



C0150019, Incoming

#4789

Energy West Mining Company
P. O. Box 310
15 No Main Street
Huntington, Utah 84528

May 7, 2015

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

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Subj: Clean Copy Submittal to the Amendment to Remove Cottonwood Waste Rock Site Volume 10 from the Cottonwood/Wilberg MRP, PacifiCorp, C/015/0019, Task ID #4789, Emery County, Utah

PacifiCorp, by and through its wholly-owned subsidiary, Energy West Mining Company (Energy West) as mine operator, hereby submits the clean copies to the amendment to remove the Cottonwood waste rock site from the Cottonwood/Wilberg mining and reclamation plan.

With this submittal, two (2) clean copies of the pages and sections of the Cottonwood/Wilberg MRP, Volume 9 Hydrology Volume, and the Confidential Volume is being submitted for insertion. A C2 form is included for proper insertion. If you have any questions concerning this action, please contact Dennis Oakley at 435-687-4825.

Sincerely,

A handwritten signature in blue ink that reads "Kenneth S. Fleck".

Kenneth Fleck
Geology and Environmental Affairs Manager

Cc: file

PacifiCorp

Energy West Mining Company

Cottonwood Wilberg MRP

Volume 1: Introduction

Replace pages i thru vii

Cottonwood/Wilberg Mines

Introduction

PacifiCorp owns and leases certain fee coal lands, together with assigned federal coal leases, and controls approximately 22,500 acres of contiguous minable property located in Emery County, Utah. Geography, the area is known as East Mountain, a large, relatively flat plateau, containing three minable coal seams.

Coal was mined through three separate mines: Deer Creek Mine, Cottonwood/Wilberg Mine, and the Des Bee Dove Mine. The Deer Creek Mine is the only mine that is presently in production. The Cottonwood/Wilberg Mine has been ~~nearly~~ mined out and is being reclaimed as of 2015. The mine transferred coal from the Deer Creek and Trail Mountain mines to the coal loadout facility in left fork of the Grimes Wash. At this point, coal was transported, via triple trailer coal trucks, to the Hunter Power Plant. The mine was put into temporary cessation in 2001. PacifiCorp determined that the mine had no future potential for use in their long term mining plans and in 2014 began demolition activities. The Des Bee Dove Mine has been mined out, sealed, and surface facilities removed. The surface has been returned to its approximate original contour and reseeded. Phase III bond release was granted by OSM and DOGM in 2014.

Several federal coal leases are coincidental to both the Cottonwood/Wilberg and Deer Creek mines as the mines are superimposed. The description of the permit area for both mines is listed in their respective permits. Both mines are owned and operated by PacifiCorp.

Three coal seams exist in the Cottonwood/Wilberg mine area; Blind Canyon seam (upper), Cottonwood seam (middle), and Hiawatha seam (lower). The Deer Creek Mine is producing coal from the Blind Canyon Seam and will mine in the North Hiawatha seam in the future. The Cottonwood seam contains excessive in-seam temperature gradients and has been determined as unmineable. The majority of coal produced from Cottonwood Mine was from the Hiawatha seam.

Cottonwood/Wilberg Mines

The permit boundary and approximate locations of faults that have affected the Cottonwood/Wilberg Mine plan are illustrated in Figure 1. Faults that have influenced mining are the Pleasant Valley Fault, Deer Creek Fault, and the Roan's Canyon Fault.

In the Cottonwood/Wilberg Mine, the Hiawatha seam is bounded on the north by the thinning of the seam below five feet in thickness. On the east, the seam is bounded by the Deer Creek Fault and the Pleasant Valley Fault. On the south and west, the seam is bounded by the coal outcrop and lease border, respectively.

The Blind Canyon seam within the Cottonwood/Wilberg Mine lies approximately 100 feet above the Hiawatha seam. This seam is bounded on the north by the Deer Creek Mine workings. The east, south and west is bounded by the thinning seam of less than five feet in thickness.

Since part of the Cottonwood/Wilberg Mine was overlain by areas of the Deer Creek Mine, the upper seam was mined prior to mining the lower seam. In addition, mining plans were designed with a system of barriers to protect a 345KV power line.

Wilberg Mine

The Wilberg Mine was acquired by Peabody Coal company in 1958. In March 1977, Utah Power and Light (UP&L) acquired the mine from Peabody Coal and was officially listed as the lessee on September 1, 1977. In 1982, UP&L successively bid the South Lease (U-47978) federal coal tract.

On July 1, 1985, the Wilberg Mine and the South Lease area were separated into two distinct mines; the Wilberg Mine (MSHA ID No. 42-00080) and Cottonwood Mine (MSHA ID No. 42-01944). Each mine operated independently of the other utilizing separate equipment and ventilation systems. The Wilberg portals are located on the north coal outcrop in Grimes Wash

Cottonwood/Wilberg Mines

on the southern end of East Mountain. Mine personnel and coal transfer facilities are located at the Wilberg portal.

The Cottonwood portals are located on the south coal outcrop of the Grimes Wash. These portals provided for men and equipment access, underground conveyor belt coal haulage system, and mine ventilation. Although they are separate underground operations, the two mines shared common surface facilities, thus forming the Cottonwood/Wilberg complex.

On May 6, 1996, the Cottonwood/Wilberg Mine and its attached facilities were reassigned an MSHA identification number. The new identification number that was given to the mine was the Trail Mountain identification number (MSHA ID No. 42-01211). This number was assigned to the Cottonwood/Wilberg mine since all Trail Mountain coal is transported through this mine.

Cottonwood/Wilberg Mine

The Cottonwood/Wilberg Mine surface facilities occupy approximately twenty acres of disturbed land at the confluence of the Left and Right forks of the Grimes Wash. The surface facilities include coal handling, electrical substation, equipment maintenance, material storage, parking areas and drainage and sediment control structures. Office, bathhouse and warehouse facilities are located underground. Demolition and other reclamation activities of the mine site commenced in November 2014.

Cottonwood/Wilberg, Des Bee Dove, and Trail Mountain Waste Rock Site

Bureau of Land Management Right-of-Way UTU-37642: Located 1.5 miles south of the Cottonwood/Wilberg Mine, the original 48.62 acre site was designed as an open storage and truck loadout for the mine. The Right of Way (ROW) grant, UTU-37642 (east side of State Highway 57), was issued by the Bureau of Land Management (BLM) in 1977, but the development of a concrete storage silo for coal on site changed the need for the loadout. A modification was submitted to use this land for underground development waste storage in

Cottonwood/Wilberg Mines

connection with underground development ongoing in the Cottonwood/Wilberg Mine. The ROW has been modified to accommodate coal bed methane degasification conducted by Texaco Inc.

The modification includes:

- 1) 1997 relinquishment of 1.08 acres (access to Texaco well 35-14).
- 2) 1999 relinquishment of 12.98 acres (Texaco well 34-80).

Total relinquishment of this ROW is 14.06 acres. Of the original 48.62 acre site, only 34.56 acres remain with 1.81 acres of it disturbed. Historically, the Cottonwood/Wilberg Waste Rock Site was located in the southern portion of this ROW. Phase III Bond Release was granted in July 22, 2009.

Further discussion of the Cottonwood/Wilberg mining operation and facilities can be found in Part 3, Operations Section, beginning on page 3-1. This application and related information are intended to address the Cottonwood/Wilberg Mine complex and its affect on the surrounding area. However, several of the environmental resource studies such as vegetation, soils, and wildlife, apply to the applicant's total contiguous area and can be better evaluated as a whole as they refer not only to the specific mine but to the adjacent areas.

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Cottonwood/Wilberg Mines

Organization of the Mining Permit Application

The following volumes contain PacifiCorp's permit application for underground coal mining operations at the Cottonwood/Wilberg Coal Mine. The application is organized into a set of eleven (11) volumes as follows:

Volume 1

DOGM Permit
Introduction
Table of Contents
Part 1 - Legal, Financial, Compliance Information
 Part 1 Appendices
Part 2 - Environmental Resources

Volume 2

Part 3 - Mining Operation Plan
Part 4 - Reclamation Plan
 Part 4 Appendices

Volume 3

Maps and Drawings

Volume 4

Empty

Volume 5

Maps and Drawings

Volume 6

Maps and Drawings

Volume 7

Appendices

Volume 8

Geology Section (C/015/0018, C/015/0019)

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Cottonwood/Wilberg Mines

Volume 9

Hydrologic Section (C/015/0018, C/015/0019)

Volume 10

This volume contained information concerning the Cottonwood Mine Waste Rock Site. This site was transferred to the Trail Mountain Mine Permit in 5/2015 and is no longer associated with the Cottonwood/Wilber Mine Permit.

Volume 11

Deleted and archived at DOGM in Salt Lake City.

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Cottonwood/Wilberg MRP

Volume 1: Part 1

Replace page to remove Des Bee Dove Mine reference

Cottonwood/Wilberg Mine

**PacifiCorp
Energy West Mining Company
COTTONWOOD/WILBERG MINE
Legal and Financial Information**

This application for a mining and/or reclamation permit is submitted to the State of Utah, Department of Natural Resources, Division of Oil, Gas and Mining, in accordance with the Utah Coal Mining and Reclamation Act, Title 40, Chapter 10, U.C.A., 1953 (as amended); the applicable rules and regulations adopted thereunder; the Surface Mining Control & Reclamation Act of 1977, and applicable regulations adopted thereunder (30 CFR 770, et seq.), the Cooperative Agreement between the State of Utah and the United States Secretary of Interior, and other applicable laws and regulations.

R645-301-100 GENERAL CONTENTS

All Legal and Financial Information pertaining to the Cottonwood/Wilberg Mine is located in the Supplemental Volume entitled:

PacifiCorp Legal and Financial Volume

Cottonwood Mine C/015/19, Deer Creek Mine C/015/18, Trail Mountain Mine C/015/009

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Cottonwood/Wilberg MRP

Volume 1: Part 2

Appendix A – Replace entire Hydrologic Monitoring Program Description – pages
1 – 6.

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
WILBERG/COTTONWOOD MINE**

I. MONITORING LOCATIONS – WILBERG/COTTONWOOD MINE

A. Surface Water Hydrology (for maps refer to Deer Creek, Wilberg/Cottonwood Mine: Volume 9 Map HM-1B)

1. Cottonwood Creek Drainage System

a. **Cottonwood Canyon Creek** (refer to Deer Creek and Wilberg/Cottonwood Mine: Volume 9 Map HM-1B)

(1) CCC01 - USGS Flume:
(Approximately 7800 feet downstream from the outlet culvert for the disturbed area.) 1500 feet North, 200 feet East of the Southwest corner of Section 31, Township 17 South, Range 7 East.

b. **Grimes Wash** (refer to Deer Creek and Wilberg/Cottonwood Mine: Volume 9 Map HM-1B)

(1) GWR01 - Right Fork:
(Approximately 1500 feet upstream of the inlet culvert for the disturbed area.) 550 feet North, 1500 feet West of the Southwest corner of Section 22, Township 17 South, Range 7 East.

(2) GWR02 - Left Fork:
(Approximately 50 feet upstream of the inlet culvert for the disturbed area.) 200 feet South, 2350 feet East of the Northwest corner of Section 27, Township 17 South, Range 7 East.

(3) GWR03 - Below the mine:
(Approximately 500 feet downstream of the outlet culvert below the disturbed area.) 1770 feet South, 1820 feet West of the Northeast corner of Section 27, Township 17 South, Range 7 East.

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WILBERG/COTTONWOOD MINE**

2. **Reclamation Monitoring:** Following final reclamation, backfilling and grading monitoring will be conducted at points immediately above and below the reclaimed site.

B. Groundwater Hydrology

1. **Piezometric Data**

The Wilber/Cottonwood Mine has been sealed since 2001. There are no piezometric well sampling locations.

2. **In-Mine Water Locations**

The Wilber/Cottonwood Mine has been sealed since 2001. There are no accessible in-mine sampling locations.

3. **Waste Rock Wells (None)**

C. UPDES Monitoring Locations

- a. ***Wilberg/Cottonwood Mines***
UPDES UT0022896
001- Mine Discharge @ Cottonwood Canyon (TMA)
003- Sediment Pond @ Mine Facilities

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WILBERG/COTTONWOOD MINE**

II. MONITORING SCHEDULE (see enclosed monitoring schedules for operational, baseline, and reclamation monitoring)

A. Field Measurements

Field Measurements collected during quality sampling: Listed below are the sites which will be monitored by PacifiCorp - Energy West in accordance with the guidelines established by DOGM; i.e.

- Date and Time
- Flow
- pH
- Temperature
- Conductivity
- Dissolved oxygen (perennial streams only)

Surface Monitoring

Surface monitoring locations will be field monitored quarterly for all field parameters, except Indian Creek - monitoring to be conducted during baseflow only.

1. Cottonwood Canyon Creek

a. Cottonwood Canyon Creek

(1) CCC01 - USGS Flume

b. Grimes Wash

(1) GWR01

(2) GWR02

(3) GWR03

Groundwater Monitoring

There are no groundwater monitoring site for the Wilberg/Cottonwood Mine.

UPDES Monitoring

1. Wilberg/Cottonwood

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WILBERG/COTTONWOOD MINE**

UPDES sites 001, and 003 will be monitored as specified in the individual permits.

Reclamation Monitoring

Surface Water Resources: (see enclosed summary of operational, baseline, and reclamation monitoring schedules)

Surface monitoring locations will be field monitored monthly for flow and all field parameters quarterly until bond release.

