

COLORADO OFFICE
10758 W. CENTENNIAL RD., STE. 200
LITTLETON, CO 80127
TEL: (866) 981-4588
FAX: (720)-981-5643



WYOMING OFFICE
5880 ENTERPRISE DR., STE. 200
CASPER, WY 82609
TEL: (307) 265-2373
FAX: (307) 265-2801

LOST CREEK ISR, LLC

May 14, 2013

Ms. Melissa Bautz
State of Wyoming
Department of Environmental Quality
Land Quality Division
510 Meadowview Drive
Lander, WY 82520

**Re: Submittal of Second Mine Unit 1 Aquifer Pump Test
Permit 788, (BLM WYW-166318)**

Dear Ms. Bautz,

Pursuant to the commitments in Section D5.2.4.1 of the Permit to Mine, please find behind this cover, in duplicate, the results of two pump tests performed in Mine Unit 1 after the re-abandonment of the historic holes that could be located. The pump test revealed that two wells, LC25M and HJMP-109, had failed. Well LC25M has since been properly abandoned and replaced. A mini pump test will be performed and documented to verify replacement well LC25M responds as it did during the first Mine Unit 1 pump test.

If you have any questions regarding this submittal please feel free to contact me at the Casper Office.

Sincerely,

John W. Cash
Vice President

Attachments: *As Stated*

Cc: Mr. Mark Newman, BLM Rawlins Field Office
Mr. John Saxton, NRC, via email
Ms. Theresa Horne, Ur-Energy, Littleton Office, via email

**LOST CREEK HYDROLOGIC TESTING
REPEAT OF MINE UNIT 1
PW-101 AND PW-102 TESTS**



Lost Creek ISR, LLC
5880 Enterprise Drive, Suite 200
Casper, Wyoming 82609 USA

**LOST CREEK PROJECT
SWEETWATER COUNTY, WY**

May 2013

Prepared By:
Petrotek Engineering Corporation
10288 West Chatfield Ave., Suite 201
Littleton, Colorado 80127
Phone: (303) 290-9414
Fax: (303) 290-9580

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION.....	2
1.1 Background	2
1.3 Purpose and Objectives.....	2
1.4 Report Organization	3
2.0 SITE CHARACTERIZATION	4
2.1 Hydrostratigraphy	4
3.0 MONITOR WELL LOCATIONS, INSTALLATION, AND COMPLETION	5
3.1 Well Locations	5
3.2 Well Installation and Completion	5
3.2.1 North Test, Pumping Well PW-102	5
3.2.2 South Test, Pumping Well PW-101.....	5
4.0 PUMP TEST DESIGN AND PROCEDURES	7
4.1 Test Design	7
4.2 Pump Test Equipment.....	7
4.2.1 North Test, Pumping Well PW-102	7
4.2.2 South Test, Pumping Well PW-101.....	8
4.3 Potentiometric Surfaces.....	9
4.4 Pre-Test Monitoring, Test Procedures, and Data Collection.....	10
4.4.1 North Test, Pumping Well PW-102	10
4.4.2 South Test, Pumping Well PW-101.....	10
5.0 BAROMETRIC PRESSURE CORRELATIONS AND CORRECTIONS.....	12
5.1 Monitoring Equipment.....	12
5.2 Barometric Corrections	12
6.0 TEST RESULTS AND DRAWDOWN COMPARISONS	13
6.1 Pre-Test Water Level Trends.....	13
6.1.1 North Test, Pumping Well PW-102	13
6.1.2 South Test, Pumping Well PW-101.....	13
6.2 Pump Duration and Rate	14
6.2.1 North Test, Pumping Well PW-102	14
6.2.2 South Test, Pumping Well PW-101.....	14
6.3 HJ Horizon Response.....	14
6.3.1 North Test, Pumping Well PW-102	14
6.3.2 South Test, Pumping Well PW-101.....	15

TABLE OF CONTENTS

6.4 FG and KM Horizon Response..... 16
 6.4.1 North Test, Pumping Well PW-102 16
 6.4.2 South Test, Pumping Well PW-101..... 16
6.5 Discussion of Anomalous Responses 17
7.0 SUMMARY AND CONCLUSIONS..... 18
8.0 REFERENCES..... 19

TABLE OF CONTENTS

Tables

- 3-1 Well Information, 2012 Mine Unit 1 Repeat Aquifer Tests
- 4-1 Equipment Layout, Mine Unit 1 Repeat North Test
- 4-2 Equipment Layout, Mine Unit 1 Repeat South Test
- 4-3 Pumping Rate Versus Time, Mine Unit 1 Repeat North Test
- 4-4 Pumping Rate Versus Time, Mine Unit 1 Repeat South Test
- 6-1 North Test Drawdown Comparison Between 2008 and 2012 Tests, Mine Unit 1 Repeat North Test
- 6-2 South Test Drawdown Comparison Between 2008 and 2012 Tests, Mine Unit 1 Repeat South Test

Figures

- 1-1 Project Location Map
- 2-1 Lost Creek Stratigraphic Section
- 3-1 Mine Unit 1 North Pump Test Layout, 2012 Repeat Test
- 3-2 Mine Unit 1 South Pump Test Layout, 2012 Repeat Test
- 4-1 Potentiometric Surface HJ Horizon
- 4-2 Potentiometric Surface FG Horizon
- 4-3 Potentiometric Surface KM Horizon
- 6-1 Water Level Elevation vs. Time, MU1 Repeat North Test, West and North of Fault, HJ Horizon Production Zone Monitor Wells
- 6-2 Water Level Elevation vs. Time, MU1 Repeat North Test, Central and North of Fault, HJ Horizon Production Zone Monitor Wells
- 6-3 Water Level Elevation vs. Time, MU1 Repeat North Test, East and North of Fault, HJ Horizon Production Zone Monitor Wells
- 6-4 Water Level Elevation vs. Time, MU1 Repeat North Test, South of Fault, HJ Horizon Production Zone Monitor Wells
- 6-5 Water Level Elevation vs. Time, MU1 Repeat North Test, North of Fault, FG Horizon Overlying Monitor Wells
- 6-6 Water Level Elevation vs. Time, MU1 Repeat North Test, South of Fault, FG Horizon Overlying Monitor Wells
- 6-7 Water Level Elevation vs. Time, MU1 Repeat North Test, North of Fault, KM Horizon Underlying Monitor Wells
- 6-8 Water Level Elevation vs. Time, MU1 Repeat North Test, South of Fault, KM Horizon Underlying Monitor Wells
- 6-9 Water Level Elevation vs. Time, MU1 Repeat South Test, West and South of Fault, HJ Horizon Production Zone Monitor Wells
- 6-10 Water Level Elevation vs. Time, MU1 Repeat South Test, Central and South of Fault, HJ Horizon Production Zone Monitor Wells

TABLE OF CONTENTS

- 6-11 Water Level Elevation vs. Time, MU1 Repeat South Test, East and South of Fault, HJ Horizon Production Zone Monitor Wells
- 6-12 Water Level Elevation vs. Time, MU1 Repeat South Test, North of Fault, HJ Horizon Production Zone Monitor Wells
- 6-13 Water Level Elevation vs. Time, MU1 Repeat South Test, South of Fault, FG Horizon Overlying Monitor Wells
- 6-14 Water Level Elevation vs. Time, MU1 Repeat South Test, North of Fault, FG Horizon Overlying Monitor Wells
- 6-15 Water Level Elevation vs. Time, MU1 Repeat South Test, South of Fault, KM Horizon Underlying Monitor Wells
- 6-16 Water Level Elevation vs. Time, MU1 Repeat South Test, North of Fault, KM Horizon Underlying Monitor Wells
- 6-17 HJ Horizon Drawdown Differential, North Test, 2012 vs. 2008 Pump Tests, 2012 MU1 Repeat Pump Tests
- 6-18 HJ Horizon Drawdown Differential, South Test, 2012 vs. 2008 Pump Tests, 2012 MU1 Repeat Pump Tests
- 6-19 FG Horizon Drawdown Differential, North Test, 2012 vs. 2008 Pump Tests, 2012 MU1 Repeat Pump Tests
- 6-20 FG Horizon Drawdown Differential, South Test, 2012 vs. 2008 Pump Tests, 2012 MU1 Repeat Pump Tests
- 6-21 KM Horizon Drawdown Differential, North Test, 2012 vs. 2008 Pump Tests, 2012 MU1 Repeat Pump Tests
- 6-22 KM Horizon Drawdown Differential, South Test, 2012 vs. 2008 Pump Tests, 2012 MU1 Repeat Pump Tests

TABLE OF CONTENTS

Appendices (Can't verify titles without CD)

- A Water Level Data (CD-ROM)
 - A-1 North Repeat Test, Transducer Data, HJ Horizon
 - A-2 North Repeat Test, Transducer Data, FG and KM Horizons
 - A-3 North Repeat Test, E-Line Data
 - A-4 South Repeat Test, Transducer Data, HJ Horizon
 - A-5 South Repeat Test, Transducer Data, FG and KM Horizons
 - A-6 South Repeat Test, E-line Data

EXECUTIVE SUMMARY

- WDEQ requested that the hydrologic testing conducted at Mine Unit 1 in 2008 to characterize the HJ Horizon Production Zone, and overlying and underlying horizons be repeated for the purpose of evaluating the effect, if any, on aquifer hydraulics resulting from the historic borehole abandonment activities conducted after the 2008 aquifer tests.
- The north pump test (well PW-102) and south test (well PW-101) were repeated in August 2012 with similar pumping rates and monitoring well networks.
- The results of testing indicate that no discernible change was observed in aquifer hydraulics resulting from the 2011 and 2012 borehole abandonment activities.
- Two monitoring wells, HJMP-109 and LC25M, responded differently to aquifer stress during the 2012 pump tests than they did during the 2008 tests. Lost Creek ISR, LLC conducted a follow-up field investigation and discovered that HJMP-109 has silted in, thus explaining the muted water level response. Well LC25M is still being investigated.

1.0 INTRODUCTION

1.1 BACKGROUND

The Lost Creek Project is located in the northeastern portion of the Great Divide Basin of Wyoming, within Sweetwater County (Figure 1-1). The project area is located in all or parts of Sections 13, 24, and 25 of T25N, R93W, and Sections 16 through 20, and 29 through 31 of T25N, R92W. LC ISR plans to develop and extract uranium from ISR mine units within Mine Unit 1 (MU1) and the HJ Horizon of the Battle Spring Formation, which is currently permitted under LC ISR's Wyoming LQD Permit to Mine and the NRC Source Materials License.

WDEQ required that LC ISR, upon receipt of a permit to mine and prior to injecting mining solutions in MU1, attempt to locate and properly abandon all historic drill holes within the monitor well ring boundary. Upon identification of these historic drill holes and successful re-abandonment of these wells, WDEQ requested that additional pump testing be conducted to determine the effect of the drill hole abandonment activities. The pump tests were designed to replicate the 2008 MU1 pump test conditions (Petrotek, 2009) in terms of length of tests, wells monitored, and pumping rate. The supplemental test results will be added to the MU1 permit document.

In order to comply with the requirements of WDEQ, LC ISR repeated the two multi-well pump tests in MU1 at separate locations north and south of the Lost Creek Fault (referenced as "fault" within this report). The pump test on the north side of the fault ("north test") was conducted at pumping well PW-102, and the test on the south side of the fault ("south test") was conducted at pumping well PW-101.

Field activities for the supplemental hydrologic tests conducted in 2012 were jointly performed by LC ISR and Petrotek Engineering Corporation (Petrotek) personnel. Geologic interpretations were performed by LC ISR geologists. Analysis of hydraulic responses was conducted by Petrotek.

1.2 PURPOSE AND OBJECTIVES

The purpose of this report is to summarize the results of the repeated pump tests performed at locations north and south of the fault. Testing was conducted to evaluate the effects of LC ISR's supplemental historic drill hole abandonment activities. The following bullets outline the 2012 scope of work:

- Conduct two pumping tests at pumping wells PW-102 (north side of fault) and PW-101 (south side) that replicate, as nearly as possible, the 2008 testing conditions.
- Perform tests at the same pumping rate (as close as practically achievable), while monitoring observation wells completed in the HJ Horizon and the overlying

(FG Horizon) and underlying (KM Horizon) aquifers, that matches the 2008 monitoring network.

- Prepare a report describing the test conditions and summarize the test results and hydraulic responses (i.e., drawdown) during both repeated tests.

1.3 REPORT ORGANIZATION

The results of the MU1 pump tests are included within this report. This report includes eight sections, summarized below:

- 1.0 Introduction
- 2.0 Site Characterization
- 3.0 Monitor Well Locations, Installation, and Completion
- 4.0 Pump Test Design and Procedures
- 5.0 Barometric Pressure Correlations and Corrections
- 6.0 Test Results and Drawdown Comparisons
- 7.0 Summary and Conclusions
- 8.0 References

2.0 SITE CHARACTERIZATION

2.1 HYDROSTRATIGRAPHY

The Lost Creek Project is underlain by the upper portions of the Eocene-age Battle Spring Formation. The total thickness of the Battle Spring Formation at Lost Creek is approximately 6,000 ft. The Battle Spring Formation regionally interfingers to the southwest with time equivalent units of the Wasatch Formation.

LC ISR uses the nomenclature shown on Figure 2-1 to describe the hydrostratigraphic units of interest within the Battle Spring Formation.

Additional detailed information regarding the characteristics of these hydrostratigraphic units was provided in the 2008 report on hydrologic testing conducted within MU1 (Petrotek, 2009). Information regarding thickness (isopach maps), a structural contour map, cross-sections, and descriptions of hydrostratigraphic units are provided in the previously mentioned report, and are not reproduced in this document.

3.0 MONITOR WELL LOCATIONS, INSTALLATION, AND COMPLETION

3.1 WELL LOCATIONS

All pumping and observation wells monitored during the repeat pump tests are located within the MU1 area. The monitor wells included in the north (pumping well PW-102) and south (pumping well PW-101) pump tests are shown on Figures 3-1 and 3-2, respectively. All wells used for these tests are located in Sections 17, 18, 19 and 20, Township 25 North, Range 92 West. Surveyed locations of all wells and test holes presented in this report are based on the NAD 83 Wyoming State Plane West Central Coordinate System (Table 3-1).

3.2 WELL INSTALLATION AND COMPLETION

All wells used in the repeat tests were constructed with either 4.5- or 6-inch nominal diameter casing. The wells were developed using standard water well techniques, including air lifting, pumping, swabbing, and/or surging. Specific data related to completion interval and initial water levels are provided in Table 3-1.

3.2.1 NORTH TEST, PUMPING WELL PW-102

During the pump test conducted on the north side of the fault, LC ISR monitored 90 wells (Figure 3-1), including 38 Production Zone (HJ Horizon, including pumping well) monitor wells, 24 overlying (FG Horizon) monitor wells, 25 underlying (KM Horizon) monitor wells, and 3 monitor wells completed in the uppermost DE Horizon.

With WDEQ concurrence, seven perimeter ring monitoring wells were not monitored during the repeat PW-102 test due to their location being distant to the ore bodies and in areas of previously identified historic drill holes. The seven excluded wells were: M-116, M-118, M-119, M-121, M-122, M-124, and M-125. Two additional HJ Horizon monitor wells, HJT-105 and LC16M, were also not monitored during the 2012 testing.

Water level data were not collected at monitor well LC18M, which is completed in the FG Horizon. Well MU-108, completed in the KM Horizon, was abandoned in December 2008, and was therefore not available to be monitored during the 2012 repeat test.

3.2.2 SOUTH TEST, PUMPING WELL PW-101

During the pump test conducted on the south side of the Lost Creek Fault, LC ISR monitored 90 wells (Figure 3-2), including 38 Production Zone (HJ Horizon, including pumping well) monitor wells, 25 overlying (FG Horizon) monitor wells, 25 underlying (KM Horizon) monitor wells, and 2 monitor wells completed in the uppermost DE Horizon.

With WDEQ concurrence, ten perimeter ring monitoring wells were not monitoring during the repeat PW-101 test due to their location being distant to the ore bodies in and areas of previously identified historic drill holes. The ten excluded wells were: M-

101, M-103, M-104, M-105, M-107, M-108, M-110, M-111, M-112, and M-128. Additionally, wells LC16M and HJT-105 (HJ Horizon) and well LC18M (FG Horizon) were not monitored.

4.0 PUMP TEST DESIGN AND PROCEDURES

The following section details pump test design and procedures for conducting the MU1 repeat pump tests. Pumping tests were conducted at the north well between August 8 and 10, 2012 and at the south well between August 20 and 23, 2012. Details of pump testing at both locations are summarized separately in Sections 4.2.1 and 4.2.2.

4.1 TEST DESIGN

The two MU1 repeat tests were designed to replicate, as nearly as possible, those conditions existing during the 2008 pumping tests at wells PW-102 and PW-101. The tests were conducted to evaluate the effects, if any, of borehole abandonment activities on the hydraulic responses in the monitored aquifers. The scope of work follows:

- Conduct two pumping tests at pumping wells PW-102 (north side of fault) and PW-101 (south side);
- Conduct tests at the same pumping rate (as close as practically achievable) while monitoring nearly the same network of monitoring wells used in the 2008 tests; and,
- Prepare a report describing the test procedures and summarizes the test results.

The general testing procedures were as follows:

1. Install In-Situ Level TROLL[®] data-logging transducers (vented) in wells to record changes in water levels during tests. Verify setting depths and head readings with manual water level measurements;
2. Measure and record background water levels and barometric pressure for a minimum of 72 hours prior to the test;
3. Run the pumping well at a constant rate (or as close as practical); and,
4. Record water levels and barometric pressure throughout pre-test background, pumping, and recovery periods.

