


Huntington Plant

P.O. Box 680
Huntington, Utah 84528

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DIV. OF OIL, GAS & MINING

July 6, 2004

Utah State Department of Natural Resources
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801
Attn: Gregg Galecki

Re: Electric Lake Update

Dear Mr. Galecki:

Enclosed with this letter is an Appendix to the June 26, 2003 *Data and Finding Summary for Investigation of Technical Issues Related to the Electric Lake and Huntington Creek Drainage Controversy* ("Appendix"). This document provides updated information requested by the Division in our January meeting. PacifiCorp welcomes the opportunity to discuss, at the Division's convenience, the Appendix and our continuing conclusion that mining activities have caused significant water loss from Electric Lake.

Also, this letter provides updated information regarding dye tracer testing and tritium analysis at Electric Lake. These efforts are ongoing and are part of the continuing effort by PacifiCorp to understand the water loss at Electric Lake. PacifiCorp will update the Division as further information becomes available. PacifiCorp also requests that the Division provide PacifiCorp with all information it has received from the Skyline Mine regarding tritium and dye tracer testing so that this information can be incorporated into PacifiCorp's investigation and analysis.

TRITIUM

The ongoing tritium analysis continues to support PacifiCorp's claim that substantial quantities of surface water in the vicinity of Electric Lake are being diverted to subsurface discharge points (mine workings and dewatering wells). As you probably are aware, tritium is a radioactive isotope of hydrogen with a half-life of 12.4 years. Tritium in natural waters exposed to the earth's surface is derived mostly from nuclear sources (reactors, weapons testing and productions, etc.) and, because of its half-life, is present at only extremely low concentrations in subsurface water that is older than about 50 years. Our research has shown that tritium values from Electric Lake and Huntington Creek range from 7.7 to 12.6 TU, with an average of about 9 TU.

File in: 0070005.2004. Incoming
Refer to:
 Confidential
 Shelf
 Expandable
Date: 070604 for additional information

The table and graphs, attached as Exhibit 1 to this letter, show tritium values as function of time for samples collected from wells JC-1, JC-3, and from underground mine workings. While the only long-term time series is from well JC-1, it is clear from Exhibit 1 that this well is also representative of water in mine workings (which could not be sampled directly after 2002 due to flooding in the mine). The most prominent feature of Exhibit 1 is the consistent increase in tritium over time. For example, the tritium value for JC-1 was 0.2 TU in September of 2001 and has risen to 2.7 TU in March of 2004. The continuous increase in tritium through time with values reaching 2.7 TU can only occur by the rapid and downward movement of surface water to subsurface discharge points. Binary mixing calculations suggest that water discharged from well JC-1 is currently a mixture of approximately 22% to 45% modern water that is derived from surface sources.

PacifiCorp believes that the tritium results affirmatively demonstrate that mining activities have significantly redirected surface and ground water, including Electric Lake water, to the Skyline Mine. Any attempts to minimize this impact by claiming that the majority of subsurface discharge is derived from the Starr Point Sandstone, with only an insignificant "steady state" mixing of minor amounts of surface water, ignores the facts. In other words, this "steady state" conceptual model (a steady state mixture between mostly stored water and minor amounts of surface water continuing for a long period of time) ignores (1) the increasing nature of the tritium and other environmental tracer data, (2) large losses from Electric Lake beginning in 1999, and (3) the detection of dye in JC-1 discharge (discussed below).

Moreover, PacifiCorp believes that the data suggests that the rapid introduction of surface water in the Skyline Mine is likely to have resulted from disturbance of the fault fracture systems that were previously in a hydrological stable condition. This progressively happened as mining activities moved towards Electric Lake in 1999. This conclusion is supported by the isotopic chemical character of subsurface discharge evolving towards that of surface water, with this evolution commencing in approximately 2001. PacifiCorp will provide more complete information about the tritium and other isotopic chemical changes to the mine water at a later date.

DYE TRACING

PacifiCorp has performed essentially two dye tracer tests: 2003 and 2004. The 2004 test involved the introduction of dye into Electric Lake earlier this year. This test is ongoing and PacifiCorp will report that information at some future date, after it has been collected, reviewed, and analyzed completely.

