



Interwest Mining Company
Huntington Office
P. O. Box 310
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Huntington, UT 84528

February 9, 2017

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

Subj: Amendment to Include New Water Monitoring Locations, Deer Creek Mine, C/015/0018, Emery County, Utah.

PacifiCorp, by and through its wholly-owned subsidiary, Interwest Mining Company, as mine manager, hereby submits an amendment to include new water monitoring locations for the Deer Creek Mine.

PacifiCorp will be installing a buried mine water drainage line from the Rilda Canyon portals to the Huntington Power Plant as part of the mine closure. These water monitoring locations, when implemented, will provide for adequate monitoring of quantity and quality of the mine water discharge from the Rilda Canyon portals through the pipeline.

C1/C2 forms are included with this submittal. A Redline/Strike-out copy of the revised text in Volume 1 and Volume 9 of the Deer Creek MRP is included for your review as well as the associated revised maps that show detailed locations of the new monitoring points.

If there are any questions or concerns with the submittal, please contact me at 435-687-4712, Chuck Semborski at 435-687-4720, or Dennis Oakley at 435-687-4825.

Sincerely,

Kenneth Fleck
Geology and Environmental Affairs Manager

Enclosures

Cc File
Scott Child

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: PacifiCorp

Mine: Deer Creek Mine

Permit Number: C/015/0018

Title: Amendment to Include New Water Monitoring Locations, Deer Creek Mine, C/015/0018, Emery County, Utah

Description, Include reason for application and timing required to implement:

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: _____ 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.

Kenneth Fleck
Print Name

Kenneth S. Fleck
Sign Name, Position, Date

Manager of Environmental Affairs FEB. 9, 2017

Subscribed and sworn to before me this 9 day of Feb, 2017

Mackenzi Grange
Notary Public

My commission Expires:

Attest: State of UTAH } ss:
County of EMERY



For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

PacifiCorp

Interwest Mining Company

Deer Creek Mine

C/015/0018

**Amendment to Include New Water Monitoring Locations,
Deer Creek Mine, C/015/0018, Emery County, Utah**

Volume 1, Part 2 – Replace Pages 2-220 thru 2-225

Hydrology

The Deer Creek Mine is part of the East Mountain property in which PacifiCorp holds coal mining interests. The East Mountain property encompasses multiple adjacent mining operations including; Cottonwood/Wilberg Mine, Deer Creek Mine, and the reclaimed Des Bee Dove Mine (Phase III Bond Released approved August 2014). PacifiCorp has collected comprehensive baseline information on the hydrologic resources of the East Mountain property that consists of ground and surface water investigations, climatological information, baseline cumulative impact area information, and probable hydrologic consequence determination to ensure the protection of the hydrologic balance of the Deer Creek Mine permit area and East Mountain property. This information is found in Volume 9, Volume 9A, and/or Volume 9B.

As part of the requirements of the Utah Coal Regulations R645-301-731.221 through R645-301-731.225, a hydrologic monitoring program has been established in cooperation with Utah Division of Oil, Gas, and Mining. The hydrologic monitoring program involves collecting water quality and quantity samples of ground and surface water for specific sites pertinent the Deer Creek Mine permit area.

The following details the hydrologic monitoring program for the Deer Creek Mine permit for surface and ground water monitoring sites, required sampling parameter list, and map showing site locations.

Surface Water Hydrology (for detailed information for the Deer Creek Mine see Volumes 9, 9A, and 9B)

Cottonwood Creek Drainage System

Indian Creek (refer to Deer Creek Volume 12 R645-301-700: Hydrologic Monitoring Map MFS1851D)

- 1) ICA
- 2) ICF
- 3) ICD
- 4) ICB

Huntington Creek Drainage System

Huntington Creek (refer to Volume 9, Hydrologic Section, Cottonwood/Wilberg and Deer Creek Mines, Map HM-1A)

- 1) HCC01
- 2) HCC02
- 3) HCC04

Deer Creek Canyon (refer to Volume 9, Hydrologic Section, Cottonwood/Wilberg and Deer Creek Mines, Map HM-1A)

- 1) DCR01
- 2) DCR04
- 3) DCR06

Meetinghouse Canyon-South Fork (refer to Volume 9, Hydrologic Section, Cottonwood/Wilberg and Deer Creek Mines, Map HM-1A)

- 1) MHC01

Rilda Canyon (refer to Volume 9, Hydrologic Section, Cottonwood/Wilberg and Deer Creek Mines, Map HM-1A)

- | | |
|----------|---------|
| 1) RCF1 | 5) RCF3 |
| 2) RCLF1 | 6) RCW4 |
| 3) RCLF2 | |
| 4) RCF2 | |

Mill Fork Canyon (refer to Deer Creek Volume 12 R645-301-700:
Hydrologic Monitoring Map MFS1851D)

- 1) MFA01
- 2) MFB02
- 3) MFU03

Ground Water Hydrology (for detailed information for the Deer Creek Mine see Volumes 9 and 9A: Hydrologic Section, Cottonwood/Wilberg and Deer Creek Mines)

East Mountain Springs (refer to Volume 9, Hydrologic Section, Cottonwood/Wilberg and Deer Creek Mines, Map HM-4)

- | | |
|---------------------|--------------------------------|
| 1) Sheba Springs | 6) 89-67 |
| 2) 80-48 | 7) 89-68 |
| 2) 80-50 | 3) Rilda Canyon Meters |
| 4) 89-65 | (Meters 2-6-3)* |
| 5) 89-66 | |

* NEWUSSD controls Rilda Canyon meters. Monitoring will be conducted when meters are functioning.

