☑	☐
16.b Roads: Drainage Controls	☑	☐	☑	☐
17. Other Transportation Facilities	☐	☑	☐	☐
18. Support Facilities, Utility Installations	☑	☐	☑	☐
19. AVS Check	☐	☐	☐	☐
20. Air Quality Permit	☐	☐	☐	☐
21. Bonding and Insurance	☑	☐	☑	☐
22. Other	☐	☐	☐	☐

2. Signs and Markers

All signs and markers were visible and in good repair.

4.a Hydrologic Balance: Diversions

All diversions were properly maintained and in working order. A number of large boulders had recently (since March) broken off from the peak above CGRD-1 and some fell into the diversion. The Permittee broke away and moved the portions that were blocking the diversion and those that are left should not cause any major obstruction to flows. To be sure, the Division will continue to observe the channel in the area of the boulders, especially after any sizable precipitation events.

4.b Hydrologic Balance: Sediment Ponds and Impoundments

Only one impoundment remains at the site, the raw water pond, which PRWID will utilize. The Operator committed to making sure that all regulations regarding permanent impoundments have been met in regard to this pond. In particular, they will supply the Division with a letter from PRWID assuming future maintenance responsibility for the pond.

4.c Hydrologic Balance: Other Sediment Control Measures

The deep gouging, seeding and mulching has worked to keep sediment in place in the areas that were reclaimed.

5. Explosives

No explosives were on site.

6. Disposal of Excess Spoil, Fills, Benches

No excess spoil was generated at the site.

7. Coal Mine Waste, Refuse Piles, Impoundments

The coal mine waste was placed in a refuse pile in School House Canyon. The refuse pile was reclaimed in 2004 according to the approved reclamation plan. The post mining land use for the refuse pile is wildlife habitat. Certified as-built maps and cross sections for the refuse pile reclamation were included in the bond release package. The refuse pile area consists of 26.01 acres. The Permittee placed 36 inches of cover over the refuse. The Division approved the use of 36 inches of cover because the refuse was nonacid and nontoxic.

8. Noncoal Waste

All noncoal waste was either removed from the site or properly stored.

10. Slides and Other Damage

The Division found that some large boulders (3' x 3' x 4') fell from a cliff outside the disturbed area boundaries and landed in the main channel at the top of the refuse pile. Rock fall from the cliff has, and will continue to, occur. The rock fall is not the result of mining and the Permittee cannot prevent the rock fall from occurring or prevent it from landing on the refuse pile. The Division evaluated the boulders in the channel and determined that the boulders would not block the stream flow. The Permittee and the Division will monitor the channel to ensure that it functions properly. If problems occur, the Permittee will take corrective action. In addition, there was a large boulder in the raw water pond at the preparation plant site. The boulder fell from a cliff that was outside the disturbed area boundary. No other slides were observed.

12. Backfilling And Grading

The Permittee backfilled and graded the refuse pile according to the approved reclamation plan in 2004. They included certified as-builts in the bond release package. The site was stable. The preparation plant site was not reclaimed because it is scheduled to be used by the Price River Water Improvement District (PRWID.) The preparation plant site was stable and Phil Palmer stated that the site was suitable for PRWID's use.

14. Subsidence Control

None of the areas were within the subsidence zone. No subsidence features were noted.

16.a Roads: Construction, Maintenance, Surfacing

All roads in the refuse pile area were reclaimed according to the reclamation plan. The roads in the preparation plant site were not reclaimed because they were needed for the postmining land use, which is industrial. The roads were in good shape and no problems were noted.

16.b Roads: Drainage Controls

Drainage ditches and culverts associated with the remaining roads were well maintained and in functioning order.

18. Support Facilities, Utility Installations

All support facilities associated with the refuse pile were removed. The support facilities that remained at the preparation plant were needed for the industrial post mining land use. There are several utilities that are buried in the preparation plant site that will remain.

21. Bonding and Insurance

The Permittee is seeking $1,054,103 for Phase I bond release and $1,503,260 for Phase III bond release.

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

ss.

County of Carbon,)

I, Ken Larson, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) publication was on the 22nd day of September, 2005, and that the last publication of such notice was in the issue of such newspaper dated the 13th day of October, 2005.

Ken G. Larson

Ken G Larson - Publisher

Subscribed and sworn to before me this 13th day of October, 2005.

Linda Thayn

Notary Public My commission expires January 10, 2007 Residing at Price, Utah

Publication fee, $ 665.60

LINDA THAYN
NOTARY PUBLIC - STATE of UTAH
845 EAST MAIN
PRICE, UTAH 84501
COMM. EXPIRES 1-10-2007

PUBLIC NOTICE

APPLICATION FOR PHASE I BOND RELEASE FOR THE COAL REFUSE PILE AND PHASE III BOND RELEASE FOR THE PREPARATION PLANT
PLATEAU MINING CORPORATION
WILLOW CREEK MINE
PERMIT C/007/038, APPROVED 04/24/2001
CARBON COUNTY, UTAH

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the approximately 49.1 acres of land related to the Coal Refuse Pile and Phase III of the approved reclamation plan for approximately 46.2 acres of land related to the Preparation Plant at the Willow Creek Mine. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land was sold to the Price River Water Improvement District for industrial use. The reclamation work applicable to this bond release application was completed in the spring of 2004.

In accordance with the requirements of R645-301-880, the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is $7,866,000 of which $2,706,000 is designated for the Coal Refuse Pile and Preparation Plant. Plateau Mining Corporation is seeking Phase I release of $682,000 from the Coal Refuse Pile portion of the bond and Phase III release of $1,479,000 from the Preparation Plant portion of the bond.

The Refuse Pile and Preparation Plant are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Price Canyon approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah
Section 36: Portions of the NE1/4, NW1/4 SE1/4, NW1/4, SW1/4, NW1/4, and SW1/4.
Section 35: Portions of the NE1/4, SE1/4 SE1/4, SE1/4, and SE1/4, NE1/4
Township 13 South, Range 9 East, SLB&M, Utah
Section 1: Portions of the NW1/4, NW1/4,

The Utah Division of Oil, Gas and Mining will now evaluate the proposal to determine whether it meets all the criteria of the Permanent Program Performance Standards according to the requirements of the Utah Coal Mining Rules.

Written comments, objections and requests for public hearing or informal conference on this proposal may be addressed to:

Utah Coal Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Closing date for submission of such comments, objections and requests for public hearing or informal conference on this proposal must be submitted by November 13, 2005.

Published in the Sun Advocate September 22, 29, October 6 and 13, 2005.

BIM Concurrence

0014

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

TAKE PRIDE IN AMERICA

Price Field Office
125 South 600 West
Price, UT 84501
http://www.blm.gov/utah/price/

3484
Off Lease
(UT-070)

RECEIVED
MAY 19 2006
DIV. OF OIL, GAS & MINING

MAY 16 2006

Pamela Grubaugh-Littig
Permit Supervisor
Utah Division of Oil Gas and Mining
P. O. Box 145801
1594 West North Temple Street, Suite 1210
Salt Lake City, Utah 84114-5801

Incoming
C/007/0038

Subject: Phase I & III Bond Release, Willow Creek Mine, Plateau Mining Corporation

Dear Mrs. Grubaugh-Littig,

The Bureau of Land Management (BLM) has been asked to respond if our agency has any objections or concerns with regards to a Phase I & III bond release (reclamation bond) for the subject mine. Phase I bond release for the refuse pile in School House Canyon associated with the Willow Creek Mine. Phase III bond release (reclamation bond) for the Prep Plant which was connected to the Willow Creek Mine.

We have participated in the onsite inspections and have reviewed our files in regards to our response. All reclaimed surface disturbance in the two areas are located on private lands and outside of our jurisdiction. We therefore have no objections to the Phase I & Phase III bond release.

If you have and questions or comments, please contact Sue Burger of my staff at 435-636-3651.

Sincerely

Floyd Johnson

Patrick Gubbins
Acting Field Office Manager

cc: UT-923, SD, Utah

Sediment control cal.

0010

Plateau Mining Corporation
Willow Creek Mine
P.O. Box 30
Helper, Utah 84526
Phone (435) 472-4737
Fax (435) 472-4782

April 10, 2006

Ms. Pamela Grubaugh-Littig
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Mining
C/007/0038

Re: Prep Plant and Refuse Pile Phase I and III, Plateau Mining Corporation, Willow Creek Mine, C/007/0038, Additional Information

Dear Ms. Grubaugh-Littig:

Plateau Mining Corporation is herewith submitting additional information in support of the Permittee's request for Phase III bond release on the Prep Plant lands sold to the Price River Water Improvement District. This additional information was requested by the Division.

Five Copies of the C1 and C2 as well as the required revisions and additions are enclosed. If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Dennis N. Ware
Controller and Administrative Manager

Enclosures

RECEIVED
APR 20 2006

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☐ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☒ Transfer ☐

Permittee: Plateau Mining Corporation
Mine: Willow Creek Mine **Permit Number:** C/007/038
Title: Preparation Plant and Refuse Pile Phase I and Phase III Bond Release Application, Additional Information
Description, Include reason for application and timing required to implement:
Additional Requested Information

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes ☒ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes ☒ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes ☒ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☐ Yes ☒ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Dennis N Ware
Print Name

Sign Name, Position, Date
Controller
04-10

Subscribed and sworn to before me this 10 day of April, 2006

Collette Gordon
Notary Public

My commission Expires: 2-15, 2010
Attest: State of Utah } ss:
County of Carbon

COLLETTE GORDON
NOTARY PUBLIC • STATE of UTAH
58 SOUTH MAIN
HELPER UT 84526
MY COMMISSION EXPIRES: 02-15-2010

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED APR 2 0 2006 DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised March 12, 2002)

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Plateau Mining Corporation
Mine: Willow Creek Mine **Permit Number:** C/007/038
Title: Preparation Plant and Refuse Pile Phase I and Phase III Bond Release Application, Additional Information

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☒ Replace	☐ Remove	Volume 11, Exhibit 19, Chapter 3, Section 3.4N - As-Built Reclamation, Page 3.4iii
☒ Add	☐ Replace	☐ Remove	Volume 11, Exhibit 19, Chapter 3, Section 3.4N - As-Built Reclamation, Attachment 4
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
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☐ Add	☐ Replace	☐ Remove	

