

C/007/013 Incoming
#5550

UtahAmerican Energy, Inc.



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October 19, 2017

RECEIVED

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DIV. OF OIL, GAS & MINING

Daron Haddock
Utah Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, UT 84114-5801

Re: Plugging and Abandonment of IPA #3 Borehole, Horse Canyon Mine – Lila Canyon
C/007/0013; Clean Copies Task ID #5550

Dear Mr. Haddock:

Attached please find the Clean Copies for amendment Task ID #5550 for the Sealing of IPA Well #3. Included are 2 copies of the text changes and maps associated with the change project.

If you have questions or need additional information regarding this submittal, please contact me at (435) 888 4000.

Sincerely,



Karin Madsen
UtahAmerican Energy, Inc.

**Horse Canyon Extension
Lila Canyon Mine**

**Chapter 7
Hydrology**

Volume 6 of 7

722. Cross Sections and Maps

722.100 Subsurface Water. The locations where subsurface water, including springs and seeps, have been identified are presented on Plates 6-1 and 7-1 and data results are included in Appendix 7-1. Relevant cross sections of subsurface water, geology, and drill holes are shown on Plate 6-1. Where sufficient data are available, the seasonal head differences are presented on contour maps (see Figure 7-2A) and on a piezometer hydrograph plot (see Figure 7-2B).

722.200 Surface Water. Location of all streams and stockwatering ponds or tanks in the area of the mine are shown on Plate 7-1. There are no perennial streams, lakes or ponds known to exist within the proposed permit or adjacent areas.

A new diversion work was thought to have been constructed by the BLM in 2004 at the confluence of the Right Fork of Lila Canyon and Grassy Wash. Water from this diversion was directed to the stock pond located in Section 28, T. 16 S., R 14 E. Figure 1 in Appendix 7-9 shows the location of the diversion and the alignment of the diversion channel to the stock pond. Also, the location of the overflow channel back to Grassy Wash is also presented on the figure. However, the BLM was not involved in the pond improvements. Recent site investigation 2006 shows that the diversion structure described in Appendix 7-9 has been breached and no flow now reaches the pond from Grassy Wash. No other ditches or drains are known to have been constructed in the area of the mine.

722.300 Baseline Data Locations. Locations of all baseline data monitoring points are shown on Plate 7-1. Baseline water quality and quantity data is included in Appendix 7-1.

722.400 Water Wells. Three wells and three piezometers have been identified in the permit and adjacent areas. Two wells are located within the alluvium of lower Horse Canyon Creek. Three water piezometers were drilled in the area, IPA #1, IPA #2 and IPA #3, to monitor mine water levels. Drill hole S-32 was drilled and converted to a water monitoring hole by Kaiser in 1981. The details of these wells and piezometers are discussed in Section 724.100 of the application. The location of all these wells and piezometers is shown on Plate 7-1. IPA #3 was drilled through an area where future second mining plans expect to intersect the well. This well will be sealed prior to mining taking place in the area. No information on any other wells has been identified.

722.500 Contour Maps Contour Maps of the proposed disturbed area and mining areas are included as Plates 5-2A, 5-2B, 7-1 and 7-2. These maps

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There are a total of 13 ground water monitoring sites proposed for this property (see Table 7-3). Station L-5-G is the potential mine discharge point, and will be monitored at least monthly, or as discharge occurs, in accordance with U.P.D.E.S. Permit requirements (see Table 7-4).

Stations L-7-G, L-8-G, L-9-G, L-11-G, L-12-G, and L-19-G are significant springs or seeps located over the area of proposed mining. These springs will be monitored on a quarterly basis for parameters listed in Table 7-5.

Station L-6-G is in the vicinity of two listed water right springs, Mont Spring and Leslie Spring. These springs are within the same small drainage, and may in fact be the same spring. Close examination of spring/seep and baseline monitoring stations show only one site in this drainage with any consistent flows - site H-18; therefore, this site was originally chosen to monitor the Mont and Leslie Springs area. However in recent years L-6-G has been dry and a new wet area upstream of L-6-G, Location L-11-G, has been added to replace site L-6-G. Sampling at L-6-G was suspended as of the First Quarter of 2003.