East Mountain Springs - Mill Fork Area (refer to Deer Creek Permit Volume 12 R645-301-700: Hydrologic Monitoring Map MFS1851D)

- | | |
|------------|------------------------|
| 1) EM-216 | 11) MF-213 |
| 2) MFR-30 | 12) MF-219 |
| 3) JV-9 | 13) SP1-26 |
| 4) JV-34 | 14) SP1-29 |
| 5) RR-5 | 15) MFR-10 |
| 6) RR-15 | 16) UJV 101 |
| 7) RR-23A | 17) UJV-206 |
| 8) MF-7 | 18) UJV-213 |
| 9) MF-10 | 19) EM Pond |
| 10) MF-19B | 20) Little Bear Spring |
| | 21) Grants Spring |

Piezometric Data - Surface

Rilda Canyon

- | | |
|-------|----------|
| 1) P1 | 4) P7 |
| 2) P5 | 5) EM-47 |
| 3) P6 | |

~~Cottonwood Creek Canyon~~

- | | |
|-----------------------|-------------------------|
| 1) EM-31 | 4) CCCW-2A |
| 2) CCCW-1A | 5) CCCW-3A |
| 3) CCCW-1S | 6) CCCW-3S U |
| | 7) CCCW-3S L |

~~Piezometric Data - Underground~~

- ~~1) Refer to Annual Hydrologic Reports for Locations: Map
HM-2~~
- ~~Waste Rock Wells~~
- ~~1) DCWR1~~

UPDES Monitoring Locations - UPDES Permit #UT0023604

- 1) 001 - Sediment Pond - Deer Creek Canyon
- 2) 002 - Mine Discharge - Deer Creek Canyon

Post Mine Closure Monitoring Locations - Deer Creek Mine

1. Deer Creek Mine

Rilda Canyon Pipeline - terminus of pipeline DCRCP
(refer to HM-1A)

2. Deer Creek Mine

Rilda Canyon Pipeline - integrity evaluation meters
(refer to Volume 11, R645-3-1-500 Engineering
Section, Appendix I, Design Drawings Deer Creek Mine
Water Relief Pipeline 2016 Rilda Canyon for location
of upper and lower vaults - meter locations)

Required Monitoring Parameters

Field Measurements shall be collected during monitoring of surface and ground water sites. Field measurements include:

- Date and Time
- Flow

- pH
- Temperature
- Conductivity
- Dissolved Oxygen (perennial streams only)

Surface and ground water samples shall be analyzed for quality utilizing the following parameters (in mg/L). Baseline parameters shall be collected every 5 years. Operational samples shall be collected at all other times and as dictated by the monitoring schedule.

Laboratory Measurements:

- | | | | |
|---|---|---|--|
| # | * | - | Total Settleable Solids (UPDES Only) |
| # | * | - | Total Suspended Solids (Surface Only) |
| | * | - | Total Dissolved Solids |
| | * | - | Total Hardness (CaCO ₃) |
| | | - | Acidity (CaCO ₃) |
| | | - | Aluminum (Al) - Dissolved |
| | | - | Arsenic (As) - Dissolved |
| | | - | Boron (B) - Dissolved (Waste Rock Sites Only) |
| | * | - | Carbonate (CO ₃ ⁻²) |
| | * | - | Total Alkalinity/Bicarbonate (CaCO ₃) |
| | | - | Cadmium (Cd) - Dissolved |
| | * | - | Calcium (Ca) - Dissolved |
| | * | - | Chloride (Cl ⁻) |
| | | - | Copper (Cu) - Dissolved |
| | * | - | Iron (Fe) - Total & Dissolved |
| | | - | Lead (Pb) - Dissolved |
| | * | - | Magnesium (Mg) - Dissolved |
| | * | - | Manganese (Mn) - Total & Dissolved |
| | | - | Molybdenum (Mo) - Dissolved |
| | | - | Nitrogen: Ammonia (NH ₃) - reported as N |
| | | - | Nitrite (NO ₂) - reported as N |
| | | - | Nitrate (NO ₃ ⁻) - reported as N |
| | * | - | Potassium (K) - Dissolved |
| | * | - | Oil & Grease* |
| | | - | Ortho Phosphate (PO ₄ ⁻³) - reported as P |
| | | - | Selenium (Se) - Dissolved (Waste Rock Sites Only) |
| | * | - | Sodium (Na) - Dissolved |
| | * | - | Sulfate (SO ₄ ⁻²) |
| | | - | Zinc (Zn) - Dissolved |
| | * | - | Cation-Anion Balance |

Construction * Operational - Baseline

*UPDES & surface waters above & below mine sites

Monitoring Schedule

Surface monitoring sites shall be field monitored quarterly for all field parameters except for Indian Creek Sites - monitoring to be conducted during base flow only. Surface sites shall also be analyzed for quality for all quality parameters listed except for Indian Creek sites - monitoring to be conducted during base flow only.

East Mountain Springs (including the Mill Fork Area) shall be field monitored during the months of July and October. Rilda Canyon Springs - NEWUSSD: Meters 2 & 3 shall be field monitored monthly depending on access. East Mountain Springs (including the Mill Fork Area) shall also be analyzed for quality during the months of July and October. Rilda Canyon Springs - NEWUSSD: Meters 2 & 3 shall be monitored for quality monthly depending on access. All surface and ground water monitoring requirements for the Mill Fork Area are found in Volume 12, Deer Creek Mine, Mill Fork Lease, Section R645-301-700.

