ATTACHMENT OP-8

Groundwater Monitoring Program

Water Well Sampling Procedure

Contents

I. Purpose

This procedure outlines the approved groundwater sampling protocol for the Lost Creek Project. All individuals involved with the groundwater sampling program; including affected policy makers and supervisors, water samplers, and on-site laboratory personnel, will be familiar with this procedure. When adhered to, this procedure will result in the timely collection, analysis, documentation, and reporting of required groundwater samples.

II. Applicable Regulations and Guidance

The following regulations, guidelines and technical papers were consulted during the writing of this procedure. Any changes made to this document must be consistent with at least the relevant regulations.

A. Wyoming Department of Environmental Quality

- Wyoming Statutes §35-11-428 thru 430
- Land Quality Division Rules and Regulations Chapter 11 "Non-coal In Situ Mining"
- Land Quality Division Guideline No. 4 "In-Situ Mining"
- Land Quality Division Guideline No. 8 "Hydrology Coal and Non-Coal"

B. Nuclear Regulatory Commission

- 10 CFR 40.65
- 10 CFR 40 Appendix A Criterion 5(B)5
- Regulatory Guide 3.46
- Regulatory Guide 4.14
- NUREG 1569 "Standard Review Plan for In Situ Uranium Extraction License Applications"

C. Other

- ASTM Designation D6051-96 (Reapproved 2006) "Standard Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities.

III. Well Types

A. Storage Pond Wells

A series of monitor wells will be installed around the storage ponds to detect the presence of leakage. The wells are completed just above the uppermost aquitard where the water will tend to accumulate. These wells will generally be dry unless they are affected by significant precipitation events or by leakage from one of the ponds.

B. Regional Wells

A total of 27 regional monitor wells were installed to collect pre-operational water quality and hydrologic data. Generally, it is not necessary to collect water quality data from these wells during operations unless there is a reason to believe they have been impacted by operations. Quarterly water level readings will be taken during the life of the mine to document the impact of operations on water levels. Well numbers are:

LC29M, LC30M, LC31M, LC15M, LC18M, LC21M, LC25M, LC16M, LC19M, LC22M, LC26M, LC27M, LC28M, LC17M, LC20M, LC23M, LC24M, and MB-01 through MB-10.

Regional wells completed in the DE Sand that are also within the monitor ring of an unrestored wellfield, will have water levels taken and samples collected once per quarter. The water sample will be analyzed for pH, chloride, and conductivity in an effort to detect any migration of mining solution.

C. Wellfield Monitor Wells

i. Pre-Operational

As a part of the baseline assessment, all the mine unit monitor wells will be sampled at least four times at intervals at least 14 days apart. Water levels will be measured at the same frequency as the monitor well sampling. The Pre-Operational Baseline Table in Section V.A. outlines the constituent list for each type of monitor well.

ii. Operational

Excursion detection will consist of sampling the perimeter, overlying and underlying monitor wells at least twice per month, and no less than ten days apart, and analyzing the samples for the upper concentration limit (UCL) parameters. The monitor wells will be sampled as per the schedule outlined in the Operational Table in Section V.B. except in the event of inclement weather, mechanical failure, holiday scheduling, or other factors that may result in placing an employee at risk or potentially damaging the surrounding environment. In these situations, the EHSO/RSO, or his designee, will document the cause and the duration of any delays. In no event shall a delay be greater than five days.

Water levels will be measured at the same frequency as the monitor well sampling. Sudden changes in water levels may indicate that the mine unit flow is out of balance.

During routine sampling, if two of the three UCL values are exceeded in a monitor well, or if one UCL value is exceeded by 20 percent, the well will be re-sampled within 24 hours of receipt of the results from the routine sampling and analyzed for the excursion indicators. If the second sample does not exceed the UCLs, a third sample will be taken within 24 hours of receipt of the second sample results. If neither the second or third sample results exceed the UCLs, the first sample will be considered in error. If the second or third sample verifies an exceedance, the well in question is placed on excursion status.