4.2 PUMP TEST EQUIPMENT

4.2.1 NORTH TEST, PUMPING WELL PW-102

Aquifer testing was performed utilizing a Grundfos 85S100-9, 10 hp, 460V, 3-phase electrical submersible pump powered by a portable diesel generator. At pumping well PW-102, the pump was set at an approximate depth of 345 feet (approximately 122 feet off the bottom). The static depth to water in PW-102 was approximately 171 feet, providing for approximately 175 feet of head above the pump. Flow from the pump was controlled with a manual gate valve. Surface flow monitoring equipment included two

1.5-inch diameter turbine meters (Turbines Incorporated FW Series, provided by LC ISR) that display total flow (in gallons) and instantaneous flow rates (in gallons per minute [gpm]). Per discussions with WDEQ/WQD, no Temporary Discharge Permit was required. Discharge water was land applied downgradient from PW-102 via a 3-inch diameter HDPE pipeline.

Water levels in 45 wells (22 HJ Horizon wells [and pumping well], and 23 wells in the overlying and underlying aquifers) were measured and recorded with In-Situ Level TROLL[®] pressure transducer dataloggers. The pressure rating for the transducers ranged from 15 to 100 psi. The transducers were programmed to record depth to water measurements at 5 minute intervals at all pumping and observation wells during background monitoring, and the pumping and recovery periods. A list of the wells monitored by dataloggers is presented in Table 4-1.

In addition to the wells continuously monitored using the Level TROLLS[®], 44 other wells were periodically measured for depth to water using a manual electronic water level meter, and are listed in Table 4-1. A total of 89 wells were monitored during the north test.

The following is an interval-specific summary of water level monitoring locations recorded during testing at PW-102:

- HJ Horizon – 22 wells (including the pumping well) were monitored by dataloggers; 15 wells were periodically measured by e-line.
- Overlying FG Horizon – 12 wells were monitored by dataloggers; 12 wells were periodically measured by e-line.
- Underlying KM Horizon – 11 wells were monitored by dataloggers; 14 wells were periodically measured by e-line.
- Overlying DE Horizon – 3 wells were periodically measured by e-line.

Petrotek and LC ISR personnel installed the monitoring equipment prior to testing, and verified the datalogger programming and equipment layout. Thereafter, Petrotek and LC ISR personnel collected the daily downloads and transferred the data to Petrotek for review/QA/QC for the duration of the long-term pumping test.

4.2.2 SOUTH TEST, PUMPING WELL PW-101

Aquifer testing was performed utilizing a Grundfos 75S100-16, 10 hp, 460V, 3-phase electrical submersible pump powered by a portable diesel generator. At pumping well PW-101, the pump was set at a depth of 365 feet (approximately 130 feet off the bottom). The static depth to water in PW-101 was approximately 180 feet, providing for approximately 175 feet of head above the pump. Flow from the pump was controlled with a manual gate valve. Surface flow monitoring equipment included two, 1.5-inch diameter turbine meters (Turbines Incorporated FW Series, provided by LC ISR) that

display total flow (in gallons) and instantaneous flow rates (in gallons per minute [gpm]). Per discussions with WDEQ/WQD, no Temporary Discharge Permit was required. Discharge water was land applied downgradient from PW-101 via a 3-inch diameter HDPE pipeline.

Water levels in 52 wells (25 HJ Horizon wells [including pumping well], and 27 wells in the overlying and underlying aquifers) were measured and recorded with In-Situ Level TROLLS[®]. The pressure rating for the Level TROLLS[®] ranged from 15 to 100 psi. The transducers were programmed to record depth to water measurements at 5 minute intervals at all pumping and observation wells during background monitoring, and the pumping and recovery periods. A list of the wells monitored by dataloggers is presented in Table 4-2.

In addition to the wells continuously monitored using the Level TROLLS[®], 36 other wells were periodically measured for depth to water using a hand lowered electronic water level meter. A list of wells that were included in the hand measurement rounds is provided in Table 4-2.

The following is an interval-specific summary of water level monitoring locations recorded during testing at PW-101:

- HJ Horizon – 25 wells (including the pumping well) were monitored by dataloggers; 12 wells were periodically measured by e-line.
- Overlying FG Horizon – 14 wells were monitored by dataloggers; 10 wells were periodically measured by e-line.
- Underlying KM Horizon – 13 wells were monitored by dataloggers; 12 wells were periodically measured by e-line.
- Overlying DE Horizon – 2 wells were periodically measured by e-line.

Petrotek and LC ISR personnel installed the monitoring equipment prior to testing, and verified the Level TROLL[®] programming and equipment layout. Thereafter, Petrotek and LC ISR personnel collected the daily downloads and transferred the data to Petrotek for review/QA/QC for the duration of the long-term pumping test.

4.3 POTENTIOMETRIC SURFACES

Figure 4-1 presents potentiometric elevations within the Production Zone (HJ Horizon) from the third quarter of 2012, which was provided to LQD as part of the Interim Annual Report. Potentiometric data from the 2012 third quarter annual report are also presented for the FG Horizon and KM Horizon on Figures 4-2 and 4-3, respectively.

In general, water levels declined approximately 1 to 2 feet in the HJ Horizon for the time period between testing in 2008 and the third quarter of 2012 data submittal. Similarly, water levels in the overlying FG Horizon declined approximately 1 to 3 feet during that

same time period. In the underlying KM Horizon, water levels declined approximately 1 to 2 feet during this period. No discernible differences in groundwater flow or gradient were observed in the potentiometric surfaces in MU1 area for these three aquifers.

The observed fluctuation in water levels are not considered significant and likely are the result of seasonal variation or less regional recharge due to the ongoing drought conditions.

4.4 PRE-TEST MONITORING, TEST PROCEDURES, AND DATA COLLECTION

4.4.1 NORTH TEST, PUMPING WELL PW-102

The majority of the testing equipment (e.g., pump, flow meters, Level TROLLS[®]) for the test conducted at PW-102 was installed and checked by Petrotek on August 2 and 3, 2012. Pre-test monitoring followed for a period of approximately five days. Water level measurements were recorded every 5 minutes during pre-test monitoring.

Level TROLLS[®] were programmed to record water levels every 5 minutes during the pumping and recovery periods. Pumping commenced on August 8 through 10, 2012, and water level recovery data was collected through the start of testing at PW-101 (south test) that began on August 20, 2012.

Pumping rate versus time data are shown in Table 4-3. The pumping rate for the 2012 repeat test averaged 74.2 gallons per minute (gpm), closely matching the average rate of 70.9 gpm recorded during the 2008 test. The pumping rate for the 2012 repeat test was approximately 5% higher than in 2008. Both tests were conducted for a total of 2,880 minutes (2.0 days).

A CD containing the transducer water level data for the periods covering pre-test monitoring, pumping, and recovery is included in Appendix A-1 to A-2. Manually collected e-line data are included in Appendix A-3.

4.4.2 SOUTH TEST, PUMPING WELL PW-101

Testing equipment (e.g., pump, flow meters, Level TROLLS[®]) for the test conducted at PW-101 was installed prior to the PW-102 (north test) and checked by Petrotek on August 2 and 3, 2012. Water levels measurements were recorded every 5 minutes during pre-test monitoring.

The pre-test monitoring for the south side pump test was conducted for a period of approximately 5 days prior to the PW-102 test. Water levels following the PW-102 test were allowed to recover for a period of approximately 10 days prior to starting the PW-101 test.

Level TROLLS[®] were programmed to record water levels every 5 minutes during the pumping and recovery periods. Pumping commenced on August 20 through 23, 2012, and water level recovery data were collected through August 27, 2012.

Pumping rate versus time data are shown in Table 4-7. The pumping rate for the 2012 repeat test averaged 58.1 gpm; essentially identical to the 58.2 gpm average rate recorded during the 2008 test. Both tests were conducted for a total of 4,185 minutes (2.91 days).

A CD containing the transducer water level data for the periods covering pre-test monitoring, pumping, and recovery is included in Appendix A-4 and A-5. Manually collected e-line data are included in Appendix A-6.

5.0 BAROMETRIC PRESSURE CORRELATIONS AND CORRECTIONS

5.1 MONITORING EQUIPMENT

All In-Situ Level TROLLS[®] used in both pump tests were vented (gauged). In-Situ claims that if vented transducers are used, the vent eliminates the impact of barometric pressure on the sensor. However, a change in water levels due to barometric changes will occur whether a vented sensor is used or not. Hence, use of vented equipment eliminates the barometric impact on the sensor, but does not correct the water level measurements for barometric effects on the aquifer. In this regard, the vented Level TROLLS[®] are barometrically *compensated*, but not *corrected*. If significant variations in water levels are observed, the data may require correction for fluctuations in water levels associated with changes in barometric pressure.

5.2 BAROMETRIC CORRECTIONS

Additional information related to barometric corrections is provided in Section 5 of the 2008 MU1 Hydrologic Testing Report (Petrotek, 2009). Evaluations conducted for the 2008 investigation indicated that barometric pressure had minimal impact on water levels prior to, during, and after the pumping test in the HJ Horizon observation wells. Therefore, based on the 2008 finding, it was decided that corrections for the 2012 barometric effects were not necessary.

6.0 TEST RESULTS AND DRAWDOWN COMPARISONS

The following section discusses the results of pump testing and details pre-test monitoring, response in the Production Zone aquifer, and responses in the overlying and underlying aquifers for the north and south-side tests conducted at pumping wells PW-102 and PW-101, respectively.

6.1 PRE-TEST WATER LEVEL TRENDS

6.1.1 NORTH TEST, PUMPING WELL PW-102

Water level stability data were collected prior to the start of the north side pump test. Plots of the pre-test, pumping, and recovery data for wells completed in the HJ Horizon and monitored with transducers are shown on Figures 6-1 through 6-4. Wells completed in the HJ Horizon were grouped into four geographical categories: 1) west side of the pumping well and north of the fault (Figure 6-1), 2) central area near the pumping well (approximately 1000 foot radius) and north of the fault (Figure 6-2), 3) east side of the pumping well and north of the fault (Figure 6-3), and 4) all wells located south of the fault (Figure 6-4).

Water level data for the overlying (FG Horizon) and underlying (KM Horizon) wells monitored by transducers are presented on Figures 6-5 through 6-8. Water level graphs on these figures are grouped by location relative to the fault. Wells in the FG Horizon located north and south of the fault are presented on Figures 6-5 and 6-6, respectively. Wells completed in the KM Horizon located north and south of the fault are presented on Figures 6-7 and 6-8, respectively.

In general, water levels in the HJ Horizon, FG Horizon, and KM Horizon north and south of the fault were stable prior to the start of the repeat test at PW-102. Individual well water levels for wells equipped with transducers versus pumping well water levels are presented in Appendices A-1 and A-2; e-line data is presented in Appendix A-3.

6.1.2 SOUTH TEST, PUMPING WELL PW-101

Water level stability data were collected prior to the start of the south side pump test. Plots of the background, pumping, and recovery data for wells completed in the HJ Horizon and monitored with transducers are shown on Figures 6-9 through 6-12. Wells completed in the HJ Horizon were grouped into four geographical categories: 1) west side of the pumping well and south of the fault (Figure 6-9), 2) central area near the pumping well (approximately 1000 foot radius) and south of the fault (Figure 6-10), 3) east side of the pumping well and south of the fault (Figure 6-11), and 4) all wells located north of the fault (Figure 6-12).

Water level data for the overlying (FG Horizon) and underlying (KM Horizon) wells monitored by transducers are presented on Figures 6-13 to 6-16. Water level depictions on these figures are grouped by location relative to the fault. Wells in the FG Horizon

located south and north of the fault are presented on Figures 6-13 and 6-14, respectively. Wells completed in the KM Horizon located south and north of the fault are presented on Figures 6-15 and 6-16, respectively.

In general, water levels in the HJ Horizon on the south side of the fault were increasing slightly, approximately 0.1 to 0.3 feet for the three days prior to the start of testing (Figures 6-9 to 6-11). Water levels in the HJ Horizon on the north side of the fault were increasing at a greater rate, due to the slight residual drawdown from testing conducted at PW-102. Water levels generally increased from approximately 0.3 to 0.7 feet for the 36 hours prior to the start of testing (Figure 6-12).

Water levels in the FG Horizon, on both sides of the fault prior to testing, were stable to slightly increasing at approximately 0.5 feet or less for three days prior to testing (Figures 6-13 and 6-14). Water levels in the KM Horizon, on both sides of the fault, were increasing slightly prior to testing at levels of approximately 0.2 feet or less for three days prior to testing (Figures 6-15 and 6-16).

Individual well water levels for wells equipped with transducers versus pumping well water levels are presented in Appendices A-4 and A-5; e-line data is presented in Appendix A-6.

6.2 PUMP DURATION AND RATE

6.2.1 NORTH TEST, PUMPING WELL PW-102

The north repeat test was started at 10:15 a.m. on August 8, 2012, and was terminated at 10:15 a.m. on August 10, 2012. The total length of pumping was 2,880 minutes (2.0 days) and the average pumping rate during the PW-102 repeat test was 74.2 gpm (Table 4-3).

6.2.2 SOUTH TEST, PUMPING WELL PW-101

The south repeat test was started at 12:00 p.m. on August 20, 2012, and was terminated at 09:45 a.m. on August 23, 2012. The total length of pumping was approximately 4,185 minutes (2.9 days) and the average pumping rate during the PW-101 repeat test was 58.2 gpm (Table 4-4).

6.3 HJ HORIZON RESPONSE

6.3.1 NORTH TEST, PUMPING WELL PW-102

A comparison of well drawdown observed in the 2008 north test versus the 2012 repeat test is presented in Table 6-1. A map showing the differential drawdown values between these tests is presented on Figure 6-17. As was previously noted, the average discharge rate for the 2012 repeat test was approximately 5% higher than the original 2008 test. Due to the higher 2012 pumping rate, drawdown in the pumping well (118.1

feet) was approximately 6% higher than that recorded in 2008 (111.1 feet).

Due to the slightly higher 2012 pumping rate, observed monitor well drawdown responses were consistently higher than from the 2008 test. Within approximately 500 feet of the PW-102 pumping well, observed drawdown values ranged between 5 and 7 feet greater than observed in the 2008 test. In general, drawdown values were approximately 10% higher than observed in 2008.

Exceptions to the general observations are as follows:

- Ring monitor well M-117, located approximately 1,600 feet west of the pumping well, experienced approximately 2.6 feet less drawdown during the 2012 test as compared to the 2008 test.
- Well HJT-103, located southeast of the pumping well on the south side of the fault, experienced approximately 0.9 feet less drawdown during the 2012 test (Figure 6-17).
- The overlying FG Horizon well LC25M appeared to be in communication with the HJ Horizon to some degree. This well is located approximately 200 feet from well HJT-103. The decrease in drawdown observed at well HJT-103 would be consistent with a nearby well that is hydraulically communicating between the FG and HJ Horizons.

6.3.2 SOUTH TEST, PUMPING WELL PW-101

A comparison of well drawdown responses observed in the 2008 north test versus the 2012 repeat test is presented in Table 6-2. A map of the differential drawdown values between these tests is presented in Figure 6-18. As previously noted, the average discharge rate for the 2012 repeat test was only 0.1 gpm higher than the original 2008 test.

In the HJ Horizon, drawdown response differences between the 2012 repeat test and the 2008 test generally range between ± 1.0 feet. (Table 6-2 and Figure 6-18). Wells on the north side of the fault showed drawdown responses consistently less than observed in 2008; generally 0.6 feet or less. This is expected, as wells on the north side of the fault were observed to be experiencing residual recovery associated with PW-102 testing conducted approximately 10 days prior to the startup of the PW-101 repeat test.

Exceptions to the general observations are as follows:

- A different response was observed in monitor well HJMP-109, completed in the HJ Horizon on the south side of the fault. Drawdown during the 2008 test was approximately 42 feet, yet there was essentially no response during the 2012 test (observed drawdown was only 0.8 feet).
- The observed drawdown in well HJT-103 during the 2012 test was approximately 2.2 feet less than that observed in the 2008 test.

6.4 FG AND KM HORIZON RESPONSE

6.4.1 NORTH TEST, PUMPING WELL PW-102

A comparison of well drawdown responses observed in the overlying FG Horizon and underlying KM Horizon in the 2008 north test versus the 2012 repeat test is presented in Table 6-1. A map of differential drawdown values between these tests in the FG Horizon and KM Horizon are presented on Figures 6-19 and 6-21, respectively.

FG Horizon

The drawdown response observed in the north side FG Horizon monitoring wells indicate little difference between the drawdown observed in 2012 versus 2008. On the north side of the fault, 2012 drawdown in the FG Horizon was generally less than that observed in the 2008 test, and all 2012 observed drawdowns were less than 1 foot.

On the south side of the fault, observed 2012 drawdown responses were slightly greater than those observed in 2008, but the increase was generally less than 1 foot except for monitor wells MO-104 and HJMO-109, which were slightly more than a foot.

KM Horizon

Figure 6-21 presents a map of differential drawdown for observed drawdown values in the KM Horizon. On both sides of the fault, drawdown was consistently less during 2012 than 2008 especially near the PW-102 pumping well where observed drawdowns were approximately 2 feet less than observed in 2008.