PacifiCorp

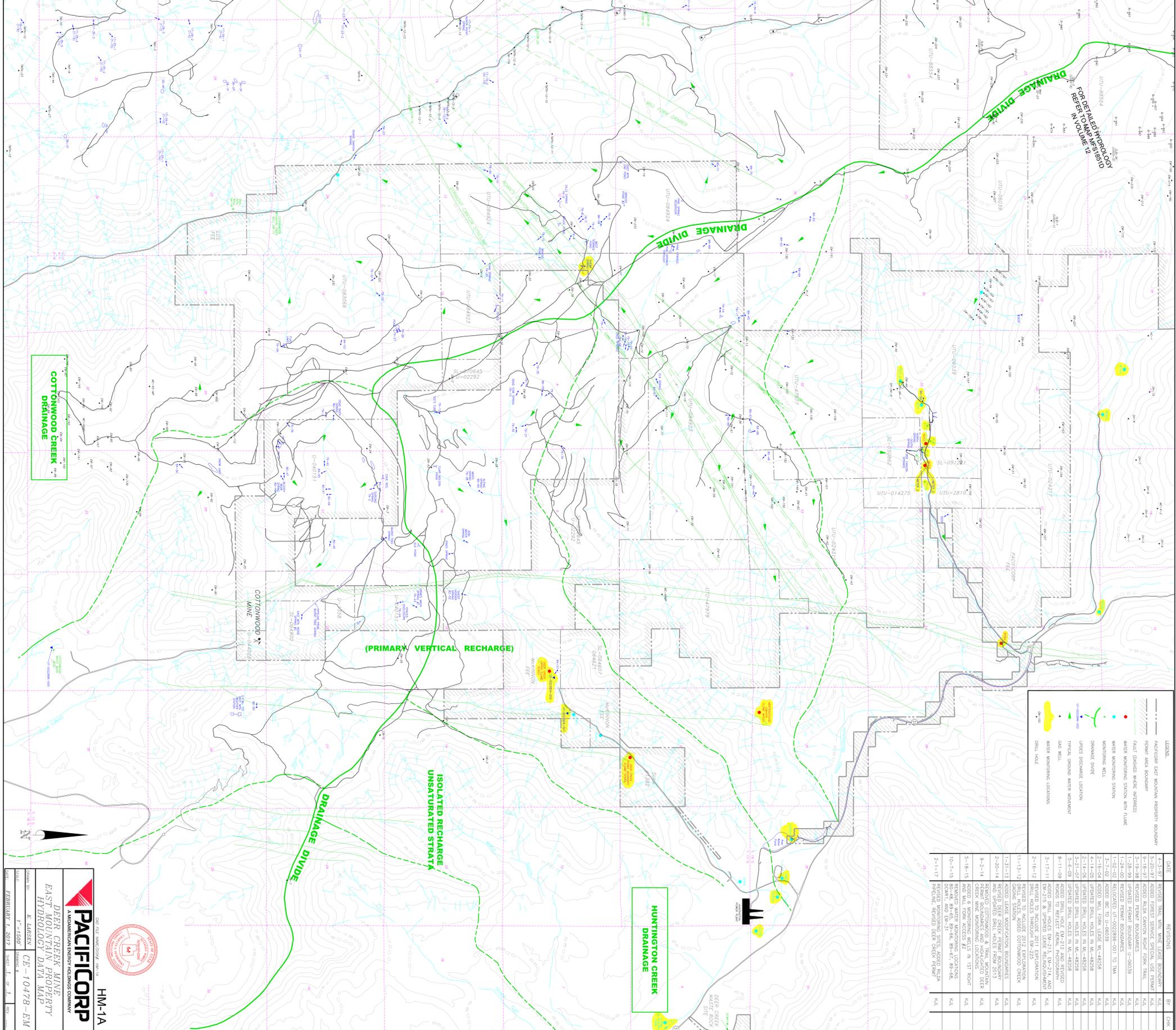
Interwest Mining Company

Deer Creek Mine

C/015/0018

**Amendment to Include New Water Monitoring Locations,
Deer Creek Mine, C/015/0018, Emery County, Utah**

Volume 1, Part 2 – Replace Map HM-1A



LEGEND

- PACIFICORP EAST MOUNTAIN PROPERTY BOUNDARY
- PROPERTY AREA BOUNDARY
- FAULT (SHADDED WHERE INFERRED)
- WATER MONITORING STATION WITH FILTAGE
- WATER MONITORING STATION
- WATER MONITORING WELL
- UNDESIRABLE RECHARGE LOCATION
- TYPICAL SPRING WATER MONITORING GAS WELL
- WATER MONITORING LOCATIONS
- DRILL HOLE

DATE	REVISIONS	BY	CHK
5-23-07	REVISED TRAIL WITH WASTE BOUNDARY	KAL	
5-20-07	ADDED FOREST SERVICE SPECIAL USE PERMIT	KAL	
5-18-07	REVISED RIMLAND CANYON RIGHT FORK TRAIL	KAL	
5-18-07	REVISED PROPERTY BOUNDARIES	KAL	
1-28-06	UPDATED PROPERTY BOUNDARY U-06029	KAL	
1-02-02	RELOCATED UT-0202988-001 TO MA	KAL	
3-7-02	ADDED BC TO U-06039	KAL	
2-16-04	UPDATED RILL FORK LEASE WL-48258	KAL	
4-14-06	UPDATED RILL HOLES IN W-48258	KAL	
2-14-06	UPDATED RILL HOLES IN W-48258	KAL	
3-6-06	UPDATED RILL HOLES IN W-48258	KAL	
9-11-08	ADDED RILL HOLE GW-212 AND REVISED ZONES TO REFLECT METAL PHENOMENON	KAL	
3-17-11	ADDED MONITORING SITES, ADDED MEDIA FILTERS TO MONITORING SITES, ADDED MEDIA FILTERS TO MONITORING SITES, ADDED MEDIA FILTERS TO MONITORING SITES	KAL	
2-1-17	REVISED TO INCLUDE 2011 EXPANSION DRILL HOLES, ADDED COTTONWOOD CREEK	KAL	
11-13-12	ADDED LEASE MODIFICATION BOUNDARIES	KAL	
1-31-13	ADDED LEASE MODIFICATION BOUNDARIES	KAL	
2-20-14	REVISED DEER CREEK PROPERTY BOUNDARY AND UPDATED DRILL HOLES FROM 2013	KAL	
9-2-14	REVISED PROPERTY BOUNDARIES AND INDICATED DEER CREEK WASTE MONITORING LOCATION RIGHT FORK AND WASTE ACCESS #2 IN 03 RIGHT	KAL	
5-18-14	REVISED WATER MONITORING LOCATIONS	KAL	
10-7-14	REVISED WATER MONITORING LOCATIONS	KAL	
2-1-17	REVISED MONITORING SITES, ADDED MEDIA FILTERS TO MONITORING SITES, ADDED MEDIA FILTERS TO MONITORING SITES, ADDED MEDIA FILTERS TO MONITORING SITES	KAL	