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

Received by Oil, Gas & Mining

APR 2 0 2006

Form DOGM - C2 (Revised March 12, 2002)

LIST OF TABLES

Table

3.4-6AB PREPARATION PLANT AREA AS-BUILT RECLAMATION WATERSHED CHARACTERISTICS

3.4-7AB AS-BUILT RECLAMATION DITCH DESIGN SUMMARY

3.4-8AB AS-BUILT RECLAMATION CULVERT DESIGN SUMMARY

LIST OF ATTACHMENTS

Attachments

ATTACHMENT 1 AS-BUILT RECLAMATION HYDROLOGY CALCULATIONS
ATTACHMENT 2 PUBLIC NOTICE AND LETTERS TO AGENCY AND LAND OWNERS
ATTACHMENT 3 BOND RELEASE CALCULATIONS
ATTACHMENT 4 ADDITIONAL INFORMATION

LIST OF MAPS

Exhibits

3.4-13AB PREPARATION PLANT AREA AND REFUSE PILE AS-BUILT TOPOGRAPHY MAP

3.4-14AB PREPARATION PLANT AREA AND REFUSE PILE AS-BUILT RECLAMATION CROSS-SECTIONS

3.4-15AB PREPARATION PLANT AREA AND REFUSE PILE AS-BUILT CROSS-SECTIONS AND PROFILES

3.4-16AB PREPARATION PLANT AREA AND REFUSE PILE AS-BUILT WATERSHED MAP

3.4-17AB PREPARATION PLANT AREA AND REFUSE PILE AS-BUILT TOPOGRAPHY AND TREATMENT MAP

The maps listed above have been included in the map section of Exhibit 19 Section 3.4. The maps are not included in this appendix but are referenced here to indicate that as-built reclamation maps have been prepared.

ATTACHMENT 4

ADDITIONAL INFORMATION

The State of Utah

Department of Natural Resources

Division of Oil, Gas & Mining

ROBERT L. MORGAN
Executive Director

LOWELL P. BRAXTON
Division Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

Inspection Report

Representatives Present During the Inspection:		
Company	Dennis Ware	Controller
OGM	Joe Helfrich	Environmental Scientist III

Permit Number:	C0070038
Inspection Type:	TECHNICAL
Inspection Date:	Wednesday, April 06, 2005
Start Date/Time:	4/6/2005 11:00:00 AM
End Date/Time:	4/6/2005 2:00:00 PM
Last Inspection:	Thursday, March 17, 2005

Inspector: Joe Helfrich, Environmental Scientist III

Weather: sunny 55

InspectionID Report Number: 592

Accepted by: whedberg
5/5/2005

Permitee: **PLATEAU MINING CORP**
Operator: **PLATEAU MINING CORP**
Site: **WILLOW CREEK MINE**
Address: **847 NW HWY 191, HELPER UT 84526**
County: **CARBON**
Permit Type: **PERMANENT COAL PROGRAM**
Permit Status: **ACTIVE**

Current Acreages

14,670.00	Total Permitted
161.55	Total Disturbed
	Phase I
	Phase II
	Phase III

Mineral Ownership

- [x] Federal
- [ ] State
- [ ] County
- [x] Fee
- [x] Other

Types of Operations

- [x] Underground
- [ ] Surface
- [x] Loadout
- [ ] Processing
- [ ] Reprocessing

Report summary and status for pending enforcement actions, permit conditions, Division Orders, and amendments:

The purpose of this site visit was to evaluate the erosion potential on the property being turned over to the Price River Water district. The permittee is preparing a phase three application for bond release on this property. I was accompanied by Dennis Ware, controller for the company. The property to be evaluated for erosion potential was walked in it's entirety and photos were taken.

Inspector's Signature /S/ **Date** Tuesday, April 26, 2005

Joe Helfrich, Environmental Scientist III
Inspector ID Number: 1

Note: This inspection report does not constitute an affidavit of compliance with the regulatory program of the Division of Oil, Gas and Mining.

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 facsimile (801) 359-3940 TTY (801) 538-7223 *www.ogm.utah.gov*

Utah! *Where ideas connect*

Permit Number: C0070038
Inspection Type: TECHNICAL
Inspection Date: Wednesday, April 06, 2005

Inspection Continuation Sheet

REVIEW OF PERMIT, PERFORMANCE STANDARDS PERMIT CONDITION REQUIREMENTS

1. *Substantiate the elements on this inspection by checking the appropriate performance standard.*
   a. *For COMPLETE inspections provide narrative justification for any elements not fully inspected unless element is not appropriate to the site, in which case check Not Applicable.*
   b. *For PARTIAL inspections check only the elements evaluated.*
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4. *Provide a brief status report for all pending enforcement actions, permit conditions, Divison Orders, and amendments.*

	Evaluated	Not Applicable	Comment	Enforcement
1. Permits, Change, Transfer, Renewal, Sale	☐	☐	☐	☐
2. Signs and Markers	☐	☐	☐	☐
3. Topsoil	☐	☐	☐	☐
4.a Hydrologic Balance: Diversions	☑	☐	☑	☐
4.b Hydrologic Balance: Sediment Ponds and Impoundments	☐	☐	☐	☐
4.c Hydrologic Balance: Other Sediment Control Measures	☐	☐	☐	☐
4.d Hydrologic Balance: Water Monitoring	☐	☐	☐	☐
4.e Hydrologic Balance: Effluent Limitations	☐	☐	☐	☐
5. Explosives	☐	☐	☐	☐
6. Disposal of Excess Spoil, Fills, Benches	☐	☐	☐	☐
7. Coal Mine Waste, Refuse Piles, Impoundments	☐	☐	☐	☐
8. Noncoal Waste	☐	☐	☐	☐
9. Protection of Fish, Wildlife and Related Environmental Issues	☐	☐	☐	☐
10. Slides and Other Damage	☐	☐	☐	☐
11. Contemporaneous Reclamation	☐	☐	☐	☐
12. Backfilling And Grading	☐	☐	☐	☐
13. Revegetation	☐	☐	☐	☐
14. Subsidence Control	☐	☐	☐	☐
15. Cessation of Operations	☐	☐	☐	☐
16.a Roads: Construction, Maintenance, Surfacing	☐	☐	☐	☐
16.b Roads: Drainage Controls	☐	☐	☐	☐
17. Other Transportation Facilities	☐	☐	☐	☐
18. Support Facilities, Utility Installations	☐	☐	☐	☐
19. AVS Check	☐	☐	☐	☐
20. Air Quality Permit	☐	☐	☐	☐
21. Bonding and Insurance	☐	☐	☐	☐
22. Other	☐	☐	☐	☐

4.a Hydrologic Balance: Diversions

The eastern portion of the property slopes toward the reclaimed roughened area and a well graded rip rapped diversion ditch. Recent storms have shown no signs of erosion. The remaining portion of the property slopes to the south west into a portion of the reclaimed area and a well vegetated ditch. Runoff from all locations on this property will remain inside the reclaimed area and does not show signs of developing erosion.

APPENDIX 3.4K

RECLAMATION PERIOD ALTERNATIVE SEDIMENT CONTROL CALCULATIONS

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Comparison of Pre-Mining and Post-Reclamation Sediment Yields for the Willow Creek Preparation Plant and Refuse Pile

Sediment control after reclamation of the Preparation Plant and Refuse Pile will be by Alternate Sediment Control Measures ("ASCM"). The same reclamation methods will be used for the reclamation of this site as was used for the reclamation of Hardscrabble Canyon, Crandall Canyon, Adit No. 1, and Star Point Mines. Sediment control at these sites have been successful and the same methods are expected to be successful at this site as well. The sediment control methods to be applied at this site are as follows:

1. Deep gouging;
2. Mixing hay into the soil;
3. Mulching the gouged surface;
4. Securing the mulch with a tackifier; and
5. Revegetation.

The purpose of this calculation is to evaluate the sediment yield characteristics of the disturbed area under pre-mining and post-mining conditions. The three conditions to be evaluated will be as follows:

1. Pre-mining, This site was a town prior to the building of the Preparation Plant. The site has been disturbed for over 100 years. Hence pre-disturbance information is not available and the pre-mining condition is a disturbed condition. Although the pre-mining condition is a disturbed condition where possible an undisturbed condition will be assumed for these calculations.

2. Immediate Post-Reclamation, after deep gouging, mulching and seeding but before vegetation establishment.

3. Long Term Post-Reclamation, after vegetation is well established and depressions from deep gouging are mostly gone.

Mixing hay into the soil consists of 2 tons/acre of hay being mixed into the soil during deep gouging. Another 1 to 1.5 tons/acre of straw mulch will be broadcast on the surface. The straw mulch will be secured with a tackifier when the site is hydroseeded. A small amount of wood fiber mulch will also be applied with the tackifier during hydroseeding.

REGISTERED PROFESSIONAL ENGINEER
12-17-03
No. 189797
LAYNE D. JENSEN
STATE OF UTAH

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Methodology

Sediment yield calculations will be made using the Modified Universal Soil Loss Equation ("MUSLE") as presented by Israelsen et. al. (1984) and Barfield et. al. (1994)

$$A = R*K*LS*VM$$

where:

A = Sediment Yield (tons/acre/year)
R = Rainfall Factor
K = Soil Erodibility Factor
LS = Length and Steepness of slope factor
VM = Erosion Control Factor

Each of the above factors will be evaluated for each of the three conditions.

Rainfall Factor (R)

R=11 From Map R7 Israelsen et. al. (1984)

The same factor will apply for all three conditions.

Soil Erodibility Factor (K)

As mentioned above the site has been disturbed for a long time and pre-disturbance data are not available. The Soil Survey of Carbon Area, Utah catagorizes soils in the vicinity of the site that were not disturbed at the time of the survey. The bottom of the canyon with relatively flat slopes are identified as map unit 107 Shupert-Winette Complex. The erodibility factor identified in Table 12 on page 280 is 0.24 for the surface sample. The steep slopes around the disturbed areas are identified as Map unit 121 Travisilla-rock outcrop-Gerst Complex. The near surface has some cementation and has a very low erodibility of 0.05 while soils 2 inches down have a much higher erodibility factor of 0.37. Since the bulk of the site is the flatter areas and the erodibility factor of 0.24 is between the two extremes of the steep slopes factor I will assume a soil erodibility factor of 0.24 for the undisturbed condition.