It appears likely that the abandonment of well MU-108 (determined to have completion damage and communication with the HJ Horizon during the 2008 north test; located approximately 400 feet south of the pumping well) affected observed drawdown in this vicinity. The lower drawdown values observed in the KM Horizon (e.g., wells MU-107, HJMU-104, and HJMU-105 in Figure 21) are consistent with the expected results from successfully abandoning well MU-108.

6.4.2 SOUTH TEST, PUMPING WELL PW-101

A comparison of well drawdown responses observed in the overlying FG Horizon and underlying KM Horizon in the 2008 south test versus the 2012 repeat test is presented in Table 6-2. A map of differential drawdown values between these tests in the FG Horizon and KM Horizon are presented on Figures 6-20 and 6-22, respectively.

FG Horizon

As seen in Table 6-2, a different drawdown response was observed in well LC25M during the 2012 repeat south test. During the 2008 test, no response was observed, but during the 2012 test almost 10 feet of drawdown was observed. The reason for this anomalous response is uncertain; however, the well is currently under evaluation as discussed in Section 6.5.

In general, the remaining wells completed in the overlying FG Horizon experienced drawdown consistent with the 2008 test results. The exception is well MO-104 that saw approximately 1.4 feet more drawdown than was observed during the 2008 test. The increased drawdown may be attributable to nearby well LC25M, which could be providing a hydraulic conduit with the HJ Horizon, thus influencing drawdown during the 2012 test. Drawdown responses in all other FG Horizon wells were within ± 0.8 feet of the drawdown values observed in 2008 (Table 6-2 and Figure 6-20).

KM Horizon

Comparative drawdown values for the underlying KM Horizon between the 2012 and 2008 tests are presented in Table 6-2 and a map of differential drawdown values between tests is provided as Figure 6-22. No significant response differences were observed in any of the KM wells as all 2012 drawdown values were within ± 0.5 feet of the 2008 result.

One exception to the general observation is:

- Well MU-104 showed approximately 2 feet less drawdown in 2012 than in 2008; there's no obvious explanation for the difference.

6.5 DISCUSSION OF ANOMALOUS RESPONSES

During the 2012 repeat south test, two anomalous drawdown responses were observed in wells HJMP-109 and LC25M that differed from the 2008 responses.

- Well HJMP-109, which showed 41.7 feet of drawdown in response to pumping well PW-101 in 2008, only showed a 0.8 foot response during the repeat test. The lack of response observed in well HJMP-109 does not affect the hydraulics of the HJ Horizon or the overlying and underlying aquifers in MU1. Lost Creek ISR, LLC has conducted a field investigation and determined that the well has silted in to a depth of 297 feet below ground surface (bgs). That represents 173 feet of fill overlying the screen, thus is responsible for the observed muted water level response. A drill rig will be set up on the monitor well in an attempt to clean out and restore the well to service.
- During the 2012 repeat south test, well LC25M (completed in the overlying FG Horizon) appeared to be in communication with the HJ Horizon. Drawdown in this well after the 2012 test was 9.6 feet; in 2008 no response was observed. It is unclear as to the reason for the different response. Lost Creek ISR, LLC is conducting an on-going field investigation to ascertain whether the well's integrity has been compromised.

7.0 SUMMARY AND CONCLUSIONS

- In August 2012, LC ISR successfully conducted repeat pumping tests of wells PW-101 and PW-102, originally tested in 2008, for the purpose of evaluating the effect of the historical borehole abandonment program undertaken in 2011 and 2012.
- The pumping rate for the 2012 north test was approximately 5% higher than in 2008; however, the south test pumping rate was essentially identical to the 2008 rate.
- Excluding a few select perimeter ring monitoring wells, the monitoring network for the 2012 tests matched those wells monitored during 2008.
- The test results indicate that no discernible change was observed in aquifer response attributable to the borehole abandonment activities. Based on similar drawdown responses observed in the 2012 tests relative to the 2008 tests, it appears that communication through improperly abandoned boreholes is not manifested in the MU1 area.
- The extensive re-abandonment program initiated by LC ISR (86 boreholes within MU1) did not change aquifer responses to pumping stress; therefore it is likely that the historic boreholes did not act as artificial pathways to flow.
- KM Horizon monitor well MU-108 was suspected, in the 2008 test, of providing a communication pathway to the overlying HJ Horizon. Based on this suspicion, MU-108 was abandoned December 2008. Based on the 2012 test results, it appears that the suspect well was indeed a conduit between aquifers that affected the observed 2008 drawdown.
- A different drawdown response was observed in HJ Horizon observation well HJMP-109 from that seen in 2008. In 2008, the well indicated a direct communication with the pumped well, but no communication during the 2012 test. Lost Creek ISR, LLC conducted a field investigation and determined that the well has silted in to a depth of 297 feet bgs. A drill rig will be set up on the monitor well in an attempt to clean out and restore the well to service.
- Monitor well LC25M, completed in the FG Horizon, indicates some degree of communication between the pumped HJ Horizon and the overlying FG Horizon. During the 2008 south test, no response was observed in this well; however, during the 2012 repeat test, communication was observed between the HJ Horizon and overlying FG Horizon at this location. It is unclear as to the reason for this change, though it may be related to a deterioration of well completion integrity. Lost Creek ISR, LLC will conduct a field investigation to ascertain whether the well integrity has been compromised and initiate corrective action as necessary. .

REFERENCES

Petrotek, 2009. Lost Creek Hydrologic Testing – Mine Unit 1 North and South Tests.
Prepared for Lost Creek ISR, LLC, October 2009.

3-1
Well Information
2012 Mine Unit 1 Repeat Aquifer Tests
Lost Creek ISR, LLC

Well Name	Well Type	Monitored Sand	Ground Surface Elevation [feet amsl]	Top of Casing Elevation [feet amsl]	NAD 83 Easting [feet]	NAD 83 Northing [feet]	Screened Interval(s) [feet bgs]	Total Screen Length	12/08/08 Water Level Elevation	Aug-2012 Depth to Water	Riser Height*	Aug-2012 Water Level Elevation
PW-101	Production Zone Pumping Well, South Test	HJ	6936.67	6,938.06	2,212,158	595,259	385 - 473, 482 - 495	101	6,753.50			
PW-102	Production Zone Pumping Well, North Test	HJ	6937.16	6,938.58	2,210,906	595,846	360 - 382, 387 - 393, 397 - 467	98	6,768.00			
HJMO-101	Overlying MW	FG	6,948.49	6,949.70	2,211,604	595,702	295 - 326	31	6,780.09	169.02	0	6,781.60
HJMO-104	Overlying MW	FG	6,939.51	6,940.77	2,211,220	595,612	296 - 326	30	6,778.62	163.53	0	6,777.24
HJMO-105	Overlying MW	FG	6,936.84	6,938.00	2,211,275	595,787	300 - 320	20	6,778.76	161.1	0	6,776.90
HJMO-108	Overlying MW	FG	6,950.64	6,951.64	2,211,781	596,003	305 - 333	28	6,781.54	171.2	0	6,780.44
HJMO-109	Overlying MW	FG	6,937.79	6,938.95	2,212,227	595,538	345 - 370	25	6,777.13	164.88	0	6,774.07
HJMO-110	Overlying MW	FG	6,945.92	6,947.13	2,211,998	595,907	300 - 330	30	6,781.90	166.15	0	6,780.98
HJMO-113	Overlying MW	FG	6,936.06	6,936.97	2,212,588	595,518	318 - 356	38	6,777.13	162.18	0	6,774.79
LC15M	Overlying MW	FG	6,935.13	6,936.55	2,212,853	595,526	286 - 340	54	6,778.49	161.84	1.33	6,776.04
LC18M	Overlying MW	FG	6,947.68	6,948.97	2,211,668	596,021	290 - 332	42	6,780.82	169.32	0	6,779.65
LC25M	Overlying MW	FG	6,934.73	6,936.40	2,211,713	595,323	316 - 349	33	6,772.83	167.6	1.3	6,770.10
MO-101	Overlying MW	FG	6,938.64	6,940.24	2,213,870	595,207	310 - 340	30	6,783.93	159.4	1.34	6,782.18
MO-102	Overlying MW	FG	6,939.09	6,940.75	2,213,302	595,389	324 - 360	36	6,779.05	164.93	1.28	6,777.10
MO-103	Overlying MW	FG	6,933.76	6,935.52	2,212,698	595,388	305 - 350	45	6,778.50	160.65	1.31	6,776.18
MO-104	Overlying MW	FG	6,936.86	6,937.86	2,212,019	595,504	339 - 369	30	6,772.45	169.73	1.27	6,769.40
MO-105	Overlying MW	FG	6,949.38	6,950.46	2,212,148	596,085	303 - 330	27	6,783.56	169.2	1.31	6,782.57
MO-106	Overlying MW	FG	6,941.00	6,941.75	2,211,489	595,963	296 - 326	30	6,779.85	166.01	1.33	6,777.07
MO-107	Overlying MW	FG	6,935.29	6,936.29	2,210,970	595,815	291 - 327	36	6,777.73	161.75	1.31	6,775.85
MO-108	Overlying MW	FG	6,933.89	6,934.56	2,210,872	595,476	290 - 330	40	6,776.68	160.8	1.25	6,775.01
MO-109	Overlying MW	FG	6,931.64	6,932.18	2,210,957	595,223	330 - 355	25	6,766.34	169.12	1.3	6,764.36
MO-110	Overlying MW	FG	6,936.97	6,938.39	2,210,183	595,637	315 - 340	25	6,771.01	170.12	1.31	6,769.58
MO-111	Overlying MW	FG	6,935.78	6,936.70	2,209,938	595,367	315 - 330	15	6,769.97	169.55	1.34	6,768.49
MO-112	Overlying MW	FG	6,935.39	6,936.66	2,209,577	595,528	315 - 335	20	6,769.05	170.58	1.32	6,767.40
MO-113	Overlying MW	FG	6,921.52	6,922.29	2,209,855	594,940	346 - 366	20	6,763.10	164.04	1.16	6,759.41
MO-114	Overlying MW	FG	6,939.87	6,941.87	2,212,409	595,656	366 - 386	20	6,776.10	169.08	1.29	6,774.08
MO-115	Overlying MW	FG	6,940.62	6,942.62	2,212,528	595,847	286 - 306	20	6,785.48	161.5	0	6,781.12
HJT-106	Overlying MW	DE	6,933.14	6,935.14	2,212,544	595,286	142 - 162	20	6,781.71	DNM	DNM	DNM
HJT-107	Overlying MW	DE	6,942.69	6,944.34	2,213,554	595,554	133 - 163	30	6,784.94	DNM	DNM	DNM
LC29M	Overlying MW	DE	6,935.25	6,937.55	2,212,854	595,540	140 - 164	24	6,781.61	DNM	DNM	DNM
HJMP-101	Production Zone MW	HJ	6,947.36	6,948.64	2,211,610	595,711	438 - 465	27	6,769.26	180.92	0	6,769.17
HJMP-104	Production Zone MW	HJ	6,939.04	6,941.04	2,211,208	595,610	402 - 430	28	6,768.00	174.48	0	6,766.56
HJMP-105	Production Zone MW	HJ	6,936.84	6,937.38	2,211,255	595,787	425 - 463	38	6,768.39	170.51	0	6,766.87
HJMP-108	Production Zone MW	HJ	6,951.12	6,952.20	2,211,784	596,011	400 - 434	34	6,770.62	182.88	0	6,769.32
HJMP-109	Production Zone MW	HJ	6,937.89	6,939.10	2,212,218	595,543	478 - 512	34	6,755.01	178.00	0	6,761.10
HJMP-110	Production Zone MW	HJ	6,945.81	6,947.02	2,212,004	595,897	431 - 476	45	6,770.92	177.79	0	6,769.23
HJMP-113	Production Zone MW	HJ	6,935.26	6,937.27	2,212,596	595,510	416 - 462	46	6,757.32	180.95	0	6,756.32
HJT-101	Production Zone MW	HJ	6,937.12	6,937.56	2,210,883	595,323	437 - 477	40	6,764.58	174.86	0	6,762.70
HJT-102	Production Zone MW	HJ	6,937.82	6,939.15	2,211,209	595,409	390 - 417	27	6,767.83	172.90	0	6,766.25
HJT-103	Production Zone MW	HJ	6,937.56	6,938.22	2,211,502	595,383	291 - 327	36	6,749.02	190.40	0	6,747.82
HJT-104	Production Zone MW	HJ	6,937.48	6,940.15	2,211,976	595,605	410 - 460	50	6,769.52	172.15	0	6,768.00
HJT-105	Production Zone MW	HJ	6,937.45	6,938.87	2,212,760	595,740	407 - 438	31	6,767.26	172.97	0	6,765.90
LC16M	Production Zone MW	HJ	6,934.73	6,936.15	2,212,869	595,523	410 - 467	57	6,758.70	DNM	DNM	DNM
LC19M	Production Zone MW	HJ	6,949.01	6,950.02	2,211,685	596,020	412 - 463	51	6,770.17	182.85	1.28	6,768.45

3-1
Well Information
2012 Mine Unit 1 Repeat Aquifer Tests
Lost Creek ISR, LLC

Well Name	Well Type	Monitored Sand	Ground Surface Elevation [feet amsl]	Top of Casing Elevation [feet amsl]	NAD 83 Easting [feet]	NAD 83 Northing [feet]	Screened Interval(s) [feet bgs]	Total Screen Length	12/08/08 Water Level Elevation	Aug-2012 Depth to Water	Riser Height*	Aug-2012 Water Level Elevation
M-102	Production Zone MW	HJ	6,951.18	6,952.73	2,214,476	594,822	421 - 438	17	6,773.35	183.25	1.31	6,770.79
M-106	Production Zone MW	HJ	6,922.20	6,922.85	2,212,578	594,746	356 - 401	45	6,755.56	168.57	0	6,754.28
M-109	Production Zone MW	HJ	6,919.90	6,921.72	2,211,180	594,671	379 - 391, 403 - 423	32	6,746.97	177.33	1.31	6,745.70
M-113	Production Zone MW	HJ	6,926.89	6,928.01	2,209,310	594,510	396 - 406, 417 - 439, 447 - 463, 472 - 480	56	6,737.53	192.78	1.3	6,736.53
M-114	Production Zone MW	HJ	6,929.05	6,930.75	2,208,942	594,834	465 - 485	20	6,742.00	189.45	1.34	6,742.64
M-115	Production Zone MW	HJ	6,937.30	6,939.10	2,208,879	595,321	428 - 451	23	6,754.16	187.30	1.3	6,753.10
M-117	Production Zone MW	HJ	6,943.06	6,944.80	2,209,308	596,148	435 - 453	18	6,759.24	187.82	1.29	6,758.27
M-120	Production Zone MW	HJ	6,944.98	6,946.52	2,210,727	596,442	410 - 441	31	6,768.32	180.93	1.33	6,766.92
M-123	Production Zone MW	HJ	6,950.75	6,951.85	2,212,165	596,647	422 - 444	22	6,773.74	180.40	1.3	6,772.75
M-126	Production Zone MW	HJ	6,948.12	6,949.67	2,213,464	596,087	331 - 348, 365 - 401	53	6,776.49	176.10	1.33	6,774.90
M-127	Production Zone MW	HJ	6,946.21	6,947.66	2,213,932	595,954	408 - 418, 450 - 471	31	6,774.98	175.89	1.31	6,773.08
MP-101	Production Zone MW	HJ	6,938.55	6,940.30	2,213,875	595,194	420 - 438	18	6,772.37	171.80	1.32	6,769.82
MP-102	Production Zone MW	HJ	6,940.18	6,941.02	2,213,299	595,400	408 - 423	15	6,764.39	180.53	1.3	6,761.79
MP-103	Production Zone MW	HJ	6,934.32	6,935.48	2,212,708	595,381	388 - 400	12	6,757.72	179.96	1.33	6,756.85
MP-104	Production Zone MW	HJ	6,936.81	6,938.45	2,212,007	595,515	424 - 440	16	6,755.16	185.68	1.29	6,754.06
MP-105	Production Zone MW	HJ	6,948.99	6,949.49	2,212,158	596,079	402 - 418	16	6,770.63	181.65	1.3	6,769.14
MP-106	Production Zone MW	HJ	6,940.20	6,941.29	2,211,488	595,980	434 - 454	20	6,768.93	175.75	1.27	6,766.81
MP-107	Production Zone MW	HJ	6,935.08	6,936.49	2,210,975	595,822	402 - 420	18	6,768.07	171.50	1.33	6,766.32
MP-108	Production Zone MW	HJ	6,934.15	6,936.15	2,210,882	595,469	424 - 438	14	6,766.51	172.50	1.3	6,764.95
MP-109	Production Zone MW	HJ	6,931.94	6,932.71	2,210,955	595,235	422 - 438	16	6,748.58	185.53	0.02	6,747.20
MP-110	Production Zone MW	HJ	6,937.29	6,938.69	2,210,185	595,648	419 - 438	19	6,761.78	179.55	1.31	6,760.45
MP-111	Production Zone MW	HJ	6,934.86	6,936.28	2,209,951	595,361	391 - 410	19	6,760.17	178.56	1.33	6,759.05
MP-112	Production Zone MW	HJ	6,935.35	6,936.64	2,209,585	595,535	422 - 441	19	6,759.37	179.70	1.23	6,758.17
MP-113	Production Zone MW	HJ	6,921.97	6,923.19	2,209,861	594,950	447 - 466	19	6,739.16	186.22	1.3	6,738.27
UKMO-101	Production Zone MW	HJ	6,940.19	6,942.28	2,212,409	595,656	465 - 487	22	6,764.52	178.40	0	6,763.88
UKMO-102	Production Zone MW	HJ	6,940.24	6,940.79	2,212,528	595,847	379 - 420	41	6,771.59	168.60	0	6,772.19
UKMO-103	Production Zone MW	HJ	6,949.28	6,950.53	2,212,823	596,269	409 - 430	21	6,774.18	177.64	0	6,772.89
HJMU-101	Underlying MW	KM	6,947.82	6,949.03	2,211,600	595,711	499 - 535	36	6,748.86	202.59	1.32	6,748.61
HJMU-104	Underlying MW	KM	6,939.01	6,940.52	2,211,214	595,620	512 - 550	38	6,744.72	197.1	0	6,743.42
HJMU-105	Underlying MW	KM	6,936.37	6,937.58	2,211,264	595,790	502 - 542	40	6,745.23	193.76	0	6,743.82
HJMU-108	Underlying MW	KM	6,949.97	6,951.52	2,211,799	596,011	510 - 540	30	6,749.16	203.93	0	6,747.59
HJMU-109	Underlying MW	KM	6,933.92	6,939.38	2,212,228	595,549	524 - 574	50	6,749.78	190.8	0	6,748.58
HJMU-110	Underlying MW	KM	6,945.97	6,947.56	2,212,008	595,909	492 - 532	40	6,749.40	199.81	0.3	6,748.05
HJMU-113	Underlying MW	KM	6,935.16	6,936.99	2,212,600	595,521	524 - 555	31	6,751.30	186.91	0	6,750.08
LC17M	Underlying MW	KM	6,935.32	6,936.90	2,212,869	595,542	478 - 531	53	6,751.87	187.78	1.31	6,750.43
LC20M	Underlying MW	KM	6,949.22	6,950.52	2,211,684	596,034	511 - 543	32	6,748.83	204.64	1.32	6,747.20
LC24M	Underlying MW	KM	6,942.33	6,944.33	2,212,886	595,906	478 - 531	53	6,753.77	192.1	0	6,752.23
MU-101	Underlying MW	KM	6,938.55	6,940.37	2,213,858	595,192	520 - 540	20	6,753.72	188.38	0.33	6,752.32
MU-102	Underlying MW	KM	6,939.10	6,940.43	2,213,289	595,391	525 - 553	28	6,752.77	190.32	1.3	6,751.41
MU-103	Underlying MW	KM	6,934.18	6,935.35	2,212,709	595,389	525 - 560	35	6,752.44	185.85	1.3	6,750.80
MU-104	Underlying MW	KM	6,936.84	6,937.88	2,212,009	595,501	550 - 580	30	6,746.17	194.38	1.25	6,744.75
MU-105	Underlying MW	KM	6,948.93	6,950.08	2,212,163	596,087	507 - 545	38	6,748.87	203.65	1.31	6,747.74
MU-106	Underlying MW	KM	6,940.59	6,941.75	2,211,482	595,972	500 - 546	46	6,747.81	197.7	1.32	6,745.37
MU-107	Underlying MW	KM	6,935.06	6,936.06	2,210,980	595,811	500 - 540	40	6,744.38	194.06	1.32	6,743.32
MU-109	Underlying MW	KM	6,931.92	6,932.78	2,210,944	595,230	525 - 545	20	6,741.76	193.15	1.3	6,740.93
MU-110	Underlying MW	KM	6,937.11	6,939.23	2,210,165	595,647	520 - 540	20	6,739.61	201.9	1.31	6,738.64
MU-111	Underlying MW	KM	6,936.09	6,937.05	2,209,930	595,358	512 - 532	20	6,738.88	200.35	1.31	6,738.01