PACIFICORP

 A MEMBERSHIP ENERGY HOLDINGS COMPANY

DEER CREEK MINE

EAST MOUNTAIN PROPERTY

HYDROLOGY DATA MAP

R. JANSEN

 T-14500

 CE-10478-EM

HM-1A

FEBRUARY 1, 2017

PacifiCorp

Interwest Mining Company

Deer Creek Mine

C/015/0018

**Amendment to Include New Water Monitoring Locations,
Deer Creek Mine, C/015/0018, Emery County, Utah**

**Volume 9, Appendix A-1 – Replace Hydrologic Monitoring
Program, 13 pages**

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

I. MONITORING LOCATIONS – DEER CREEK MINE

A. Surface Water Hydrology (for maps refer to Deer Creek and Wilberg/Cottonwood Mine: Volume 9 Map HM-1A, Deer Creek Volume 12 R645-301-700: Hydrologic Monitoring Map MFS1851D Mill Fork Lease for East Mountain locations listed below

1. Cottonwood Creek Drainage System

a. ***Indian Creek*** (refer to Deer Creek Volume 12 R645-301-700: Hydrologic Monitoring Map MFS1851D)

- (1) ICA - Indian Creek Above
(Approximately 2500 feet northwest of the Mill Fork permit boundary) 400 feet North, 2350 feet West of the Southwest corner of Section 3, Township 16 South, Range 6 East.
- (2) ICF - Indian Creek Flume
(Approximately 2100 feet west of the Mill Fork permit boundary) 300 feet North, 3400 feet West of the Southwest corner of Section 10, Township 16 South, Range 6 East.
- (3) ICD - Indian Creek Ditch
(Approximately 1600 feet west of the Mill Fork permit boundary, irrigation ditch for Upper Joes Valley) 240 feet North, 2850 feet West of the Southwest corner of Section 15, Township 16 South, Range 6 East.
- (4) ICB - Indian Creek Below
(Approximately 3700 feet west of the Mill Fork permit boundary, junction of Indian Creek and FDR040) 70 feet North, 120 feet West of the Southwest corner of Section 16, Township 16 South, Range 6 East.

PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE

2. Huntington Creek Drainage System

a. ***Huntington Creek*** (refer to Deer Creek and Wilberg/Cottonwood Mines: Volume 9 Map HM-1A)

- (1) HCC01 - Above Deer Creek Confluence:
1400 feet north, 2200 feet west of the southeast corner of Section 36, Township 16 South, Range 7 East.
- (2) HCC02 - Below Deer Creek Confluence:
300 feet north, 300 feet west of the southwest corner of Section 31, Township 16 South, Range 8 East.
- (3) HCC04 - @ Research Farm*
800 feet north, 200 feet east of the southwest corner of Section 5, Township 17 South, Range 8 East.
*Not listed on map due to scale.

b. ***Deer Creek*** (refer to Deer Creek and Wilberg/Cottonwood Mines: Volume 9 Map HM-1A)

- (1) DCR01 - Above the mine:
(Approximately 600 feet upstream from the mine facility.) 200 feet North, 800 feet West of the Southeast corner of Section 10, Township 17 South, Range 7 East.
- (2) DCR04 - Near C1/C2 Belt Intersection:
(Approximately 5,000 feet downstream from the mine facility.) 300 feet North, 2000 feet East of the Southeast corner of Section 2, Township 17 South, Range 7 East.
- (3) DCR06 - @ Huntington Creek Confluence:
(Approximately 15,000 feet downstream from the facility) 1400 feet north, 1100 feet east of the southeast corner of Section 6, Township 16 South, Range 7 East.

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ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE

- c. ***Meetinghouse Canyon - South Fork*** (refer to Deer Creek, Wilberg/Cottonwood, Des-Bee-Dove Mine: Volume 9 Map HM-1)
 - (1) MHC01 - Meetinghouse Canyon South Fork
(Approximately 200 feet upstream from the north and south convergence.) 800 feet North, 1500 feet East of the Southwest corner of Section 35, Township 16 South, Range 7 East.

- d. ***Rilda Canyon*** (refer to Deer Creek and Wilberg/Cottonwood Mines: Volume 9 Map HM-1A)
 - (1) RCF-1 - Rilda Canyon - Right Fork:
(Approximately 4000 feet upstream from the Right and Left fork convergence.) 400 feet South, 200 feet West of the Northeast corner of Section 30, Township 16 South, Range 7 East.

 - (2) RCLF1 - Rilda Canyon - Left Fork, below Rilda Canyon Portals: (Approximately 200 feet upstream from the Right and Left fork convergence.) 2400 feet North, 2100 feet West of the Southeast corner of Section 29, Township 16 South, Range 7 East.

 - (3) RCLF2 - Rilda Canyon - Left Fork, above Rilda Canyon Portals: (Approximately 1600 feet upstream from the Right and Left fork convergence.) 1600 feet North, 2300 feet West of the Southwest corner of Section 29, Township 16 South, Range 7 East.

 - (4) RCF2 - Rilda Canyon - Above NEWUSSD springs: 2500 feet South, 400 feet West of the Northeast corner of Section 29, Township 16 South, Range 7 East.

 - (5) RCF3 - Rilda Canyon - Below NEWUSSD springs: 2550 feet South, 1000 feet East of the Northeast corner of Section 28, Township 16 South, Range 7 East.

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ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE

- (6) RCW4 - Rilda Canyon: (Approximately 1000 feet upstream from the confluence with Huntington Creek.) 850 feet North, 1900 feet West of the Southeast corner of Section 26, Township 16 South, Range 7 East.

- e. **Mill Fork Canyon** (refer to Deer Creek Volume 12 R645-301-700: Hydrologic Monitoring Map MFS1851D)
 - (1) MFA01 - Mill Fork Canyon - Above Old Mine: (Approximately 2000 feet above old mine portals @ end of USFS development road.) 100 feet North, 1500 feet West of the Southeast corner of Section 17, Township 16 South, Range 7 East.