Ground Water Resources: (N/A)

UPDES: Sites will be monitored as specified in the individual permits

B. Quality Sampling (Laboratory Measurements)

1. **Surface Water Hydrology:** Water samples will be collected and analyzed quarterly (one sample at low flow and high flow) during the first or second week of the quarter. Parameters analyzed are those listed in the DOGM Guidelines for Surface Water Quality (see Table 1-Surface Water Quality Parameter List). Quarterly sampling was initiated during March 1988 and will continue throughout the year; i.e., June, September, and December. Baseline analysis was performed in 2011 and will be repeated every five years there-after.

a. Cottonwood Creek Drainage

(1) Cottonwood Canyon Creek

(a) CCC01 - USGS Flume

(2) Grimes Wash

(a) GWR01

(b) GWR02

(c) GWR03

Reclamation Monitoring - Surface Water Hydrology: Water samples will be collected and analyzed quarterly (one sample at low flow and high flow) during the first or second week of the quarter. Parameters analyzed are those listed in the DOGM

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WILBERG/COTTONWOOD MINE**

Guidelines for Surface Water Quality (see Table 1-Surface Water Quality Parameter List). Sampling will be conducted on a quarterly basis until bond release. Baseline analysis will be performed on the 5th and 9th years following reclamation. In no case will baseline sampling time frame exceed 5 years converting from operational to reclamation monitoring.

2. UPDES Monitoring Sites

a. Wilberg/Cottonwood Mines

UPDES sites will be monitored as specified in the individual permits.

III. ANNUAL REPORTS

All data collected regarding the hydrology of East Mountain will be summarized by the applicant in an annual Hydrologic Monitoring Report. Copies of the report will be submitted to the Utah State Division of Oil, Gas and Mining. In addition, any raw data collected will be submitted to the Utah State Division of Oil, Gas and Mining on a quarterly basis.

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Cottonwood/Wilberg MRP

Volume 1: Part 2

Appendix A – Hydrologic Monitoring Tables - Replace

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HYDROLOGIC MONITORING PROGRAM
COTTONWOOD-WILBERG MINE

SURFACE HYDROLOGY - OPERATIONAL SAMPLING (Table 1)

<u>Drainage System</u>	<u>Drainage</u>	<u>Location</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Cottonwood Creek Drainage System</i>	<i>Cottonwood Canyon Creek</i>	CCC01	Flow	Flow	Field									
	<i>Grimes Wash</i>	GWR01	Flow	Flow	Operational									
		GWR02	Flow	Flow	Operational									
		GWR03	Flow	Flow	Operational									

GROUNDWATER HYDROLOGY - OPERATIONAL SAMPLING (Table 2)

<u>Groundwater Type</u>		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Springs</i>	N/A												
<i>In-Mine</i>	N/A												
<i>Wells</i>	N/A												

UPDES SAMPLING - (Table 1)

			<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Mine Water Discharge</i>	<i>Cottonwood</i>	TMA	Operational											
<i>Sediment Pond Discharge</i>	<i>Cottonwood</i>	1 Outfalls	Operational											

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HYDROLOGIC MONITORING PROGRAM
COTTONWOOD-WILBERG MINE

SURFACE HYDROLOGY - BASELINE SAMPLING (Table 1) - 2011

<u>Drainage System</u>	<u>Drainage</u>	<u>Location</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
	<i>Cottonwood Canyon Creek</i>	CCC01	Flow	Flow	Field									
<i>Cottonwood Creek Drainage System</i>	<i>Grimes Wash</i>	GWR01	Flow	Flow	Baseline									
		GWR02	Flow	Flow	Baseline									
		GWR03	Flow	Flow	Baseline									

GROUNDWATER HYDROLOGY - BASELINE SAMPLING (Table 2) - 2011

<u>Groundwater Type</u>		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Springs</i>	N/A												
<i>In-Mine</i>	N/A												
<i>Wells</i>	N/A												

UPDES SAMPLING - (Table 1)

			<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Mine Water Discharge</i>	<i>Cottonwood</i>	TMA	Operational											
<i>Sediment Pond Discharge</i>	<i>Cottonwood</i>	1 Outfalls	Operational											

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COTTONWOOD-WILBERG MINE

SURFACE HYDROLOGY - RECLAMATION SAMPLING (Table 1)

<u>Drainage System</u>	<u>Drainage</u>	<u>Location</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Cottonwood Creek Drainage System*</i>	<i>Cottonwood Canyon Creek</i>	CCC01			Field			Field			Field			Field
	<i>Grimes Wash</i>	GWR01			Operational			Operational			Operational			Operational
		GWR02			Operational			Operational			Operational			Operational
		GWR03			Operational			Operational			Operational			Operational

GROUNDWATER HYDROLOGY - RECLAMATION SAMPLING (Table 2)

<u>Groundwater Type</u>		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Springs</i>	N/A												
<i>In Mine</i>	N/A												
<i>Wells</i>	N/A												

UPDES SAMPLING - (Table 1)

		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Mine Water Discharge**</i>	TMA	As Needed Basis According to UPDES Permit Stipulations											
<i>Sediment Pond Discharge</i>	1 Outfall	As Needed Basis According to UPDES Permit Stipulations											

**** After Portal Sealing, PacifiCorp Will Monitor Down Dip For Development Of Groundwater Seeps/Springs Until Bond Release**

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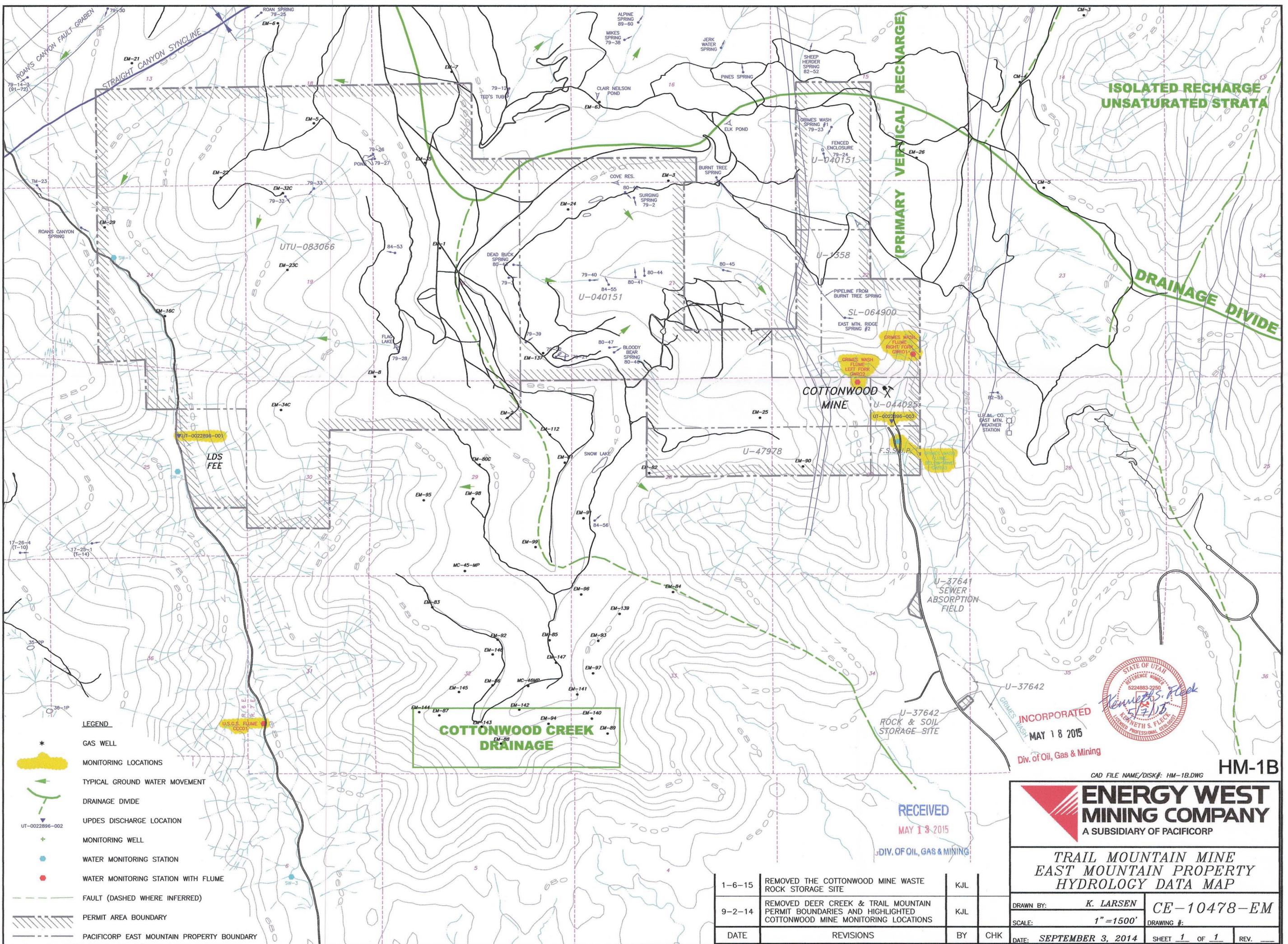
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Cottonwood/Wilberg MRP

Volume 1: Part 2

Replace Map HM-1B – Remove Waste Rock Site and Well Location



- LEGEND**
- * GAS WELL
 - MONITORING LOCATIONS
 - TYPICAL GROUND WATER MOVEMENT
 - DRAINAGE DIVIDE
 - UPDES DISCHARGE LOCATION
 - MONITORING WELL
 - WATER MONITORING STATION
 - WATER MONITORING STATION WITH FLUME
 - FAULT (DASHED WHERE INFERRED)
 - PERMIT AREA BOUNDARY
 - PACIFICORP EAST MOUNTAIN PROPERTY BOUNDARY



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DATE	REVISIONS	BY	CHK
1-6-15	REMOVED THE COTTONWOOD MINE WASTE ROCK STORAGE SITE	KJL	
9-2-14	REMOVED DEER CREEK & TRAIL MOUNTAIN PERMIT BOUNDARIES AND HIGHLIGHTED COTTONWOOD MINE MONITORING LOCATIONS	KJL	

CAD FILE NAME/DISK#: HM-1B.DWG

ENERGY WEST MINING COMPANY
A SUBSIDIARY OF PACIFICORP

TRAIL MOUNTAIN MINE
EAST MOUNTAIN PROPERTY
HYDROLOGY DATA MAP

DRAWN BY: K. LARSEN CE-10478-EM

SCALE: 1" = 1500' DRAWING #:

DATE: SEPTEMBER 3, 2014 SHEET 1 OF 1 REV.

HM-1B

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Cottonwood/Wilberg MRP

Volume 2: Part 3

Add Qualifying Statement of Mine Status, add after Part 3 tab.

QUALIFYING STATEMENT OF MINE STATUS

The Cottonwood/Wilberg Mine has not produced coal since 1994. The depletion of reserves in this mine is the main factor. The mine operated as a coal transportation facility from 1994 to 2001 as coal produced from the Trail Mountain Mine was transported from its mine site in Cottonwood Creek Canyon to the Grimes Wash loadout. Coal was loaded into trucks at the Cottonwood/Wilberg facilities and hauled to the Cottonwood Preparation and Blending Facility to supply fuel the Hunter Power Plant. In 2001, PacifiCorp terminated production from the Trail Mountain mine and constructed permanent seals in all portals of both the Trail Mountain and Cottonwood/Wilberg mines. The two mine sites have been in a state of temporary cessation since that time.

In January 2011, PacifiCorp submitted an application to amend the Resource Recovery and Protection Plan (R2P2) of the East Mountain Logical Mining Unit (LMU) UTU-73336. This application demonstrated to the Bureau of Land Management (BLM) that certain federal leases within the LMU which were associated with the Cottonwood/Wilberg Mine contained no remaining recoverable coal reserves. The application indicated that conditions were “unmineable” and/or that it was uneconomic for PacifiCorp to recover any of the remaining coal reserves.

BLM agreed with PacifiCorp and approved the R2P2 in December 2012. The approval of the reserve status of the coal leases (of which included leases associated with the Cottonwood/Wilberg Mine) was based on achieving Maximum Economic Recovery (MER).

Therefore, because no mineable coal reserves remain in the Cottonwood/Wilberg Mine, PacifiCorp initiated reclamation activities at the Cottonwood/Wilberg facilities in both Cottonwood Creek Canyon and Grimes Wash. PacifiCorp intends to complete final reclamation of all disturbed areas of the Cottonwood/Wilberg Mine by mid 2016.

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Based on the preceding discussion, all of the following information concerning the reserve base, mine plans, and operation of the mine facility should be considered historic information and not representative of current plans.