3-1
Well Information
2012 Mine Unit 1 Repeat Aquifer Tests
Lost Creek ISR, LLC

Well Name	Well Type	Monitored Sand	Ground Surface Elevation [feet amsl]	Top of Casing Elevation [feet amsl]	NAD 83 Easting [feet]	NAD 83 Northing [feet]	Screened Interval(s) [feet bgs]	Total Screen Length	12/08/08 Water Level Elevation	Aug-2012 Depth to Water	Riser Height*	Aug-2012 Water Level Elevation
MU-112	Underlying MW	KM	6,935.42	6,936.75	2,209,567	595,538	515 - 535	20	6,738.33	200.61	1.33	6,737.47
MU-113	Underlying MW	KM	6,921.83	6,923.75	2,209,842	594,951	530 - 550	20	6,737.62	188.36	1.3	6,736.69
UKMP-101	Underlying MW	KM	6,940.18	6,941.74	2,212,413	595,642	547 - 575	28	6,750.41	192.82	0	6,748.92
UKMP-102	Underlying MW	KM	6,940.51	6,942.10	2,212,526	595,858	475 - 498	23	6,752.06	DNM	DNM	DNM
UKMU-103	Underlying MW	KM	6,948.75	6,950.92	2,212,811	596,259	558 - 590	32	6,752.42	DNM	DNM	DNM

Notes:

- Easting/northing are NAD 83 WY State Plane coordinates.

**Table 4-1
Equipment Layout
Mine Unit 1 Repeat North Test
Lost Creek ISR, LLC**

2012 Repeat PW-102 North Test			
Well Name	Completion Zone	Side of Lost Creek Fault	Monitoring Equipment
PW-102	HJ	North	Level TROLL®
HJMP-101	HJ	North	E-line
HJMP-104	HJ	North	E-line
HJMP-105	HJ	North	E-line
HJMP-108	HJ	North	E-line
HJMP-110	HJ	North	E-line
HJT-101	HJ	North	E-line
HJT-102	HJ	North	E-line
HJT-104	HJ	North	Level TROLL®
LC19M	HJ	North	E-line
M-114	HJ	North	Level TROLL®
M-115	HJ	North	Level TROLL®
M-117	HJ	North	Level TROLL®
M-120	HJ	North	Level TROLL®
M-123	HJ	North	Level TROLL®
M-126	HJ	North	Level TROLL®
MP-105	HJ	North	Level TROLL®
MP-106	HJ	North	Level TROLL®
MP-107	HJ	North	Level TROLL®
MP-108	HJ	North	Level TROLL®
MP-110	HJ	North	Level TROLL®
MP-111	HJ	North	Level TROLL®
MP-112	HJ	North	Level TROLL®
UKMO-102	HJ	North	Level TROLL®
UKMO-103	HJ	North	E-line
HJMP-109	HJ	South	E-line
HJMP-113	HJ	South	E-line
HJT-103	HJ	South	E-line
M-113	HJ	South	Level TROLL®
M-127	HJ	South	Level TROLL®
MP-101	HJ	South	E-line
MP-102	HJ	South	E-line
MP-103	HJ	South	Level TROLL®
MP-104	HJ	South	E-line
MP-109	HJ	South	Level TROLL®
MP-113	HJ	South	Level TROLL®
UKMO-101	HJ	South	Level TROLL®
HJMO-101	FG	North	E-line
HJMO-104	FG	North	E-line
HJMO-105	FG	North	E-line
HJMO-108	FG	North	E-line
HJMO-110	FG	North	E-line
MO-105	FG	North	Level TROLL®
MO-106	FG	North	Level TROLL®
MO-107	FG	North	Level TROLL®
MO-108	FG	North	Level TROLL®

**Table 4-1
Equipment Layout
Mine Unit 1 Repeat North Test
Lost Creek ISR, LLC**

2012 Repeat PW-102 North Test			
Well Name	Completion Zone	Side of Lost Creek Fault	Monitoring Equipment
MO-110	FG	North	Level TROLL [®]
MO-111	FG	North	Level TROLL [®]
MO-112	FG	North	Level TROLL [®]
MO-115	FG	North	Level TROLL [®]
HJMO-109	FG	South	E-line
HJMO-113	FG	South	E-line
LC15M	FG	South	E-line
LC25M	FG	South	E-line
MO-101	FG	South	E-line
MO-102	FG	South	E-line
MO-103	FG	South	Level TROLL [®]
MO-104	FG	South	E-line
MO-109	FG	South	Level TROLL [®]
MO-113	FG	South	Level TROLL [®]
MO-114	FG	South	Level TROLL [®]
HJMU-101	KM	North	E-line
HJMU-104	KM	North	E-line
HJMU-105	KM	North	E-line
HJMU-108	KM	North	E-line
HJMU-110	KM	North	E-line
LC20M	KM	North	E-line
LC24M	KM	North	E-line
MU-105	KM	North	Level TROLL [®]
MU-106	KM	North	Level TROLL [®]
MU-107	KM	North	Level TROLL [®]
MU-110	KM	North	Level TROLL [®]
MU-111	KM	North	Level TROLL [®]
MU-112	KM	North	Level TROLL [®]
UKMP-102	KM	North	Level TROLL [®]
UKMU-103	KM	North	E-line
HJMU-109	KM	South	E-line
HJMU-113	KM	South	E-line
LC17M	KM	South	E-line
MU-101	KM	South	E-line
MU-102	KM	South	E-line
MU-103	KM	South	Level TROLL [®]
MU-104	KM	South	E-line
MU-109	KM	South	Level TROLL [®]
MU-113	KM	South	Level TROLL [®]
UKMP-101	KM	South	Level TROLL [®]
HJT-106	DE	South	E-line
HJT-107	DE	South	E-line
LC29M	DE	South	E-line

**Table 4-2
Equipment Layout
Mine Unit 1 Repeat South Test
Lost Creek ISR, LLC**

2012 PW-101 Re-Test			
Well Name	Completion Zone	Side of Lost Creek Fault	Monitoring Equipment
PW-101	HJ	South	Level TROLL [®]
HJMP-109	HJ	South	E-line
HJMP-113	HJ	South	E-line
HJT-103	HJ	South	E-line
M-102	HJ	South	Level TROLL [®]
M-106	HJ	South	Level TROLL [®]
M-109	HJ	South	Level TROLL [®]
M-113	HJ	South	Level TROLL [®]
M-127	HJ	South	Level TROLL [®]
MP-101	HJ	South	Level TROLL [®]
MP-102	HJ	South	Level TROLL [®]
MP-103	HJ	South	Level TROLL [®]
MP-104	HJ	South	Level TROLL [®]
MP-109	HJ	South	Level TROLL [®]
MP-113	HJ	South	Level TROLL [®]
UKMO-101	HJ	South	Level TROLL [®]
HJMP-101	HJ	North	Level TROLL [®]
HJMP-104	HJ	North	E-line
HJMP-105	HJ	North	E-line
HJMP-108	HJ	North	E-line
HJMP-110	HJ	North	E-line
HJT-101	HJ	North	E-line
HJT-102	HJ	North	Level TROLL [®]
HJT-104	HJ	North	Level TROLL [®]
LC19M	HJ	North	E-line
M-114	HJ	North	Level TROLL [®]
M-115	HJ	North	Level TROLL [®]
M-126	HJ	North	Level TROLL [®]
MP-105	HJ	North	Level TROLL [®]
MP-106	HJ	North	E-line
MP-107	HJ	North	E-line
MP-108	HJ	North	Level TROLL [®]
MP-110	HJ	North	Level TROLL [®]
MP-111	HJ	North	Level TROLL [®]
MP-112	HJ	North	Level TROLL [®]
UKMO-102	HJ	North	Level TROLL [®]
UKMO-103	HJ	North	E-line
HJMO-109	FG	South	E-line
HJMO-113	FG	South	E-line
LC15M	FG	South	E-line
LC25M	FG	South	E-line
MO-101	FG	South	Level TROLL [®]
MO-102	FG	South	Level TROLL [®]
MO-103	FG	South	Level TROLL [®]
MO-104	FG	South	Level TROLL [®]
MO-109	FG	South	Level TROLL [®]

**Table 4-2
Equipment Layout
Mine Unit 1 Repeat South Test
Lost Creek ISR, LLC**

2012 PW-101 Re-Test			
Well Name	Completion Zone	Side of Lost Creek Fault	Monitoring Equipment
MO-113	FG	South	Level TROLL®
MO-114	FG	South	Level TROLL®
HJMO-101	FG	North	Level TROLL®
HJMO-104	FG	North	E-line
HJMO-105	FG	North	E-line
HJMO-108	FG	North	E-line
HJMO-110	FG	North	E-line
MO-105	FG	North	Level TROLL®
MO-106	FG	North	E-line
MO-107	FG	North	E-line
MO-108	FG	North	Level TROLL®
MO-110	FG	North	Level TROLL®
MO-111	FG	North	Level TROLL®
MO-112	FG	North	Level TROLL®
MO-115	FG	North	Level TROLL®
HJMU-109	KM	South	E-line
HJMU-113	KM	South	E-line
LC17M	KM	South	E-line
MU-101	KM	South	Level TROLL®
MU-102	KM	South	Level TROLL®
MU-103	KM	South	Level TROLL®
MU-104	KM	South	Level TROLL®
MU-109	KM	South	Level TROLL®
MU-113	KM	South	Level TROLL®
UKMP-101	KM	South	Level TROLL®
HJMU-101	KM	North	Level TROLL®
HJMU-104	KM	North	E-line
HJMU-105	KM	North	E-line
HJMU-108	KM	North	E-line
HJMU-110	KM	North	E-line
LC20M	KM	North	E-line
LC24M	KM	North	E-line
MU-105	KM	North	Level TROLL®
MU-106	KM	North	E-line
MU-107	KM	North	E-line
MU-110	KM	North	Level TROLL®
MU-111	KM	North	Level TROLL®
MU-112	KM	North	Level TROLL®
UKMP-102	KM	North	Level TROLL®
UKMU-103	KM	North	E-line
HJT-106	DE	South	E-line
HJT-107	DE	South	E-line

**Table 4-3
Pumping Rate Versus Time
Mine Unit 1 Repeat North Test
Lost Creek ISR, LLC**

PW-102 Repeat North Pump Test											
Date/Time	Interval Minutes	Total Minutes	Totalizer 1 (gal)	T1 Rate (gpm)	Totalizer 2 (gal)	T2 Rate (gpm)	Interval Gallons, T1	Interval Gallons, T2	Calculated Rate, T1	Calculated Rate, T2	Notes
8/8/12 10:15	0	0	0	0	0	0	0	0	0	0	BEGIN Test
8/8/12 10:26	11	11	910	79	889	76	910	889	83	81	
8/8/12 10:48	33	22	2,644	79	2,569	77	1,734	1,680	79	76	
8/8/12 10:55	40	7	3,247	79	3,145	76	603	576	86	82	
8/8/12 11:15	60	20	4,716	78	4,553	76	1,469	1,408	73	70	
8/8/12 11:30	75	15	6,032	79	5,840	76	1,316	1,287	88	86	
8/8/12 12:15	120	45	9,475	78	9,165	75	3,443	3,325	77	74	
8/8/12 12:52	157	37	12,321	79	11,917	77	2,846	2,752	77	74	
8/8/12 14:33	258	101	20,748	79	19,987	76	8,427	8,070	83	80	
8/8/12 15:30	315	57	24,947	79	24,000	76	4,199	4,013	74	70	
8/8/12 16:00	345	30	27,300	79	26,250	76	2,353	2,250	78	75	
8/8/12 20:40	625	280	49,290	77	47,493	75	21,990	21,243	79	76	
8/8/12 22:00	705	80	55,330	77	53,184	74	6,040	5,691	76	71	
8/8/12 23:00	765	60	59,710	77	57,400	74	4,380	4,216	73	70	
8/9/12 0:01	826	61	65,164	76	62,682	74	5,454	5,282	89	87	
8/9/12 1:20	905	79	70,691	76	66,083	74	5,527	3,401	70	43	
8/9/12 2:00	945	40	73,485	75	70,812	74	2,794	4,729	70	118	
8/9/12 4:00	1065	120	83,062	75	80,164	74	9,577	9,352	80	78	
8/9/12 6:50	1235	170	95,314	75	92,118	73	12,252	11,954	72	70	
8/9/12 7:55	1300	65	100,458	75	97,140	73	5,144	5,022	79	77	
8/9/12 11:00	1485	185	114,125	74	110,481	73	13,667	13,341	74	72	
8/9/12 11:40	1525	40	117,074	74	113,353	73	2,949	2,872	74	72	
8/9/12 12:15	1560	35	119,927	74	116,135	73	2,853	2,782	82	79	
8/9/12 13:05	1610	50	123,351	74	119,468	73	3,424	3,333	68	67	
8/9/12 15:48	1773	163	135,500	74	131,290	72	12,149	11,822	75	73	
8/9/12 21:10	2095	322	159,308	74	154,518	72	23,808	23,228	74	72	
8/9/12 22:00	2145	50	163,036	73	158,156	72	3,728	3,638	75	73	
8/9/12 23:00	2205	60	167,236	74	162,258	72	4,200	4,102	70	68	
8/10/12 0:07	2272	67	172,286	73	167,284	72	5,050	5,026	75	75	
8/10/12 1:10	2335	63	176,804	73	171,603	71	4,518	4,319	72	69	
8/10/12 2:00	2385	50	180,007	73	174,730	71	3,203	3,127	64	63	
8/10/12 4:00	2505	120	189,833	73	184,325	71	9,826	9,595	82	80	
8/10/12 6:40	2665	160	201,000	73	195,225	71	11,167	10,900	70	68	
8/10/12 7:15	2700	35	203,402	73	197,665	71	2,402	2,440	69	70	
8/10/12 9:01	2806	106	211,310	73	205,303	71	7,908	7,638	75	72	
8/10/12 10:15	2880	74	216,635	73	210,494	71	5,325	5,191	72	70	Pump off