 - (2) MFB02 - Mill Fork Canyon - Above Huntington Creek Confluence: (Approximately 200 feet above confluence with Huntington Creek @ culvert outfall.) 100 feet South, 1900 feet East of the Northwest corner of Section 22, Township 16 South, Range 7 East.

 - (3) MFU03 - Mill Fork Canyon - Above Mill Fork Fault Crossing: (Approximately 700 feet upstream of projected Mill Fork Fault crossing) 1150 feet North, 1700 feet East of the Southwest corner of Section 17, Township 16 South, Range 7 East.

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

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

B. Groundwater Hydrology – Deer Creek Mine

- 1. East Mountain Springs** (refer to Deer Creek and Wilberg/Cottonwood Mines:
Volume 9 maps HM-4)

Sheba Springs

80-50

Rilda Canyon-(Meters 2&3)¹

¹NEWUSSD controls Rilda Canyon meters. Monitoring will be conducted when meters are functioning.

- 2. East Mountain Springs - Mill Fork Area** (refer to Deer Creek Permit Volume
12 R645-301-700: Hydrologic Monitoring Map MFS1851D)

EM-216

JV-9

JV-34

MF-7

MF-10

MF-19B

MF-213

MF-219

MFR-10

EMPOND

Little Bear Spring

MFR-30

RR-5

RR-15

RR-23A

SP1-26

SP1-29

UJV-101

UJV-206

UJV-213

Grants Spring

- 3. Piezometric Data**

- a. Surface

- (1) Rilda Canyon (refer to Deer Creek and Wilberg/Cottonwood
Mines: Volume 9 Map HM-1a)

P1

P5

P6

P7

EM-47

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

C. UPDES Monitoring Locations – Deer Creek Mine (refer to HM-1A)

- a. ***Deer Creek Mine***
UPDES UT0023604
001- Sediment Pond – Deer Creek Canyon
002- Mine Discharge – Deer Creek Canyon

D. Post Mine Closure Monitoring Locations – Deer Creek Mine

- a. **Deer Creek Mine**
Rilda Canyon Pipeline – terminus of pipeline DCDRCP (refer to HM-1A)
- b. **Deer Creek Mine**
Rilda Canyon Pipeline – integrity evaluation meters (refer to Volume 11, R645-301-500 Engineering Section, Appendix I, Design Drawings Deer Creek Mine Water Relief Pipeline 2016 Rilda Canyon for location of upper and lower vaults – meter locations)

II. MONITORING SCHEDULE – DEER CREEK MINE

(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)

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

Surface Monitoring

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

1. Cottonwood Canyon Creek

a. Indian Creek

- (1) ICA
- (2) ICF
- (3) ICD
- (4) ICB

2. Huntington Canyon Drainage

a. Deer Creek

- (1) DCR01
- (2) DCR04
- (3) DCR06

b. Huntington Creek

- (1) HCC01
- (2) HCC02
- (3) HCC04

Flow in Huntington Creek is measured only at HCC01 by Utah Power, and will be reported in the Annual Hydrologic Report.

c. Meetinghouse Canyon - South Fork:

- (1) MCH01

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

d. Rilda Canyon

- (1) RCF1*
- (2) RCLF 1
- (3) RCLF 2
- (4) RCF2
- (5) RCF3
- (6) RCW4

* Baseline flow will be measured adjacent to EM-163

e. Mill Fork Canyon

- (1) MFA01
- (2) MFB02
- a. MFU03

Groundwater Monitoring

- 1. East Mountain Springs (see monitoring location list I.B.1)
- 2. East Mountain Springs - Mill Fork Area (see monitoring location list I.B.3)

East Mountain Springs will be field monitored during the months of July and October. Rilda Canyon Springs - (NEWUSSD: Meters ~~2~~ & 3; when functioning) will be field monitored monthly depending upon access.

- 3. Post Mine Closure – Deer Creek Mine Drainage
 - a. Rilda Canyon Pipeline – terminus of pipeline DCDRCP
 - b. Rilda Canyon Pipeline – integrity evaluation meters – flow only (refer to Volume 11, R645-301-500 Engineering Section, Appendix I, Design Drawings, Water Relief Pipeline 2016 Rilda Canyon for location of upper and lower vaults – meter locations)

4. Piezometric Wells

- a. Surface

Piezometric surface wells will be field monitored for level only on a monthly basis depending upon access.

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

(1) Rilda Canyon (see Map HM-1 for locations)

P1	P7
P5	EM-47
P6	

UPDES Monitoring

1. Deer Creek

UPDES sites 001 and 002 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: (see enclosed summary of operational, baseline, and reclamation monitoring schedules)

Springs East Mountain Springs will be field monitored during the months of July and October.

Rilda Canyon Springs (NEWUSSD: Meters ~~2~~ & 3; when functioning) will be field monitored monthly for flow depending upon access. East Mountain Springs (including Rilda Springs) monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.

Wells: Piezometric surface wells (Rilda Canyon and Cottonwood Canyon): will be field monitored for level only on a monthly basis depending upon access. Piezometric surface well monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.

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HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE

Waste Rock Well: will be field monitored for level only on a quarterly basis. Monitoring will be conducted until sealing during final reclamation.

Post Mine Closure:

Post Mine Closure monitoring locations will be field monitored monthly for flow including all field parameters until bond release.

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, except for Indian Creek - quality samples will be collected during baseflow only. 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 2016 and will be repeated every five years there-after.

a. Cottonwood Creek Drainage

(1) Indian Creek

- (a) ICA
- (b) ICD
- (c) ICB

b. Huntington Creek Drainage

(1) Deer Creek

- (a) DCR01
- (b) DCR04
- (c) DCR06

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

- (2) Huntington Creek
 - (a) HCC01
 - (b) HCC02
 - (c) HCC04

- (3) Meetinghouse Canyon - South Fork:
 - (a) MCH01

- (5) Rilda Canyon
 - (a) RCF1
 - (b) RCF3
 - (c) RCW4

- (6) Mill Fork Canyon
 - (a) MFA01
 - (b) MFB02
 - (c) MFU03

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 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.