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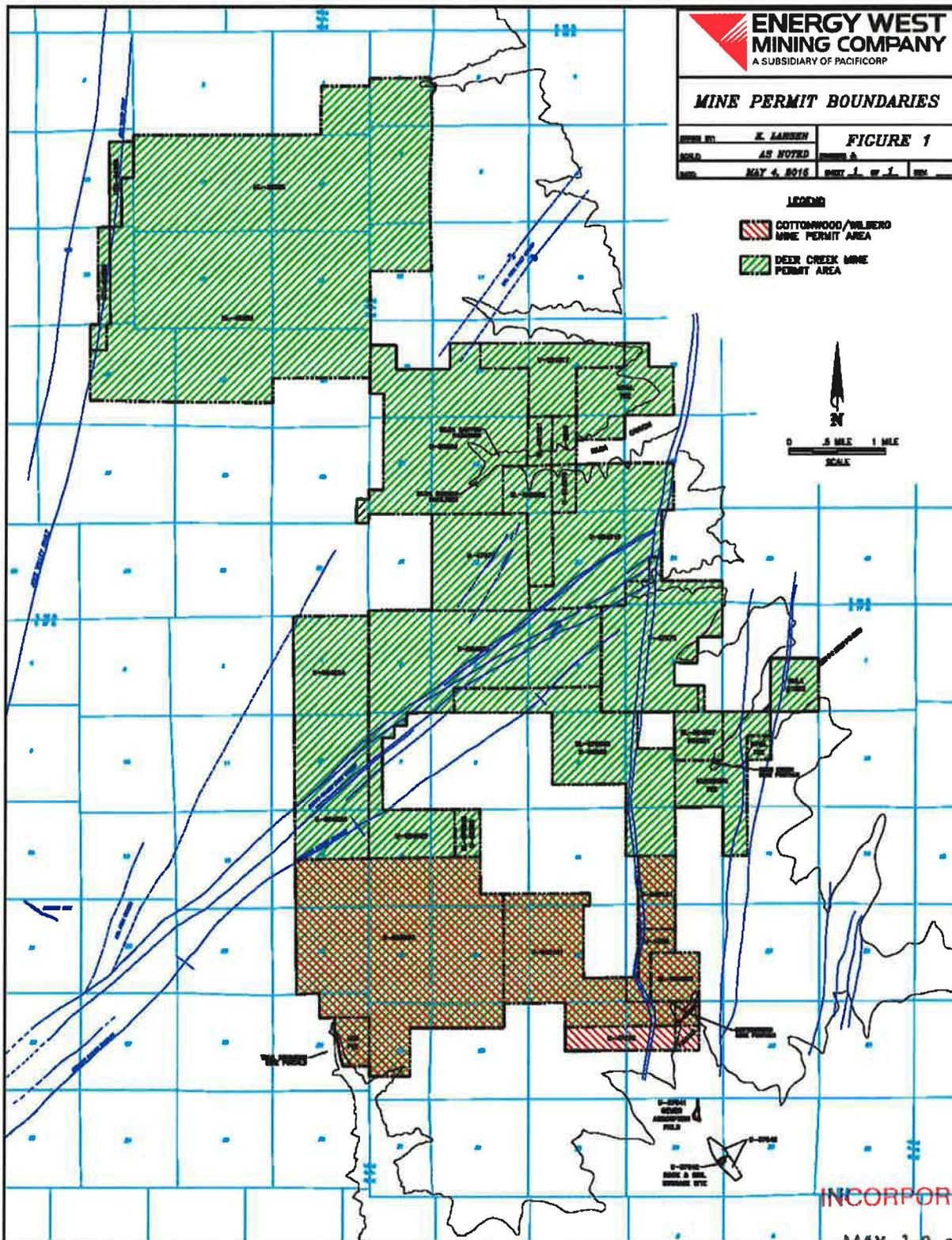
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Cottonwood/Wilberg MRP

Volume 2: Part 3

Replace pages 2 (Figure 1), 20, 27, 37, 44, 45, and 50 (redline/strikeout text)

Cottonwood/Wilberg Mines



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DAMS, EMBANKMENTS AND OTHER IMPOUNDMENTS

Sediment Ponds - Two MSHA ponds provide sediment control for the twenty acre disturbance associated with Cottonwood/Wilberg Mine; North Pond and South Pond. The South Pond includes the UPDES discharge point.

The original Cottonwood/Wilberg/Des Bee Dove Waste Rock Disposal Site (Cells 1 through 7) requires no separate sedimentation pond as it is an earthen containment structure itself. Phase I Bond Release was granted on July 22, 1999. Phase III Bond Release was granted July 22, 2009. An approved sedimentation pond was constructed at the new Cottonwood/Des Bee Dove/Trail Mountain Waste Rock Disposal Site (operation startup 1990). The pond is covered under UPDES Permit No. UT0022896-005. This site was transferred to the Trail Mountain Mine permit (C/015/0009) in May 2015.

MSHA ponds are inspected monthly. All other structures are inspected quarterly by a qualified person and at least yearly by a registered professional engineer. A certified engineering report will be submitted to the regulatory authority annually. See Appendix XI for sediment pond safety factor calculations.

Construction of the ponds ~~and waste rock site~~ is according to the design discussed in Existing Structures. These designs were prepared under the direction of registered professional engineers. Basic construction of the mine site ponds includes: (1) excavation of pond area concurrently with dam construction, (2) emplacement of large boulders in dam for riprap, (3) installation of outlet works, (4) installation of 3 foot thick clay seal in each pond, and (5) establishment of vegetation to control embankment erosion. Specifics of Subchapter K compliance criteria are presented in Existing Structures.

The MSHA ponds are connected in series such that the overflow from the first pond enters the second pond. Overflow from the second pond is discharged into a 90-inch bypass culvert. The outlet works of each pond consist of an overflow riser and outlet orifice. The orifice functions to slowly drain the sedimentation ponds while the sediment is being settled out. Each pond also is equipped with a staff gauge to indicate water surface depth.

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Maintenance of the dust collection system includes lubrication, bag cleaning, and motor replacement. All moving parts are lubricated to prevent excess wear and corrosion during operation. Periodically, the collection bags are mechanically cleaned of dust. The collected dust is returned to the plant product system.

Removal of dust collection systems will take place in conjunction with removal of the facility stations in which they are incorporated. Parts will be sold for scrap or salvaged.

NON-COAL AND MINE DEVELOPMENT WASTE DISPOSAL

In the north end of the upper storage yard, a trash chute and collection boxes have been provided for disposal of non-coal waste material from the mine. Material that accumulates in the collection box is loaded into trucks by front-end loader. Trash is then transported to a state and federal approved dump site. The concrete trash chute and collection box will be demolished during reclamation and used for backfill.

Used oil accumulated at the mine site is reclaimed in compliance with the Utah Oil Refinement Act and CFR Title 40, Part 266, Subpart E. Used oil is collected at the mine site by a Division approved collector/hauler and reclaimed through a Division, and EPA approved reclaimer.

Underground development waste is temporarily stored adjacent to the non-coal waste pile and then transported to an approved waste rock disposal site. Temporary storage will not exceed thirty (30) days.

OTHER MINE FACILITIES

Office - Bathhouse - Warehouse - The mine office at Cottonwood/Wilberg is located underground off the portal road on the same level as the Hiawatha Seam. It is part of an underground facility containing a small parts warehouse and bathhouse. The floor plan comprises 2,300 square feet, housing mine administration, first aid, safety, dust control, and clerical personnel. Included in the office is a conference room and restroom facilities. The structure is concrete block walls and

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TABLE 5			
COTTONWOOD/WILBERG MINE ALTERNATIVE SEDIMENT CONTROL AREAS (ASCA)			
<u>SITE LOCATION</u>	<u>SEDIMENT CONTROL</u>	<u>ACERAGE</u>	<u>DRAWING</u>
Sewer Absorption Field	Vegetation	1.25	Map 7704-PP10
Guard Station	Silt Fence	0.18	Map 3-16: WS449D
Conveyor Bent Pad	Strawbales	0.04	Map 3-16: WS449D
Tube Conveyor Access Road	Silt Fence/Strawbales, Berm	0.24	Map 3-16: WS449D
Wilberg Fan	Sediment Trap, Berm	0.67	Map 3-16: WS449D
Cottonwood Canyon Facilities	Surface Roughening/Deep Pocking Sediment Trap, Vegetation	1.86	Map 3-16a: CM-10892-CP
TOTAL ACREAGE		4.24	

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Cottonwood Canyon Diesel and Tube Conveyor Portals

The Cottonwood Canyon diesel and tube conveyor portals were developed in 1994-1995. The portals are used for underground travel and conveyance of coal from the Trail Mountain Mine to the Cottonwood Mine surface facilities. (See Appendix III for reclamation cross-sections, soil, vegetation reports and culvert size calculations.) Reclamation of this area will use the same seed mixture listed in Part 4 of this plan.

All surface drainage will be directed and treated through a silt fence before entering an eighteen inch (18") corrugated metal pipe (cmp) that will be placed under the concrete pad to allow surface flow from the existing road ditch to continue. The conveyor pad will be constructed of dirt and gravel with a dirt berm. All surface drainage will be directed and treated through a silt fence before entering a six inch (6") corrugated metal pipe (cmp) which will direct the flow down the slope from the pad and into an existing thirty-six inch (36") undisturbed inlet.

BLM Right-of-Way UTU-37642 – This area once contained a 15.62 acre waste rock site. The site was reclaimed in the 1980's and Phase III bond release was granted in July of 2009. A 1.81 acre rock and soil storage area now only exists at this site. The area is completely enclosed by a net and barbed wire fence. Access into this site is from state highway 57.

Cottonwood/Wilberg Waste Rock Disposal Site

This site has been transferred (May 2015) to the Trail Mountain Mine permit C/015/0009 and is specific only to this facility.

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IN-SITU PROCESSING

There are no-situ processing activities or plans for such activities associated with the Cottonwood/Wilberg Mine.

OPERATION PLAN EXISTING STRUCTURES

The definition of Existing Structures, as found in the Environmental Impact Statement for the Surface Mining Control and Reclamation Act of 1977, is as follows:

Existing Structures

The types of structures which may be affected by the regulations in the preferred alternative concerning existing structures are roads and associated structures, fills, berms, benches, waste banks, discharge structures, diversions, rail loops, rail sidings, rail spurs, refuse areas, shafts, spoil pipes,

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The following is a general description of these structures.

Sediment Basin Area

Sedimentation basins constructed in 1979 utilize two small basins taking advantage of the restricted width and the canyon gradient to optimize storage capacity requirements. Both basins are located between the load-out loop road, as shown on the layout maps. Physical dimensions and detail drawings are included. Design parameters are based on a 10 year/24 hour event. Basins are in series with each other allowing for a 24 hour detention time. Each basin is fitted with a steel stand pipe with a 3" siphon pipe for decanting purposes. The stand pipes are open topped and sized to accommodate a 25 year storm event. No emergency spillways, other than the stand pipes, will be required to meet the performance standards of 30 CFR Subpart "C", 77.216. Hydrological computations for the design with flow through hydrographs are included in this submittal, Appendix XIII.

Calculations for the sediment basin embankments indicate that the basins meet the safety factor requirements established by R645-301-533.100. See Appendix XI for this information.

Monitoring of the basins for structural deterioration, settling or water seepage will be visually inspected quarterly. Sediment and water levels will be recorded and cleaned as necessary to maintain the 60 percent sediment storage levels. An annual inspection report of each basin's physical condition with recorded water and sediment levels shall be submitted to the Division are required.

Wilberg Mine has been issued an UPDES permit whose identification number is UT-0022896. There are five outfalls associated with this permit. They are:

- 001 Cottonwood Mine Water Discharge in Cottonwood Canyon,
- 003 Wilberg Portal Sedimentation Pond Discharge,

Approval of the sedimentation ponds by the appropriate state and federal agencies has been given for the Wilberg portal and Waste Rock Site ponds.

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Replace pages 9 and 26 (redline/strikeout text)

Approximately 13.81 acres of the old waste rock site has been reclaimed. Material to cover the waste rock was taken from the perimeter berms. Phase 1 bond release was approved on July 22, 1999. Phase III bond release was approved July 22, 2009.

Highwall Elimination

Final reclamation of highwalls at the Cottonwood/Wilberg mines is accomplished in three phases. These phases follow strict requirements set forth by the Utah Coal Rules R645-301-100 through 800. Highwalls at the Cottonwood/Wilberg mines were inventoried by Office of Surface Mining and the Division of Oil, Gas and Mining in 1997. Eighteen (18) areas of concern were identified and are listed in Part 4 Appendix A. Eight (8) of the areas considered highwalls were constructed prior to the ruling (May 3, 1978) of the Surface Mining Control and Reclamation Act (SMCRA). Seven (7)

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4. Sample size for ground cover and shrub density will be tested at a 90 percent confidence level using a one-tail "t" test with a 10 percent change in the mean.
5. Productivity measurements will be a double sampling procedure of clipped plots and ocular estimates. Rectangular plots (6.27" x 100") will be randomly located in reference areas and revegetation sites. Sampling will be at the 90% confidence level.
6. The reference areas will be checked to detect any changes from man-induced activities and to verify they are in fair or better condition.
7. **Revegetation Success:**
 - a. Sampling of reference sites at end of ten year responsibility period will be conducted concurrently with final reclamation sampling, using the same methodology. The range condition of all reference areas will be re-assessed in 1989. This will be repeated every five year.
 - b. Ground cover is established for two consecutive years at the end of responsibility period at 90 percent of reference site ground cover.
 - c. At least 80% of the shrubs and trees will have been in place for a least 8 growing seasons, the tree or shrub is alive and healthy.
 - d. The woody plants established on the revegetated site are equal to or greater than 90 percent of the stocking of live woody plants of the same life form of the approved reference areas with 90 percent statistical confidence.
 - e. Productivity will equal 90 percent of that of the reference areas at 90 percent statistical confidence.
 - f. A one-tail students "t" test of the sample means will be used for the statistical test.

WASTE ROCK DISPOSAL SITE AND WILBERG DRAIN FIELD

(Old Waste Rock Site: UTU-37642 – Phase III Bond Release Accepted July 22, 2009)

New Waste Rock Site: UTU-65027

This site has been transferred (May 2015) to the Trail Mountain Mine permit C/015/0009 and is specific only to this facility.

Wilberg Drain Field

The drain field will be harrowed by tractor and revegetated with the same techniques and seed mixture as the waste rock site. Costs are included in reclamation costs.

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Appendix C – Replace Bond Summary Page

**Cottonwood/Wilberg Mine
Bond Summary
C/015/0019**

Revised March 2012

Direct Costs

Grimes Wash Facility

Demolition	\$967,887.38
Earthwork	\$673,586.42
Revegetation	<u>\$36,172.85</u>
Subtotal	\$1,677,646.66

Overland Conveyor

Demolition	\$23,494.49
Earthwork	\$10,825.80
Revegetation	<u>\$3,061.91</u>
Subtotal	\$37,382.20

Total Direct Costs **\$1,715,028.86**

Indirect Costs

Mob/Demob	\$171,503.00	10.0%
Contingency	\$85,751.00	5.0%
Engineering Redesign	\$42,876.00	2.5%
Main Office Expense	\$116,622.00	6.8%
Project Mainagement Fee	<u>\$42,876.00</u>	2.5%

Total Indirect Costs **\$459,628.00** 26.8%

Total Cost (2011 Dollars) **\$2,174,656.86**

Escalation factor		0.017
Number of years		5
Escalation	\$191,238.00	

Bond Amount (2016 Dollars)	\$2,365,895
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Appendix D –Replace Intermountain Lab Soil Analysis – replace from page 4.