MU1 2012 North Re-Test Summary	
T1 Cumulative Average Rate (total gal + total time)	75.2 gpm
T2 Cumulative Average Rate (total gal + total time)	73.1 gpm
Combined Average Rate	74.2 gpm
Total Minutes	2,880

Notes:

Totalizers 1 & 2 - 1.5" turbine flow meter (Turbines Incorporated, FW Series)

Original 2008 MU1 North Summary	
T1 Cumulative Average Rate (total gal + total time)	70.8 gpm
T2 Cumulative Average Rate (total gal + total time)	70.9 gpm
Combined Average Rate	70.9 gpm
Total Minutes	2,880

Notes:

Totalizers 1 & 2 - 1.5" turbine flow meter (Turbines Incorporated, FW Series)

**Table 4-4
Pumping Rate Versus Time
Mine Unit 1 Repeat South Test
Lost Creek ISR, LLC**

PW-101 Repeat South Pump Test											
Date/Time	Interval Minutes	Total Minutes	Totalizer 1 (gal)	T1 Rate (gpm)	Totalizer 2 (gal)	T2 Rate (gpm)	Interval Gallons, T1	Interval Gallons, T2	Calculated Rate, T1	Calculated Rate, T2	Notes
8/20/12 12:00	0	0	0	0	0	0	0	0	0	0	BEGIN Test
8/20/12 12:04	4	4	261	61	258	59	261	258	65.2	64.5	
8/20/12 12:31	27	31	1,944	61	1,899	59	1,683	1,641	62.3	60.8	
8/20/12 13:25	54	85	5,176	61	5,048	59	3,232	3,149	59.9	58.3	
8/20/12 14:43	78	163	9,905	61	9,660	59	4,729	4,612	60.6	59.1	
8/20/12 22:00	437	600	35,103	60	36,027	58	25,198	26,367	57.7	60.3	
8/20/12 23:00	60	660	39,700	60	38,698	58	4,597	2,671	76.6	44.5	
8/21/12 0:14	74	734	44,396	60	43,226	58	4,696	4,528	63.5	61.2	
8/21/12 1:00	46	780	46,903	60	45,721	58	2,507	2,495	54.5	54.2	
8/21/12 2:00	60	840	50,270	60	49,001	58	3,367	3,280	56.1	54.7	
8/21/12 4:00	120	960	58,236	60	56,278	58	7,966	7,277	66.4	60.6	
8/21/12 6:05	125	1085	65,288	59	63,669	58	7,052	7,391	56.4	59.1	
8/21/12 9:10	185	1270	76,137	59	74,283	58	10,849	10,614	58.6	57.4	
8/21/12 10:21	71	1341	80,294	59	78,351	58	4,157	4,068	58.5	57.3	
8/21/12 11:31	70	1411	84,385	59	82,369	58	4,091	4,018	58.4	57.4	
8/21/12 12:30	59	1470	87,877	59	85,777	58	3,492	3,408	59.2	57.8	
8/21/12 14:42	132	1602	95,638	59	93,371	58	7,761	7,594	58.8	57.5	
8/21/12 15:30	48	1650	98,483	59	96,160	58	2,845	2,789	59.3	58.1	
8/21/12 16:30	60	1710	102,085	59	99,683	58	3,602	3,523	60.0	58.7	
8/21/12 19:24	174	1884	112,254	59	109,640	58	10,169	9,957	58.4	57.2	
8/21/12 21:21	117	2001	119,116	59	116,345	58	6,862	6,705	58.6	57.3	
8/21/12 22:05	44	2045	121,680	59	118,880	58	2,564	2,535	58.3	57.6	
8/22/12 0:47	162	2207	131,215	59	128,220	57	9,535	9,340	58.9	57.7	
8/22/12 2:00	73	2280	135,507	59	132,435	57	4,292	4,215	58.8	57.7	
8/22/12 4:00	120	2400	142,924	59	139,690	57	7,417	7,255	61.8	60.5	
8/22/12 6:30	150	2550	151,444	59	148,000	58	8,520	8,310	56.8	55.4	
8/22/12 9:01	151	2701	160,135	58	156,550	57	8,691	8,550	57.6	56.6	
8/22/12 10:00	59	2760	163,570	58	159,912	57	3,435	3,362	58.2	57.0	
8/22/12 10:53	53	2813	166,617	58	162,896	57	3,047	2,984	57.5	56.3	
8/22/12 12:20	87	2900	171,724	58	167,902	57	5,107	5,006	58.7	57.5	
8/22/12 13:57	97	2997	177,384	58	173,460	57	5,660	5,558	58.4	57.3	
8/22/12 14:51	54	3051	180,500	58	176,500	57	3,116	3,040	57.7	56.3	
8/22/12 18:52	241	3292	194,570	58	190,270	57	14,070	13,770	58.4	57.1	
8/22/12 19:55	63	3355	198,215	58	193,860	57	3,645	3,590	57.9	57.0	
8/22/12 21:00	65	3420	201,828	58	197,407	57	3,613	3,547	55.6	54.6	
8/22/12 22:15	75	3495	206,171	58	201,663	57	4,343	4,256	57.9	56.7	
8/22/12 23:05	50	3545	209,207	58	204,618	57	3,036	2,955	60.7	59.1	
8/23/12 0:00	55	3600	212,520	58	207,884	57	3,313	3,266	60.2	59.4	
8/23/12 1:30	90	3690	217,860	58	213,125	57	5,340	5,241	59.3	58.2	
8/23/12 2:00	30	3720	219,340	58	214,361	57	1,480	1,236	49.3	41.2	
8/23/12 5:00	180	3900	230,812	58	225,812	57	11,472	11,451	63.7	63.6	
8/23/12 6:57	117	4017	236,466	58	231,349	57	5,654	5,537	48.3	47.3	
8/23/12 9:20	143	4160	244,814	58	239,535	57	8,348	8,186	58.4	57.2	
8/23/12 9:45	25	4185	246,294	58	240,978	57	1,480	1,443	59.2	57.7	Pump off

MU1 South Re-Test Summary

T1 Cumulative Average Rate (total gal + total time)	58.9 gpm
T2 Cumulative Average Rate (total gal + total time)	57.6 gpm
Combined Average Rate	58.2 gpm
Total Minutes	4,185

Notes:

Totalizers 1 & 2 - 1.5" turbine flow meter (Turbines Incorporated, FW Series)

Original MU1 South Summary

T1 Cumulative Average Rate (total gal + total time)	58.1 gpm
T1 Cumulative Average Rate (total gal + total time)	58.0 gpm
Combined Average Rate	58.1 gpm
Total Minutes	4,185

Notes:

Totalizers 1 & 2 - 1.5" turbine flow meter (Turbines Incorporated, FW Series)

**North Test Drawdown Comparison Between 2008 and 2012 Tests
Mine Unit 1 Repeat North Test
Lost Creek ISR, LLC**

Well Name	Sand	Distance from Pumping Well (ft)	Side of Fault	2008 Water Level Instrument	2012 Water Level Instrument	Pre-Test SWL 8/8/12 (ft btoc)	Shut-in SWL 8/10/12 (ft btoc)	2012 Drawdown Prior to Shut-in (ft)	2008 Drawdown Prior to Shut in (ft)	Drawdown Differential Between Tests
NORTH REPEAT TEST, PW-102										
<u>Over-Overlying Aquifer (DE Sand)</u>										
HJT-106	DE	1,731	South	E-Line	E-Line	154.70	154.56	-0.1	-0.1	-0.1
LC29M	DE	1,972	South	E-Line	E-Line	DNM	DNM	--	0.1	--
HJT-107	DE	2,664	South	E-Line	E-Line	160.27	160.24	0.0	0.0	0.0
<u>Overlying Aquifer (LFG Sand)</u>										
MO-107	FG	71	North	Level TROLL [®]	Level TROLL [®]	160.97	161.54	0.6	1.2	-0.7
MO-108	FG	372	North	Level TROLL [®]	Level TROLL [®]	160.72	161.02	0.3	1.1	-0.8
HJMO-105	FG	373	North	E-Line	E-Line	161.17	161.95	0.8	0.9	-0.1
HJMO-104	FG	392	North	E-Line	E-Line	163.63	163.80	0.2	0.8	-0.6
MO-106	FG	595	North	Level TROLL [®]	Level TROLL [®]	166.20	166.55	0.3	1.0	-0.6
HJMO-101	FG	712	North	E-Line	E-Line	169.14	169.34	0.2	0.7	-0.5
MO-110	FG	753	North	Level TROLL [®]	Level TROLL [®]	170.10	170.60	0.5	0.7	-0.2
LC18M	FG	782	North	E-Line	DNM	--	--	--	0.5	--
HJMO-108	FG	889	North	E-Line	E-Line	171.30	171.51	0.2	0.1	0.1
MO-111	FG	1,080	North	Level TROLL [®]	Level TROLL [®]	169.64	170.01	0.4	0.5	-0.1
HJMO-110	FG	1,093	North	E-Line	E-Line	166.24	166.39	0.1	0.4	-0.3
MO-105	FG	1,264	North	Level TROLL [®]	Level TROLL [®]	169.15	169.27	0.1	0.3	-0.2
MO-112	FG	1,367	North	Level TROLL [®]	Level TROLL [®]	170.71	170.76	0.1	0.1	0.0
MO-115	FG	1,622	North	Level TROLL [®]	Level TROLL [®]	158.59	159.39	0.8	0.7	0.1
MO-109	FG	625	South	Level TROLL [®]	Level TROLL [®]	168.95	169.59	0.6	0.6	0.0
LC25M	FG	962	South	E-Line	E-Line	167.68	168.78	1.1	0.8	0.3
MO-104	FG	1,165	South	E-Line	E-Line	169.73	174.22	4.5	3.4	1.1
HJMO-109	FG	1,357	South	E-Line	E-Line	165.00	167.71	2.7	1.8	1.0
MO-113	FG	1,388	South	Level TROLL [®]	Level TROLL [®]	163.94	164.80	0.9	0.7	0.2
MO-114	FG	1,514	South	Level TROLL [®]	Level TROLL [®]	168.76	171.37	2.6	2.0	0.6
HJMO-113	FG	1,713	South	E-Line	E-Line	162.20	163.54	1.3	0.9	0.4
MO-103	FG	1,850	South	Level TROLL [®]	Level TROLL [®]	160.69	161.56	0.9	0.7	0.2
LC15M	FG	1,973	South	E-Line	E-Line	161.99	162.60	0.6	0.5	0.1
MO-102	FG	2,439	South	E-Line	E-Line	164.93	165.45	0.5	0.4	0.1
MO-101	FG	3,032	South	E-Line	E-Line	159.40	159.49	0.1	0.1	0.0
<u>Production Zone Aquifer (HJ Horizon)</u>										
PW-102	HJ	0	North	Level TROLL [®]	Level TROLL [®]	171.38	289.50	118.1	111.1	7.0
MP-107	HJ	73	North	Level TROLL [®]	Level TROLL [®]	171.39	226.54	55.2	48.6	6.5
HJMP-105	HJ	354	North	E-Line	E-Line	170.48	212.12	41.6	37.3	4.4
MP-108	HJ	378	North	E-Line	Level TROLL [®]	172.35	219.19	46.8	40.3	6.6

**North Test Drawdown Comparison Between 2008 and 2012 Tests
Mine Unit 1 Repeat North Test
Lost Creek ISR, LLC**

Well Name	Sand	Distance from Pumping Well (ft)	Side of Fault	2008 Water Level Instrument	2012 Water Level Instrument	Pre-Test SWL 8/8/12 (ft btoc)	Shut-in SWL 8/10/12 (ft btoc)	2012 Drawdown Prior to Shut-in (ft)	2008 Drawdown Prior to Shut in (ft)	Drawdown Differential Between Tests
HJMP-104	HJ	383	North	Level TROLL [®]	E-Line	174.50	219.70	45.2	40.0	5.2
HJT-101	HJ	523	North	E-Line	E-Line	174.86	212.61	37.8	34.2	3.5
HJT-102	HJ	531	North	E-Line	E-Line	172.96	217.34	44.4	39.6	4.8
MP-106	HJ	597	North	Level TROLL [®]	Level TROLL [®]	175.79	210.02	34.2	30.8	3.4
M-120	HJ	622	North	Level TROLL [®]	Level TROLL [®]	180.94	220.33	39.4	36.5	2.9
HJMP-101	HJ	717	North	E-Line	E-Line	180.91	215.09	34.2	30.7	3.5
MP-110	HJ	748	North	Level TROLL [®]	Level TROLL [®]	179.50	208.83	29.3	25.7	3.6
M-119	HJ	786	North	Level TROLL [®]	DNM	--	--	--	30.6	--
LC19M	HJ	798	North	E-Line	E-Line	182.82	214.66	31.8	28.8	3.0
M-121	HJ	804	North	Level TROLL [®]	DNM	--	--	--	16.0	--
HJMP-108	HJ	894	North	E-Line	E-Line	182.92	212.68	29.8	27.0	2.8
MP-111	HJ	1,072	North	Level TROLL [®]	Level TROLL [®]	178.25	202.26	24.0	22.8	1.2
HJT-104	HJ	1,097	North	Level TROLL [®]	Level TROLL [®]	172.13	198.84	26.7	24.1	2.6
HJMP-110	HJ	1,099	North	E-Line	E-Line	177.63	204.01	26.4	23.6	2.7
M-122	HJ	1,145	North	Level TROLL [®]	DNM	--	--	--	11.3	--
M-118	HJ	1,149	North	Level TROLL [®]	DNM	--	--	--	19.1	--
MP-105	HJ	1,273	North	Level TROLL [®]	Level TROLL [®]	181.66	203.81	22.2	20.0	2.2
MP-112	HJ	1,357	North	Level TROLL [®]	Level TROLL [®]	179.42	200.57	21.2	18.3	2.8
M-123	HJ	1,492	North	Level TROLL [®]	Level TROLL [®]	180.69	190.71	10.0	9.8	0.2
UKMO-102	HJ	1,622	North	Level TROLL [®]	Level TROLL [®]	168.48	182.73	14.3	12.8	1.4
M-117	HJ	1,627	North	Level TROLL [®]	Level TROLL [®]	187.79	200.94	13.2	15.8	-2.6
M-124	HJ	1,793	North	Level TROLL [®]	DNM	--	--	--	9.1	--
M-116	HJ	1,948	North	Level TROLL [®]	DNM	--	--	--	11.0	--
UKMO-103	HJ	1,963	North	E-Line	E-Line	177.82	185.70	7.9	7.3	0.6
M-125	HJ	2,081	North	Level TROLL [®]	DNM	--	--	--	7.4	--
M-115	HJ	2,094	North	Level TROLL [®]	Level TROLL [®]	187.28	198.77	11.5	10.1	1.3
M-114	HJ	2,210	North	Level TROLL [®]	Level TROLL [®]	189.48	193.06	3.6	2.8	0.8
M-126	HJ	2,569	North	Level TROLL [®]	Level TROLL [®]	176.15	182.57	6.4	5.7	0.7
MP-109	HJ	613	South	Level TROLL [®]	Level TROLL [®]	185.50	188.65	3.1	2.7	0.5
HJT-103	HJ	755	South	E-Line	E-Line	190.42	191.10	0.7	1.6	-0.9
MP-104	HJ	1,150	South	E-Line	E-Line	185.72	186.15	0.4	0.4	0.1
HJMP-109	HJ	1,346	South	E-Line	E-Line	178.05	178.03	0.0	0.3	-0.4
MP-113	HJ	1,377	South	Level TROLL [®]	Level TROLL [®]	186.21	186.79	0.6	0.5	0.1
UKMO-101	HJ	1,514	South	Level TROLL [®]	Level TROLL [®]	172.67	175.24	2.6	2.4	0.2
HJMP-113	HJ	1,723	South	E-Line	E-Line	180.92	181.37	0.5	0.3	0.2
HJT-105	HJ	1,856	South	Level TROLL [®]	DNM	--	--	--	1.9	--
MP-103	HJ	1,861	South	Level TROLL [®]	Level TROLL [®]	179.86	180.25	0.4	0.3	0.1

North Test Drawdown Comparison Between 2008 and 2012 Tests
 Mine Unit 1 Repeat North Test
 Lost Creek ISR, LLC