**PACIFICORP
ENERGY WEST
HYDROLOGIC MONITORING PROGRAM
DEER CREEK MINE**

2. Groundwater Hydrology

- a. East Mountain Springs: Water samples will be collected and analyzed during the months of July and October. Rilda Canyon Springs (NEWUSSD: Meters ~~2~~ & 3; when functioning) will be monitored for quarterly for quality. Parameters analyzed are those listed in the DOGM Guidelines for Groundwater Water Quality (see Table 2-Ground Water Quality Parameter List).
- b. Wells: No analysis required
- c. Post Mine Closure Rilda Canyon Pipeline – terminus of pipeline DCD: One water sample will be collected and analyzed per location monthly. Parameters analyzed are those listed in the DOGM Guidelines for Groundwater Water Quality (see Table 2-Ground Water Quality Parameter List).

Baseline analysis was performed in 2016 and will be repeated every five years thereafter.

Reclamation Monitoring - Groundwater Hydrology:

- a. East Mountain Springs: Water samples will be collected and analyzed during the months of July and October. Rilda Canyon Springs (NEWUSSD: Meters ~~2~~ & 3; when functioning) will be monitored quarterly for quality. Parameters analyzed are those listed in the DOGM Guidelines for Groundwater Water Quality (see Table 2-Ground Water Quality Parameter List). East Mountain Springs (including Rilda Springs) monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.
- b. Wells: Rilda Canyon wells will be sealed during final reclamation. Quarterly sampling will continue until sealing. Parameters analyzed are those listed in the DOGM Guidelines for Groundwater Water Quality (see Table 2-Ground Water Quality Parameter List).
- c. Post Reclamation Monitoring: PacifiCorp commits to conduct annual surveys to identify new discharge locations within and below sealed portals. If discharge occurs, one water sample will be collected and analyzed per location quarterly. Parameters analyzed are those listed in

**PACIFICORP
ENERGY WEST
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DEER CREEK MINE**

the DOGM Guidelines for Groundwater Water Quality (see Table 2-Ground Water Quality Parameter List). Baseline analysis will be performed on the 5th and 9th year.

3. UPDES Monitoring Sites

a. Deer Creek Mine

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

Interwest Mining Company

Deer Creek Mine

C/015/0018

**Amendment to Include New Water Monitoring Locations,
Deer Creek Mine, C/015/0018, Emery County, Utah**

**Volume 9, Appendix A-1 – Replace Hydrologic Monitoring
Schedule, 8 pages**

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING SCHEDULE
DEER CREEK 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>Joels Valley</i>	ICA	Based Flow Monitoring Only (October or November)									Operational			
	<i>Indian Creek</i>	ICD	Based Flow Monitoring Only (October or November)									Operational			
		ICB	Based Flow Monitoring Only (October or November)									Operational			
<i>Huntington Drainage System</i>	<i>Deer Creek</i>	DCR01	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	
		DCR04	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	
		DCR06	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	
	<i>Huntington Creek</i>	HCC01	Flow *	Flow *	Operational*	Flow *	Flow *	Operational*	Flow *	Flow *	Operational*	Flow *	Flow *	Operational*	
		HCC02			Operational*			Operational*			Operational*			Operational*	
		HCC04			Operational*			Operational*			Operational*			Operational*	
	* Flow in Huntington Creek is measured @ HCC01 by Utah Power, and will be reported in the Annual Hydrologic Report														
	<i>Meetinghouse Canyon</i>	MCH01	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	
	<i>Rilda Canyon</i>	RCF1*	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	
		RCLF1	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	
		RCLF2	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	
		RCF2	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	
		RCF3	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	
RCW4		Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational		
* Baseline flow will be measured adjacent to EM-163															
<i>Mill Fork Canyon</i>	MFA01	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational		
	MFB02	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational		
	MFU03	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational		

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING SCHEDULE
DEER CREEK MINE

GROUNDWATER HYDROLOGY - OPERATIONAL SAMPLING (Table 2)

Groundwater Type

			<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>	<i>East Mountain</i>	<i>(Includes Mill Fork Springs)</i>							Operational	Flow *	Flow *	Operational		
	<i>East Mountain-Rilda Canyon Meter</i>		Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational
										* Recession Springs				
<i>Wells</i>	<i>Rilda Canyon Wells</i>		Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level

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>Deer Creek</i>	<i>DCD</i>	Operational											
<i>Sediment Pond Discharge</i>	<i>Deer Creek</i>	<i>1 Outfall</i>	Operational											

POST MINE CLOSURE SAMPLING - (Table 2)

			<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 Rilda Canyon Pipeline</i>	<i>Deer Creek</i>	<i>DCDRCP</i>	Operational											
	<i>Deer Creek</i>	<i>Meters</i>	Flow											

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING SCHEDULE
DEER CREEK MINE

SURFACE HYDROLOGY - BASELINE SAMPLING (Table 1) - 2016, 2021

<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>Joels Valley</i>	ICA	Based Flow Monitoring Only (October or November)										Baseline		
	<i>Indian Creek</i>	ICD	Based Flow Monitoring Only (October or November)										Baseline		
		ICB	Based Flow Monitoring Only (October or November)										Baseline		
<i>Huntington Drainage System</i>	<i>Deer Creek</i>	DCR01	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	
		DCR04	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	
		DCR06	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	
	<i>Huntington Creek</i>	HCC01	Flow *	Flow *	Baseline*	Flow *	Flow *	Baseline*	Flow *	Flow *	Baseline*	Flow *	Flow *	Baseline*	
		HCC02			Baseline*			Baseline*			Baseline*			Baseline*	
		HCC04			Baseline*			Baseline*			Baseline*			Baseline*	
	* Flow in Huntington Creek is measured @ HCC01 by Utah Power, and will be reported in the Annual Hydrologic Report														
	<i>Meetinghouse Canyon</i>	MCH01	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	
	<i>Rilda Canyon</i>	RCF1*	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	
		RCLF1	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	
		RCLF2	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	
		RCF2	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	Flow	Flow	Field	
RCF3		Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline		
RCW4		Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline		
* Baseline flow will be measured adjacent to EM-163															
<i>Mill Fork Canyon</i>	MFA01	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline		
	MFB02	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline		
	MFU03	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline	Flow	Flow	Baseline		