In the event of an excursion, the sampling frequency of the monitor well on excursion status will be increased to weekly. If an excursion is not corrected within 30 days, a sample will be collected and analyzed for parameters listed in WDEQ-LQD Guideline 8 Appendix I Sections IV and VA(1) and the applicable EPA MCLs. Once parameters no longer exceed the UCLs, a final sampling and analysis of the WDEQ-LQD Guideline 8 parameters will be performed. An excursion is when the UCLs of two parameters are exceeded for an individual well or when a single parameter exceeds the UCL by more than 20%. An excursion is corrected when two consecutive weekly sample rounds confirm the definition of an excursion is no longer met.

iii. Restoration & Stabilization

During restoration the perimeter and underlying and overlying monitor wells will continue to be sampled at least twice per month, and no less than ten days apart, for UCL parameters. The production monitor wells will be sampled, at a minimum, at the beginning of restoration and the end. The final restoration sample may also serve as the initial stabilization sample.

Upon completion of restoration and notification of WDEQ-LQD, a groundwater stabilization monitoring program will begin in which the production monitor wells used to evaluate restoration success will be sampled. Each production monitor well will be sampled at the beginning of stabilization and once per quarter for a period of 12 months and analyzed for Guideline 8 parameters. This will yield a total of 5 sample rounds. The monitor ring, overlying, and underlying monitor wells will be sampled for the UCL parameters once every two months throughout stabilization. If an excursion occurs during stabilization, then the sampling will revert to weekly for the affected monitor well until the excursion is resolved.

D. Public Wells

Before beginning operations, public wells (wells that may be used for irrigation, watering livestock, or human consumption and are within 2 kilometers (1.24 miles)) will be sampled quarterly for at least one year if the owner consents and the pumping system is in working order. During operations and until groundwater restoration and stabilization are complete; all public wells within two kilometers of active wellfields will be sampled on a quarterly basis if the owner consents and the pumping system is in working order. At a minimum, the samples will be analyzed for natural uranium and radium-226.

Results of the analysis will be included in the NRC semi-annual report and the WDEQ Annual Report. If analysis show that the water quality has deteriorated, an investigation will be initiated by EHS Department to determine the cause and any necessary corrective action. The only well within 2 kilometers of the first mine unit is the Battle Spring Draw Well No. 4451 NE, NW of S21, T25N, R92W.

IV. Sampling Schedule

A. Pre-operational Baseline

Monitor Well Type	Frequency	Analytes[1]	Comments
Storage Pond	Quarterly for one year unless dry	If retrievable water is present analyze for pH, U_{nat}, chloride, bicarbonate, sulfate, and conductivity	
Regional	Quarterly for one year	Guideline 8[2]	
Wellfield	Production Zone 4 total samples at least 14 days apart each	2 rounds of Guideline 8 and 2 rounds of short list[3]	
	Perimeter, Overlying, Underlying 4 total samples at least 14 days apart each	1 round of Guideline 8 and 3 rounds of UCL s	
Public	Quarterly for one year	Ra-226 and U_{nat}	

1 – The listed analytes are in addition to the field parameters pH, water level and temperature which should be collected for all well samples.
2 – Guideline 8 refers to those parameters listed in the WDEQ-LQD Guideline 8, Appendix 1, Section IV and V(A)(1).
3 - Short list consists of those parameters that were detectable during the first and/or second rounds

B. Operational

Monitor Well Type	Frequency	Analytes[1]	Comments
Storage Pond	Monthly	If retrievable water is present analyze for pH, U_{nat}, chloride, bicarbonate, sulfate, and conductivity	Notify EHS/RSO if water level increases or water quality is similar to pond water quality
Regional	Quarterly	Water levels only outside unrestored wellfields, also pH, chloride, and conductivity for wells completed in the DE Horizon and within monitor ring of unrestored wellfields.	Notify EHS/RSO if water level increases or decreases significantly
Wellfield	Production Zone None	None	
	Perimeter, Overlying, Underlying Semi-monthly at least ten days apart[2]	Chloride, bicarbonate, conductivity	Notify EHS/RSO if water level changes significantly or if UCLs are approached or exceeded
Public	Quarterly	Ra-226 and U_{nat}	Notify EHS/RSO if water level changes significantly or if UCLs are approached or exceeded

1 – The listed analytes are in addition to the field parameters pH, water level and temperature which should be collected for all well samples.
2 – In the event of an excursion, affected monitor wells will be sampled weekly for the UCL parameters. If the excursion is not corrected within 30 days a Guideline 8 analysis will also be performed.