Well Name	Sand	Distance from Pumping Well (ft)	Side of Fault	2008 Water Level Instrument	2012 Water Level Instrument	Pre-Test SWL 8/8/12 (ft btoc)	Shut-in SWL 8/10/12 (ft btoc)	2012 Drawdown Prior to Shut-in (ft)	2008 Drawdown Prior to Shut in (ft)	Drawdown Differential Between Tests
LC16M	HJ	1,989	South	E-Line	DNM	--	--	--	0.2	--
M-113*	HJ	2,082	South	--	Level TROLL®	192.64	193.14	0.5	--	--
MP-102	HJ	2,434	South	E-Line	E-Line	180.54	180.87	0.3	0.0	0.3
M-127	HJ	3,028	South	Level TROLL®	Level TROLL®	175.88	176.38	0.5	0.4	0.1
MP-101	HJ	3,040	South	E-Line	E-Line	171.68	171.88	0.2	0.1	0.1
<u>Underlying Aquifer (KM Unit of KLM Horizon)</u>										
MU-107	KM	82	North	Level TROLL®	Level TROLL®	194.03	193.84	-0.2	2.1	-2.3
HJMU-105	KM	363	North	E-Line	E-Line	193.79	193.53	-0.3	1.8	-2.1
HJMU-104	KM	382	North	E-Line	E-Line	197.19	196.92	-0.3	2.0	-2.3
MU-106	KM	589	North	Level TROLL®	Level TROLL®	197.63	197.48	-0.2	0.9	-1.1
HJMU-101	KM	707	North	E-Line	E-Line	202.65	202.55	-0.1	0.7	-0.8
MU-110	KM	767	North	Level TROLL®	Level TROLL®	202.14	201.91	-0.2	0.6	-0.8
LC20M	KM	800	North	E-Line	E-Line	204.66	204.38	-0.3	0.6	-0.8
HJMU-108	KM	908	North	E-Line	E-Line	203.99	203.89	-0.1	0.5	-0.6
MU-111	KM	1,092	North	Level TROLL®	Level TROLL®	200.30	200.22	-0.1	0.6	-0.7
HJMU-110	KM	1,103	North	E-Line	E-Line	199.90	199.77	-0.1	0.5	-0.7
MU-105	KM	1,280	North	Level TROLL®	Level TROLL®	203.55	203.39	-0.2	0.3	-0.5
MU-112	KM	1,374	North	Level TROLL®	Level TROLL®	200.59	200.39	-0.2	0.4	-0.6
UKMP-102	KM	1,620	North	Level TROLL®	Level TROLL®	191.53	191.59	0.1	0.4	-0.3
UKMU-103	KM	1,949	North	E-Line	E-Line	197.68	197.67	0.0	-0.3	0.3
LC24M	KM	1,981	North	E-Line	E-Line	192.16	192.02	-0.1	0.4	-0.5
MU-109	KM	617	South	Level TROLL®	Level TROLL®	193.19	193.22	0.0	0.8	-0.8
MU-104	KM	1,155	South	E-Line	E-Line	194.38	194.00	-0.4	0.2	-0.5
HJMU-109	KM	1,355	South	E-Line	E-Line	190.93	190.76	-0.2	0.0	-0.2
MU-113	KM	1,391	South	Level TROLL®	Level TROLL®	188.31	188.38	0.1	0.4	-0.3
UKMP-101	KM	1,521	South	Level TROLL®	Level TROLL®	192.71	192.42	-0.3	0.1	-0.4
HJMU-113	KM	1,725	South	E-Line	E-Line	186.97	186.95	0.0	0.0	0.0
MU-103	KM	1,860	South	Level TROLL®	Level TROLL®	185.72	185.70	0.0	0.0	-0.1
LC17M	KM	1,986	South	E-Line	E-Line	187.78	187.79	0.0	-0.1	0.1
MU-102	KM	2,426	South	E-Line	E-Line	190.47	190.34	-0.1	0.1	-0.2
MU-101	KM	3,023	South	E-Line	E-Line	188.42	188.36	-0.1	0.0	-0.1

DNM - Did not monitor

South Test Drawdown Comparison Between 2008 and 2012 Tests
 Mine Unit 1 Repeat South Test
 Lost Creek ISR, LLC

Well Name	Sand	Distance from Pumping Well (ft)	Side of Fault	2008 Water Level Instrument	2012 Water Level Instrument	Pre-Test SWL 8/20/12 (ft btoc)	Shut-in SWL 8/23/12 (ft btoc)	2012 Drawdown Prior to Shut-in (ft)	2008 Drawdown Prior to Shut-in (ft)	Drawdown Differential Between Tests (ft)
SOUTH REPEAT TEST, PW-101										
<u>Over-Overlying Aquifer (DE Sand)</u>										
HJT-106	DE	387	South	E-Line	E-Line	154.55	154.63	0.1	0.0	0.1
HJT-107	DE	1,426	South	E-Line	E-Line	160.25	160.26	0.0	0.0	0.0
<u>Overlying Aquifer (LFG Sand)</u>										
MO-104	FG	281	South	Level TROLL®	Level TROLL®	170.55	172.75	2.2	0.8	1.4
HJMO-109	FG	287	South	E-Line	E-Line	165.49	166.91	1.4	0.9	0.5
LC25M	FG	450	South	E-Line	E-Line	168.00	177.56	9.6	-0.1	9.6
MO-114	FG	469	South	Level TROLL®	Level TROLL®	169.72	171.38	1.7	1.9	-0.3
HJMO-113	FG	502	South	E-Line	E-Line	162.60	163.40	0.8	0.8	0.0
MO-103	FG	555	South	Level TROLL®	Level TROLL®	160.97	161.44	0.5	0.3	0.2
LC15M	FG	744	South	E-Line	E-Line	163.21	162.59	-0.6	0.2	-0.8
MO-102	FG	1,151	South	Level TROLL®	Level TROLL®	165.47	166.49	1.0	0.3	0.8
MO-109	FG	1,202	South	Level TROLL®	Level TROLL®	169.35	169.92	0.6	-0.1	0.6
MO-101	FG	1,712	South	Level TROLL®	Level TROLL®	159.58	159.51	-0.1	0.0	-0.1
MO-113	FG	2,325	South	Level TROLL®	Level TROLL®	164.18	164.12	-0.1	-0.1	0.0
HJMO-110	FG	668	North	E-Line	E-Line	166.40	166.45	0.0	-0.1	0.1
MO-115	FG	694	North	Level TROLL®	Level TROLL®	159.56	159.61	0.0	0.0	0.0
HJMO-101	FG	709	North	Level TROLL®	Level TROLL®	169.25	169.22	0.0	-0.1	0.1
MO-105	FG	825	North	E-Line	Level TROLL®	169.42	169.45	0.0	0.0	0.0
HJMO-108	FG	834	North	E-Line	E-Line	171.43	171.46	0.0	-0.1	0.1
LC18M	FG	906	North	E-Line	DNM	--	--	--	-0.1	--
MO-106	FG	971	North	E-Line	E-Line	166.34	166.30	0.0	-0.1	0.0
HJMO-104	FG	1,002	North	E-Line	E-Line	163.88	163.89	0.0	-0.1	0.1
HJMO-105	FG	1,029	North	E-Line	E-Line	161.59	161.56	0.0	-0.2	0.1
MO-108	FG	1,304	North	E-Line	Level TROLL®	160.88	160.82	-0.1	-0.1	0.0
MO-107	FG	1,312	North	E-Line	E-Line	162.22	162.15	-0.1	0.2	-0.3
MO-110	FG	2,011	North	E-Line	Level TROLL®	170.43	170.36	-0.1	0.0	0.0
MO-111	FG	2,223	North	Level TROLL®	Level TROLL®	169.98	169.92	-0.1	0.0	0.0
MO-112	FG	2,595	North	E-Line	Level TROLL®	171.03	170.95	-0.1	0.0	0.0
<u>Production Zone Aquifer (HJ Horizon)</u>										
PW-101	HJ	0	South	Level TROLL®	Level TROLL®	180.33	243.35	63.0	63.5	-0.5
HJMP-109	HJ	291	South	E-Line	E-Line	178.13	178.91	0.8	41.7	-41.0
MP-104	HJ	297	South	Level TROLL®	Level TROLL®	186.33	228.67	47.5*	48.1	-0.6
UKMO-101	HJ	469	South	Level TROLL®	Level TROLL®	173.14	189.51	16.4	17.4	-1.0
HJMP-113	HJ	504	South	E-Line	E-Line	181.38	216.21	34.8	35.3	-0.5
MP-103	HJ	564	South	Level TROLL®	Level TROLL®	180.33	215.09	34.8	36.1	-1.3
M-107	HJ	582	South	Level TROLL®	DNM	--	--	--	29.1	--

South Test Drawdown Comparison Between 2008 and 2012 Tests
 Mine Unit 1 Repeat South Test
 Lost Creek ISR, LLC

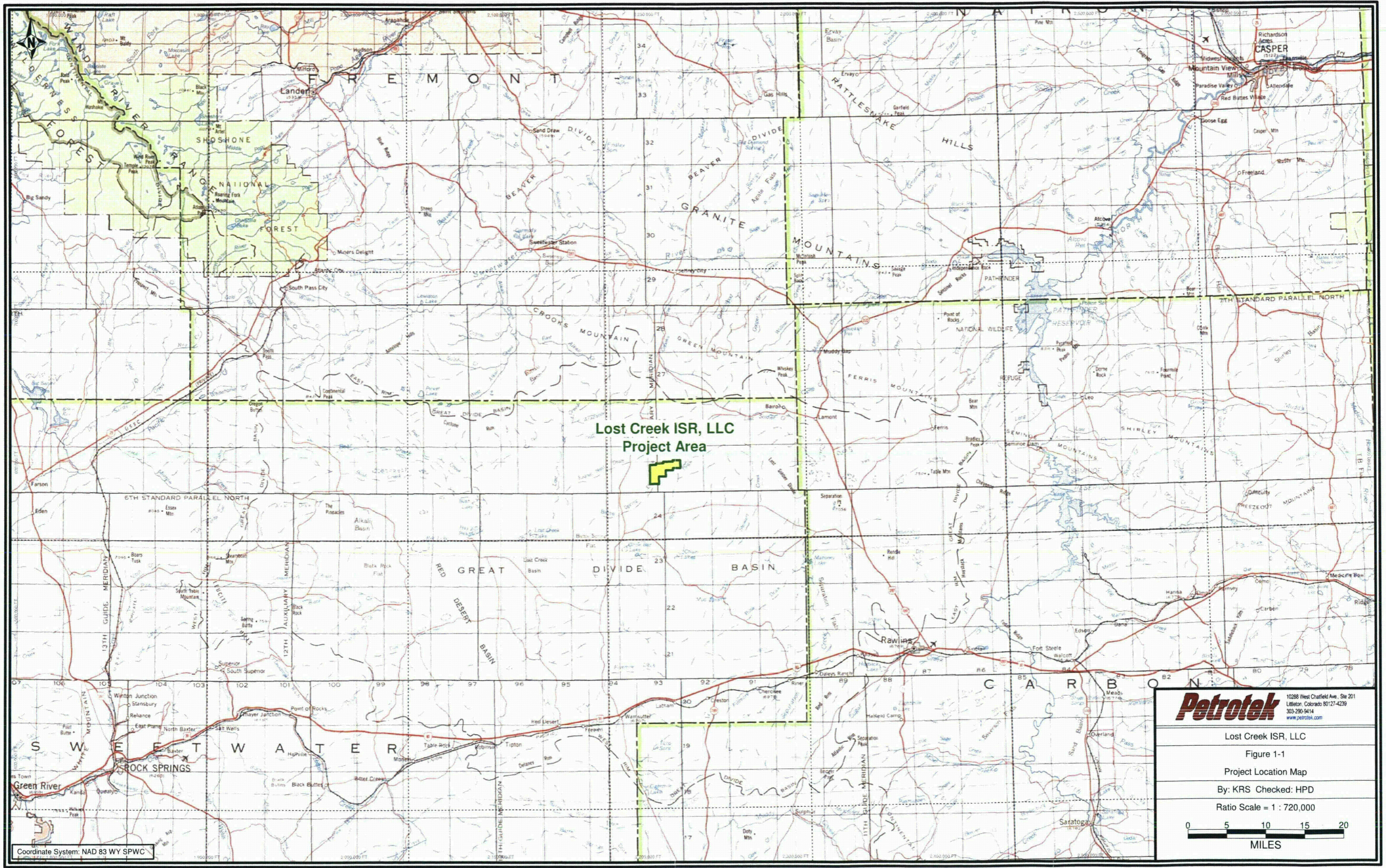
Well Name	Sand	Distance from Pumping Well (ft)	Side of Fault	2008 Water Level Instrument	2012 Water Level Instrument	Pre-Test SWL 8/20/12 (ft btoc)	Shut-in SWL 8/23/12 (ft btoc)	2012 Drawdown Prior to Shut-in (ft)	2008 Drawdown Prior to Shut-in (ft)	Drawdown Differential Between Tests (ft)
M-106	HJ	663	South	Level TROLL®	Level TROLL®	168.85	201.79	32.9	34.1	-1.1
M-108	HJ	663	South	Level TROLL®	DNM	--	--	--	25.7	--
HJT-103	HJ	667	South	E-Line	E-Line	190.61	216.55	25.9	28.1	-2.2
LC16M	HJ	758	South	E-Line	DNM	--	--	--	29.6	--
HJT-105	HJ	770	South	Level TROLL®	DNM	--	--	--	12.2	--
M-105	HJ	1,092	South	Level TROLL®	DNM	--	--	--	30.7	--
M-109	HJ	1,141	South	Level TROLL®	Level TROLL®	177.49	198.21	20.7	21.1	-0.4
MP-102	HJ	1,149	South	Level TROLL®	Level TROLL®	180.95	201.84	20.9	19.5	1.4
MP-109	HJ	1,204	South	Level TROLL®	Level TROLL®	185.86	204.52	18.7	18.7	-0.1
M-104	HJ	1,549	South	Level TROLL®	DNM	--	--	--	22.5	--
M-110	HJ	1,571	South	Level TROLL®	DNM	--	--	--	15.2	--
MP-101	HJ	1,718	South	Level TROLL®	Level TROLL®	172.08	181.14	9.1	8.3	0.8
M-127	HJ	1,905	South	Level TROLL®	Level TROLL®	176.28	181.91	5.6	5.1	0.5
M-103	HJ	1,959	South	Level TROLL®	DNM	--	--	--	8.5	--
M-111	HJ	2,054	South	Level TROLL®	DNM	--	--	--	8.1	--
M-128	HJ	2,236	South	Level TROLL®	DNM	--	--	--	5.2	--
MP-113	HJ	2,318	South	Level TROLL®	Level TROLL®	186.47	193.83	7.4	7.2	0.1
M-102	HJ	2,358	South	Level TROLL®	Level TROLL®	183.53	191.44	7.9	7.1	0.8
M-101	HJ	2,461	South	Level TROLL®	DNM	--	--	--	6.7	--
M-112	HJ	2,534	South	Level TROLL®	DNM	--	--	--	6.9	--
M-113	HJ	2,945	South	Level TROLL®	Level TROLL®	193.00	198.00	5.0	4.8	0.2
HJT-104	HJ	391	North	Level TROLL®	Level TROLL®	176.99	178.30	1.3	2.0	-0.7
HJMP-110	HJ	656	North	E-Line	E-Line	180.56	180.75	0.2	0.8	-0.6
UKMO-102	HJ	694	North	Level TROLL®	Level TROLL®	171.08	171.27	0.2	0.6	-0.4
HJMP-101	HJ	711	North	E-Line	Level TROLL®	183.91	183.92	0.0	0.7	-0.6
MP-105	HJ	820	North	E-Line	Level TROLL®	184.39	184.38	0.0	0.5	-0.5
HJMP-108	HJ	840	North	E-Line	E-Line	185.91	185.80	-0.1	0.4	-0.5
LC19M	HJ	896	North	E-Line	E-Line	185.87	185.64	-0.2	0.4	-0.6
HJT-102	HJ	961	North	Level TROLL®	Level TROLL®	176.15	176.02	-0.1	0.5	-0.6
MP-106	HJ	984	North	E-Line	E-Line	178.83	178.72	-0.1	0.4	-0.5
HJMP-104	HJ	1,013	North	E-Line	E-Line	177.70	177.52	-0.2	0.4	-0.6
HJMP-105	HJ	1,046	North	Level TROLL®	E-line	173.69	173.50	-0.2	0.4	-0.6
UKMO-103	HJ	1,209	North	E-Line	E-Line	180.35	180.28	-0.1	0.4	-0.5
HJT-101	HJ	1,277	North	E-Line	E-Line	178.35	178.63	0.3	1.0	-0.7
MP-108	HJ	1,294	North	E-Line	Level TROLL®	175.60	175.48	-0.1	0.4	-0.5
MP-107	HJ	1,310	North	E-Line	E-Line	174.59	174.35	-0.2	0.3	-0.6
M-126	HJ	1,546	North	Level TROLL®	Level TROLL®	178.25	178.38	0.1	0.5	-0.3
MP-110	HJ	2,012	North	E-Line	Level TROLL®	182.54	182.26	-0.3	0.2	-0.5
MP-111	HJ	2,210	North	Level TROLL®	Level TROLL®	181.29	181.06	-0.2	0.5	-0.8

South Test Drawdown Comparison Between 2008 and 2012 Tests
 Mine Unit 1 Repeat South Test
 Lost Creek ISR, LLC