The 2003 test involved the introduction of 50 pounds of eosine dye mixture and 35 pounds of fluorescein mixture onto the bottom of Electric Lake on April 1, 2003. Each was a 75% dye equivalent mixture. The eosine was introduced at a location overlying the Diagonal Fault, and fluorescein was introduced at a location overlying the Connelsville Fault. The dye introduction locations were six inches off the bottom of the lake and at locations near points where an underwater video indicated that the lake water was sinking into the bed of the lake. The underwater video taken prior to the dye introduction showed that there were numerous points

where water was sinking into small holes over a substantial amount of area on the floor of the lake. The flow of the water into the lake bed was indicated by small holes in the lake sediments and by sediment particles moving toward these holes.

Tracer dyes clearly derived from the 2003 dye introductions were detected at a number of sampling stations in Electric Lake, at two sampling stations on Huntington Creek downstream of Electric Lake, and wells (JC-1 and JC-3), which penetrate into the fault extending into the Skyline Mine and portions of the Mine itself. Some fluorescein dye also was detected at Sampling Station 1 (Eccles Creek, ¼ mile downstream of Skyline Mine).

Fluorescein dye introduced onto the floor of Electric Lake in 2003 was detected in three activated carbon samplers collected from Well JC-1. This well is extracting water from portions of the Skyline Mine located relatively near Electric Lake [comment – JC-1 does not actually extract water from any portion of the mine, it pulls water from the fault zone]. The fluorescein concentrations were 0.967, 0.801, and 1.04 ppb. Fluorescein dye also was detected in one sample from Well JC-3; the concentration was 1.43 ppb.

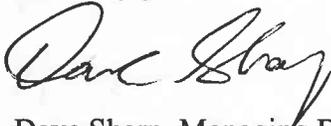
Eosine dye introduced onto the floor of Electric Lake in 2003 was detected in two activated carbon samplers collected from Well JC-1. Both of these samplers also contained fluorescein dye; both of the fluorescein concentrations were greater than the eosine concentration. The eosine concentrations were 0.189 and 0.562 ppb. PacifiCorp believes that these dye tests affirmatively establish a connection between Electric Lake water loss and the Skyline Mine's mining activities and related discharges of enormous amounts of water from the Mine.

Summary

As the above information and the information in the attached report indicate, it is PacifiCorp's firm belief that mining activities at the Skyline Mine have caused the loss of PacifiCorp's Electric Lake water. PacifiCorp requests that the Division take the appropriate action to prevent any further loss of water from the Lake and to require replacement of the water that has been lost.

If you have any questions regarding the content of this letter or the enclosed Appendix, please do not hesitate to contact myself at (435) 687-4211 or Cody Allred at (435) 687-4306.