C. Restoration & Stabilization

Monitor Well Type	Frequency	Analytes[1]	Comments
Storage Pond	Monthly	If retrievable water is present analyze for pH, U_{nat}, chloride, bicarbonate, and conductivity	Notify Supervisor EHS/RSO if water level increases or water quality is similar to pond water quality
Regional	Quarterly	Water levels only	Notify Supervisor EHS/RSO if water level increases or decreases significantly
Wellfield	<u>Production Zone</u> During restoration a minimum of 1 round at the beginning of restoration and 1 round before beginning stabilization. During stabilization 1 round at the beginning and once each quarter for 12 months	Guideline 8	Notify Supervisor EHS/RSO if water level changes significantly or if analysis indicates an upward trend
	<u>Perimeter, Overlying, Underlying</u> Semi-monthly at least ten days apart during restoration and once every two months during stabilization	Chloride, bicarbonate, conductivity	Notify Supervisor EHS/RSO if water level changes significantly or if analysis indicates an upward trend
Public	Quarterly	Ra-226 and U_{nat}	

1 – The listed analytes are in addition to the field parameters pH, water level and temperature which should be collected for all well samples.

V. Field Sampling Procedure

A. Water Level Measurement

A water level reading should be taken and documented on the well sampling form before sampling any well with an accessible wellhead. Some private or BLM wells may not have the necessary ports at the wellhead to allow a measurement to be taken. In such cases it is not necessary to take a water level reading. Water levels readings must be accurate to within 0.1 feet. Acceptable tools for taking water level readings are an electronic line (e-line) or a sounder. When possible the reading should be taken down the stand pipe to avoid entanglement with the power cable. On the rare occasion that the check valve has not been removed from the pump, the reading will have to be taken in the annulus between the stand pipe and the casing. The presence of a check valve prevents the water in the stand pipe from equalizing with the natural pieziometric head.

An e-line used in a contaminated production or injection well may not be used in any non-contaminated well until it has been cleaned and a successful release survey has been performed and documented by the EHS Department.

B. Wellhead Setup

LC ISR, LLC wellheads will be constructed in such a manner that a meter run can be attached to the outlet of the standpipe. The meter run will have a built in flow meter and a port for collecting a water sample. The discharge pipe coming off of the meter run will be designed to spread the water out to prevent soil erosion. Data from the flow meter will be entered on the Well Sampling form as appropriate.

Public wells may not have a wellhead that allows the use of a meter run. In such cases, the sampler will estimate the flow rate so the Well Sampling Form can be completed.

C. Well Purge

The water within the wellbore may become stagnant over time causing the water chemistry to differ from that in the formation. Therefore, it is important to purge the wellbore so formation water can be sampled. A purge volume, also known as a casing volume, is equal to the volume of water within the well bore including the screened interval. A purge volume can be significantly reduced by installing a packer to isolate the water column above the pump. When a packer is used the purge volume will be equal to the volume of water below the packer; including the volume of water within the screened interval.

If a monitor well should be placed on excursion status, then the well water will be pumped directly to a water truck or tank. The purged well water will be transferred to the holding ponds and disposed of in a deep disposal well. This practice will continue until the affected well is removed from excursion status.

The potential for high concentrations of natural uranium and radium-226 exists. Therefore, to prevent a buildup of radionuclides in the soil that could present a hazard to the environment or to humans, the baseline water quality from each monitor well will be reviewed. If the baseline average water quality for a monitor well exceeds 1 mg/L natural uranium and/or 400 pCi/L radium-226, the Radiation Safety Officer will perform an analysis to determine the potential for exceeding the limitations in 10 CFR 20.1402 (The radionuclides discharged from monitor wells are not generally classified as 11e(2) byproduct material; therefore, this regulation does not have a direct application. However, this regulation is based on protection of human health and the environment and is thus a reasonable BMP.). If the discharge of the water during operations may result in exceeding the limits set forth in 10 CFR 20.1402, appropriate corrective actions will be taken. Some examples of appropriate corrective actions include disposal of the water in the waste water system, treatment before discharge, increasing the area of discharge, or minimizing the volume of water discharged.