Monitoring site L-7-G is intended to monitor a listed site known as Cottonwood Spring. Once again, a close examination of water rights information along with spring/seep and baseline monitoring has shown only one site in this area with any consistency - site #9; therefore, this is the site chosen for monitoring of Cottonwood Spring.

L-8-G is an unnamed spring that matches Earthfax sample site 10.

L-9-G is known as Pine Spring. There are two locations that are identified as Pine Spring. These are water rights 91-2517 and 91-2539, which are part of the same water right filing. In the spring and seep inventories there has never been any flow identified in the area of 91-2517 as the site is located off of the stream channel. It is assumed that the filing for 91-2517 is a duplicate but the location is wrong. There have been numerous seep/spring notations in the local area, but the only consistent flowing site is 91-2539; this is the site that will be monitored for Pine Spring. (In a recent archeological study, the location of the site that has

been monitored as L-9-G was determined using GPS coordinates. The location for this site was determined to be different than what was plotted on the Plates 7-1, 7-1A, and 7-3. Based on this new data, the location of the spring has been updated.)

L-10-G is also an unnamed spring that matches Earthfax sample site 14. Since this site is located over 1 mile south of the permit area, it has been replaced with L-12-G which is a more appropriate site to monitor. Monitoring of site L-10-G was suspended as of the First Quarter of 2003.

L-11-G is located in the bottom of the upper reaches of Lila Canyon. This is in the same drainage as the Mont and Leslie Springs water right locations. In recent years L-6-G (H-18) has been dry. However, there has been some minimum flow observed approximately one hundred yards above L-6-G where L-11-G was established.

L-12-G is an unnamed spring which had been developed to replace L-10-G and is now currently being monitored.

L-13-S, L-14-S, L-15-S, and L-18-S are sites that were being monitored to assist in characterization of the various drainages. Monitoring of L-13-S, L-14-S and L-18-S were suspended in 3rd Quarter of 2011. Monitoring of L-15-S was suspended in 1st Quarter of 2003.

L-16-G and L-17-G are seeps being monitored in Stinky Spring Canyon. These sites were not identified during baseline surveys and are believed to exist intermittently and are not always evident. These two seeps appear to be an important source of water for Bighorn sheep specifically in the early spring.

L-20-G is a seep located north of the permit boundary along a tributary to Little Park Wash. It was identified in the original spring and seep survey and was monitored until 3rd Quarter, 2012.

It should be noted that data has been gathered on the various seeps/springs as part of the original baseline inventory for the South Lease by I.P.A. The data was gathered over the years 1993, 1994 and 1995 and was stopped. In the second quarter of 2001 water monitoring continued.

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The seep/spring inventory data is shown in Appendix 7-1 and locations are shown on Plate 7-1. Proposed water monitoring sites are shown on Plate 7-4.

IPA-1 and IPA-2 are groundwater piezometers in the Little Park Wash area. These holes will be checked quarterly for water depth only. Monitoring of these sites will continue until the mining or subsidence renders them unusable. IPA-3 will be intersected by mining in early 2018 and will be sealed as per BLM regulations prior to mining in the expected area takes place.

At a minimum, total dissolved solids or specific conductance corrected to 25 degrees C, pH, total iron, total manganese and water levels will be monitored, on all points except the IPA wells.

731.212 Monitoring Reports During periods of active monitoring, ground water will be monitored and data will be submitted at least every three months for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the approved reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator will promptly notify the Division and immediately take the actions provided for in 145 and 731.

731.213 Waiver of Monitoring N/A - No waiver is requested.

731.214 Ground-Water Monitoring Duration Ground-water monitoring will continue through mining and reclamation until bond release.