Energy West Mining Co.
Huntington, UT

Client Project ID: Cottonwood Mine
Date Received: 04/04/01

Set #0101S06587
Report Date: 05/17/01

Lab Id	Sample Id	Hole #	Depth (Inches)	pH s.u.	Saturation %	EC mmhos/cm	Calcium meq/L	Magnesium meq/L	Sodium meq/L	SAR	Available Sodium ppm	Exchangeable Sodium meq/100g
101S06603	CW7301	CTW Mine #2 ↓	0 - 6	7.4	26.6	2.17	7.37	4.22	6.76	2.81	0.70	0.52
101S06604	CW7401		6 - 12	7.4	26.1	2.55	14.0	8.40	5.08	1.52	0.61	0.48
101S06605	CW7501		12 - 18	7.5	24.9	1.30	4.84	3.53	3.62	1.77	0.52	0.43
101S06606	CW7601	#3	0 - 6	7.3	30.0	3.28	22.8	20.1	2.13	0.46	0.41	0.35
101S06607	CW7701		6 - 12	7.4	33.5	3.33	21.2	21.8	2.50	0.54	0.60	0.52
101S06608	CW7801		12 - 18	7.2	33.0	3.54	21.3	24.6	2.78	0.58	0.54	0.45
101S06609	CW7901	#4	0 - 6	7.9	20.1	3.16	2.25	1.53	22.5	16.4	2.24	1.79
101S06610	CW8001		6 - 12	7.5	23.0	6.97	5.50	3.54	49.5	23.3	3.13	1.99
01S06611	CW8101		12 - 18	7.3	23.7	9.55	9.28	5.80	67.5	24.6	3.86	2.26
01S06612	CW8201	#5 ↑	0 - 6	7.4	25.7	2.22	4.44	2.91	10.0	5.24	0.96	0.70
01S06613	CW8301		6 - 12	7.3	25.3	2.66	6.48	4.99	11.4	4.78	1.04	0.75

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abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
 abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neut. Pot.= Neutralization Potential
 miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage
 viewed By: _____

Energy West Mining Co.
Huntington, UT

Client Project ID: Cottonwood Mine
Date Received: 04/04/01

Set #0101S06587
Report Date: 05/17/01

Lab Id	Sample Id	Hole #	Depth (Inches)	Coarse Fragments %	Sand %	Silt %	Clay %	Texture	1/3 Bar %	15 Bar %
101S06603	CW7301	#2	0 - 6	29.1	66.0	24.0	10.0	SANDY LOAM	15.3	4.4
101S06604	CW7401		6 - 12	34.4	62.0	25.0	13.0	SANDY LOAM	15.0	4.3
101S06605	CW7501		12 - 18	25.6	60.0	26.0	14.0	SANDY LOAM	13.8	3.9
101S06606	CW7601	#3	0 - 6	27.3	30.0	56.0	14.0	SILT LOAM	17.3	4.8
101S06607	CW7701		6 - 12	25.6	24.0	56.0	20.0	SILT LOAM	18.7	6.6
101S06608	CW7801		12 - 18	23.8	22.0	56.0	22.0	SILT LOAM	18.7	6.6
101S06609	CW7901	#4	0 - 6	25.2	58.0	28.0	14.0	SANDY LOAM	11.5	5.3
101S06610	CW8001		6 - 12	9.4	59.0	31.0	10.0	SANDY LOAM	12.0	4.7
101S06611	CW8101		12 - 18	28.7	60.0	26.0	14.0	SANDY LOAM	12.0	4.9
101S06612	CW8201	#5	0 - 6	29.5	56.0	28.0	16.0	SANDY LOAM	13.1	5.6
101S06613	CW8301		6 - 12	17.0	59.0	25.0	16.0	SANDY LOAM	12.8	5.2

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 viewed By: _____

Energy West Mining Co.
Huntington, UT

Client Project ID: Cottonwood Mine
Date Received: 04/04/01

Set #0101S06587
Report Date: 05/17/01

Lab Id	Sample Id	Hole #	Depths (Inches)	TOC	Total Sulfur %	T.S. AB 1/1000t	Neutral. Pot. 1/1000t	T.S. ABP 1/1000t	Boron ppm	Nitrogen-Nitrate ppm	TKN %	Selenium ppm
101S06603	CW7301	#2	0 - 6	2.2	0.02	0.62	365	364	0.46	3.14	0.10	<0.02
101S06604	CW7401		6 - 12	1.5	0.02	0.62	351	351	0.47	0.44	0.07	<0.02
101S06605	CW7501		12 - 18	1.7	<0.01	0.00	350	350	0.41	1.30	0.07	<0.02
101S06606	CW7601	#3	0 - 6	2.9	0.12	3.75	206	202	0.64	3.56	0.11	<0.02
101S06607	CW7701		6 - 12	2.4	0.10	3.12	206	203	0.68	5.08	0.09	<0.02
101S06608	CW7801		12 - 18	2.0	0.11	3.44	208	205	0.64	6.08	0.11	<0.02
101S06609	CW7901	#4	0 - 6	2.2	0.03	0.94	315	314	0.60	1.16	0.09	<0.02
101S06610	CW8001		6 - 12	1.5	0.03	0.94	297	297	0.52	1.64	0.18	<0.02
101S06611	CW8101		12 - 18	1.4	0.02	0.62	303	303	0.44	0.54	0.08	<0.02
101S06612	CW8201	#5	0 - 6	1.6	0.01	0.31	306	305	0.59	1.22	0.08	<0.02
01S06613	CW8301		6 - 12	1.4	<0.01	0.00	318	318	0.52	1.22	0.07	<0.02

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 Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

viewed By: _____

Energy West Mining Co.
Huntington, UT

Client Project ID: Cottonwood Mine

Set #0101S06587

Date Received: 04/04/01

Report Date: 05/17/01

Lab Id	Sample Id	Hole #	Depth (Inches)	pH s.u.	Saturation %	EC mmhos/cm	Calcium meq/L	Magnesium meq/L	Sodium meq/L	SAR	Available	Exchangeable
											Sodium ppm	Sodium meq/100g
101S06596	CW9301	# 3	12 - 18	7.2	31.2	2.54	20.9	11.2	1.84	0.46	0.36	0.30
101S06596D	CW9301	CTW Mine	12 - 18	7.2	31.4	2.52	20.6	11.5	1.81	0.45	0.43	0.37
101S06612	CW8201	# 5	0 - 6	7.4	25.7	2.22	4.44	2.91	10.0	5.24	0.96	0.70
101S06612D	CW8201	CTW Mine	0 - 6	7.4	25.9	2.11	4.27	2.89	9.80	5.18	0.94	0.69

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 Reviewed By: _____

Energy West Mining Co.
Huntington, UT

Client Project ID: Cottonwood Mine

Set #0101S06587

Date Received: 04/04/01

Report Date: 05/17/01

Lab Id	Sample Id	Hole #	Depths (Inches)	Coarse Fragments %	Sand %	Silt %	Clay %	Texture	1/3 Bar %	15 Bar %
101S06596	CW9301	# 8	12 - 18	16.0	40.0	42.0	18.0	LOAM	16.5	8.3
101S06596D	CW9301	CTW Mine	12 - 18	0.0	41.0	41.0	18.0	LOAM	16.8	8.3
101S06612	CW8201	# 5	0 - 6	29.5	56.0	28.0	16.0	SANDY LOAM	13.1	5.6
101S06612D	CW8201	CTW Mine	0 - 6	0.0	56.0	28.0	16.0	SANDY LOAM	13.1	5.6

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Energy West Mining Co.
Huntington, UT

Client Project ID: Cottonwood Mine

Date Received: 04/04/01

Set #0101S06587

Report Date: 05/17/01

Lab Id	Sample Id	Hole #	Depth (Inches)	TOC	Total Sulfur %	T.S. AB /1000t	Neutral. Pot. /1000t	T.S. ABP /1000t	Boron ppm	Nitrogen-Nitrate ppm	TKN %	Selenium ppm
101S06596	CW9301	# 8	12 - 18	5.8	0.04	1.25	377	376	0.96	5.64	0.17	<0.02
101S06596D	CW9301	Cottonwood	12 - 18	5.8	0.05	1.56	376	374	1.20	5.50	0.17	<0.02
101S06612	CW8201	# 5	0 - 6	1.6	0.01	0.31	306	305	0.59	1.22	0.08	<0.02
101S06612D	CW8201	Cottonwood	0 - 6	1.5	0.03	0.94	304	303	0.61	1.40	0.09	<0.02

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miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

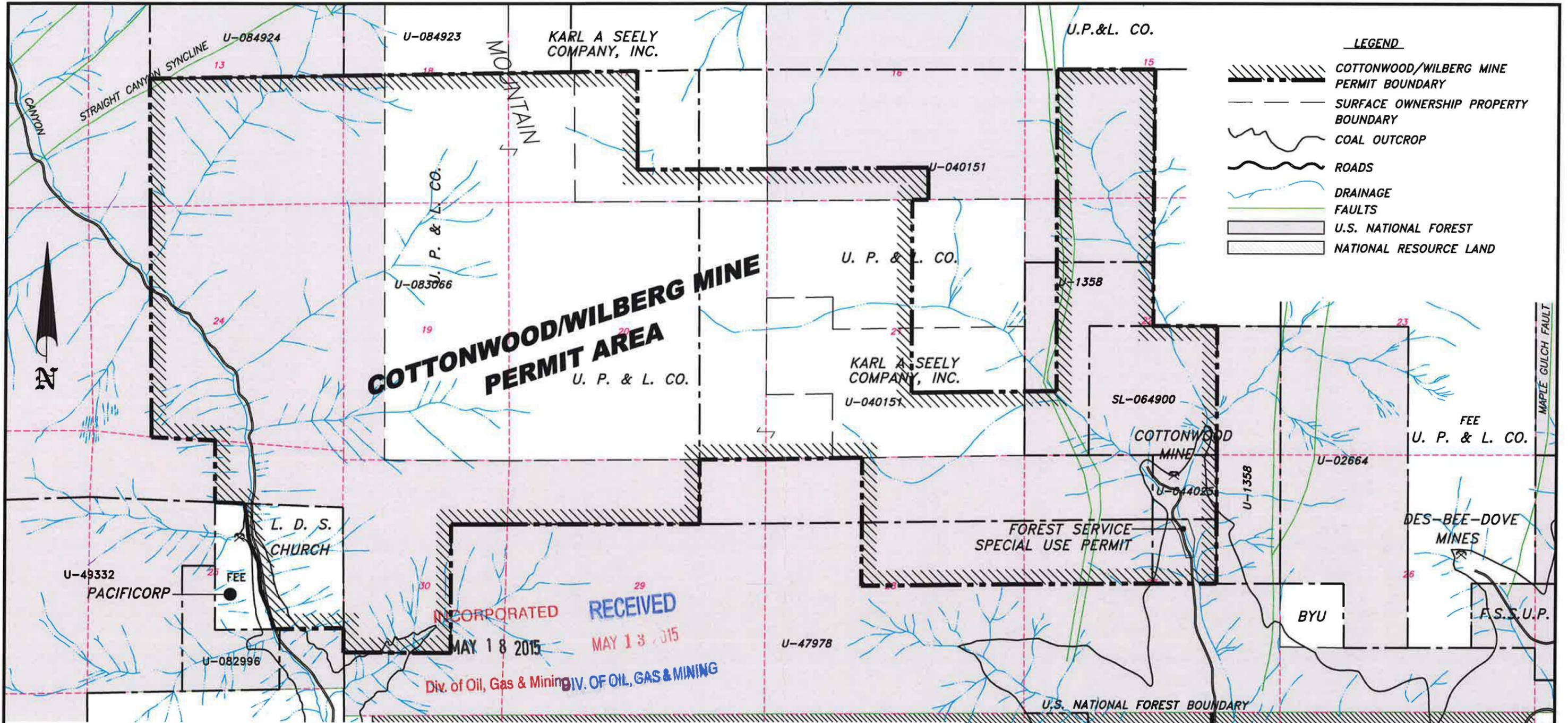
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Volume 3: Maps