There are two acceptable methods for ensuring a successful well purge.

i. Two Casing Volume Method

A minimum of two submerged casing volumes must be pumped out before the final sample is collected. No stabilization samples are collected but the field parameters pH in standard units, temperature in degrees Celsius, and conductivity in µmos/cm must be measured and recorded on the well sampling form immediately before collecting the final sample. This method should not be used for new wells that may not be completely developed or for wells that have not been recently pumped. For wells that are routinely sampled, such as wells on a semi-monthly sampling schedule, this is an acceptable method.

ii. Stabilization Method

This method requires at least three purge samples to be collected to confirm the water quality is stable and is therefore representative of the formation. These samples are commonly referred to as stabilization samples. Each of the stabilization samples must be collected at least 0.5 casing volumes apart. The field parameters of pH in standard units, temperature in degrees Celsius, and conductivity in µmos/cm will be taken and recorded on the well sampling form for each stabilization sample. When three consecutive stabilization samples show less than 10% variation between any of the readings for each field parameter, the final water sample may be collected.

If a well pumps dry during purging then it is clear that all potentially stagnant water has been removed from the wellbore. Simply turn off the pump so the well can recharge then turn the pump on again and make the necessary field measurements and collect the final sample with no additional purge.

D. Field Analysis and Documentation

Field measurements must be taken using an instrument calibrated pursuant to the manufacturer's recommendations and the QA/QC program. The EHS/RSO, or his

designee, shall ensure that only instruments capable of meeting the QA/QC guidelines are purchased for use. The well sampler must be familiar with the instruments capabilities and limitations.

Readings will be documented on the Well Sampling Form which is to be generated and maintained by the EHS Department. All Well Sampling Forms will be maintained for the life of the project.

E. Sample Collection and Preservation

Samples will be collected in a clean plastic or glass container. To ensure the container is clean, the sampler must rinse the container with the sample fluid before collecting the final sample. The cap should be placed on the container immediately after sample collection to prevent contamination by foreign matter. Containers may be used multiple times as long as they are cleaned between uses.

Due to the large number of possible preservation requirements, this SOP will only address basic preservation issues, however all sampling will follow the preservation and holding time procedures as outlined in Methods for Chemical Analysis of Water and Wastes, USEPA, 1983. The Supervisor EHS/RSO or site Chemist will provide additional guidance to the sampling crew as needed. Samples must be kept cool (around 4° C) and in the dark until analysis. Water samples should not be allowed to freeze since this will cause dissolved material to precipitate. The sample should be analyzed as soon as possible. When a sample cannot be analyzed within one day, it may be necessary to acidify the sample to ensure preservation. Consult with the site Chemist or Supervisor EHS/RSO for the proper acidification procedures

VI. QA/QC

The well sampling program will adhere to the following QA/QC requirements to ensure the veracity of resulting data:

- The instrument for analyzing field parameters shall be able to report pH to within 0.2 standard units; temperature to within 0.2° C; and conductivity to within 20 µmhos/cm corrected to 25° C. The instrument will be calibrated in accordance with the manufacturer's specifications with the results documented. The calibration documentation will be maintained for the life of the project.
- A duplicate sample will be collected at least every 20 samples or once every sample round, whichever is less.
- A blank sample consisting of distilled water will be collected at least every 20 samples or once every sample round, whichever is less, for semi-monthly wellfield samples.
- When major ions are analyzed the results will be compared against the TDS (determined at 180° C) to ensure all major ions were analyzed for and the results are otherwise reasonable.
- Samples will be analyzed using EPA approved methods.
- The Supervisor EHS/RSO, or his trained designee, will review the results of all well sampling to ensure the results are reasonable and that there are no issues of

environmental concern. Part of the review will include comparing the results with previous analysis to ensure there are no trends of concern.

- A Chain of Custody (COC) form will be used for each sampling event to provide documentation of the transfer of samples from LC ISR, LLC personnel to the laboratory. LC ISR, LLC will use a standard COC document provided by the laboratory performing the analytical services. The COC at a minimum will contain the following items:
    - Company name;
    - Company address;
    - Project Name;
    - Company Contact information;
    - Requested analysis;
    - Sample identification, date sampled and time sampled;
    - Custody record detailing the transfer of the samples.