Most of the soil being used during the reclamation of the Preparation Plant and Refuse Pile area is being hauled over from the Gravel Canyon Topsoil Stockpile. This stockpile is mostly composed of topsoil hauled from Crandall Canyon during the construction of that facility. The area where the soils were hauled from are identified as map unit 125 Uinta-Toze Families Complex. This soil has a surface soil erodibility factor of 0.24 with the lower soil layers having a factor of 0.15 and 0.1. These soils had high organic content and lower clay content than the soils in the Preparation Plant Area and should be excellent growth media. Since most of the soils stripped from Crandall Canyon have an Erodibility Factor of 0.15 of 0.10 I will assume a factor of 0.20 for both reclamation time periods

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Length-Steepness Factor (LS)

$$LS = \left(\frac{65.41\,s^2}{s^2+10{,}000} + \frac{4.56\,s}{\sqrt{s^2+10{,}000}} + 0.065\right)\left(\frac{l}{72.6}\right)^m$$

Where:

LS = Length Steepness Factor
S = Slope Gradient (%)
l = Slope Length (ft)
m = empirical exponent (function of slope)

Pre-mining

Since the site was disturbed before or near 1900 no pre-disturbance topography is available. However, using adjacent undisturbed topography the site had slopes between 1 and 100%. Most of the site is located in a broad relatively flat area of Price Canyon. The slopes of the undisturbed areas on the canyon sides are mostly between 60% and 80%. In an undisturbed conditions the slopes extend unbroken from the ridge lines down to the channels in the canyons. These distances may be up to 1100'. However most slope lengths are 400' to 500' in length. The steepest slopes will generate the greatest erosion so I will focus on the steep areas when comparing sediment yield. For the undisturbed conditions I will assume a slope of 60% and a slope length of 400'.

LS = 46.3 (Table C-1 Israelsen et. al. (1984))

Immediate Post Reclamation

The reclaimed areas will be deep gouged prior to seeding. Deep gouging creates 1 to 3' deep holes that prevent runoff from concentrating and achieving an erosive velocity. In the early stages of reclamation the gouges prevent any water from running off the reclaimed areas. The gouges also stop any runoff from upgradient undisturbed areas. Therefore, the slope length is very short. I will assume a slope length of 10' although the distance is actually less. The maximum slope of reclamation is a 2:1 slope or 50%. I will assume the maximum slope of 50% and a slope length of 10'.

LS = 5.64 (Table C-1 Israelsen et. al. (1984))

Long-term Post Reclamation

In the long term the depressions from gouging will disappear leaving an unbroken slope with a maximum slope of 50%. I will assume a 50% slope and the same slope length as for the pre-mining condition (400').

LS = 35.65 (Table C-1 Israelsen et. al. (1984))

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Erosion Control Factor (VM)

Pre-Mining

No pre-mining vegetation data is available. However, Exhibit 9-1 identifies adjacent undisturbed areas to be mostly mixed brush. I will use the Castle Gate Mixed Brush reference area to estimate the Erosion Control Factor.

Total vegetation cover = 40.9%
Litter/rock cover = 35.2%
Bare soil = 23.9%

Grass density = 51% ==> 21%
Sage brush = 26% ==> 10.6%
Other brush = 23% ==> 9.4%
Total brush 20%

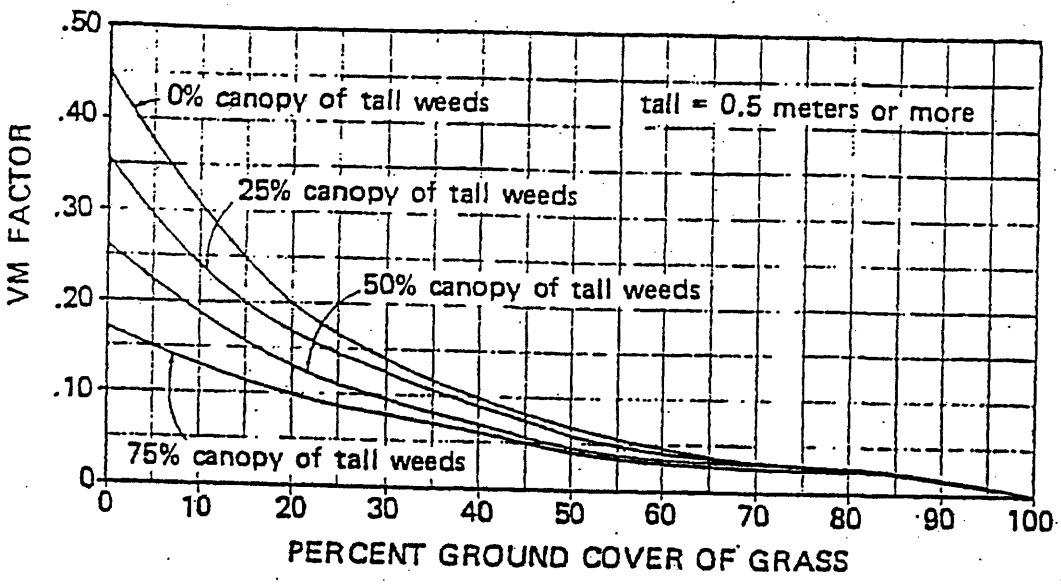

Figure 7. Relationship between grass density and VM factor.

Israelsen et. al. (1984)

VM = 0.17

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Immediate Post Reclamation

R * K * LS = 11*0.24*5.64 = 14.89

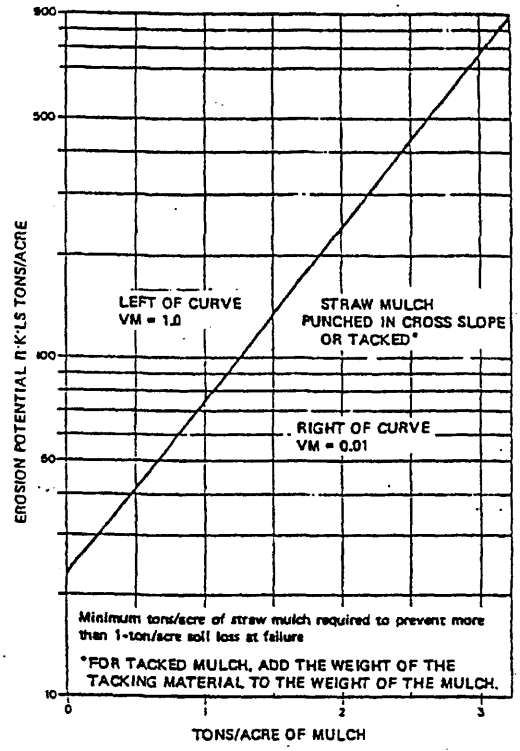

Figure 4. Straw mulch anchored vs. R·K·LS.

At least 1 ton/acre of mulch will be added with a tackifier to the reclaimed surface. Therefore, the point plots on the right side of the line.

VM = 0.01

Long-term Post Reclamation

Section 3.2.2.4 of the Willow Creek Permit describes the vegetation in an area near the site that has been reclaimed (The old Royal Refuse Pile). I will use that data to estimate the Erosion Control Factor although the Preparation Plant area will be better vegetated.

Total plant cover = 30%
Brush density = 50% ==> 15.5%
Grasses density = 40% ==> 12.4%

VM = 0.24 (see figure 7 on page 4)

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Calculation Summary

Time Period	R	K	LS	VM	A (tons/acre/yr)
Pre-Mining	11	0.24	46.3	0.17	20.78
Immediate Post Reclamation	11	0.20	5.64	0.01	0.12
Long-term Post Reclamation	11	0.20	35.65	0.24	18.82

Thus the reclaimed surface will generate far less sediment immediately after reclamation and will generate slightly less sediment for the long-term post reclamation period.

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Raw Water Pond

0021

Incoming
C0070038
cc: Pam G
Dana D.

June 12, 2006

RECEIVED
JUN 14 2006
DIV. OF OIL, GAS & MINING

EarthFax

EarthFax
Engineering, Inc.
Engineers/Scientists
7324 So. Union Park Ave.
Suite100
Midvale, Utah 84047
Telephone 801-561-1555
Fax 801-561-1861
www.earthfax.com

Dennis N. Ware
Plateau Mining Corporation
P.O. Box 30
Helper, UT 84526

Subject: Willow Creek Raw Water Pond Permanent Impoundment Adequacy

Dear Dennis:

Pursuant to your request, I have evaluated the adequacy of the Raw Water Pond at the Willow Creek preparation plant for retention as a permanent impoundment under the rules of the Utah Division of Oil, Gas and Mining (specifically, the requirements of R645-301-733.200). The Raw Water Pond is designed to contain water diverted from the adjacent Price River. Prior to site reclamation, this water was used in the preparation plant for process purposes. Plateau has transferred ownership of this pond to the Price River Water Improvement District ("PRWID"), who currently utilizes the pond to provide a raw water source for the Willow Creek Mine buildings in Willow Creek Canyon.

The pond has been in place for at least 20 years, as evidenced by aerial photographs of the site. It is designed to hold approximately 4.3 acre-feet of water below the overflow device (a 15-inch diameter corrugated metal pipe that discharges to the Price River). The embankment of the pond extends a minimum of 2 feet above the overflow pipe.

I conducted an inspection of the pond on June 1, 2006 and observed no signs of instability. My casual observations of the pond over the past several years have also indicated no concerns with respect to the structural stability of the pond. In accordance with the requirements of R645-301-733.210, I also evaluated the minimum static safety factor of the pond embankment with normal pool for steady state seepage saturation conditions. Results of this evaluation are presented in Attachment A. These calculations were performed assuming the conservative condition that the embankment was saturated from the normal operating pool to the toe, with the phreatic surface extending at a constant slope from embankment toe to the Price River. Furthermore, in keeping with prior analyses of embankment stability at the preparation plant, the following conservative soil properties were assumed based on an evaluation of soils in the embankment:

Moist unit weight =	115 lb/ft^3
Saturated unit weight =	135 lb/ft^3
Cohesion intercept =	100 lb/ft^2
Friction angle =	34°

Using these conservative assumptions, the minimum static safety factor for the embankment is 4.698 (see Attachment A). Hence, the pond embankment meets the requirements of R645-301-733.210.