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING SCHEDULE
DEER CREEK MINE

GROUNDWATER HYDROLOGY - BASELINE SAMPLING (Table 2) - 2016, 2021

Groundwater Type

			<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>	<i>East Mountain (Includes Mill Fork Springs)</i>								Baseline	Flow *	Flow *	Baseline		
	<i>East Mountain-Rilda Canyon Meter</i>		Flow	Flow	Baseline									
<i>Wells</i>	<i>Rilda Canyon Wells</i>		Level											

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>Deer Creek</i>	DCD	Operational											
<i>Sediment Pond Discharge</i>	<i>Deer Creek</i>	1 Outfall	Operational											

POST MINE CLOSURE SAMPLING - (Table 2)

			<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 Rilda Canyon Pipeline</i>	<i>Deer Creek</i>	DCDRCP	Baseline											
	<i>Deer Creek</i>	Meters	Flow											

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING SCHEDULE
DEER CREEK MINE

SURFACE HYDROLOGY - RECLAMATION SAMPLING (Table 1)

<u>Drainage Svstem</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>
Cottonwood Creek Drainage System*	Joels Valley	ICA	Based Flow Monitoring Only (October or November)										Operational	
	Indian Creek	ICD	Based Flow Monitoring Only (October or November)										Operational	
		ICB	Based Flow Monitoring Only (October or November)										Operational	
	Deer Creek	DCR01			Operational			Operational			Operational			Operational
		DCR04			Operational			Operational			Operational			Operational
		DCR06			Operational			Operational			Operational			Operational
Huntington Creek Drainage System*	Huntington Creek	HCC01			Operational**			Operational**			Operational**			Operational**
		HCC02			Operational**			Operational**			Operational**			Operational**
		HCC04			Operational**			Operational**			Operational**			Operational**
<i>** Flow in Huntington Creek is measured @ HCC01 by Utah Power, and will be reported in the Annual Hydrologic Report</i>														
	Meetinghouse Canyon	MCH01			Operational			Operational			Operational			Operational
	Rilda Canyon	RCF1***			Operational			Operational			Operational			Operational
		RCLF1			Field			Field			Field			Field
		RCLF2			Field			Field			Field			Field
		RCF2			Field			Field			Field			Field
		RCF3			Operational			Operational			Operational			Operational
		RCW4			Operational			Operational			Operational			Operational
<i>*** Baseline flow will be measured adjacent to EM-163</i>														
	Mill Fork Canyon	MFA01	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational
		MFB02	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational
		MFU03	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational

** Analyzed for Baseline Parameters During the Fifth (5) and Ninth (9) Year After Final Reclamation*

In no case will baseline sampling time frame exceed 5 years converting from operational to reclamation monitoring.

PACIFICORP
ENERGY WEST MINING COMPANY
HYDROLOGIC MONITORING SCHEDULE
DEER CREEK MINE

GROUNDWATER HYDROLOGY - RECLAMATION SAMPLING (Table 2)

Groundwater Type

Springs

	<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>
East Mountain (Includes Mill Fork Springs)							Operational			Operational		
<i>Spring monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.</i>												
East Mountain-Rilda Canyon Meter	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational	Flow	Flow	Operational
<i>Rilda Spring monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.</i>												
<i>Spring monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.</i>												

Wells

Rilda Canyon Wells*	Level											
<i>Rilda Canyon well monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.</i>												
<i>* Monitored monthly subject of access</i>												

UPDES SAMPLING - (Table 1)

Mine Water

Discharge**

	<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>
Deer Creek	DCD	As Needed Basis According to UPDES Permit Stipulations										
** After Portal Sealing (Deer Creek Canyon and Rilda Canyon), PacifiCorp Will Monitor Down Dip For Development Of Groundwater Seeps/Springs Until Bond Release												

Sediment Pond

Discharge

Deer Creek	1 Outfall	As Needed Basis According to UPDES Permit Stipulations										
-------------------	-----------	--	--	--	--	--	--	--	--	--	--	--

POST MINE CLOSURE SAMPLING - (Table 2)

Mine Water

Rilda Canyon

Pipeline

	<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>
Deer Creek	DCDRCP	Operational										
Deer Creek	Meters	Flow										
<i>Rilda Canyon Pipeline and Meter (s) monitoring will be conducted until permit area reduction approval or unless otherwise approved by the Division.</i>												