VII. Employee Training

All individuals supervising or performing well sampling and those working in the on-site laboratory must be familiar with the contents of this procedure. Training shall be performed by an experienced technician or supervisor. A simple letter to file is sufficient documentation that training has been completed. Retraining shall occur every two years for employees routinely engaged in well sampling Retraining shall occur for individuals who have not performed sampling within the past year.

VIII. Occupational and Environmental Safety

Well sampling is generally a very safe activity. However, samplers need to be aware of the following hazards so they can work safely.

- Before starting the pump power supply, inspect the electrical outlet and power cable to ensure they are in good repair. If the insulation or wiring appears to be damaged, perform the appropriate Lock Out/Tag Out procedure and notify your supervisor. Never drive over electrical cords;
- The field instrument calibration fluids may present hazards. Read and comply with the requirements in the MSDS for each chemical. The same is true for sample preservation chemicals;
- Always wear a hard hat, steel toe boots and safety glasses or goggles when sampling;
- If a well will not produce water, turn off the power supply and notify your supervisor. Any blockage in the discharge line, such as ice, will cause the stand pipe to rupture or the pump to overheat;
- Keep wellheads and standpipes covered to prevent entry by animals or debris;
- When purging a well ensure the energy of the water is dispersed to prevent soil erosion.

Attachment OP-9

Derivation of Transmissivity and Storativity of the HJ Horizon Unimpacted by the Lost Creek Fault

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Attachment OP-9

Derivation of Transmissivity and Storativity of the HJ Horizon Unimpacted by the Lost Creek Fault

1.0 INTRODUCTION

The parameters necessary to provide an estimate of drawdown during the life of the Lost Creek Project include transmissivity, storativity, net extraction rate, and duration of operation. Transmissivity of the HJ Horizon has been determined from pumping tests, conducted on either side of the Lost Creek Fault. Because of the influence of the fault, the transmissivity determined from this pumping test is viewed as an 'effective" transmissivity.

2.0 IMAGE WELL THEORY

A value of transmissivity that is not influenced by the fault can be estimated using the principle of superposition and image well theory (Stallman, 1952). The principle of superposition simply states that the total effect resulting from pumping multiple wells simultaneously is equal to the sum of the individual effect caused by each of the wells acting separately. The principle of superposition is commonly used to evaluate well interference problems by summing the drawdown determined using the Theis equation for a homogeneous, isotropic, infinite extent aquifer. Image well theory is used to address hydraulic impacts of a bounded (non infinite extent) aquifer for either no flow or recharge boundaries (Domenico and Schwartz, 1990).

In the application of image well theory for a no flow barrier, an imaginary well is placed directly across the no flow boundary at an equal distance from the boundary as the pumping well. The image well is assigned a pumping rate equal to that of the real pumping well. Then the drawdown can be calculated at any point within the aquifer (on the side with the real well) by summing the impacts from both the real and image well, using a modification of the Theis equation:

$$s = s_p + s_i = (Q/(4\pi T))[W(u)_p + W(u)_t]$$

where:

s = the observed drawdown at any point;
s_p = drawdown resulting from pumping the real well;
s_i = drawdown resulting from pumping the image well;
Q = the pumping rate;
T = aquifer transmissivity;
$W(u)_p$ = well function for the real well;
$W(u)_t$ = well function for the image well;

and:

$(u)_p = r_p^2 S/4Tt$
$(u)_t = r_t^2 S/4Tt$

where:

r_p = the distance from the pumping well to the observation point;
r_i = the distance from the image well to the observation point; and
S = aquifer storativity.

3.0 APPLICATION TO THE LOST CREEK PROJECT

In the case of the Lost Creek Project, image well theory was applied using the drawdown resulting from the LC19M pump test. The pumping well LC19M is located 482 feet from the Lost Creek Fault, based on mapped data. An image well was assumed at a distance of 964 from the pumping well, on the other side of the Fault. The drawdowns at the end of the pump test at three wells were used to back calculate the transmissivity and storativity of the aquifer. Figure OP-A9-1 shows the location of the wells used to calculate transmissivity with the image well method.