The following factors indicate that the Raw Water Pond also meets the requirements of R645-301-733.220 for use as a permanent impoundment:

- Size and configuration: The pond will be used as a storage impoundment by PRWID to meet the incidental raw-water needs of the Willow Creek Mine buildings under future operation by the College of Eastern Utah. These water needs are substantially lower than the past needs of the Willow Creek preparation plant, which was adequately serviced by the Raw Water Pond. Hence, in accordance with R645-301-733.221, the size and configuration of the pond are adequate for their intended use.
- Water quality: The quality of water diverted from the Price River to the Raw Water Pond is sufficient for the needs of the Willow Creek Mine buildings. Furthermore, any discharges from the pond will re-enter the Price River immediately downstream from the initial point of diversion. Since the pond is intended only for storage, the quality of any water discharged from the pond will be the same as that of the river into which it is discharged. Hence, the requirements of R645-301-733.222 will be satisfied after site reclamation is completed.
- Water level: PRWID will be both the owner and operator of the pond. Hence, they will maintain the pond level as necessary for their intended use. Thus, the pond will satisfy the requirements of R645-301-733.223.
- Final grading: No additional grading of the pond area is anticipated. The Raw Water Pond has operated adequately at its current configuration for over 20 years. As such, this configuration will be adequate to provide safe access for proposed water users, indicating that the pond will meet the requirements of R645-301-733.224.
- Diminution of water quality and quantity: Rights for use of this water have existed for several years. These or equivalent rights will be used by PRWID for future operation of the pond. Hence, downstream users will not be adversely affected by future use of the pond. Furthermore, as discussed above, use of the pond will not adversely affect downstream water quality. Thus, the pond will meet the requirements of R645-301-733.226.
- Suitability: The approved post-mining land use includes future operation of the Willow Creek Mine buildings. The Raw Water Pond is of a suitable capacity to supply the raw water needed at this facility. Hence, the requirements of R645-301-733.226 are met by the pond.

In accordance with the requirements of R645-301-743, I also evaluated the adequacy of the overflow pipe to safely handle runoff flowing into the pond. Results of this evaluation are presented in Attachment B. As indicated, the spillway system will safely convey the peak runoff into the pond from both the 25-year, 6-hour precipitation event and the 100-year, 6-hour precipitation event. As further indicated, the amount of water entering the pond during the 25- and 100-year events will be 2.5% and 5.1% of the storage volume below the invert of the

outflow pipe. Given the settling capacity of the pond and the effects of dilution, no adverse impacts to water quality in the Price River are anticipated from runoff entering the pond.

I also evaluated the ability of the Raw Water Pond to contain runoff from the 10-year, 24-hour precipitation event. The results of this evaluation, which are provided in Attachment A, indicate that runoff from this event equals 0.13 acre-foot. With a capacity of approximately 4.3 acre-feet, the pond can more than adequately contain runoff from the 10-year, 24-hour event. In the event that the pond is full to the invert of the outflow pipe, the calculations in Attachment A also indicate that the outflow pipe can adequately handle the peak flow from this event.

Based on these evaluations, it is my opinion that the Raw Water Pond meets the permanent impoundment requirements of R645-301-733 and other applicable regulations. Specifically, the size and configuration of this permanent impoundment is adequate for its intended purpose; the quality of impounded water will be suitable on a permanent basis for its intended use; any discharge from the impoundment will not degrade the quality of the receiving waters; the impoundment will not result in the diminution of the quality and quantity of water utilized by adjacent or surrounding landowners for agricultural, industrial, recreational or domestic uses; the water level will be sufficiently stable and be capable of supporting the approved post mining land use; final grading provides adequate safety and access for the proposed water users; and the embankment construction was designed to achieve necessary stability with an adequate margin of safety.

Please contact me if you have any questions.

Sincerely,

Richard B. White

Richard B. White, P.E.
President

Attachments

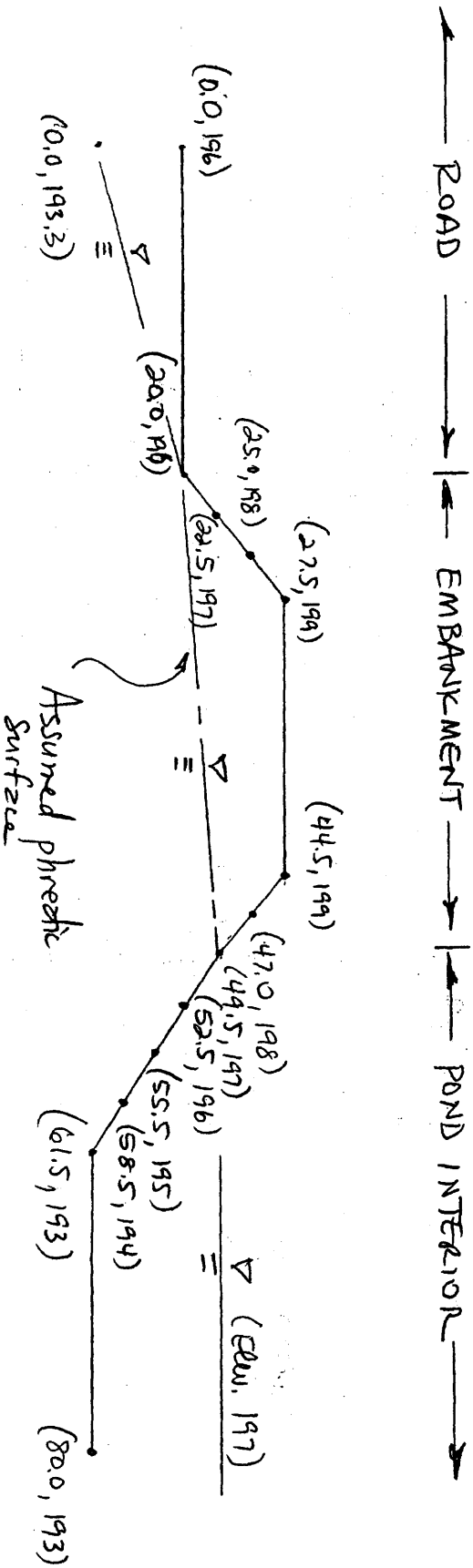
REGISTERED PROFESSIONAL ENGINEER
No. 168246
RICHARD B. WHITE
12 Jun 2006
STATE OF UTAH

ATTACHMENT A

Slope Stability Calculations

EARTHFAX ENGINEERING, INC.
ENGINEERS / SCIENTISTS

PROJECT UC-709-23 PAGE 1 OF 1
COMPUTED TBW DATE 12 Jun 2006
CHECKED _____ DATE _____



RAW WATER POND EMBANKMENT

CROSS SECTION THRU SW CORNER

SCALE: 1" = 10' (H); 1" = 5' (V)
(VIEW TO NORTH)

```
*****************************************************************************
*****                          GeoSlope                                 *****
*****                         Version 5.00                              *****
*****                                                                   *****
*****              (c)1992 by GEOCOMP Corp, Concord, MA                 *****
*****                 Licensed to EarthFax Engineering                  *****
*****************************************************************************
```

Problem Title : Raw Water Pond
Description : Determination of minimum slope safety factor
Remarks : Pond to remain as permanent impoundment

```
*****************************************************************************
*****                           INPUT DATA                              *****
*****************************************************************************
```

Profile Boundaries

Number of Boundaries : 12
Number of Top Boundaries : 12

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	196.00	20.00	196.00	1
2	20.00	196.00	22.50	197.00	1
3	22.50	197.00	25.00	198.00	1
4	25.00	198.00	27.50	199.00	1
5	27.50	199.00	44.50	199.00	1
6	44.50	199.00	47.00	198.00	1
7	47.00	198.00	49.50	197.00	1
8	49.50	197.00	52.50	196.00	1
9	52.50	196.00	55.50	195.00	1
10	55.50	195.00	58.50	194.00	1
11	58.50	194.00	61.50	193.00	1
12	61.50	193.00	80.00	193.00	1

Soil Parameters

Number of Soil Types : 1

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	115.0	135.0	100.0	34.0	0.00	0.0	0

Piezometric Surfaces

Number of Surfaces : 1
Unit Weight of Water : 62.40 pcf

Piezometric Surface No. : 1
Number of Coordinate Points : 4

Point No.	X-Water (ft)	Y-Water (ft)
1	0.00	193.30
2	20.00	196.00
3	49.50	197.00
4	80.00	197.00

****
***** TRIAL SURFACE GENERATION *****
****

Data for Generating Circular Surfaces

Number of Initiation Points : 10
Number of Surfaces From Each Point : 10
Left Initiation Point : 10.00 ft
Right Initiation Point : 20.00 ft
Left Termination Point : 28.00 ft
Right Termination Point : 40.00 ft
Minimum Elevation : 190.00 ft
Segment Length : 1.00 ft
Positive Angle Limit : 0.00 deg
Negative Angle Limit : 0.00 deg

****
***** RESULTS *****
****

Surface No. : 1
Factor of Safety : 4.698
Circle Center X : 22.24 ft
Circle Center Y : 203.37 ft
Circle Radius : 8.10 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	19.03	195.94	0.29	1.8	0.0	0.0	4.8	7.3
2	19.50	195.77	0.64	17.3	0.0	0.0	25.5	18.3
3	19.91	195.62	0.18	7.7	0.0	0.0	9.2	5.2
4	20.40	195.50	0.79	60.0	0.0	0.0	68.5	27.3
5	21.29	195.35	0.99	133.7	0.0	0.0	139.5	41.3
6	22.14	195.29	0.71	128.4	0.0	0.0	128.2	33.6
7	22.64	195.29	0.29	58.4	0.0	0.0	58.3	14.5
8	23.28	195.36	0.99	223.0	0.0	0.0	218.0	52.6
9	24.26	195.55	0.97	240.2	0.0	0.0	233.9	54.9
10	24.87	195.72	0.25	64.6	0.0	0.0	63.6	14.9
11	25.34	195.91	0.68	173.6	0.0	0.0	170.9	40.0
12	25.83	196.12	0.30	75.1	0.0	0.0	75.7	18.0
13	26.26	196.36	0.58	143.5	0.0	0.0	144.5	34.9
14	26.96	196.81	0.81	184.0	0.0	0.0	191.6	48.8
15	27.43	197.17	0.13	27.7	0.0	0.0	30.2	8.2
16	27.80	197.51	0.60	103.1	0.0	0.0	109.8	33.2
17	28.42	198.17	0.64	61.7	0.0	0.0	60.3	29.9
18	28.89	198.77	0.29	7.6	0.0	0.0	-3.0	11.0