Sincerely yours,



Dave Sharp, Managing Director
PacifiCorp Huntington Plant

Exhibit 1

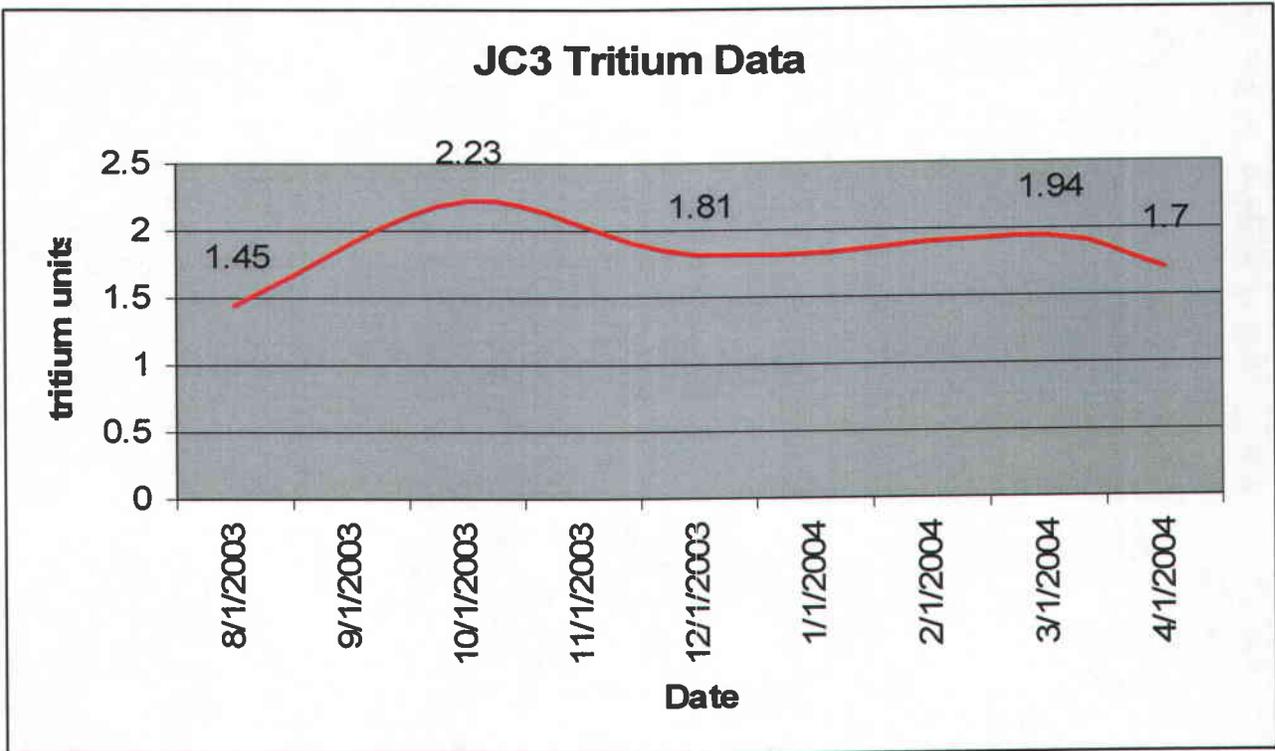
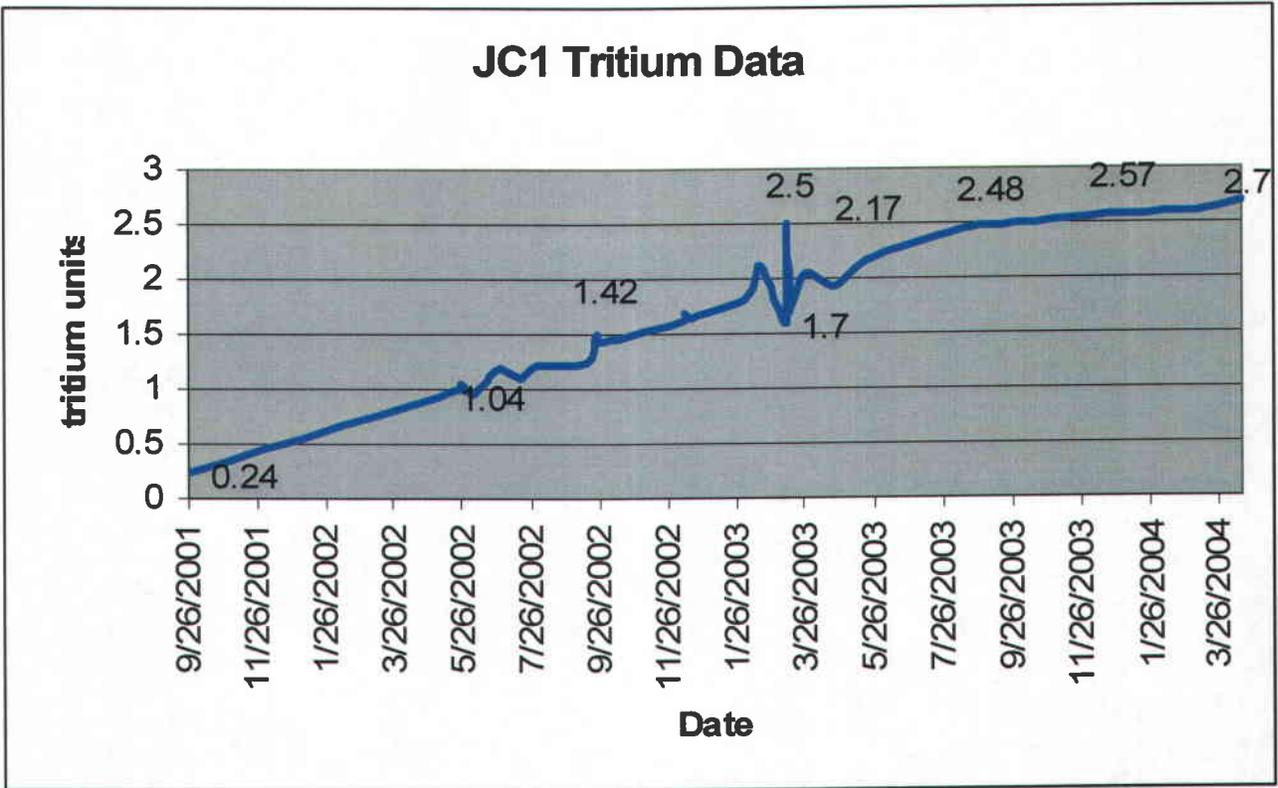