The LC19M pump test was run for a period of 8,252 minutes at an average rate of 42.9 gpm. The wells and respective drawdown (at the end of the test) used to solve the Theis equation for transmissivity and drawdown were: LC19M (93.32 ft); HJMP111 (35.56 ft); and HJMP104 (36.44 ft). The distance from LC19M to HJMP-111 is 473 ft and from LC19M to HJMP104 is 637 ft. The distances from the image well to HJMP-111 and HJMP-104 are 1,043 and 847 feet, respectively.

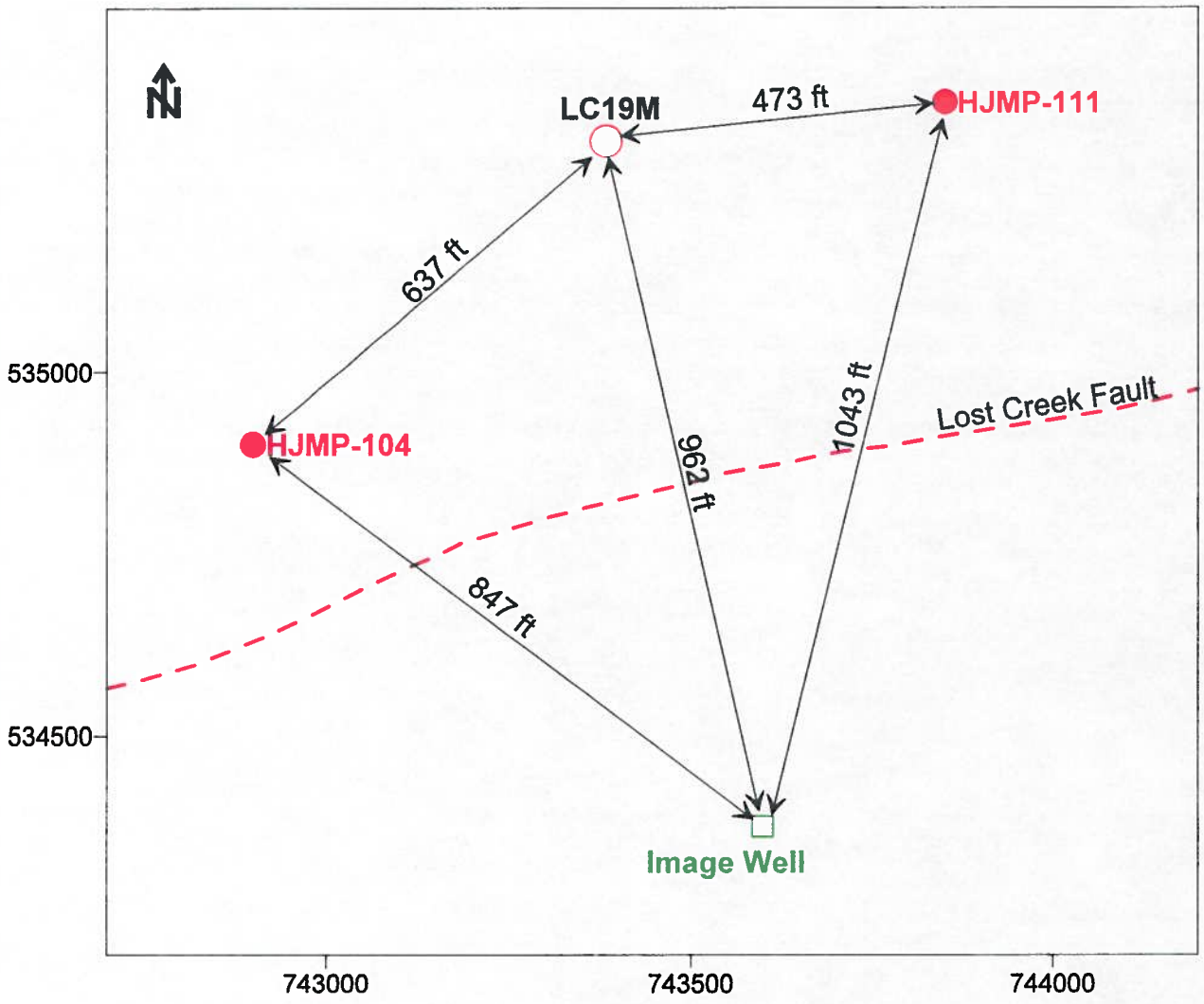
A series of calculations were performed varying the transmissivity and storativity to find the best fit to the observed drawdown at the end of the test. Results of the effort indicate that a transmissivity of 144 ft^2/d and a storativity of 7E-05 provide a very good fit to the data with residuals (difference between the observed and calculated drawdown) of: 0.06 ft at LC19M; -1.04 ft at HJMP-111; and 1.00 ft at HJMP-104. Although this calculation does not account for the partial penetration effects of the pumping and observation wells or the minor leakage from overlying and underlying aquifers (as evidenced by the slight