Surface No. : 2
Factor of Safety : 4.832
Circle Center X : 23.31 ft
Circle Center Y : 200.99 ft
Circle Radius : 5.98 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	20.44	195.76	0.88	41.9	0.0	0.0	64.1	29.6
2	21.35	195.35	0.94	128.7	0.0	0.0	150.8	41.7
3	22.16	195.13	0.68	135.0	0.0	0.0	142.7	34.2
4	22.65	195.05	0.31	71.2	0.0	0.0	75.0	16.9
5	23.31	195.02	1.00	264.4	0.0	0.0	264.4	57.6
6	24.30	195.11	0.99	296.3	0.0	0.0	290.1	61.2
7	24.90	195.23	0.21	64.8	0.0	0.0	63.9	13.4
8	25.37	195.39	0.74	234.0	0.0	0.0	231.0	48.4
9	26.18	195.76	0.88	273.3	0.0	0.0	279.0	59.6
10	26.76	196.12	0.30	87.9	0.0	0.0	95.4	21.1
11	27.15	196.43	0.49	136.8	0.0	0.0	147.9	33.5
12	27.45	196.68	0.10	26.7	0.0	0.0	31.6	7.5
13	27.78	197.05	0.57	127.7	0.0	0.0	148.2	38.3
14	28.34	197.79	0.54	75.0	0.0	0.0	87.9	33.0
15	28.77	198.60	0.33	15.3	0.0	0.0	-2.2	17.5

Surface No. : 3
Factor of Safety : 5.065
Circle Center X : 21.74 ft
Circle Center Y : 206.25 ft
Circle Radius : 11.44 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	17.06	195.83	0.78	15.5	0.0	0.0	25.9	20.3
2	17.52	195.63	0.13	5.8	0.0	0.0	8.1	4.0
3	18.06	195.44	0.95	61.5	0.0	0.0	75.1	29.7
4	19.01	195.16	0.97	94.4	0.0	0.0	105.5	33.8
5	19.75	195.00	0.50	57.7	0.0	0.0	61.1	18.1
6	20.24	194.92	0.49	66.1	0.0	0.0	69.8	19.0
7	20.99	194.85	1.00	177.2	0.0	0.0	180.5	43.8
8	21.99	194.83	1.00	226.0	0.0	0.0	225.0	49.7
9	22.49	194.84	0.01	3.5	0.0	0.0	3.4	0.7
10	22.99	194.89	0.98	259.3	0.0	0.0	255.0	53.4
11	23.97	195.05	0.98	286.7	0.0	0.0	280.9	57.2
12	24.73	195.22	0.54	165.6	0.0	0.0	162.9	32.8
13	25.21	195.36	0.42	131.6	0.0	0.0	129.5	25.9
14	25.89	195.61	0.93	294.5	0.0	0.0	293.2	58.8
15	26.80	196.01	0.90	279.5	0.0	0.0	283.4	57.5
16	27.26	196.24	0.03	8.1	0.0	0.0	8.4	1.7
17	27.39	196.32	0.22	68.3	0.0	0.0	71.0	14.7
18	27.80	196.57	0.60	168.7	0.0	0.0	174.9	37.2
19	28.51	197.05	0.81	181.0	0.0	0.0	191.4	45.2
20	29.28	197.67	0.75	114.6	0.0	0.0	121.1	35.9
21	30.00	198.36	0.69	50.4	0.0	0.0	45.9	25.9
22	30.46	198.86	0.22	3.4	0.0	0.0	-2.7	6.6

Surface No. : 4
Factor of Safety : 5.077
Circle Center X : 21.51 ft
Circle Center Y : 204.19 ft
Circle Radius : 8.33 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	20.00	196.00	0.00	0.0	0.0	0.0	0.0	0.0
2	20.50	195.94	0.99	29.6	0.0	0.0	32.8	24.0
3	21.49	195.88	1.00	82.9	0.0	0.0	83.0	30.7
4	22.25	195.91	0.51	57.9	0.0	0.0	56.3	17.5
5	22.74	195.96	0.49	63.3	0.0	0.0	61.7	17.8
6	23.25	196.06	0.52	74.5	0.0	0.0	71.7	20.1
7	23.73	196.17	0.45	68.4	0.0	0.0	66.1	17.9
8	24.43	196.40	0.94	147.3	0.0	0.0	142.8	38.7
9	24.95	196.61	0.11	16.6	0.0	0.0	16.4	4.5
10	25.39	196.84	0.78	118.8	0.0	0.0	116.8	32.9
11	26.20	197.32	0.83	110.1	0.0	0.0	109.8	34.3
12	26.99	197.93	0.75	74.7	0.0	0.0	73.5	29.5
13	27.43	198.34	0.14	10.1	0.0	0.0	9.2	5.3
14	27.76	198.71	0.53	17.8	0.0	0.0	8.1	16.6

Surface No. : 5
Factor of Safety : 5.247
Circle Center X : 23.50 ft
Circle Center Y : 204.61 ft
Circle Radius : 10.34 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	17.98	195.88	0.41	5.8	0.0	0.0	13.2	10.8
2	18.41	195.62	0.45	19.5	0.0	0.0	31.1	14.0
3	19.09	195.27	0.90	75.5	0.0	0.0	98.4	31.7
4	19.77	194.98	0.46	53.9	0.0	0.0	63.5	17.4
5	20.24	194.81	0.48	71.4	0.0	0.0	83.2	20.5
6	20.97	194.60	0.97	199.2	0.0	0.0	217.3	47.0
7	21.95	194.40	0.99	270.1	0.0	0.0	281.6	55.3
8	22.47	194.33	0.06	18.1	0.0	0.0	18.3	3.5
9	22.97	194.30	0.94	312.0	0.0	0.0	315.6	58.5
10	23.94	194.30	1.00	376.8	0.0	0.0	374.3	67.2
11	24.72	194.36	0.56	228.0	0.0	0.0	224.7	39.7
12	25.21	194.43	0.43	180.4	0.0	0.0	177.8	31.1
13	25.91	194.57	0.97	424.0	0.0	0.0	418.6	72.9
14	26.87	194.85	0.94	423.3	0.0	0.0	422.6	73.4
15	27.42	195.05	0.15	69.4	0.0	0.0	70.7	12.3
16	27.88	195.26	0.75	324.5	0.0	0.0	330.3	58.3
17	28.69	195.69	0.86	329.4	0.0	0.0	344.3	63.3
18	29.39	196.13	0.54	178.8	0.0	0.0	193.3	37.6
19	29.80	196.42	0.27	79.8	0.0	0.0	85.8	17.4
20	30.31	196.85	0.75	185.7	0.0	0.0	207.0	45.7
21	31.02	197.55	0.68	114.4	0.0	0.0	129.2	35.7
22	31.67	198.31	0.61	48.7	0.0	0.0	47.2	25.1
23	32.07	198.85	0.19	3.2	0.0	0.0	-3.9	6.2

Surface No. : 6
Factor of Safety : 5.367
Circle Center X : 21.38 ft
Circle Center Y : 208.62 ft
Circle Radius : 13.90 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	16.02	195.81	0.92	20.5	0.0	0.0	31.7	22.6
2	16.57	195.58	0.19	9.1	0.0	0.0	11.3	5.1
3	17.05	195.42	0.76	50.4	0.0	0.0	60.7	22.5
4	17.91	195.17	0.97	92.4	0.0	0.0	103.6	31.7
5	18.89	194.96	0.98	118.2	0.0	0.0	126.5	34.5
6	19.69	194.83	0.62	83.5	0.0	0.0	86.5	22.5
7	20.19	194.78	0.37	55.6	0.0	0.0	57.4	14.2
8	20.87	194.74	1.00	185.1	0.0	0.0	186.7	42.1
9	21.87	194.74	1.00	231.1	0.0	0.0	229.6	47.5
10	22.44	194.76	0.13	32.8	0.0	0.0	32.3	6.5
11	22.93	194.82	0.87	234.6	0.0	0.0	231.1	45.3
12	23.86	194.95	0.98	293.3	0.0	0.0	288.1	54.8
13	24.67	195.12	0.65	205.5	0.0	0.0	202.4	37.9
14	25.16	195.25	0.32	103.0	0.0	0.0	101.5	18.9

15	25.79	195.45	0.95	312.9	0.0	0.0	310.7	57.7
16	26.73	195.80	0.92	307.1	0.0	0.0	308.7	57.4
17	27.34	196.07	0.31	102.5	0.0	0.0	104.8	19.7
18	27.61	196.20	0.23	73.2	0.0	0.0	74.9	14.2
19	27.91	196.35	0.35	108.0	0.0	0.0	110.3	21.3
20	28.51	196.70	0.86	227.3	0.0	0.0	236.0	48.3
21	29.35	197.24	0.82	165.8	0.0	0.0	174.0	40.5
22	30.15	197.84	0.78	103.3	0.0	0.0	107.0	32.1
23	30.90	198.50	0.73	41.9	0.0	0.0	35.7	23.1
24	31.34	198.92	0.14	1.3	0.0	0.0	-2.1	3.7