Replace maps CM-10519-WB, CM-10520-WB, and CM-10370-WB



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1-2

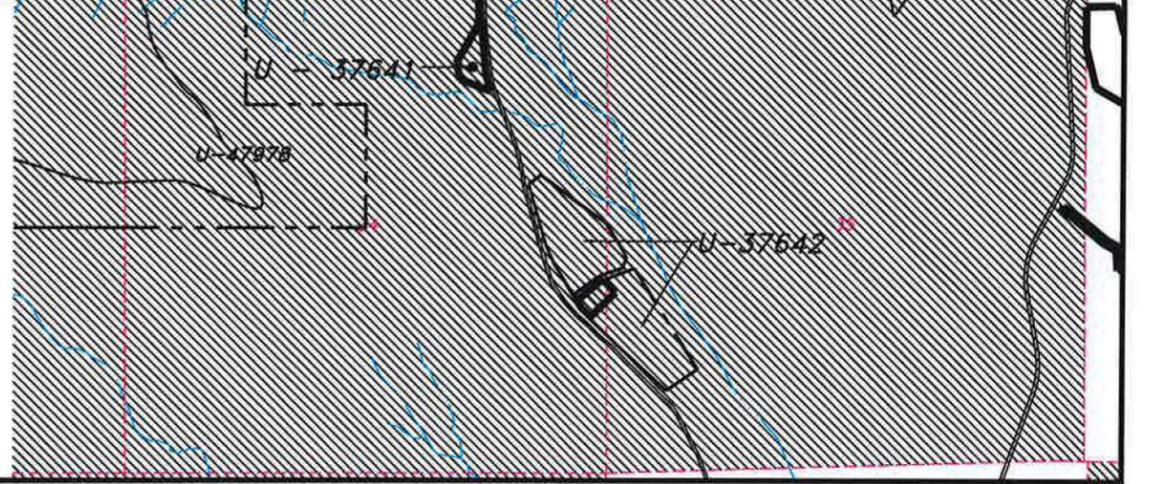
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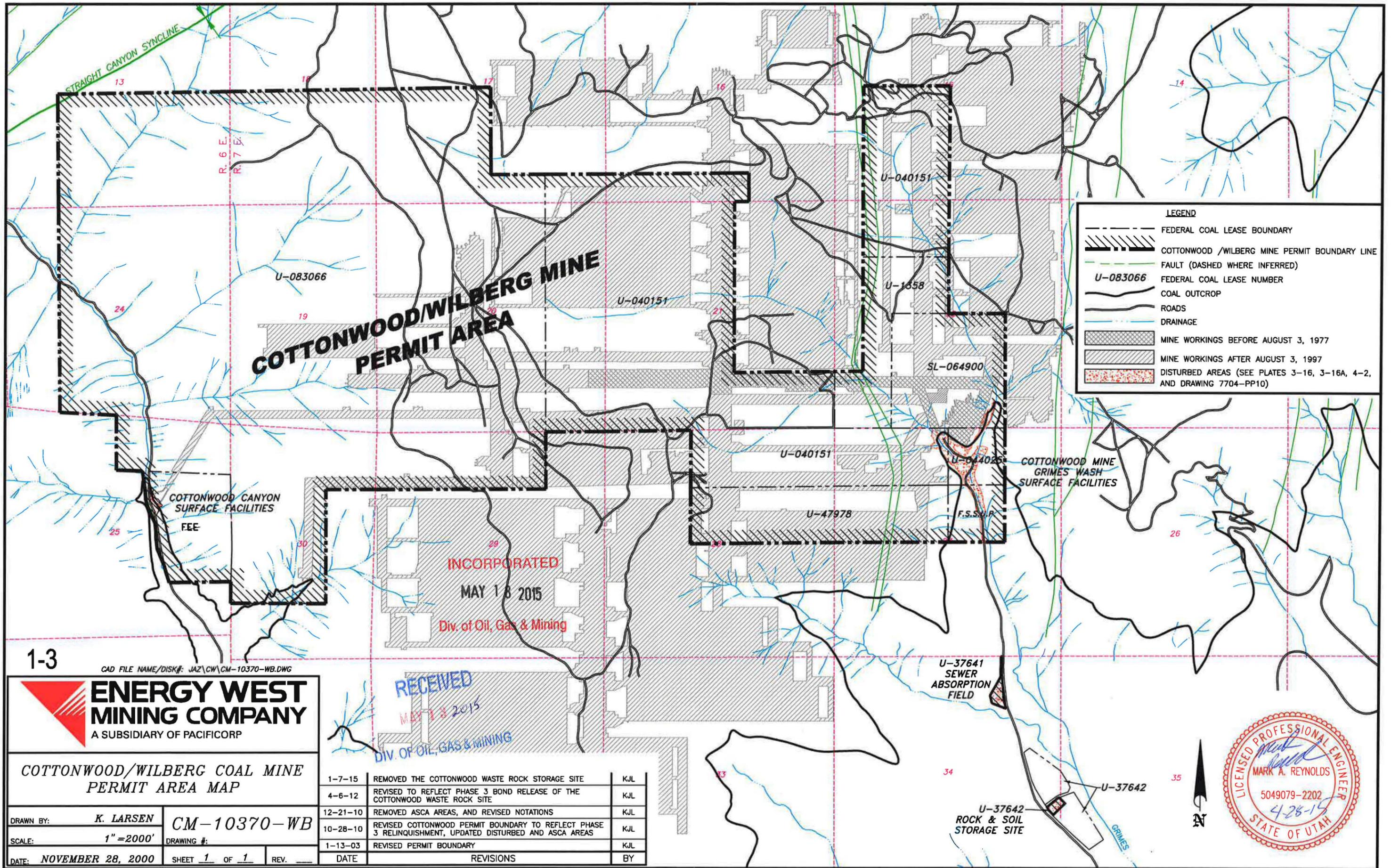


COTTONWOOD/WILBERG MINE
 SURFACE OWNERSHIP MAP
 COTTONWOOD/WILBERG COAL MINE

DATE	REVISIONS	BY
1-7-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL
4-6-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL
10-28-10	REVISED COTTONWOOD PERMIT BOUNDARY TO REFLECT PHASE 3 RELINQUISHMENT	KJL
11-8-01	REVISED PERMIT BOUNDARY TO EXCLUDE RELINQUISHED AREAS AND UPDATED SURFACE OWNERSHIP	KJL
4-9-01	REVISED PERMIT BOUNDARY & ADDED RELINQUISHED AREAS	KJL
9-21-00	CONVERTED DRAWING TO AUTOCAD AND REVISED FEDERAL LEASE U-024317 TO INCLUDE ADDITIONAL 50 ACRES	KJL
8-31-89	REVISED UP&L CO. PERMIT BOUNDARY LINE	KJL
8/11/89	ADDED PROPOSED WASTE ROCK STORAGE SITE	JRG
6-7-89	REVISED TO REFLECT SURFACE OWNERSHIP	KJL
2/22/89	REVISED LABELING TO INCLUDE COTTONWOOD MINE	JRG
12-16-88	REVISED SECTION 17 TO REFLECT SURFACE OWNERSHIP AS OF 10/19/88	KJL

DRAWN BY: **L. DRAPER/KJL**
 SCALE: **1" = 2000'**
 DATE: **SEPTEMBER 21, 2000**
 DRAWING #: **CM-10520-WB**
 SHEET **1** OF **1** REV.





LEGEND

- FEDERAL COAL LEASE BOUNDARY
- COTTONWOOD /WILBERG MINE PERMIT BOUNDARY LINE
- FAULT (DASHED WHERE INFERRED)
- FEDERAL COAL LEASE NUMBER
- COAL OUTCROP
- ROADS
- DRAINAGE
- MINE WORKINGS BEFORE AUGUST 3, 1977
- MINE WORKINGS AFTER AUGUST 3, 1997
- DISTURBED AREAS (SEE PLATES 3-16, 3-16A, 4-2, AND DRAWING 7704-PP10)

1-3

CAD FILE NAME/DISK#: JAZ\CW\CM-10370-WB.DWG

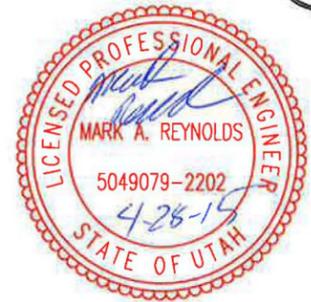


**COTTONWOOD/WILBERG COAL MINE
PERMIT AREA MAP**

DRAWN BY:	K. LARSEN	DRAWING #:	CM-10370-WB
SCALE:	1" = 2000'		
DATE:	NOVEMBER 28, 2000	SHEET	1 OF 1

DATE	REVISIONS	BY
1-7-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL
4-6-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL
12-21-10	REMOVED ASCA AREAS, AND REVISED NOTATIONS	KJL
10-28-10	REVISED COTTONWOOD PERMIT BOUNDARY TO REFLECT PHASE 3 RELINQUISHMENT, UPDATED DISTURBED AND ASCA AREAS	KJL
1-13-03	REVISED PERMIT BOUNDARY	KJL

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PacifiCorp

Energy West Mining Company

Cottonwood/Wilberg MRP

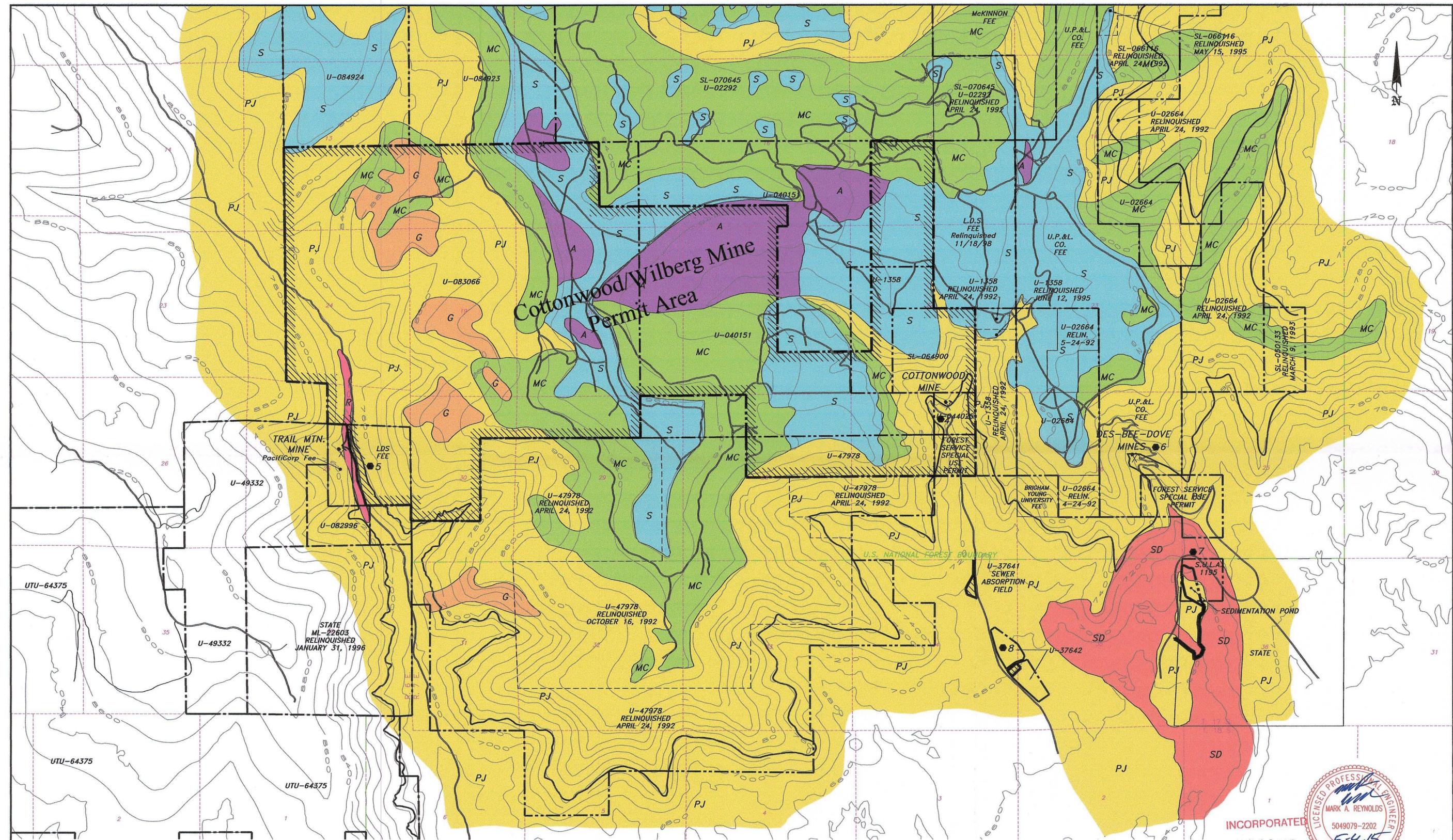
Volume 5: Maps

Replace maps: CM-10489-WB, CM-10829-WB, CM-10497-WB, CM-10542-WB,
CM-10597-WB, CM-10907-WB, CM-10807-WB

Remove map: CM-10587-WB

Add: Reference sheet for CM-10587-WB (Plate 2-19A)

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VEGETATION LEGEND

- R RIPARIAN
- SD SALT DESERT SHRUB
- G GRASS
- S SAGEBRUSH
- A ASPEN
- MC MIXED CONIFER
- PJ PINYON JUNIPER

LEGEND

COTTONWOOD/WILBERG MINE PERMIT BOUNDARY

● 5

REFERENCE SITE AREAS

- 1-DEER CREEK - RIPARIAN
- 5-COTTONWOOD - PINYON JUNIPER
- 2-DEER CREEK - PINYON JUNIPER
- 6-DES-BEE-DOVE - PINYON JUNIPER
- 3-DEER CREEK - MIXED CONIFER
- 7-DES-BEE-DOVE - SALT DESERT SHRUB
- 4-WILBERG - PINYON JUNIPER
- 8-WILBERG/DES-BEE-DOVE WASTE ROCK PINYON JUNIPER

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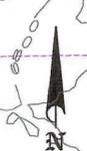
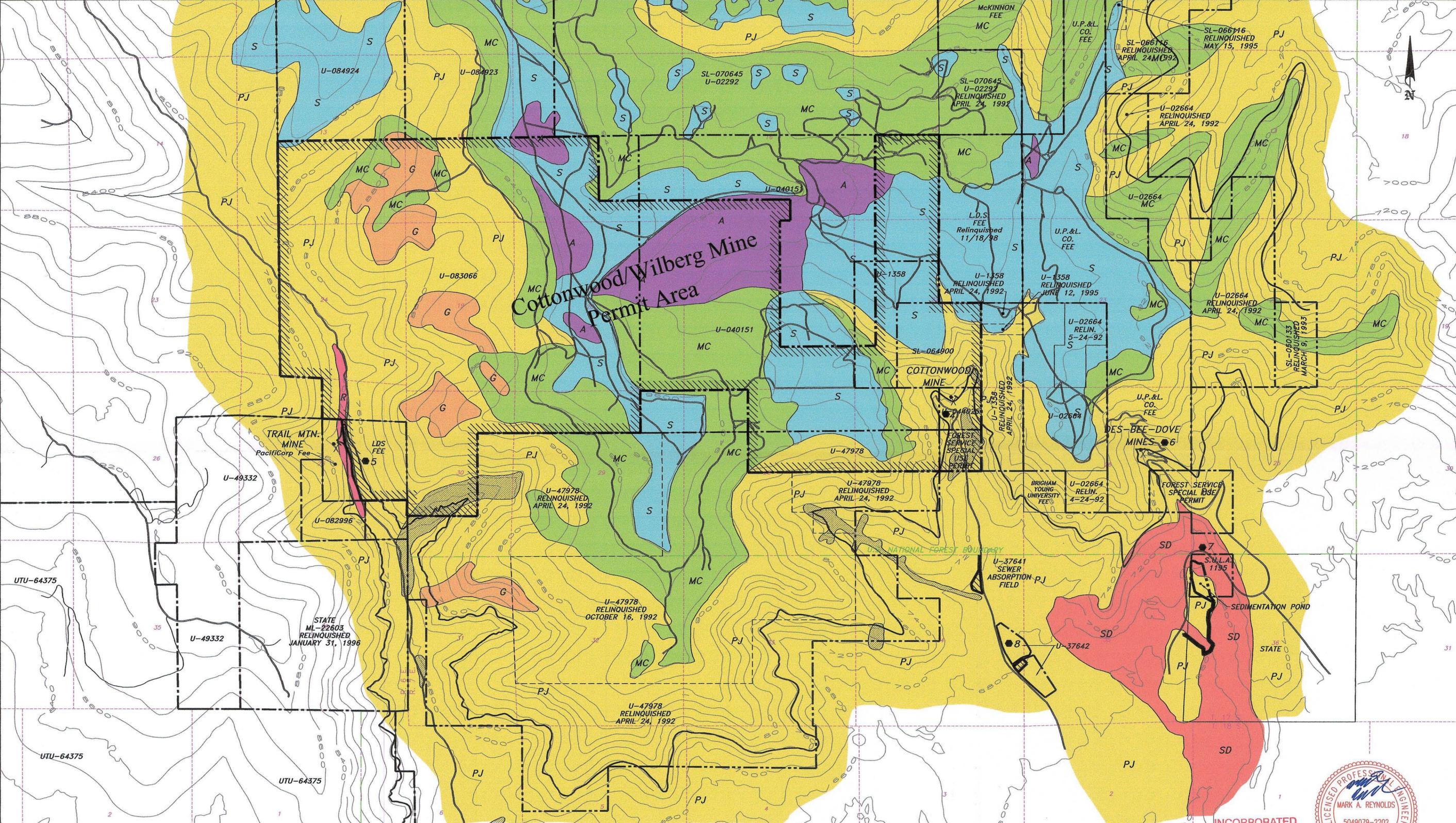
CAD FILE NAME/DISK#: CE-10489-WB

