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State of Utah

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April15, 2002

TO: Internal File

FROM: David W. Darby, Sr. Reclamation Specialist/Hydrology

RE: Technical Field Visit, Hydrology Review, UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/013

Other Attendees: Jay Marshall, Project Manager, UtahAmerican Energy Inc.

Date & Time: April 5, 2002 from 10:30 a.m. to 5:00 p.m.

PURPOSE:

The purpose of this field visit was to evaluate access and flow characteristics during the early spring runoff for surface and groundwater sites associated with the Horse Canyon Mine and proposed mine extension. I also wanted to check the ground water monitoring site L-12-G, the site UEI added to the extension area water monitoring plan and began monitoring last summer. I also wanted to observe runoff flows of springs and streams above the Book Cliffs escarpment and evaluate the stream channel in Little Park Wash for access and reclamation feasibility.

I met Jay Marshall at his office about 9:45 am. We dropped off some mail at the Price Field office then drove to the Horse Canyon Mine.

OBSERVATIONS:

Spring and Stream Flow

Horse Canyon Creek was dry near the facilities. We drove up to the road crossing of the Right Fork of Horse Canyon Creek. The channel was wet at the crossing and water was standing in some of the small depressions, but there was no observable flow. About 50 yards up from the crossing, we could see a little flow where bedrock was exposed in the channel. The source of the flow is Redden Spring, RS-2.

We drove up the road above the escarpment. The road had been graded late last fall by Waldo Wilcox, a local rancher. It has been a common practice of him over the past couple decades. Dirt had been pushed into the channel (at upper Lila Canyon) to smooth out the road crossing. The fill was soft and would likely erode if channel flows. However, there was no flow in the channel.

Little Park Wash was dry above and below the road crossing. We drove south to the next drainage to examine the springs that flow from the area. The drainage forks at the road crossing. A small spring was noted in the past just above the crossing, it was not flowing. Another small spring had been noticed in the past, about 150 yards up the right (or south) channel. It was not flowing either. The soil was moist for about 30 feet in the vicinity of the previous observed spring. Spring L-12-G is about 300 yards up the left (north) channel. Of the three springs mentioned, the water trough site (L-12-G) is nearest to the permit area. The other two springs lie off the extension property. The choice to monitor the trough spring is a good choice for UEI, since it can show that the spring is already in deteriorated condition and not flowing very much, and also showing that the mine will not be responsible for causing significant impacts to the spring.

We then drove over to William's Draw Spring. The trough was full of water and a small amount of water was flowing behind the spring. The area was moist around the spring and there was a small amount of water in the channel. The flow in the channel abated before reaching the access road 100 feet from the spring.

We drove back to the previous channel (L-12-G, lower channel) and drove down it to check for flows and to see if we could get to Little Park Wash. There were no flows in the channel or any other spring sources. The channel became rough in one section and we could not reach Little Park Wash.

We drove to Little Park Wash via the access road. At first, we walked down the channel to see what type of access we would encounter. The channel was wide and dry so we went back, got in Jay' vehicle, then drove down the channel for several miles. The channel had been traveled by 4-wheel drive vehicles and 4-wheelers. The channel was lined with thick deposits of gravels. In most areas along the channel, the embankments consisted of unconsolidated gravels and sediments. There was no flow in the channel or any springs. In the event mining is conducted beneath this channel and subsidence takes place, the channel could be accessed and regraded.

Jay and I left the site at about 5 pm

RECOMMENDATIONS/CONCLUSIONS

The area around surrounding Horse Canyon Mine is significantly dry this year. The level of flow is smaller in the Right Fork of Horse Canyon Creek. There is no flow in any of the streams above the escarpment of the proposed extension area. The two springs in the channels south (via the access road) of Little Park Wash were not flowing.

I talked to Jay about setting up a surface monitoring site on the lower portion of Little Park Wash. I also mentioned that he should describe the stream channel of Little Park Wash and be specific about the access and feasibility of stream restoration in any updated mine plan submittals. Their proposed subsidence plan already mentions that all subsidence impacts will be mitigated.

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