Surface No. : 7
Factor of Safety : 5.394
Circle Center X : 24.24 ft
Circle Center Y : 203.45 ft
Circle Radius : 9.17 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	18.99	195.94	0.19	1.4	0.0	0.0	4.7	4.9
2	19.41	195.67	0.65	24.7	0.0	0.0	41.8	19.5
3	19.87	195.40	0.27	18.6	0.0	0.0	25.1	8.7
4	20.31	195.17	0.63	68.8	0.0	0.0	88.7	24.1
5	21.10	194.85	0.94	172.0	0.0	0.0	199.0	43.4
6	22.03	194.56	0.93	241.6	0.0	0.0	261.2	50.5
7	22.52	194.44	0.04	11.5	0.0	0.0	12.4	2.3
8	23.03	194.37	0.99	324.1	0.0	0.0	335.0	60.4
9	24.03	194.29	1.00	381.5	0.0	0.0	383.2	66.5
10	24.76	194.30	0.47	194.8	0.0	0.0	192.7	32.9
11	25.26	194.35	0.53	227.5	0.0	0.0	225.1	37.9
12	26.02	194.47	0.98	444.6	0.0	0.0	438.7	73.4
13	26.98	194.71	0.95	447.8	0.0	0.0	446.0	74.3
14	27.48	194.87	0.04	18.5	0.0	0.0	18.8	3.1
15	27.94	195.07	0.88	396.1	0.0	0.0	402.6	68.1
16	28.81	195.51	0.87	347.4	0.0	0.0	364.0	64.1
17	29.64	196.05	0.79	267.0	0.0	0.0	291.0	54.5
18	30.04	196.35	0.02	5.9	0.0	0.0	6.4	1.2
19	30.42	196.69	0.74	195.8	0.0	0.0	223.0	46.4
20	31.12	197.41	0.66	121.0	0.0	0.0	142.1	36.3
21	31.73	198.19	0.57	53.5	0.0	0.0	56.6	25.6
22	32.13	198.80	0.22	5.1	0.0	0.0	-4.0	8.0

Surface No. : 8
Factor of Safety : 5.431
Circle Center X : 23.89 ft
Circle Center Y : 200.72 ft
Circle Radius : 6.88 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	18.96	195.93	0.14	1.1	0.0	0.0	5.3	4.2
2	19.33	195.60	0.59	27.6	0.0	0.0	57.5	22.0
3	19.81	195.20	0.37	34.4	0.0	0.0	51.6	14.7
4	20.23	194.92	0.45	61.3	0.0	0.0	88.4	21.1
5	20.90	194.55	0.90	188.0	0.0	0.0	231.7	47.2
6	21.83	194.18	0.95	280.3	0.0	0.0	311.9	57.1
7	22.40	194.01	0.19	65.1	0.0	0.0	67.8	12.0
8	22.90	193.93	0.80	295.2	0.0	0.0	307.6	53.0
9	23.80	193.86	1.00	420.5	0.0	0.0	421.6	70.8
10	24.65	193.90	0.70	320.8	0.0	0.0	316.6	52.4
11	25.14	193.97	0.29	134.9	0.0	0.0	133.2	21.9
12	25.77	194.12	0.96	463.0	0.0	0.0	459.9	75.5
13	26.70	194.46	0.91	442.5	0.0	0.0	451.7	74.5
14	27.33	194.78	0.34	162.1	0.0	0.0	173.7	29.0
15	27.75	195.05	0.50	229.2	0.0	0.0	245.4	41.5
16	28.38	195.53	0.76	301.5	0.0	0.0	345.6	61.3
17	28.95	196.09	0.39	130.2	0.0	0.0	163.1	31.2
18	29.28	196.46	0.26	77.3	0.0	0.0	95.8	19.4
19	29.68	197.04	0.54	121.0	0.0	0.0	164.5	38.8
20	30.15	197.92	0.41	50.9	0.0	0.0	65.3	26.5
21	30.45	198.69	0.18	6.4	0.0	0.0	-13.2	10.4

Surface No. : 9
Factor of Safety : 5.448
Circle Center X : 21.91 ft
Circle Center Y : 202.92 ft
Circle Radius : 9.39 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	15.87	195.74	0.63	18.5	0.0	0.0	40.4	19.9
2	16.25	195.42	0.15	9.7	0.0	0.0	17.2	5.6
3	16.75	195.09	0.83	87.5	0.0	0.0	127.3	34.1
4	17.61	194.58	0.89	144.7	0.0	0.0	184.0	41.1
5	18.52	194.17	0.93	195.8	0.0	0.0	228.0	46.6
6	19.47	193.86	0.97	237.2	0.0	0.0	259.3	50.5
7	19.97	193.73	0.05	13.3	0.0	0.0	13.8	2.7
8	20.47	193.65	0.94	273.3	0.0	0.0	285.0	52.7
9	21.44	193.55	1.00	347.2	0.0	0.0	350.7	61.8
10	22.22	193.54	0.56	217.0	0.0	0.0	215.3	37.0
11	22.72	193.57	0.43	175.5	0.0	0.0	174.2	29.5
12	23.43	193.66	0.99	420.7	0.0	0.0	414.9	69.7
13	24.40	193.88	0.96	430.5	0.0	0.0	427.0	71.2
14	24.94	194.03	0.12	52.2	0.0	0.0	52.6	8.8
15	25.41	194.22	0.82	369.9	0.0	0.0	373.1	62.3
16	26.26	194.61	0.89	396.8	0.0	0.0	411.5	69.3

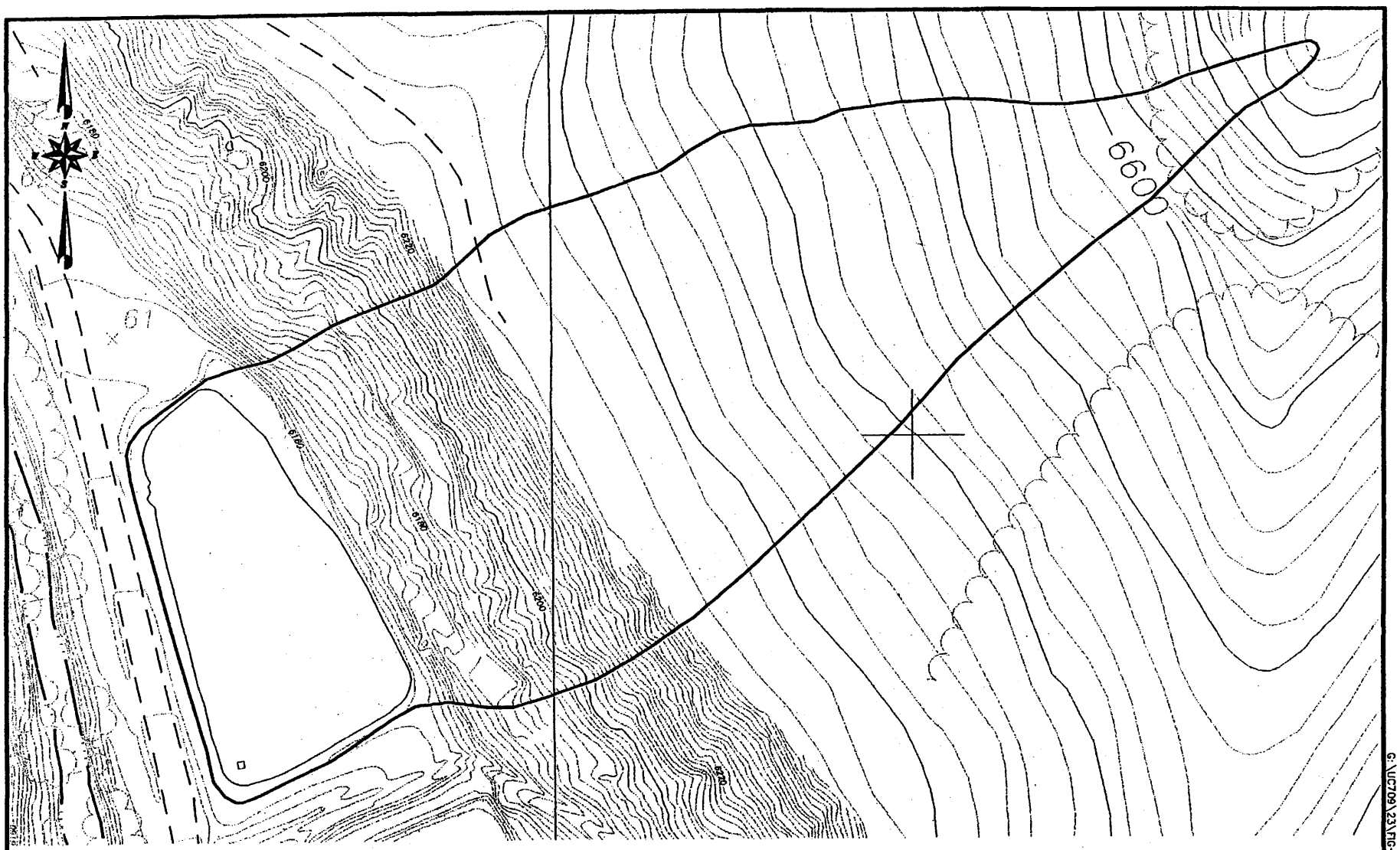
17	27.10	195.11	0.80	342.9	0.0	0.0	369.9	63.4
18	27.52	195.39	0.03	13.7	0.0	0.0	14.7	2.6
19	27.92	195.72	0.77	290.0	0.0	0.0	328.4	59.0
20	28.42	196.16	0.24	79.8	0.0	0.0	95.8	18.3
21	28.77	196.52	0.45	128.4	0.0	0.0	152.8	30.8
22	29.30	197.15	0.62	130.9	0.0	0.0	163.4	38.6
23	29.88	197.97	0.53	62.6	0.0	0.0	74.3	27.6
24	30.29	198.70	0.29	10.2	0.0	0.0	-1.7	12.2

Surface No. : 10
Factor of Safety : 5.479
Circle Center X : 22.01 ft
Circle Center Y : 200.73 ft
Circle Radius : 7.14 ft