The Division may approved modifications to the monitoring plan if, based on the monitoring data, it finds:

731.214.1 "The coal mining and reclamation operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses"; or,

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Table 7-3 Lila Canyon Mine Water Monitoring Stations				
Station	Location	Type	Frequency	Remarks
L-11-G	Lila Canyon	Spring	Quarterly	Mont/Leslie Spring Replaces L-6-G Water Right 91-618
L-12-G	Section 25 Spring	Spring	Quarterly	Replaces L-10-G
L-13-S	Little Park Wash	Dry Wash	Sampling Permanently Suspended 3Qtr 2011	At Road Crossing
L-14-S	Section 25 Noname Wash	Dry Wash	Sampling Permanently Suspended 3Qtr 2011	At Road Crossing
L-15-S	Williams Draw Wash	Dry Wash	Sampling Permanently Suspended 1Qtr of 2003	At Road Crossing
L-16-G	Stinky Spring Wash	Seep	Quarterly	Top of Mancos
L-17-G	Stinky Spring Wash	Seep	Quarterly	Top of Mancos
L-18-S	Stinky Springs Wash	Dry Wash	Sampling Permanently Suspended 1Qtr 2011	Adjacent to Access Road
L-19-S	Little Park Wash	Dry Wash	Quarterly	At Permit Boundary

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Table 7-3 Lila Canyon Mine Water Monitoring Stations				
Station	Location	Type	Frequency	Remarks
L-20-G	Quaker Spring	Seep	Sampling Permanently Suspended 3Qtr 2012	North of Permit Boundary
IPA-1	Little Park	Borehole	Quarterly	Water Level Only
IPA-2	Little Park	Borehole	Quarterly	Water Level Only
IPA-3	Little Park	Borehole	Sealed in Fall of 2017	Water Level Only

NOTE: Sites L-13-S, L-14-S, L-15-S, L18-S, were monitored monthly during the permitting process to determine flow characteristics of the various washes. The monitoring locations are no longer needed since the flow characteristics have been well documented. The monitoring locations are where the road crosses dry washes. Samples have never been taken and flow has never been observed. CG-2, CG-3, CG-4, CG-5, CG-6, and CG-7 were suspended following completion of wash characterization study.

Note: Site L-20-G has been permanently suspended following completion of baseline monitoring for the initial mine permit. The monitoring site is outside the permit area and is also outside the influence of subsidence. No further monitoring is needed.

Other sites temporarily suspended until two year prior to second mining influence.

Due to access concerns only the 2nd, 3rd and 4th quarters will be sampled. First quarter has been no access.

In the event Mining Activity is anticipated to take place in the path of IPA wells 1, 2, and 3, sealing procedures outlined by BLM regulations will be followed to seal the wells prior to mining taking place in the area.

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731.512.5 Flue-gas Desulfurization Sludge N/A - There are no plans for flue-gas desulfurization at this site.

731.512.6 Inert Materials N/A - There are no plans to use or discharge inert materials used for stabilizing underground mines.

731.512.7 Any underground mine development wastes that cannot be left and permanently stored underground will be brought to the surface and stored in a controlled, designated location. Final disposal of such material will depend on its volume, physical and chemical characteristics and potential for use in reclamation. There are presently no plans to return such material underground; however, if this does become necessary in the future, complete plans will be submitted for disposal at that time.

731.513 Water from Underground Workings Based on historical data from other mines in the area, some mine water can be expected to be encountered during the mining operation. Typically, such water is stored in "sumps" or designated areas in the mine and used for mining operations or discharged to the surface. A sump is an underground storage area that is used to temporarily store water before it is used underground or pumped to the surface for discharge. The main purpose of a sump is to remove sediments. The sump will also remove oil/grease if they were to get into the water. The size of a sump can vary from a few hundred gallons to several thousand gallons. The size normally depends on the space available and the amount of water needed for mining operations.

In order to more accurately define the potential impact of the mine on ground water, underground usage discharge amounts, if they were to occur, would be documented. This information along with the surface monitoring program will provide the best information available as to the potential impact of the mine on ground water.

IPA piezometers 1-2 will still be monitored quarterly if possible. The piezometers were monitored on December 22, 2000. The water level probe during this period was unable to reach the depth required to measure the water level of IPA-1 and IPA -3. Another attempt will be

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