Well Name	Sand	Distance from Pumping Well (ft)	Side of Fault	2008 Water Level Instrument	2012 Water Level Instrument	Pre-Test SWL 8/20/12 (ft btoc)	Shut-in SWL 8/23/12 (ft btoc)	2012 Drawdown Prior to Shut-in (ft)	2008 Drawdown Prior to Shut-in (ft)	Drawdown Differential Between Tests (ft)
MP-112	HJ	2,588	North	E-Line	Level TROLL®	182.50	182.14	-0.4	0.2	-0.5
M-114	HJ	3,245	North	Level TROLL®	Level TROLL®	190.96	192.22	1.3	1.2	0.1
M-115	HJ	3,280	North	Level TROLL®	Level TROLL®	190.06	189.67	-0.4	0.1	-0.4
Underlying Aquifer (KM Unit of KLM Horizon)										
MU-104	KM	285	South	Level TROLL®	Level TROLL®	194.55	198.19	3.6	5.7	-2.1
HJMU-109	KM	298	South	E-Line	E-Line	190.89	193.00	2.1	1.8	0.3
UKMP-101	KM	460	South	Level TROLL®	Level TROLL®	192.95	193.45	0.5	0.4	0.1
HJMU-113	KM	514	South	E-Line	E-Line	186.92	188.59	1.7	1.2	0.4
MU-103	KM	566	South	Level TROLL®	Level TROLL®	185.73	187.35	1.6	1.3	0.3
LC17M	KM	765	South	E-Line	E-Line	187.85	189.52	1.7	1.2	0.5
MU-102	KM	1,138	South	Level TROLL®	Level TROLL®	190.37	191.64	1.3	0.9	0.4
MU-109	KM	1,215	South	Level TROLL®	Level TROLL®	193.28	197.37	4.1	3.8	0.3
MU-101	KM	1,701	South	Level TROLL®	Level TROLL®	188.38	189.24	0.9	0.6	0.3
MU-113	KM	2,337	South	Level TROLL®	Level TROLL®	188.45	189.17	0.7	0.7	0.1
HJMU-110	KM	667	North	E-Line	E-Line	200.08	200.67	0.6	0.5	0.1
UKMP-102	KM	703	North	Level TROLL®	Level TROLL®	191.71	192.78	1.1	1.1	0.0
HJMU-101	KM	718	North	Level TROLL®	Level TROLL®	202.76	203.23	0.5	0.4	0.1
MU-105	KM	828	North	E-Line	Level TROLL®	203.88	204.36	0.5	0.3	0.1
HJMU-108	KM	834	North	E-Line	E-Line	204.15	204.69	0.5	0.4	0.1
LC20M	KM	908	North	E-Line	E-Line	204.80	205.34	0.5	0.3	0.2
LC24M	KM	974	North	E-Line	E-Line	193.75	194.36	0.6	0.5	0.1
MU-106	KM	983	North	E-Line	E-Line	197.89	198.35	0.5	0.3	0.2
HJMU-104	KM	1,011	North	E-Line	E-Line	197.30	197.65	0.3	0.2	0.1
HJMU-105	KM	1,040	North	E-Line	E-Line	193.90	194.26	0.4	0.2	0.1
UKMU-103	KM	1,194	North	E-Line	E-Line	197.69	197.72	0.0	0.4	-0.4
MU-107	KM	1,301	North	E-Line	E-Line	194.20	194.60	0.4	0.2	0.2
MU-110	KM	2,031	North	E-Line	Level TROLL®	202.27	202.42	0.2	0.1	0.1
MU-111	KM	2,231	North	Level TROLL®	Level TROLL®	200.42	200.59	0.2	0.1	0.0
MU-112	KM	2,606	North	E-Line	Level TROLL®	200.77	200.91	0.1	0.1	0.1

DNM - Did not monitor

* - Final drawdown value at MP-104 extrapolated due to transducer exposure (see Fig 6-10)



Lost Creek ISR, LLC
Project Area

Petrotek 10288 West Chaffield Ave., Ste 201
Littleton, Colorado 80127-4239
303-290-9414
www.petrotek.com

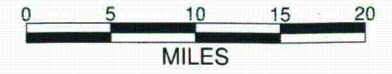
Lost Creek ISR, LLC

Figure 1-1

Project Location Map

By: KRS Checked: HPD

Ratio Scale = 1 : 720,000



Coordinate System: NAD 83 WY SPWC

Lost Creek ISR, LLC
TYPE LOG – LOST CREEK PROJECT

WELL # HJMU-110

E 2,212,004 / N 595,897 (NAD 83)
 E 743,685 / N 535,195 (NAD 27)

HJMU-110

Battle Springs Formation – Typical Lithology

SANDSTONE: arkosic; medium to very coarse-grained, locally fine-grain; poorly-sorted; subangular to angular; weakly to moderately consolidated, moderately firm. Represents bed-load to mixed-load, channel-fill fluvial environments within a distal alluvial fan system.

MUDSTONE, commonly very silty and/or sandy; soft to very firm; and **CLAYSTONE,** moderately firm to very firm, dense, blocky. Secondary amounts of SILTSTONE, commonly very sandy, firm to very firm.

Represents inter-channel and overbank fluvial environments.

Considerable lateral facies changes, inter-tonguing, and overlapping occurs between the two dominant lithologies. This can be very dramatic within short distances.

DE Horizon: Multiple sandstone units interbedded with mudstones. Host to secondary amounts of uranium mineralization.

EF: (upper No-Name Shale): Mudstone and claystone, commonly silty and/or sandy; locally with interbedded very fine-grained sands. Does not exhibit lateral continuity throughout project area. Represents a series of overlapping shaley units.

FG Horizon: Multiple sandstone units interbedded with mudstones. Host to secondary amounts of uranium mineralization.

LCS (Lost Creek Shale): Mudstone and claystone, commonly silty and/or sandy; locally with interbedded very fine-grained sands. Exhibits lateral continuity throughout project area. Commonly intertongues with upper portions of the HJ and lower portions of the FG.

HJ Horizon: Multiple sandstone units interbedded with mudstones. Primary host to uranium mineralization.

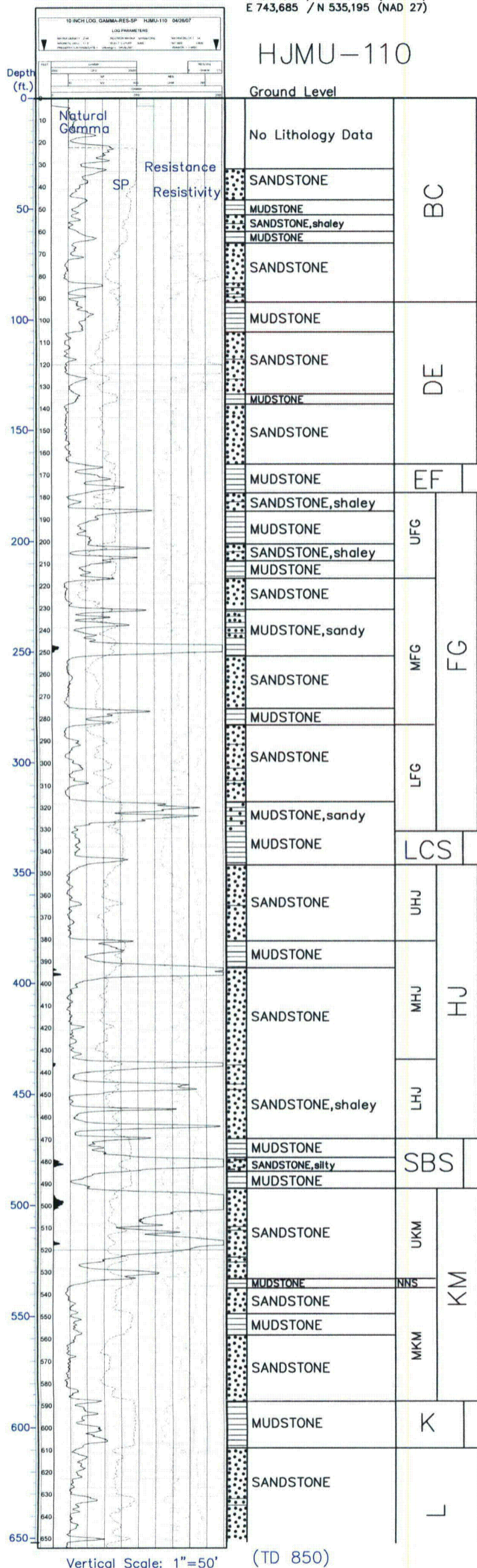
SBS (Sagebrush Shale): Mudstone and claystone, commonly silty and/or sandy; locally with interbedded very fine-grained sands. Exhibits lateral continuity throughout project area. Commonly intertongues with upper portions of the KM and lower portions of the HJ.

KM Horizon: Multiple sandstone units interbedded with mudstones. Host to significant uranium mineralization.

Includes NNS (No Name Shale) separating UKM from MKM. Does not exhibit regional continuity.

(Note: MKM has recently been renamed LKM).

K (K Shale): Mudstone and claystone, commonly silty and/or sandy.



Vertical Scale: 1"=50' (TD 850)



Lost Creek ISR, LLC

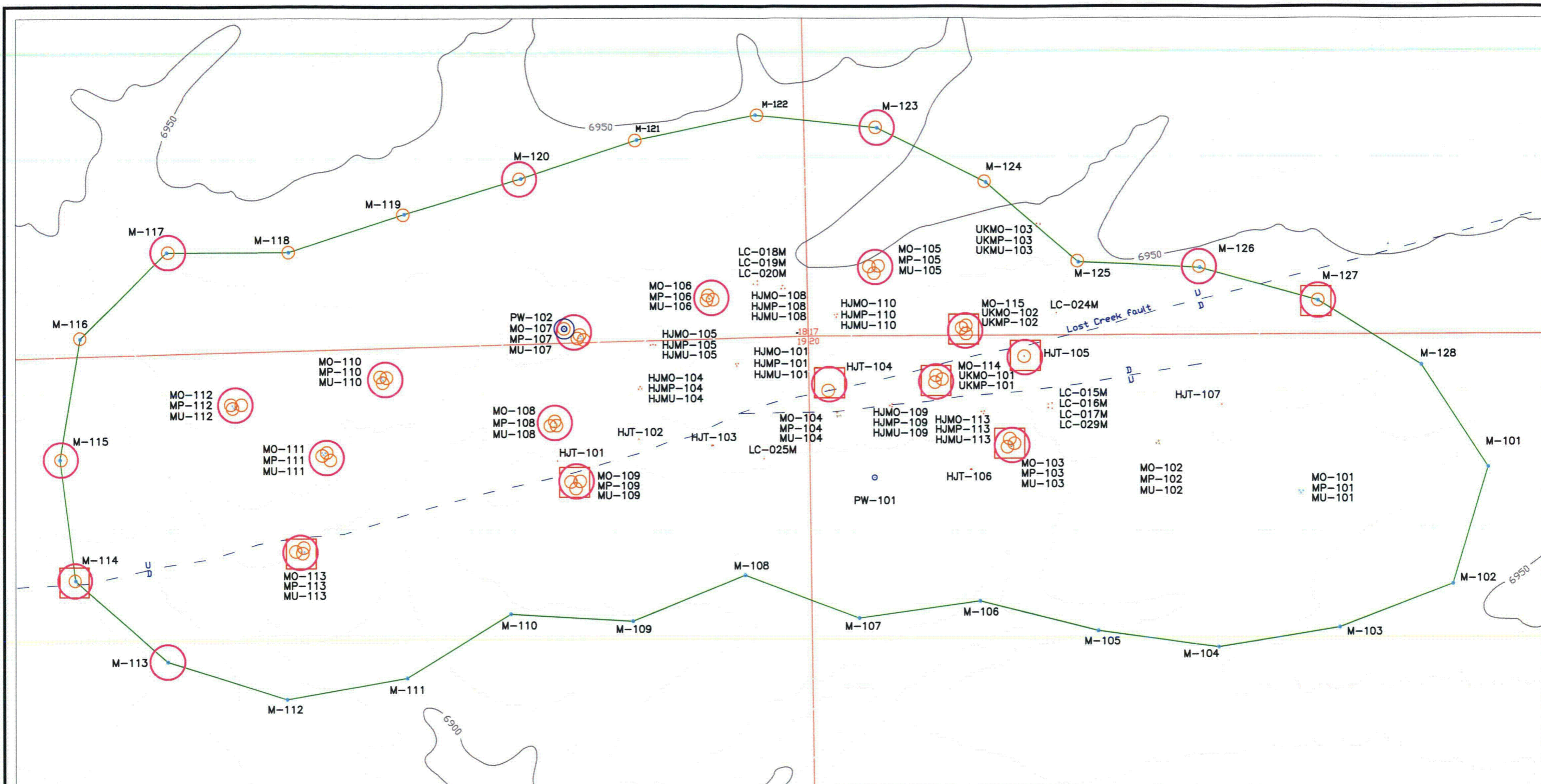
Figure 2-1

Lost Creek Stratigraphic Section

Project: MU1 PTests Date: October 2009
 UrEMU1PTPlanFig2-1 By: CVH



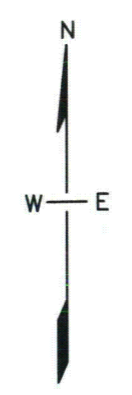
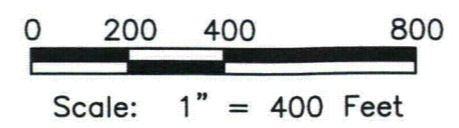
10288 West Chatfield Ave., Ste 201
 Littleton, Colorado 80127-4239
 303-290-9414
 www.petrotek.com



Legend

- Pumping Well
- Wells monitored with LevelTROLLS during 2008 North Test
- Wells monitored with LevelTROLLS during both 2008 Tests
- Wells/clusters monitored with LevelTROLLS during 2012 Repeat Test

Coordinate System: NAD 83 WY SPWC

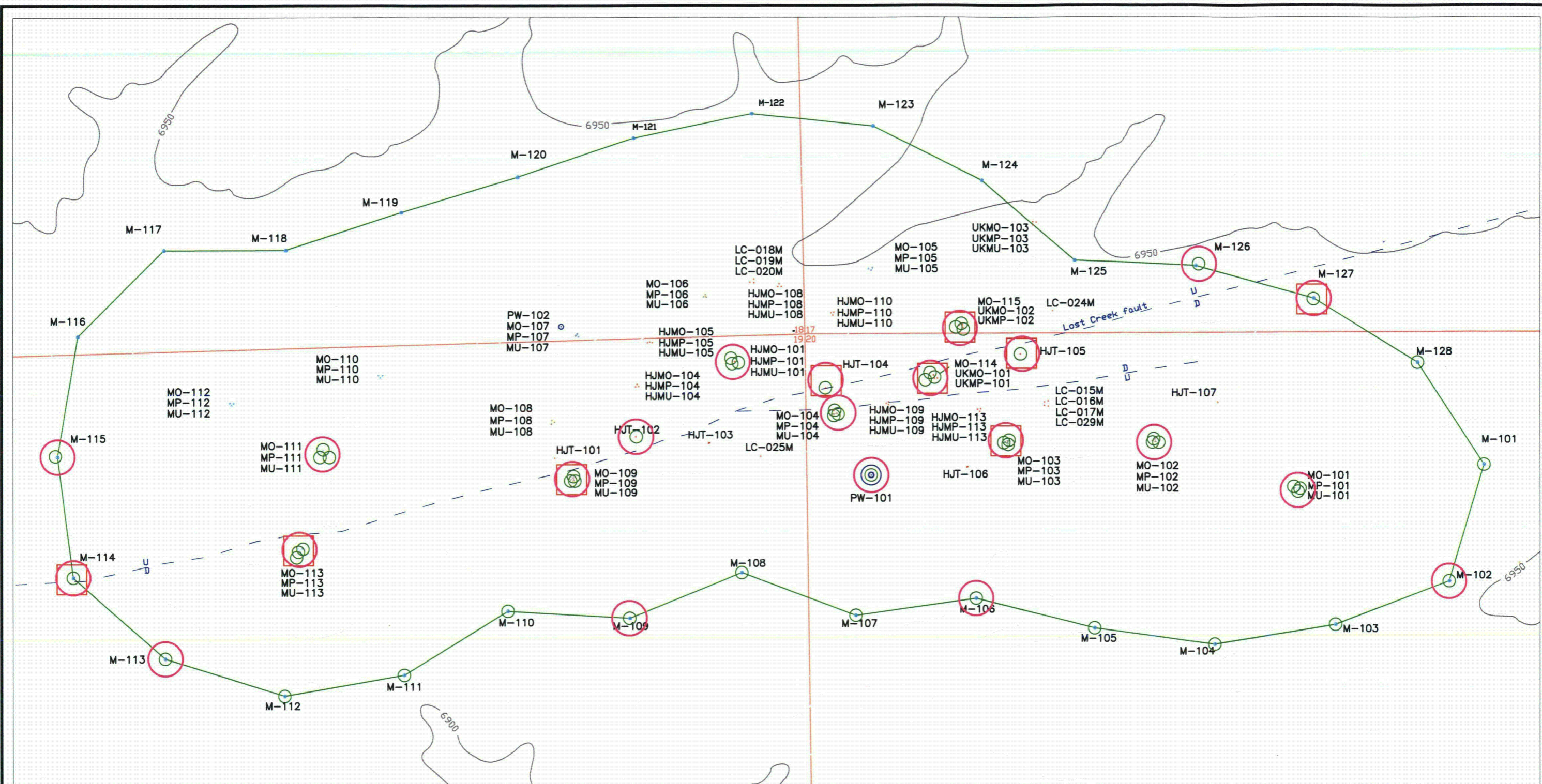


 **Lost Creek ISR, LLC**

Figure 3-1
Mine Unit 1 North Pump Test Layout
2012 Repeat Test

Project: MU1 Re-test	Date: March 2013
MU1RepeatFig3-1 3-2	By: KRS Checked: AAP

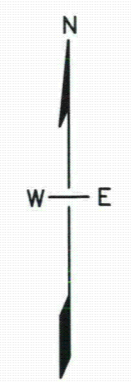
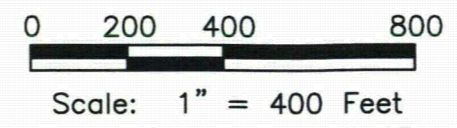
Petrotek 5935 South Zang Street, Suite 200
Littleton, Colorado 80127
303-290-9414
www.petrotek.com



Legend

- Pumping Well
- Wells monitored with LevelTROLLS during 2008 North Test
- Wells monitored with LevelTROLLS during both 2008 Tests
- Wells/clusters monitored with LevelTROLLS during 2012 Repeat Test