Slice	X (ft)	Y (ft)	Width (ft)	Weight (lbs)	Load (lbs)	Water (lbs)	Normal (lbs)	Shear (lbs)
1	16.87	195.80	0.40	9.2	0.0	0.0	26.1	13.5
2	17.23	195.45	0.31	19.6	0.0	0.0	40.1	12.9
3	17.78	195.00	0.80	92.3	0.0	0.0	141.0	35.6
4	18.62	194.47	0.88	155.0	0.0	0.0	199.4	42.8
5	19.53	194.06	0.94	209.1	0.0	0.0	240.8	47.9
6	20.00	193.88	0.00	0.5	0.0	0.0	0.6	0.1
7	20.49	193.77	0.98	272.1	0.0	0.0	290.3	54.0
8	21.48	193.63	1.00	339.6	0.0	0.0	345.1	60.7
9	22.24	193.61	0.52	197.9	0.0	0.0	196.2	33.7
10	22.74	193.64	0.47	188.3	0.0	0.0	186.6	31.6
11	23.46	193.76	0.98	408.3	0.0	0.0	402.9	67.9
12	24.42	194.03	0.94	404.6	0.0	0.0	405.5	68.2
13	24.95	194.23	0.11	45.7	0.0	0.0	47.4	8.0
14	25.39	194.46	0.78	330.8	0.0	0.0	343.3	58.3
15	26.18	194.96	0.81	327.6	0.0	0.0	359.1	62.5
16	26.95	195.60	0.72	263.7	0.0	0.0	311.5	56.6
17	27.40	196.07	0.19	63.3	0.0	0.0	82.5	15.8
18	27.53	196.22	0.05	17.2	0.0	0.0	22.4	4.4
19	27.74	196.49	0.37	107.5	0.0	0.0	138.4	28.1
20	28.18	197.16	0.50	105.7	0.0	0.0	148.0	36.5
21	28.62	198.06	0.37	40.5	0.0	0.0	48.2	24.2
22	28.86	198.76	0.12	3.2	0.0	0.0	-15.1	7.1

ATTACHMNT B

HydroCAD Calculations



RAW WATER POND DRAINAGE AREA

EarthFax

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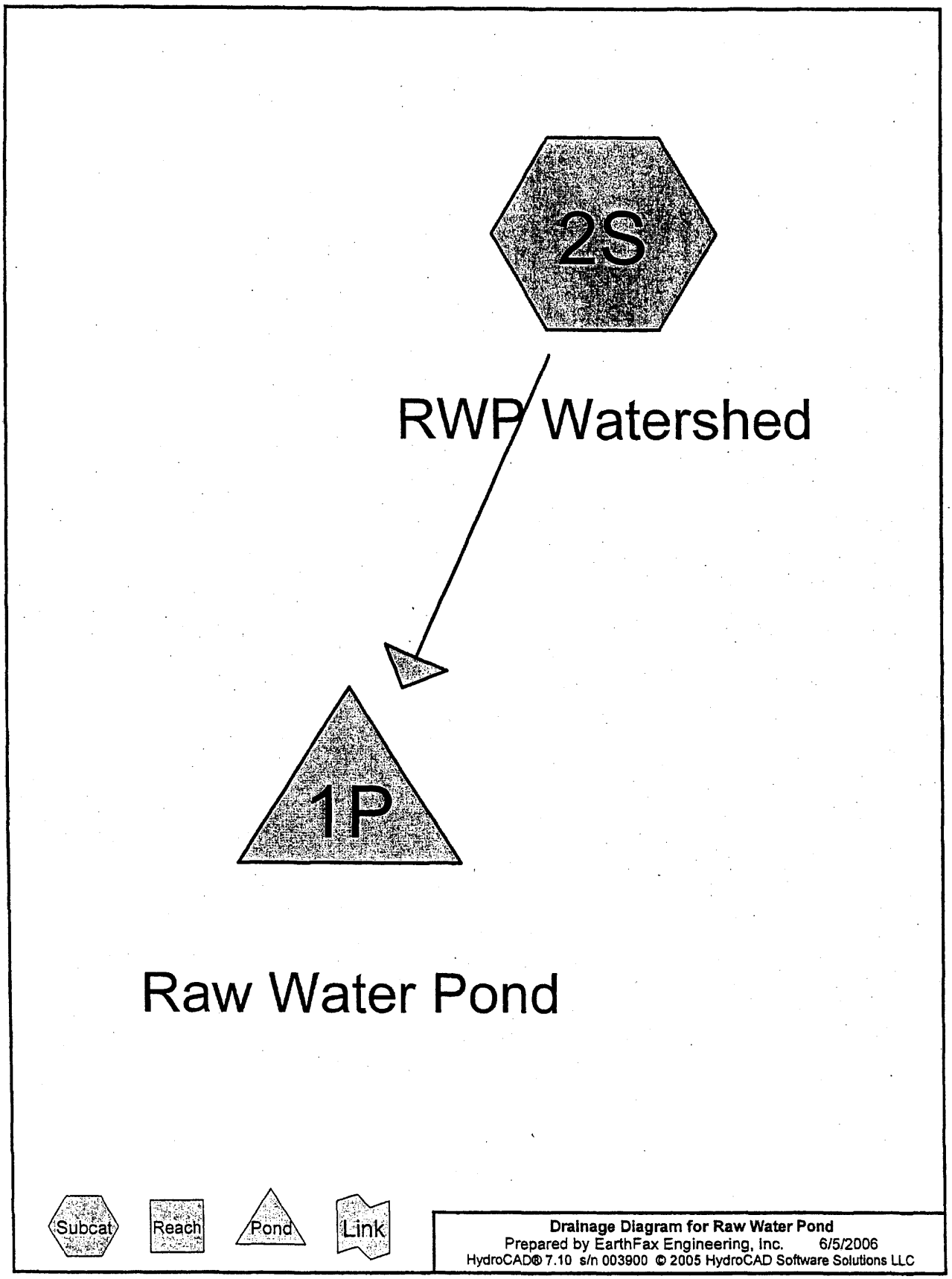

Drainage Diagram for Raw Water Pond
Prepared by EarthFax Engineering, Inc. 6/5/2006
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Subcatchment 2S: RWP Watershed

Runoff = 1.20 cfs @ 3.39 hrs, Volume= 0.114 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type II 24-hr 6.00 hrs 25-yr, 6-hr Rainfall=1.60"

Area (ac)	CN	Description
5.580	70	Drainage area
1.110	100	Pond area
6.690	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	6,400	0.3800	4.0		**Lag/CN Method, Raw water pond watershed**

Pond 1P: Raw Water Pond

Inflow Area =	6.690 ac,	Inflow Depth =	0.20"	for 25-yr, 6-hr event	
Inflow =	1.20 cfs @	3.39 hrs,	Volume=	0.114 af	
Outflow =	0.02 cfs @	6.63 hrs,	Volume=	0.033 af,	Atten= 98%, Lag= 194.6 min
Primary =	0.02 cfs @	6.63 hrs,	Volume=	0.033 af	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Starting Elev= 197.00' Surf.Area= 1.112 ac Storage= 4.299 af
Peak Elev= 197.10' @ 6.63 hrs Surf.Area= 1.117 ac Storage= 4.408 af (0.109 af above start)
Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 552.4 min (805.3 - 252.8)

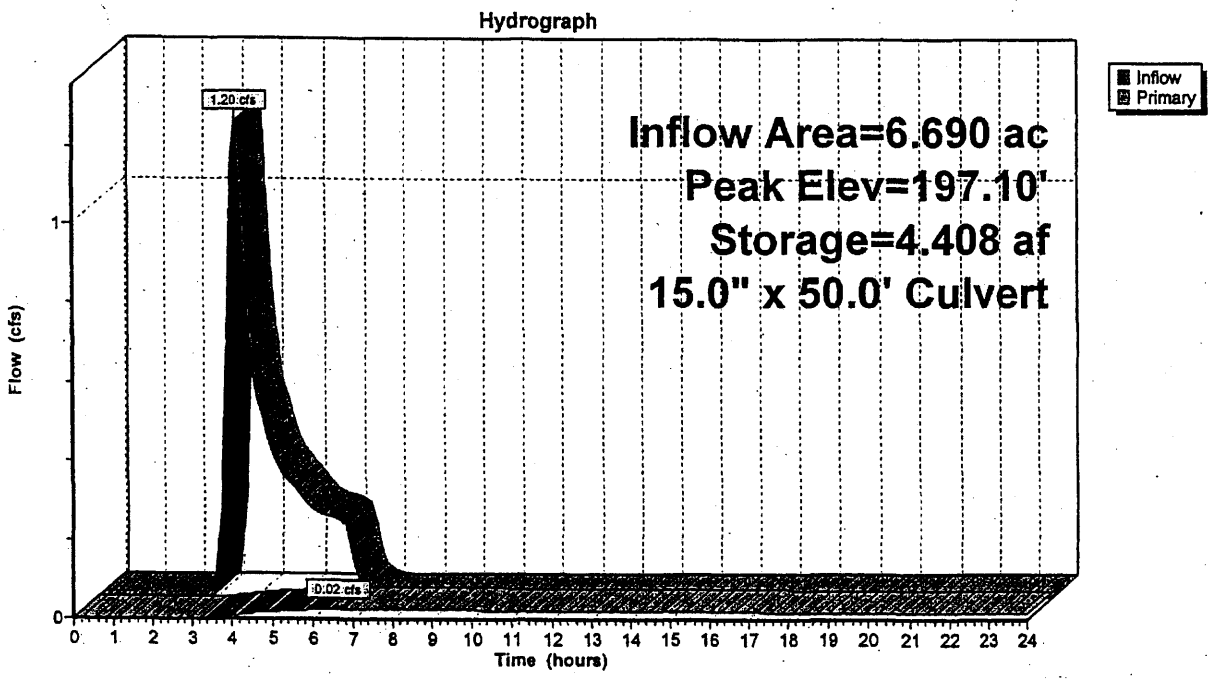
Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6.631 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
192.00	0.413	0.000	0.000
193.00	0.647	0.530	0.530
194.00	0.847	0.747	1.277
195.00	0.988	0.918	2.195
196.00	1.054	1.021	3.216
197.00	1.112	1.083	4.299
198.00	1.165	1.139	5.437
199.00	1.223	1.194	6.631

Device	Routing	Invert	Outlet Devices
#1	Primary	197.00'	**15.0" x 50.0' long Culvert** CMP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 196.50' S= 0.0100 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.02 cfs @ 6.63 hrs HW=197.10' (Free Discharge)
└1=**Culvert** (Barrel Controls 0.02 cfs @ 0.8 fps)

Pond 1P: Raw Water Pond



Subcatchment 2S: RWP Watershed

Runoff = 3.14 cfs @ 3.35 hrs, Volume= 0.240 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type II 24-hr 6.00 hrs 100-yr, 6-hr Rainfall=2.10"

Area (ac)	CN	Description
5.580	70	Drainage area
1.110	100	Pond area
6.690	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	6,400	0.3800	4.0		**Lag/CN Method, Raw water pond watershed**