2-15

ENERGY WEST MINING COMPANY
A SUBSIDIARY OF PACIFICORP

VEGETATION MAP OF THE COTTONWOOD/WILBERG MINE PERMIT AREA	
DRAWN BY: K. LARSEN	CE-10489-WB
SCALE: 1"=2000'	DRAWING #:
DATE: APRIL 6, 2012	SHEET 1 OF 1

DATE	REVISIONS	BY	CHK.
1-14-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL	
4-6-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL	
6-22-05	REVISED PERMIT BOUNDARY AND LEGENDS	KJL	
1-13-03	REVISED PERMIT BOUNDARY & CONVERTED TO AUTOCAD	KJL	



Cottonwood/Wilberg Mine Permit Area

VEGETATION LEGEND

- R RIPARIAN
- SD SALT DESERT SHRUB
- G GRASS
- S SAGEBRUSH
- A ASPEN
- MC MIXED CONIFER
- PJ PINYON JUNIPER

LEGEND

- COTTONWOOD/WILBERG MINE PERMIT BOUNDARY
- HEDYSARUM OCCIDENTALE VAR. CANONE

● 5

REFERENCE SITE AREAS

- 1-DEER CREEK - RIPARIAN
- 5-COTTONWOOD - PINYON JUNIPER
- 2-DEER CREEK - PINYON JUNIPER
- 6-DES-BEE-DOVE - PINYON JUNIPER
- 3-DEER CREEK - MIXED CONIFER
- 7-DES-BEE-DOVE - SALT DESERT SHRUB
- 4-WILBERG - PINYON JUNIPER
- 8-WILBERG/DES-BEE-DOVE WASTE ROCK PINYON JUNIPER

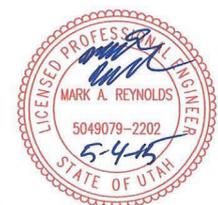
RECEIVED

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CAD FILE NAME/DISK#: CE-10829-WB

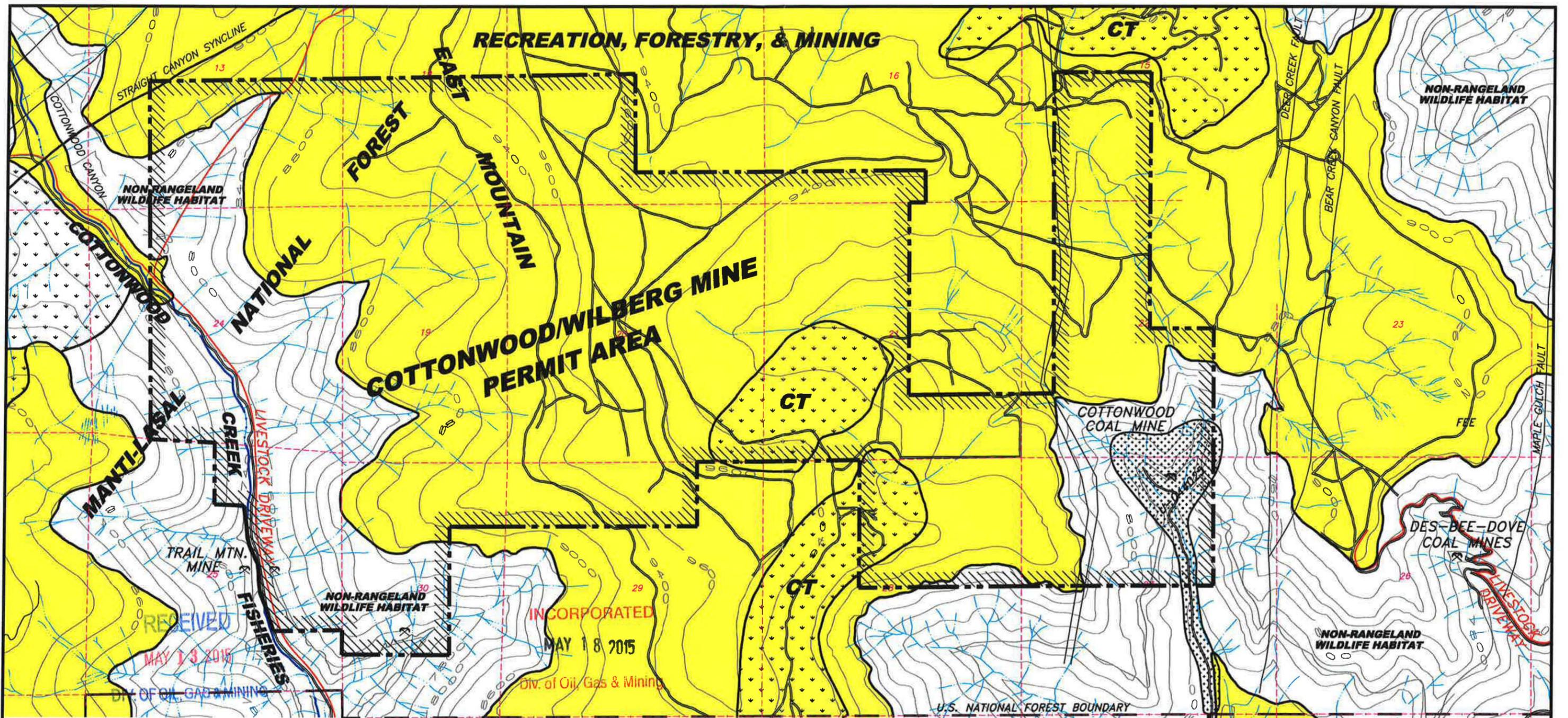
2-15A

ENERGY WEST MINING COMPANY
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**COTTONWOOD/WILBERG MINE
VEGETATION MAP SHOWING THE LOCATION OF
HEDYSARUM OCCIDENTALE VAR. CANONE**

DATE	REVISIONS	BY	CHK.
1-14-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL	
4-10-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL	
6-22-05	REVISED PERMIT BOUNDARY AND LEGENDS		
1-14-03	REVISED PERMIT BOUNDARY & CONVERTED TO AUTOCAD	KJL	

DRAWN BY:	K. LARSEN	DRAWING #:	CE-10829-WB
SCALE:	1" = 2000'	SHEET	1 OF 1
DATE:	APRIL 10, 2012	REV.	



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2-19

CAD FILE NAME/DISK#: CM-10597-WB



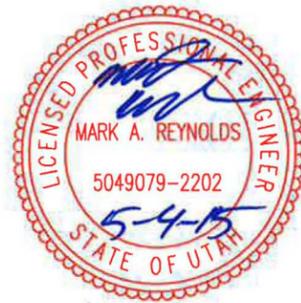
**COTTONWOOD/WILBERG MINE
LAND USE MAP**

DRAWN BY: **K. LARSEN** **CM-10597-WB**
SCALE: **1"=2000'** DRAWING #:
DATE: **APRIL 10, 2012** SHEET **1** OF **1** REV. _____

LEGEND

- COTTONWOOD MINE PERMIT BOUNDARY LINE
- GRAZING
- COMMERCIAL TIMBER
- MINE PORTALS (EXISTING, SEALED & RECLAIMED)
- FISHERIES
- LIVESTOCK DRIVEWAY
- LEASABLE MINERAL DEVELOPMENT

DATE	REVISIONS	BY	KJL
1-14-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL	
4-10-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL	
6-27-05	REVISED PERMIT BOUNDARY	KJL	
1-15-03	REVISED PERMIT BOUNDARY	KJL	
2-4-98	CONVERTED TO AUTOCAD AND UPDATED PERMIT BOUNDARIES	KJL	
8-18-90	ADDED WASTE ROCK SITE PERMIT #UTU-065027	JRG	



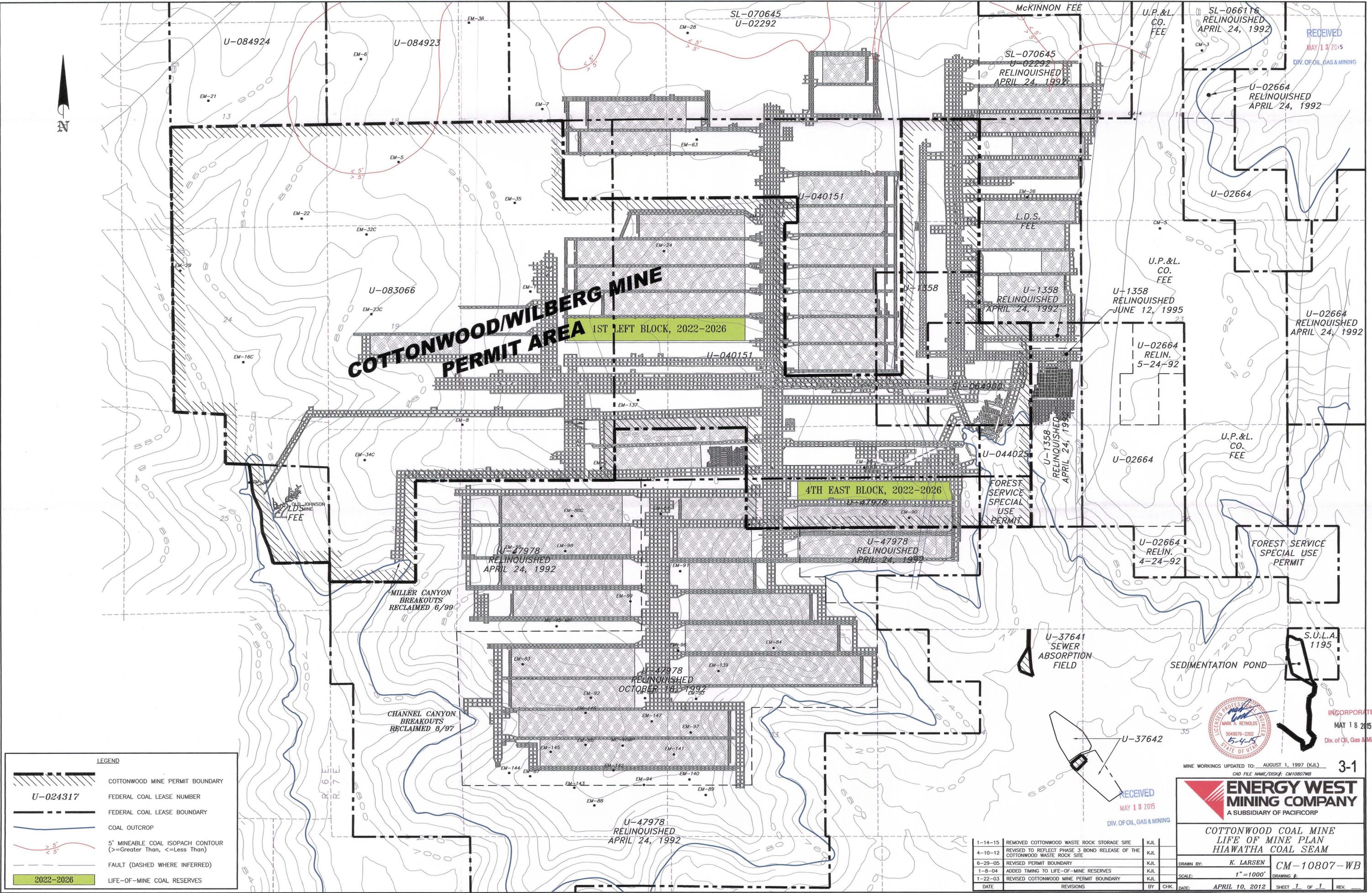
U-37641 SEWER ABSORPTION FIELD

SEDIMENTATION POND

U-37642



T 17 S.
R 18 S.