PacifiCorp

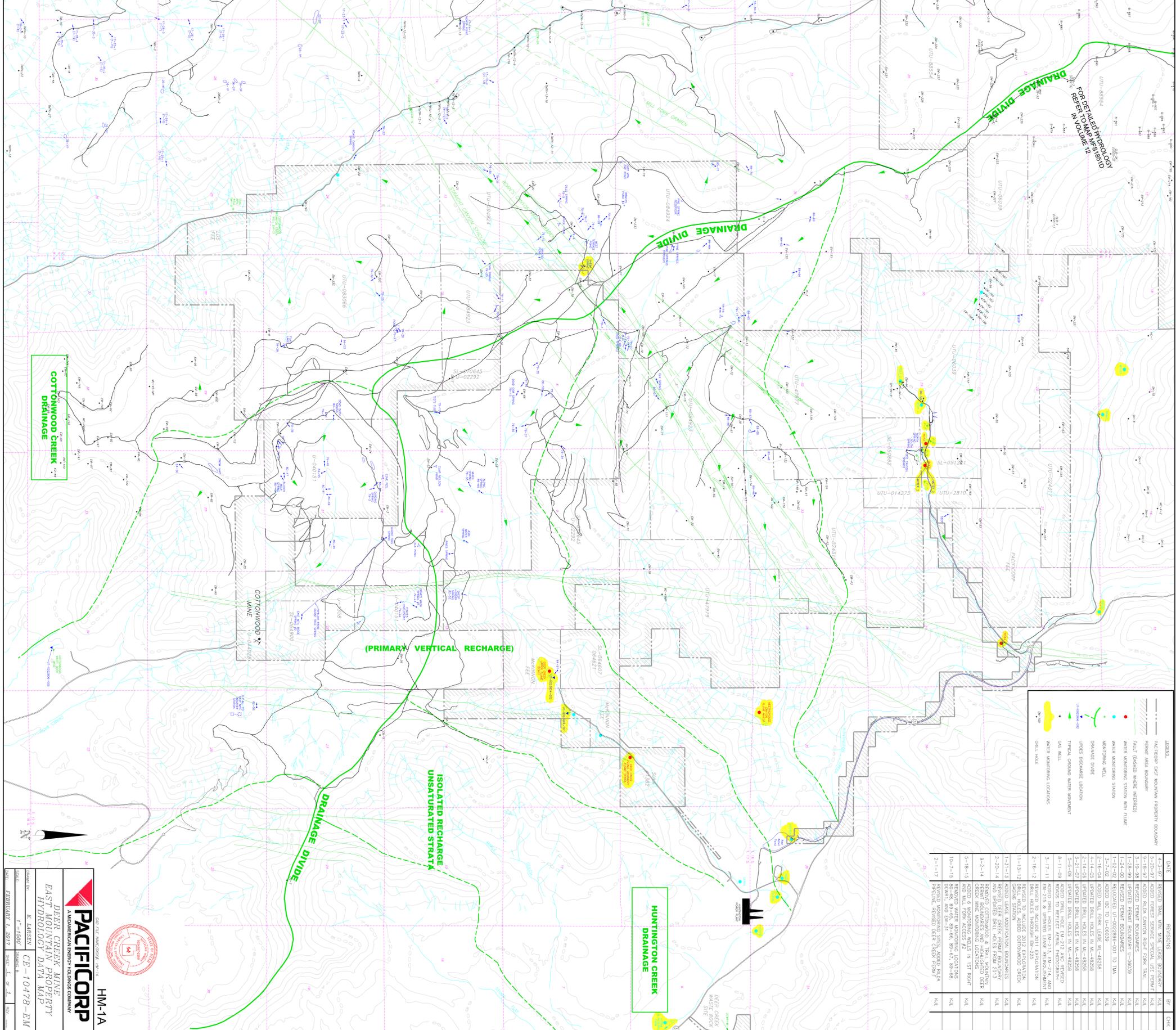
Interwest Mining Company

Deer Creek Mine

C/015/0018

**Amendment to Include New Water Monitoring Locations,
Deer Creek Mine, C/015/0018, Emery County, Utah**

Volume 9, Appendix A-1 – Replace Map HM-1A



LEGEND

- PACIFICORP EAST MOUNTAIN PROPERTY BOUNDARY
- PROPERTY AREA BOUNDARY
- FAULT (SHADDED WHERE INFERRED)
- WATER MONITORING STATION WITH FILTAGE
- WATER MONITORING STATION
- WATER MONITORING WELL
- TYPICAL SPRING WATER MONITORING WELL
- GAS WELL
- WATER MONITORING LOCATIONS
- DRILL HOLE

DATE	REVISIONS	BY	CHK
5-23-97	REVISED TRAIL WITH VERTICAL RECHARGE	KAL	
5-20-97	ADDED FOREST SERVICE SPECIAL USE PERMIT	KAL	
9-18-97	ADDED RIMLAND CANYON RIGHT FORK TRAIL	KAL	
3-18-98	REVISED PROPERTY BOUNDARIES	KAL	
1-28-98	UPDATED PROPERTY BOUNDARIES U-06039	KAL	
1-02-02	RELOCATED UT-0022888-001 TO MA	KAL	
3-7-02	ADDED BC TO U-06039	KAL	
2-16-04	UPDATED RILL FORD LEASE WL-48258	KAL	
4-14-04	UPDATED RILL HOLES IN W-48258	KAL	
2-14-06	UPDATED RILL HOLES IN W-48258	KAL	
3-6-09	UPDATED RILL HOLES IN W-48258	KAL	
9-11-09	ADDED RILL HOLE GW-217 AND REVISED ZONES TO REFLECT METAL PRODUCTION	KAL	
3-17-11	ADDED RILL HOLE GW-219 & UPDATED LEASE RENOVATION PERMIT	KAL	
2-1-12	REVISED TO INCLUDE 2011 EXPANSION	KAL	
11-13-12	REVISED TO INCLUDE 2012 EXPANSION	KAL	
1-31-13	ADDED LEASE MODIFICATION BOUNDARIES	KAL	
2-20-14	REVISED LEASE MODIFICATION BOUNDARIES	KAL	
9-2-14	UPDATED DRILL HOLES FROM 2013	KAL	
5-18-14	REMOVED BOUNDARIES AND HIGHLIGHTED DEER CREEK AND HUNTINGTON LEACHING RIGHT	KAL	
5-18-14	AND HILL FORD ACCESS #2 IN 03 RIGHT	KAL	
10-7-14	REVISED WATER MONITORING LOCATIONS	KAL	
2-1-17	REVISED MONITORING SITES, ADDED RILL HOLES, AND UPDATED LEASE RENOVATION PERMIT	KAL	

PACIFICORP

 A MICHIGAN ENERGY HOLDINGS COMPANY

DEER CREEK MINE

EAST MOUNTAIN PROPERTY

HYDROLOGY DATA MAP

R. JANSEN

 T-14500

 CE-10478-EM

HM-1A

FEBRUARY 1, 2017