Pond 1P: Raw Water Pond

Inflow Area =	6.690 ac,	Inflow Depth =	0.43"	for	100-yr, 6-hr event
Inflow =	3.14 cfs @	3.35 hrs,	Volume=	0.240 af	
Outflow =	0.10 cfs @	6.47 hrs,	Volume=	0.108 af,	Atten= 97%, Lag= 187.1 min
Primary =	0.10 cfs @	6.47 hrs,	Volume=	0.108 af	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Starting Elev= 197.00' Surf.Area= 1.112 ac Storage= 4.299 af
Peak Elev= 197.20' @ 6.47 hrs Surf.Area= 1.122 ac Storage= 4.520 af (0.221 af above start)
Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 496.8 min (741.6 - 244.8)

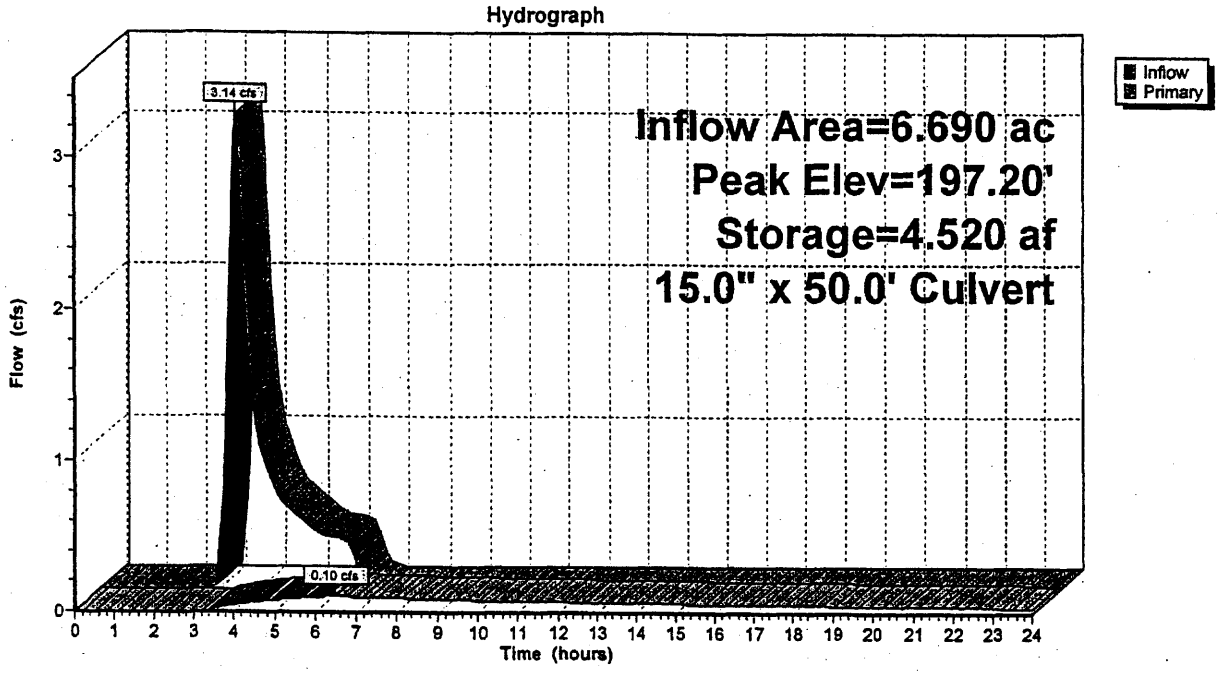
Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6.631 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
192.00	0.413	0.000	0.000
193.00	0.647	0.530	0.530
194.00	0.847	0.747	1.277
195.00	0.988	0.918	2.195
196.00	1.054	1.021	3.216
197.00	1.112	1.083	4.299
198.00	1.165	1.139	5.437
199.00	1.223	1.194	6.631

Device	Routing	Invert	Outlet Devices
#1	Primary	197.00'	**15.0" x 50.0' long Culvert** CMP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 196.50' S= 0.0100 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.10 cfs @ 6.47 hrs HW=197.20' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.10 cfs @ 1.2 fps)

Pond 1P: Raw Water Pond



Subcatchment 2S: RWP Watershed

Runoff = 1.24 cfs @ 12.27 hrs, Volume= 0.160 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-42.00 hrs, dt= 0.10 hrs
Type II 24-hr 10-yr, 24-hr Rainfall=1.80".

Area (ac)	CN	Description
5.580	70	Drainage area
1.110	100	Pond area
6.690	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.4	6,400	0.3800	4.0		**Lag/CN Method, Raw water pond watershed**

Pond 1P: Raw Water Pond

Inflow Area =	6.690 ac,	Inflow Depth =	0.29"	for	10-yr, 24-hr event
Inflow =	1.24 cfs @	12.27 hrs,	Volume=	0.160 af	
Outflow =	0.04 cfs @	24.32 hrs,	Volume=	0.065 af,	Atten= 97%, Lag= 723.1 min
Primary =	0.04 cfs @	24.32 hrs,	Volume=	0.065 af	

Routing by Stor-Ind method, Time Span= 0.00-42.00 hrs, dt= 0.10 hrs
Starting Elev= 197.00' Surf.Area= 1.112 ac Storage= 4.299 af
Peak Elev= 197.12' @ 24.32 hrs Surf.Area= 1.118 ac Storage= 4.433 af (0.134 af above start)
Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 712.5 min (1,635.1 - 922.5)

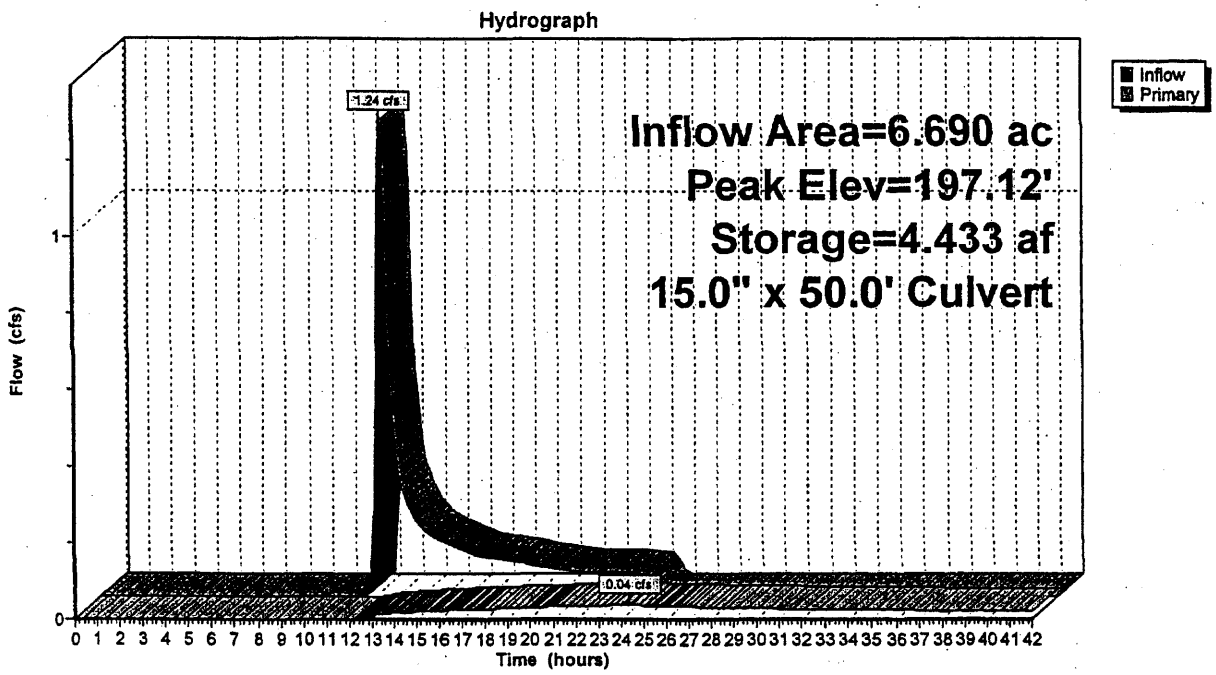
Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6.631 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
192.00	0.413	0.000	0.000
193.00	0.647	0.530	0.530
194.00	0.847	0.747	1.277
195.00	0.988	0.918	2.195
196.00	1.054	1.021	3.216
197.00	1.112	1.083	4.299
198.00	1.165	1.139	5.437
199.00	1.223	1.194	6.631

Device	Routing	Invert	Outlet Devices
#1	Primary	197.00'	**15.0" x 50.0' long Culvert** CMP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 196.50' S= 0.0100 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.04 cfs @ 24.32 hrs HW=197.12' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.04 cfs @ 0.9 fps)

Pond 1P: Raw Water Pond



written Commitment

PRICE RIVER WATER IMPROVEMENT DISTRICT
P.O. Box 903
265 South Fairgrounds Road
Price, Utah 84501
Telephone (435) 637-6350
FAX (435) 637-6374

May 30, 2006

Dennis N. Ware
Controller and Administrative Manager
Plateau Mining Corporation
P.O. Box 30
Helper, Utah 84526

Dear Mr. Ware,

I am writing this letter to officially inform Plateau Mining Corporation (PMC) that the Price River Water Improvement District (PRWID) did, concurrent with the purchase of land from PMC (Purchase Agreement dated April 23, 2004), take over the operation and maintenance responsibility for the Raw Water Pond Located in the E ½ of Section 35, Township 12 South, Range 9 East, SLB&M, Carbon County Utah.

In addition to taking over responsibility for the operations and maintenance of the raw water pond, PRWID has also taken over maintenance responsibility for certain roads that exist on the land PRWID purchased from PMC. The roads which PRWID have responsibility for include Primary Roads 1, 2, 4 and 5 as shown on PMC's Willow Creek Permit exhibit 3, 4-9 "Prep. Plant Area and Refuse Pile Reclamation Topography Map" dated December 2003. PRWID's responsibility for maintenance of these roads is restricted to that portion of these roads that exist on land owned by PRWID.

Sincerely,

Phillip P. Palmer
District Manager
Price River Water Improvement District
P.O. Box 903
265 S. Fairgrounds Road
Price, Utah 84501
(435)637-6350

CLEAN WATER

RECEIVED
JUN 05 2006
DIV. OF OIL, GAS & MINING