COTTONWOOD/WILBERG MINE PERMIT AREA
1ST LEFT BLOCK, 2022-2026

4TH EAST BLOCK, 2022-2026

LEGEND

	COTTONWOOD MINE PERMIT BOUNDARY
	FEDERAL COAL LEASE NUMBER
	FEDERAL COAL LEASE BOUNDARY
	COAL OUTCROP
	5' MINEABLE COAL ISOPACH CONTOUR (>=Greater Than, <=Less Than)
	FAULT (DASHED WHERE INFERRED)
	LIFE-OF-MINE COAL RESERVES

DATE	REVISIONS	BY	CHK.
1-14-15	REMOVED COTTONWOOD WASTE ROCK STORAGE SITE	KJL	
4-10-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL	
6-29-05	REVISED PERMIT BOUNDARY	KJL	
1-8-04	ADDED TIMING TO LIFE-OF-MINE RESERVES	KJL	
1-22-03	REVISED COTTONWOOD MINE PERMIT BOUNDARY	KJL	

MINE WORKINGS UPDATED TO: AUGUST 1, 1997 (KJL)
CAD FILE NAME/DISK#: CM10807WB

ENERGY WEST MINING COMPANY
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COTTONWOOD COAL MINE
LIFE OF MINE PLAN
HIAWATHA COAL SEAM

DRAWN BY: **K. LARSEN** CM-10807-WB
SCALE: 1" = 1000'
DATE: **APRIL 10, 2012** SHEET 1 OF 1 REV.



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MAY 13 2015
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U.P.&L. CO. FEE

U-1358 RELINQUISHED JUNE 12, 1995

U-02664 RELIN. 5-24-92

U-02664

U-02664 RELIN. 4-24-92

U-37641 SEWER ABSORPTION FIELD

SEDIMENTATION POND

U-37642

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U-02664 RELINQUISHED APRIL 24, 1992

U-02664 RELIN. 5-24-92

U-02664 RELINQUISHED APRIL 24, 1992

Cottonwood/Wilberg Mine

C/015/0019

Plate 2-19A

Rapter Nesting Location Map

And Habitat Map

Refer to Private and Confidential Volume

Cottonwood Tab

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Energy West Mining Company

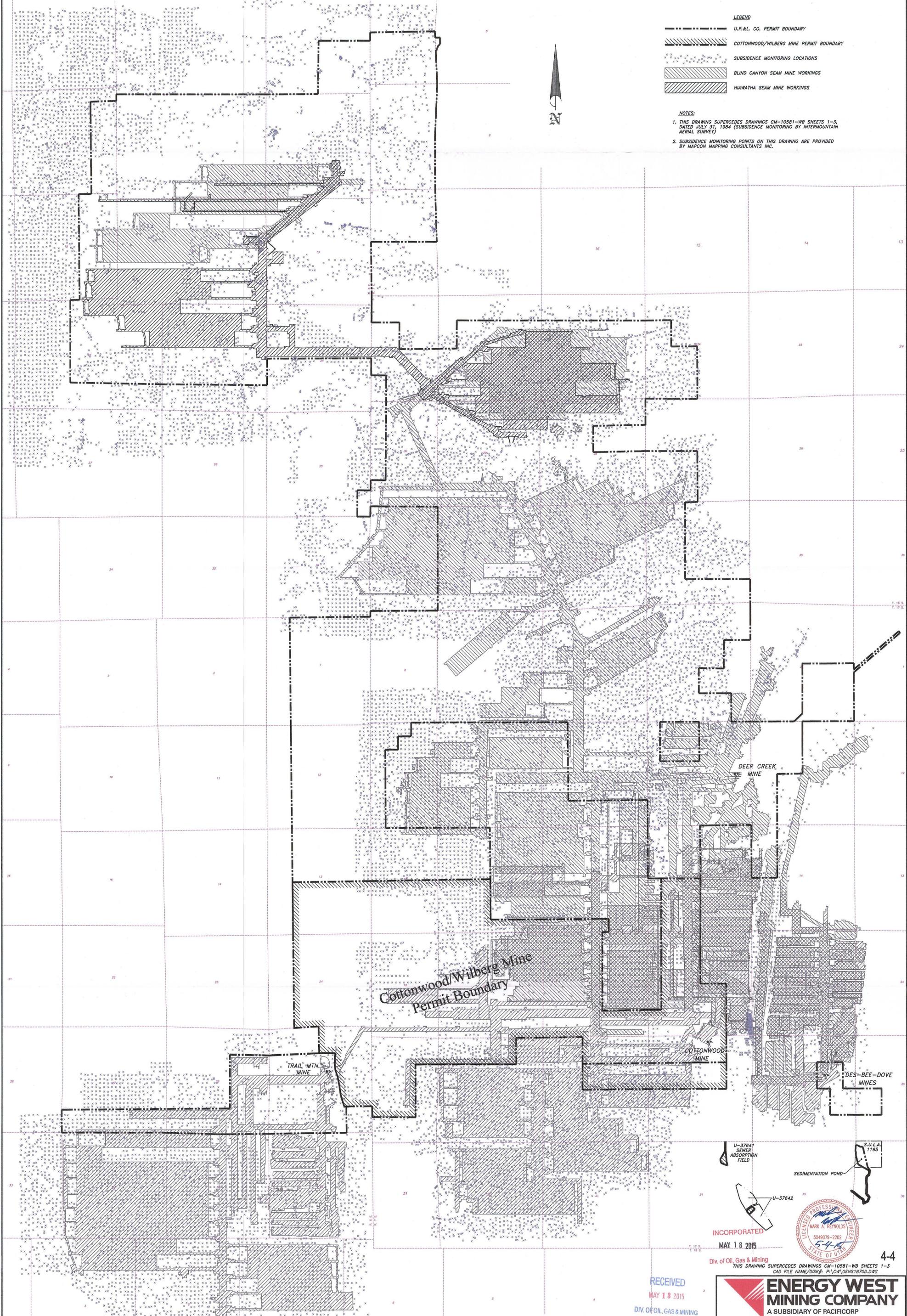
Cottonwood/Wilberg MRP

Volume 6: Maps

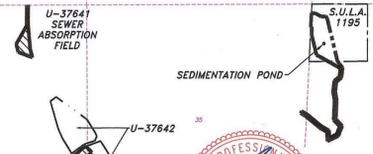
Replace Maps GENS1870D, CM-10742-WB

- LEGEND**
- U.P.&L. CO. PERMIT BOUNDARY
 - ▨ COTTONWOOD/WILBERG MINE PERMIT BOUNDARY
 - SUBSIDENCE MONITORING LOCATIONS
 - ▨ BLIND CANYON SEAM MINE WORKINGS
 - ▨ HIAWATHA SEAM MINE WORKINGS

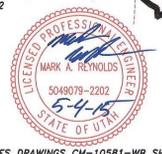
- NOTES:**
1. THIS DRAWING SUPERCEDES DRAWINGS CM-10581-WB SHEETS 1-3, DATED JULY 31, 1984 (SUBSIDENCE MONITORING BY INTERMOUNTAIN AERIAL SURVEY)
 2. SUBSIDENCE MONITORING POINTS ON THIS DRAWING ARE PROVIDED BY MAPCON MAPPING CONSULTANTS INC.



Cottonwood/Wilberg Mine
Permit Boundary



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THIS DRAWING SUPERCEDES DRAWINGS CM-10581-WB SHEETS 1-3
CAD FILE NAME/DISK#: P:\CIV\GENS1870D.DWG

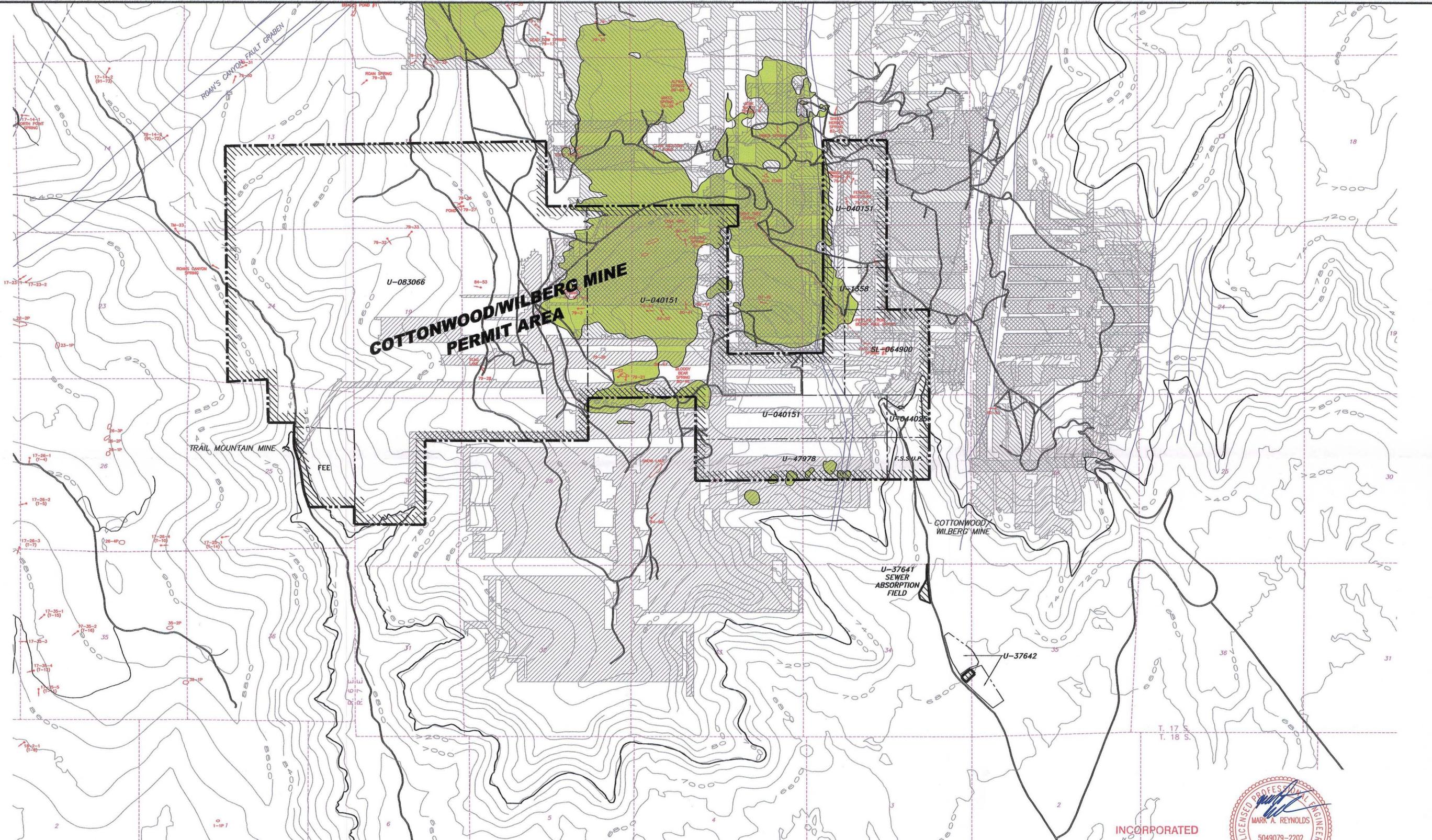
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ENERGY WEST MINING COMPANY
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COTTONWOOD/WILBERG COAL MINES
SUBSIDENCE MONITORING OVERLAY

DRAWN BY: K. LARSEN
SCALE: 1" = 2000'
DATE: JANUARY 24, 2003

DATE	REVISIONS	BY	CHK.
1-14-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL	
4-11-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL	
11-8-10	UPDATED SUBSIDENCE MONITORING LOCATIONS AND ADDED BLIND CANYON AND HIAWATHA SEAM MINE WORKINGS	KJL	
10-28-10	REVISED COTTONWOOD MINE, DEER CREEK MINE, AND TRAIL MOUNTAIN MINE PERMIT BOUNDARIES	KJL	
6-29-05	REVISED PERMIT BOUNDARY	KJL	
1-24-03	REVISED COTTONWOOD BOUNDARY/CONVERTED TO AUTOCAD	KJL	



LEGEND

- PACIFICORP EAST MOUNTAIN PROPERTY BOUNDARY
- COTTONWOOD/WILBERG MINE PERMIT BOUNDARY
- FAULT (DASHED WHERE INFERRED)
- SPRING & I.D. NUMBER
- BLIND CANYON COAL SEAM
- HIAWATHA COAL SEAM
- SUBSIDENCE AREAS (GREATER THAN 2 FEET)



NOTE: FOR FURTHER DETAILS OF THE DEER CREEK MINE SUBSIDENCE, REVIEW THE ANNUAL SUBSIDENCE REPORT.

DATE	REVISIONS	BY	CHK.
1-14-15	REMOVED THE COTTONWOOD WASTE ROCK STORAGE SITE	KJL	
4-10-12	REVISED TO REFLECT PHASE 3 BOND RELEASE OF THE COTTONWOOD WASTE ROCK SITE	KJL	
10-28-10	REVISED COTTONWOOD PERMIT BOUNDARY TO REFLECT PHASE 3 RELINQUISHMENT	KJL	
6-29-05	REVISED PERMIT BOUNDARY & UPDATED SUBSIDENCE ZONES	KJL	

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CAD FILE NAME/DISK#: P:\CW\CM10742WB.DWG

4-5

ENERGY WEST MINING COMPANY
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**COTTONWOOD/WILBERG COAL MINE
EAST MOUNTAIN SPRING
& SUBSIDENCE LOCATION MAP**

DRAWN BY:	K. LARSEN	CM-10742-WB
SCALE:	1" = 2000'	DRAWING #:
DATE:	APRIL 10, 2012	SHEET 1 OF 1

PacifiCorp

Energy West Mining Company

Cottonwood/Wilberg MRP

Private and Confidential Volume

Add map CM-10587-WB (add at back of Cottonwood tab)

PacifiCorp

Energy West Mining Company

Cottonwood/Wilberg MRP

Volume 9, Appendix A-2

Replace Cottonwood/Wilberg Monitoring program, Table, and Monitoring Location Map.

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
WILBERG/COTTONWOOD MINE**

I. MONITORING LOCATIONS – WILBERG/COTTONWOOD MINE

A. Surface Water Hydrology (for maps refer to Deer Creek, Wilberg/Cottonwood Mine: Volume 9 Map HM-1B)

1. Cottonwood Creek Drainage System

a. ***Cottonwood Canyon Creek*** (refer to Deer Creek and Wilberg/Cottonwood Mine: Volume 9 Map HM-1B)

(1) CCC01 - USGS Flume:
(Approximately 7800 feet downstream from the outlet culvert for the disturbed area.) 1500 feet North, 200 feet East of the Southwest corner of Section 31, Township 17 South, Range 7 East.

b. ***Grimes Wash*** (refer to Deer Creek and Wilberg/Cottonwood Mine: Volume 9 Map HM-1B)

(1) GWR01 - Right Fork:
(Approximately 1500 feet upstream of the inlet culvert for the disturbed area.) 550 feet North, 1500 feet West of the Southwest corner of Section 22, Township 17 South, Range 7 East.