drawdown response in overlying and underlying observation wells during the test), it does provide a reasonable estimate of the aquifer properties within the vicinity of Mine Unit 1 (unaffected by the fault). Table OP-3b.1 shows the best fit drawdown calculations.

REFERENCES

Domenico, PA and FW Schwartz. 1990. Physical and Chemical Hydrogeology, John Wiley & Sons, New York.

Stallman, RW, 1952, Nonequilibrium Type Curves Modified for Two-Well Systems, U.S. Geological Survey, Groundwater Note 3.



Pumping Test Wells
- Pumping Well
- Image Well
- Production Zone Monitor Well

LQD RECD
FEB 24, 2010
4/6/268
PERMIT

Lost Creek ISR, LLC
Littleton, Colorado, USA

Petrotek
www.petrotek.com
Littleton, CO, USA

FIGURE OP-A9-1
Location of Pumping Well, Image Well and Observation Wells
Lost Creek Permit Area

Issued For: WDEQ LQD	Drawn By: EPL
Issued /Revised: 09.10.09	
Drawing No.: Figure WDEQCR105a	

0 250 500 Feet

Table OP-A9-1 Best Fit Drawdown Calculations for Estimating Aquifer Transmissivity and Storativity Using Image Well Theory

			Observation Well Distance (feet)					
		LCM19-HJMP111	Image - HJMP111	LCM19-HJMP104	Image - HJMP104	LCM19 - Image	LCM19	
		473	1024	637	867	964	1	
Pump Time (hours)	Pump Time (days)	Drawdown (ft)	Drawdown (ft)	Drawdown (ft)	Drawdown (ft)	Drawdown (ft)	Drawdown (ft)	
137.5	5.73	21.78	14.82	19.08	16.31	15.36	77.91	
Combined ddn from pumped well and image well			36.60	feet				
	Observed ddn		35.56	feet				
	Residual		1.04	feet				
		Combined ddn from pumped well and image well			35.39	feet		
				Observed ddn	36.44	feet		
				Residual	-1.05	feet		
					Combined ddn from pumped well and image well		93.26	feet
						Observed ddn	93.32	feet
						Residual	-0.06	feet
w(u) = s*4*pi*T/(Q)								
u = (0.25*r^2*S)/(Tt) s = ft, Q = gpm, T = ft^2/d, r = ft, t = days								
s = (drawdown) = 15.3*Q*W(u)/T								
K =(hydraulic conductivity)=			1.2	ft/d				
h = (saturated thickness) =			120	ft				
S = (storativity) =			0.00007					
T = (transmissivity) =			144	ft^2/d				
Q =(pump rate) =			42.9	gpm				
t = (time) =								
r = (radius)		1	ft	Pred.				
LCM 19	t(hours)	u	W(u)	s(ft)	t (days)			
	137.5	2.12121E-08	17.0914771	77.91	5.73			
HJMP-111	r =	473	ft					
	t(hours)	u	W(u)	s(ft)	t (days)			
	137.5	0.004745767	4.77802643	21.78	5.73			
HJMP104	r =	637	ft					
	t(hours)	u	W(u)	s(ft)	t (days)			
	137.5	0.008607221	4.18652649	19.08	5.73			
Image - HJMP104	r =	867	ft					
	t(hours)	u	W(u)	s(ft)	t (days)			
	137.5	0.015944918	3.57728069	16.31	5.73			
Image - HJMP111	r =	1024	ft					
	t(hours)	u	W(u)	s(ft)	t (days)			
	137.5	0.022242521	3.2506529	14.82	5.73			
LCM19 - Image	r =	964	ft					
	t(hours)	u	W(u)	s(ft)	t (days)			
	137.5	0.019712339	3.36891009	15.36	5.73			