Exhibit 1 (cont.)

Electric Lake - Skyline Mine Tritium Records

<u>Sample Location</u>	<u>Sample Date</u>	<u>Tritium (TU)</u>
In-Mine		
10L Sump	7/2/2002	1.31
10L Sump	7/16/2002	1.16
10L Sump (alternate)	8/1/2002	1.19
10L Sump	8/15/2002	1.21
10L Sump	8/28/2002	1.20
10L Sump (alternate)	9/13/2002	1.18
10L Sump	9/23/2002	1.46
9L Borehole XC59	4/10/2002	0.16
9L Horizontal Borehole	7/2/2002	0.17
9L Horizontal Borehole	8/15/2002	0.86
9L Horizontal Borehole	8/28/2002	0.83
9 Left Horizontal Borehole	9/23/2002	0.24
Mine Dewatering Wells		
JC-1	9/26/2001	0.24
JC-1	5/24/2002	1.00
JC-1	5/24/2002	1.04
JC-1	6/4/2002	0.96
JC-1	6/19/2002	1.11
JC-1	6/28/2002	1.18
JC-1	7/16/2002	1.09
JC-1	8/1/2002	1.22
JC-1	9/13/2002	1.25
JC-1	9/24/2002	1.50
JC-1	9/28/2002	1.42
JC-1 argon purged	12/10/2002	1.62
JC-1 triple rinsed	12/10/2002	1.69
JC-1 argon purged	12/11/2002	1.66
JC-1 triple rinsed	12/11/2002	1.64
JC-1	1/31/2003	1.8
JC-1	2/15/2003	2.12
JC-1	3/10/2003	1.59
JC-1	3/10/2003	2.5
JC-1	3/10/2003	1.7
JC-1	3/26/2003	2.05
JC-1	4/21/2003	1.94
JC-1	5/19/2003	2.17
JC-1	8/7/2003	2.43
JC-1	9/3/2003	2.48
JC-1	12/29/2003	2.57
JC-1	3/4/2004	2.59

Sample Location	Sample Date	Tritium (TU)
JC-1	4/15/2004	2.7
JC-3		
JC-3	8/7/2003	1.45
JC-3	10/20/2003	2.23
JC-3	12/29/2003	1.81
JC-3	3/4/2004	1.94
JC-3	4/15/2004	1.7
Electric Lake		
Upper Electric Lake	9/26/2001	12.6
E. Lake-1 Mid Lake	5/24/2002	7.67
E.Lake-2 North End	5/24/2002	8.52
North End Shallow Elect.	7/11/2002	8.48
North End Deep Elect.	7/11/2002	8.49
South End Shallow Elect.	7/11/2002	8.57
South End Deep Elect.	7/11/2002	8.74
Huntington Creek	8/7/2003	10.5