(2) GWR02 - Left Fork:
(Approximately 50 feet upstream of the inlet culvert for the disturbed area.) 200 feet South, 2350 feet East of the Northwest corner of Section 27, Township 17 South, Range 7 East.

(3) GWR03 - Below the mine:
(Approximately 500 feet downstream of the outlet culvert below the disturbed area.) 1770 feet South, 1820 feet West of the Northeast corner of Section 27, Township 17 South, Range 7 East.

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
WILBERG/COTTONWOOD MINE**

2. **Reclamation Monitoring:** Following final reclamation, backfilling and grading monitoring will be conducted at points immediately above and below the reclaimed site.

B. Groundwater Hydrology

1. Piezometric Data

The Wilber/Cottonwood Mine has been sealed since 2001. There are no piezometric well sampling locations.

2. In-Mine Water Locations

The Wilber/Cottonwood Mine has been sealed since 2001. There are no accessible in-mine sampling locations.

3. Waste Rock Wells (None)

C. UPDES Monitoring Locations

a. ***Wilberg/Cottonwood Mines***

UPDES UT0022896

001- Mine Discharge @ Cottonwood Canyon (TMA)

003- Sediment Pond @ Mine Facilities

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
WILBERG/COTTONWOOD MINE**

II. MONITORING SCHEDULE (see enclosed monitoring schedules for operational, baseline, and reclamation monitoring)

A. Field Measurements

Field Measurements collected during quality sampling: Listed below are the sites which will be monitored by PacifiCorp - Energy West in accordance with the guidelines established by DOGM; i.e.

- Date and Time
- Flow
- pH
- Temperature
- Conductivity
- Dissolved oxygen (perennial streams only)

Surface Monitoring

Surface monitoring locations will be field monitored quarterly for all field parameters, except Indian Creek - monitoring to be conducted during baseflow only.

1. Cottonwood Canyon Creek

a. Cottonwood Canyon Creek

(1) CCC01 - USGS Flume

b. Grimes Wash

- (1) GWR01
- (2) GWR02
- (3) GWR03

Groundwater Monitoring

There are no groundwater monitoring site for the Wilberg/Cottonwood Mine.

UPDES Monitoring

1. Wilberg/Cottonwood

UPDES sites 001, 003, will be monitored as specified in the individual permits.

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
WILBERG/COTTONWOOD MINE**

Reclamation Monitoring

Surface Water Resources: (see enclosed summary of operational, baseline, and reclamation monitoring schedules)

Surface monitoring locations will be field monitored monthly for flow and all field parameters quarterly until bond release.

Ground Water Resources: (N/A)

UPDES: Sites will be monitored as specified in the individual permits

B. Quality Sampling (Laboratory Measurements)

1. **Surface Water Hydrology:** Water samples will be collected and analyzed quarterly (one sample at low flow and high flow) during the first or second week of the quarter. Parameters analyzed are those listed in the DOGM Guidelines for Surface Water Quality (see Table 1-Surface Water Quality Parameter List). Quarterly sampling was initiated during March 1988 and will continue throughout the year; i.e., June, September, and December. Baseline analysis was performed in 2011 and will be repeated every five years there-after.

a. **Cottonwood Creek Drainage**

(1) Cottonwood Canyon Creek

(a) CCC01 - USGS Flume

(2) Grimes Wash

(a) GWR01

(b) GWR02

(c) GWR03

Reclamation Monitoring - Surface Water Hydrology: Water samples will be collected and analyzed quarterly (one sample at low flow and high flow) during the first or second week of the quarter. Parameters analyzed are those listed in the DOGM

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**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
WILBERG/COTTONWOOD MINE**

Guidelines for Surface Water Quality (see Table 1-Surface Water Quality Parameter List). Sampling will be conducted on a quarterly basis until bond release. Baseline analysis will be performed on the 5th and 9th years following reclamation. In no case will baseline sampling time frame exceed 5 years converting from operational to reclamation monitoring.

2. UPDES Monitoring Sites

a. Wilberg/Cottonwood Mines

UPDES sites will be monitored as specified in the individual permits.

III. ANNUAL REPORTS

All data collected regarding the hydrology of East Mountain will be summarized by the applicant in an annual Hydrologic Monitoring Report. Copies of the report will be submitted to the Utah State Division of Oil, Gas and Mining. In addition, any raw data collected will be submitted to the Utah State Division of Oil, Gas and Mining on a quarterly basis.

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING PROGRAM
COTTONWOOD-WILBERG MINE

SURFACE HYDROLOGY - BASELINE SAMPLING (Table 1) - 2011

<u>Drainage System</u>	<u>Drainage</u>	<u>Location</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
	<i>Cottonwood Canyon Creek</i>	CCC01	Flow	Flow	Field									
<i>Cottonwood Creek Drainage System</i>	<i>Grimes Wash</i>	GWR01	Flow	Flow	Baseline									
		GWR02	Flow	Flow	Baseline									
		GWR03	Flow	Flow	Baseline									

GROUNDWATER HYDROLOGY - BASELINE SAMPLING (Table 2) - 2011

<u>Groundwater Type</u>		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Springs</i>	N/A												
<i>In-Mine</i>	N/A												
<i>Wells</i>	N/A												

UPDES SAMPLING - (Table 1)

			<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Mine Water Discharge</i>	<i>Cottonwood</i>	TMA	Operational											
<i>Sediment Pond Discharge</i>	<i>Cottonwood</i>	1 Outfalls	Operational											

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**PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING PROGRAM
COTTONWOOD-WILBERG MINE**

SURFACE HYDROLOGY - RECLAMATION SAMPLING (Table 1)

<u>Drainage System</u>	<u>Drainage</u>	<u>Location</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Cottonwood Creek Drainage System *</i>	<i>Cottonwood Canyon</i>	CCC01			Field			Field			Field			Field
	<i>Grimes Wash</i>	GWR01			Operational			Operational			Operational			Operational
		GWR02			Operational			Operational			Operational			Operational
		GWR03			Operational			Operational			Operational			Operational

GROUNDWATER HYDROLOGY - RECLAMATION SAMPLING (Table 2)

<u>Groundwater Type</u>		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Springs</i>	N/A												
<i>In Mine</i>	N/A												
<i>Wells</i>	N/A												

UPDES SAMPLING - (Table 1)

		<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Mine Water Discharge**</i>	TMA	As Needed Basis According to UPDES Permit Stipulations											
<i>Sediment Pond Discharge</i>	1 Outfall	As Needed Basis According to UPDES Permit Stipulations											

**** After Portal Sealing, PacifiCorp Will Monitor Down Dip For Development Of Groundwater Seeps/Springs Until Bond Release**

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PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING PROGRAM
COTTONWOOD-WILBERG MINE

SURFACE HYDROLOGY - RECLAMATION SAMPLING (Table 1)

<u>Drainage System</u>	<u>Drainage</u>	<u>Location</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Cottonwood Creek Drainage System*</i>	<i>Cottonwood Canyon</i>	CCC01			Field			Field			Field			Field
	<i>Grimes Wash</i>	GWR01			Operational			Operational			Operational			Operational
		GWR02			Operational			Operational			Operational			Operational
		GWR03			Operational			Operational			Operational			Operational

GROUNDWATER HYDROLOGY - RECLAMATION SAMPLING (Table 2)

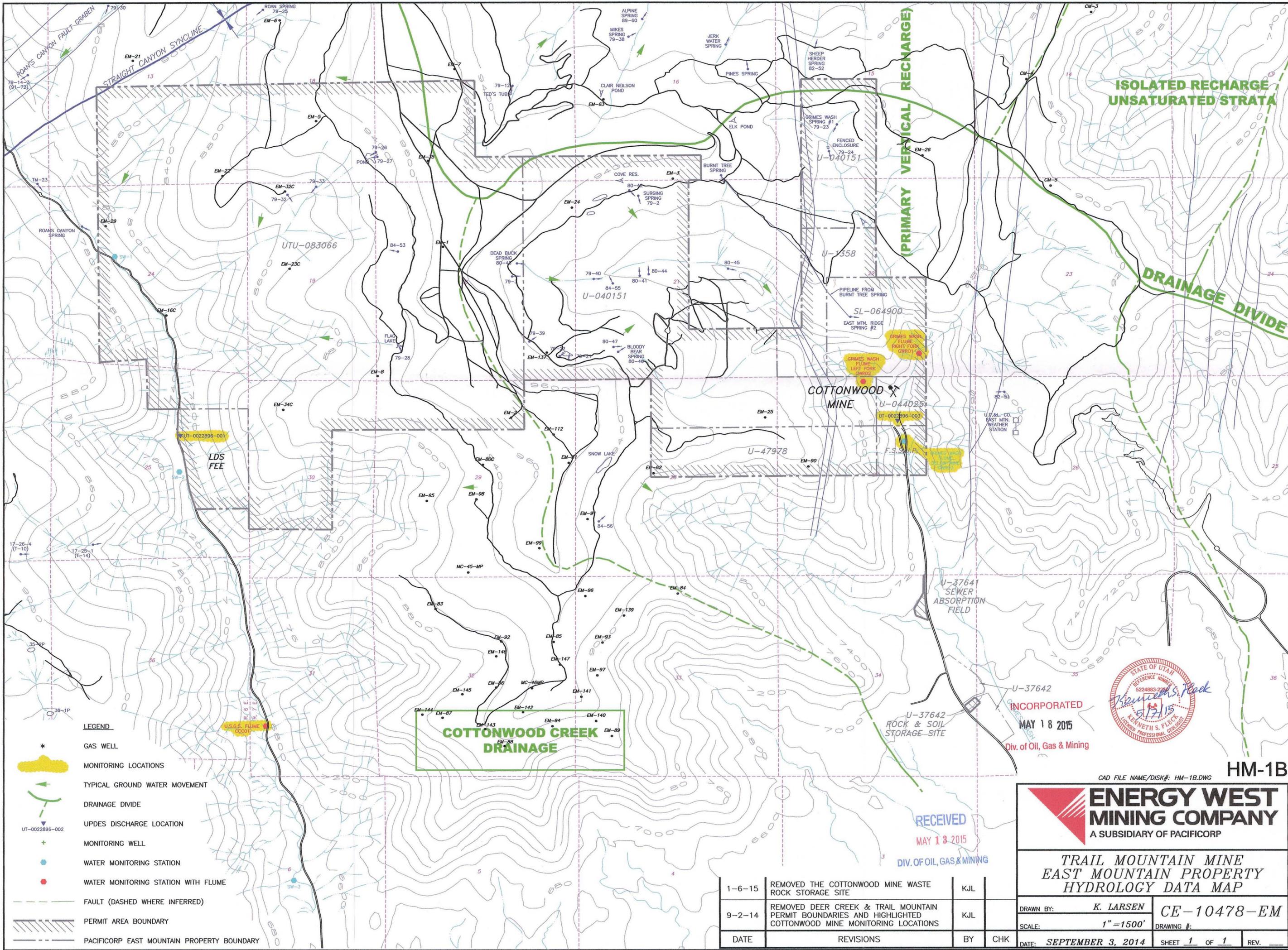
<u>Groundwater Type</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Springs</i>	N/A											
<i>In Mine</i>	N/A											
<i>Wells</i>	N/A											

UPDES SAMPLING - (Table 1)

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<i>Mine Water Discharge**</i>			TMA	As Needed Basis According to UPDES Permit Stipulations								
<i>Sediment Pond Discharge</i>			1 Outfall	As Needed Basis According to UPDES Permit Stipulations								

**** After Portal Sealing, PacifiCorp Will Monitor Down Dip For Development Of Groundwater Seeps/Springs Until Bond Release**

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 CTW HYD/TMA-Clean



ISOLATED RECHARGE UNSATURATED STRATA

(PRIMARY VERTICAL RECHARGE)

DRAINAGE DIVIDE

COTTONWOOD MINE

COTTONWOOD CREEK DRAINAGE

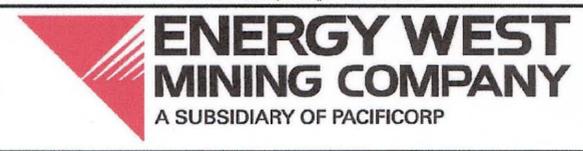
LDS FEE

INCORPORATED
MAY 18 2015
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HM-1B

CAD FILE NAME/DISK#: HM-1B.DWG



**TRAIL MOUNTAIN MINE
EAST MOUNTAIN PROPERTY
HYDROLOGY DATA MAP**

DRAWN BY:	K. LARSEN	DRAWING #:	CE-10478-EM
SCALE:	1" = 1500'		
DATE:	SEPTEMBER 3, 2014	SHEET	1 OF 1
		REV.	

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LEGEND

- * GAS WELL
- MONITORING LOCATIONS
- TYPICAL GROUND WATER MOVEMENT
- DRAINAGE DIVIDE
- UPDES DISCHARGE LOCATION
- MONITORING WELL
- WATER MONITORING STATION
- WATER MONITORING STATION WITH FLUME
- FAULT (DASHED WHERE INFERRED)
- PERMIT AREA BOUNDARY
- PACIFICORP EAST MOUNTAIN PROPERTY BOUNDARY

DATE	REVISIONS	BY	CHK
1-6-15	REMOVED THE COTTONWOOD MINE WASTE ROCK STORAGE SITE	KJL	
9-2-14	REMOVED DEER CREEK & TRAIL MOUNTAIN PERMIT BOUNDARIES AND HIGHLIGHTED COTTONWOOD MINE MONITORING LOCATIONS	KJL	