Coordinate System: NAD 83 WY SPWC

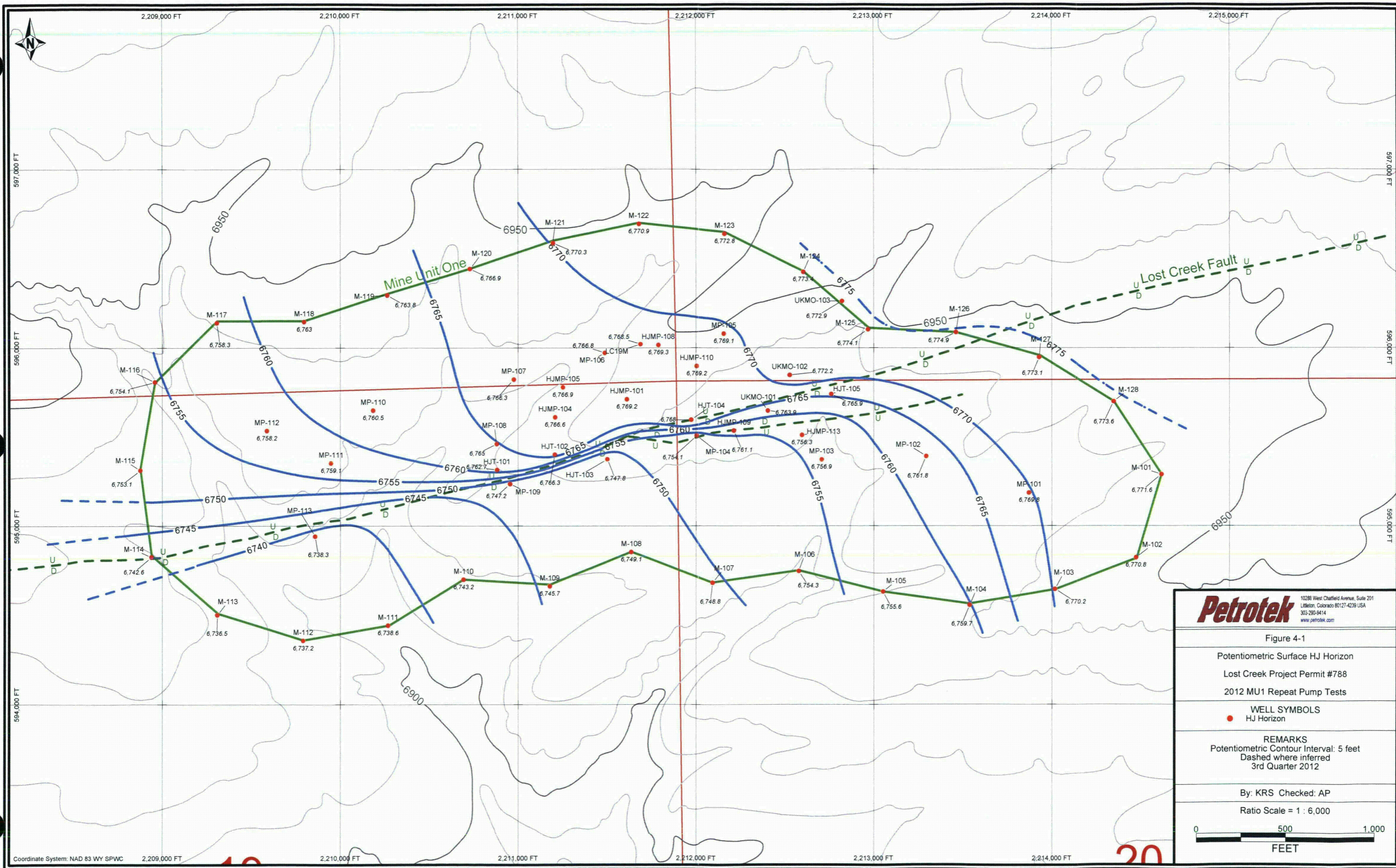


Lost Creek ISR, LLC

Figure 3-2
Mine Unit 1 South Pump Test Layout
2012 Repeat Test

Project: MU1 Re-test	Date: March 2013
MU1RepeatFig3-1 3-2	By: KRS Checked: AAP

Petrotek 5935 South Zang Street, Suite 200
Littleton, Colorado 80127
303-290-9414
www.petrotek.com



Petrotek 10288 West Chatfield Avenue, Suite 201
 Littleton, Colorado 80127-4238 USA
 303-293-9414
 www.petrotek.com

Figure 4-1

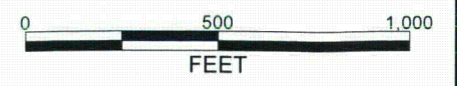
Potentiometric Surface HJ Horizon
 Lost Creek Project Permit #788
 2012 MU1 Repeat Pump Tests

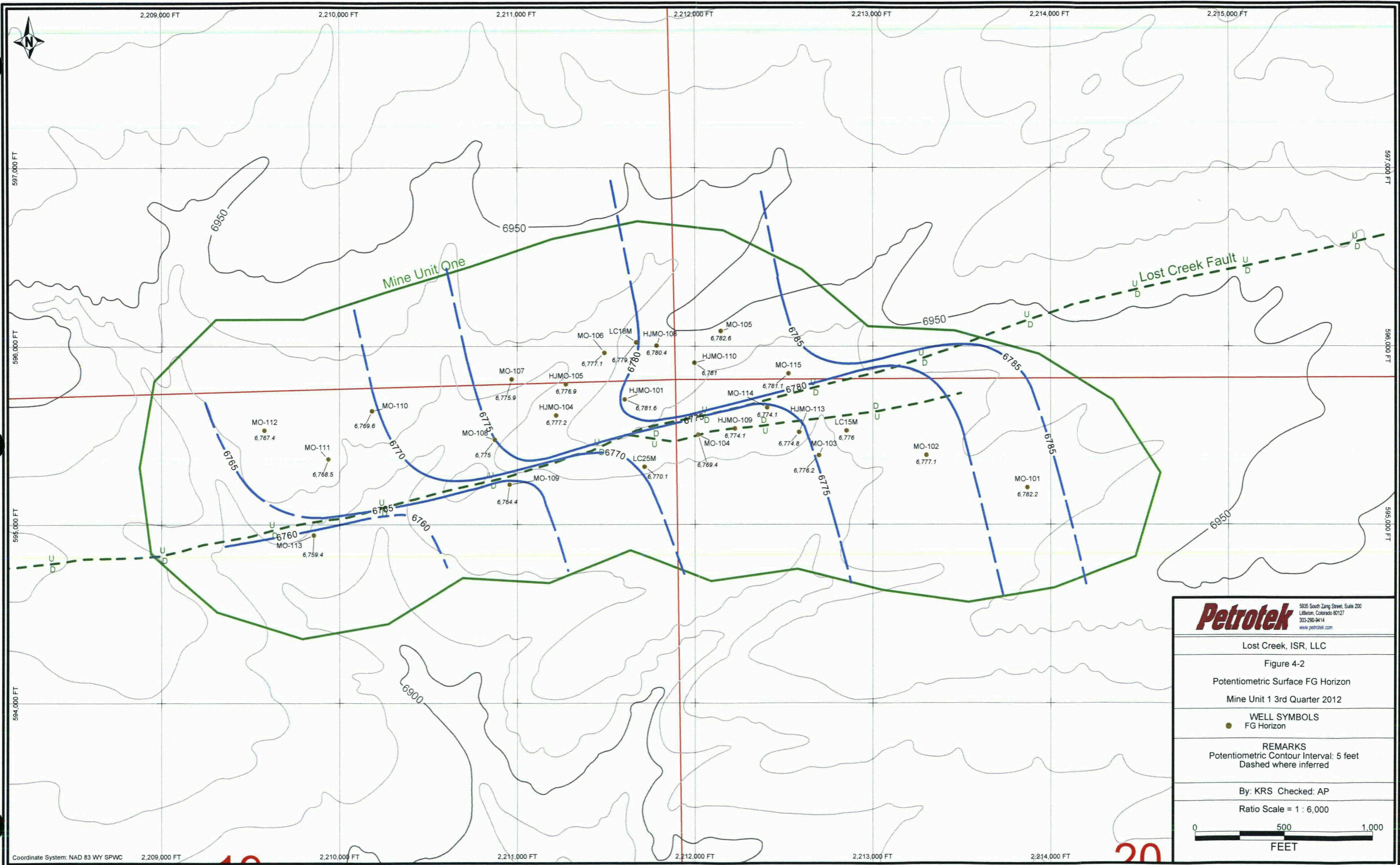
WELL SYMBOLS
 ● HJ Horizon

REMARKS
 Potentiometric Contour Interval: 5 feet
 Dashed where inferred
 3rd Quarter 2012

By: KRS Checked: AP

Ratio Scale = 1 : 6,000



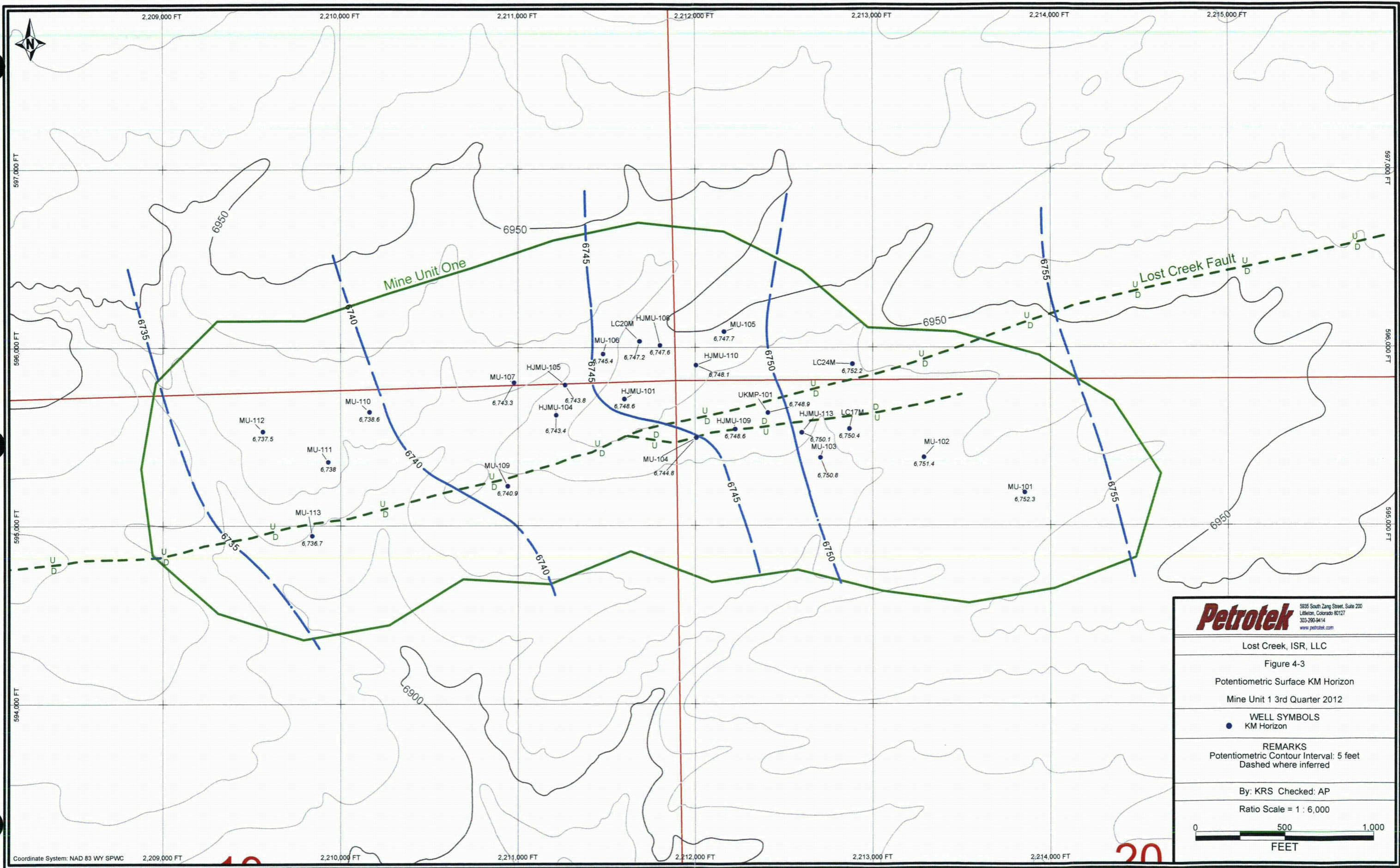


Petrotek
 5035 South Zang Street, Suite 200
 Littleton, Colorado 80127
 303-290-9414
 www.petrotek.com

Lost Creek, ISR, LLC
Figure 4-2
Potentiometric Surface FG Horizon
Mine Unit 1 3rd Quarter 2012
WELL SYMBOLS
● FG Horizon
REMARKS
Potentiometric Contour Interval: 5 feet
Dashed where inferred
By: KRS Checked: AP
Ratio Scale = 1 : 6,000
0 500 1,000 FEET

Coordinate System: NAD 83 WY SPWC

20



Petrotek
 5935 South Zang Street, Suite 200
 Littleton, Colorado 80127
 303-290-9414
 www.petrotek.com

Lost Creek, ISR, LLC

Figure 4-3
 Potentiometric Surface KM Horizon
 Mine Unit 1 3rd Quarter 2012

WELL SYMBOLS
 ● KM Horizon

REMARKS
 Potentiometric Contour Interval: 5 feet
 Dashed where inferred

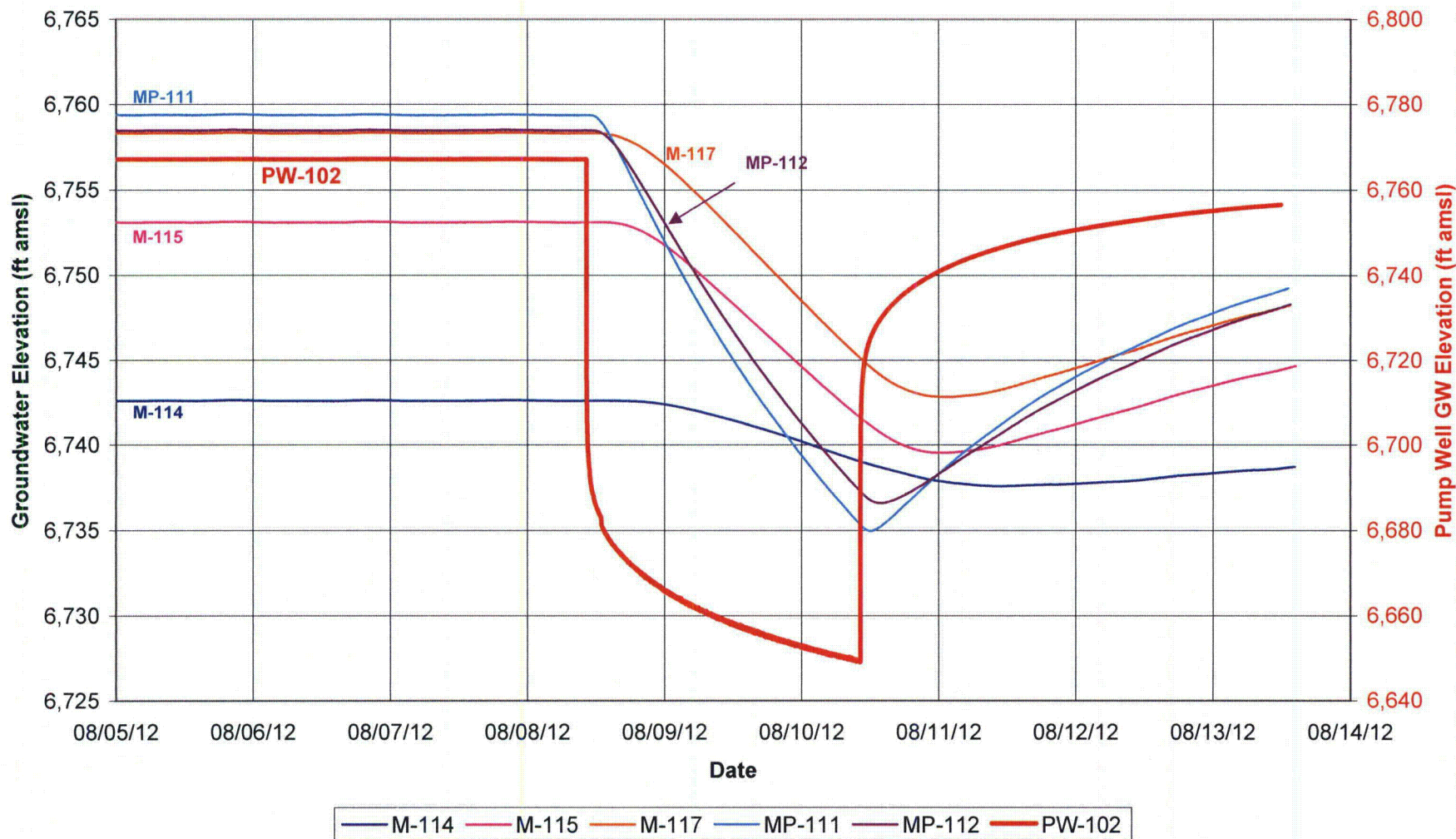
By: KRS Checked: AP

Ratio Scale = 1 : 6,000

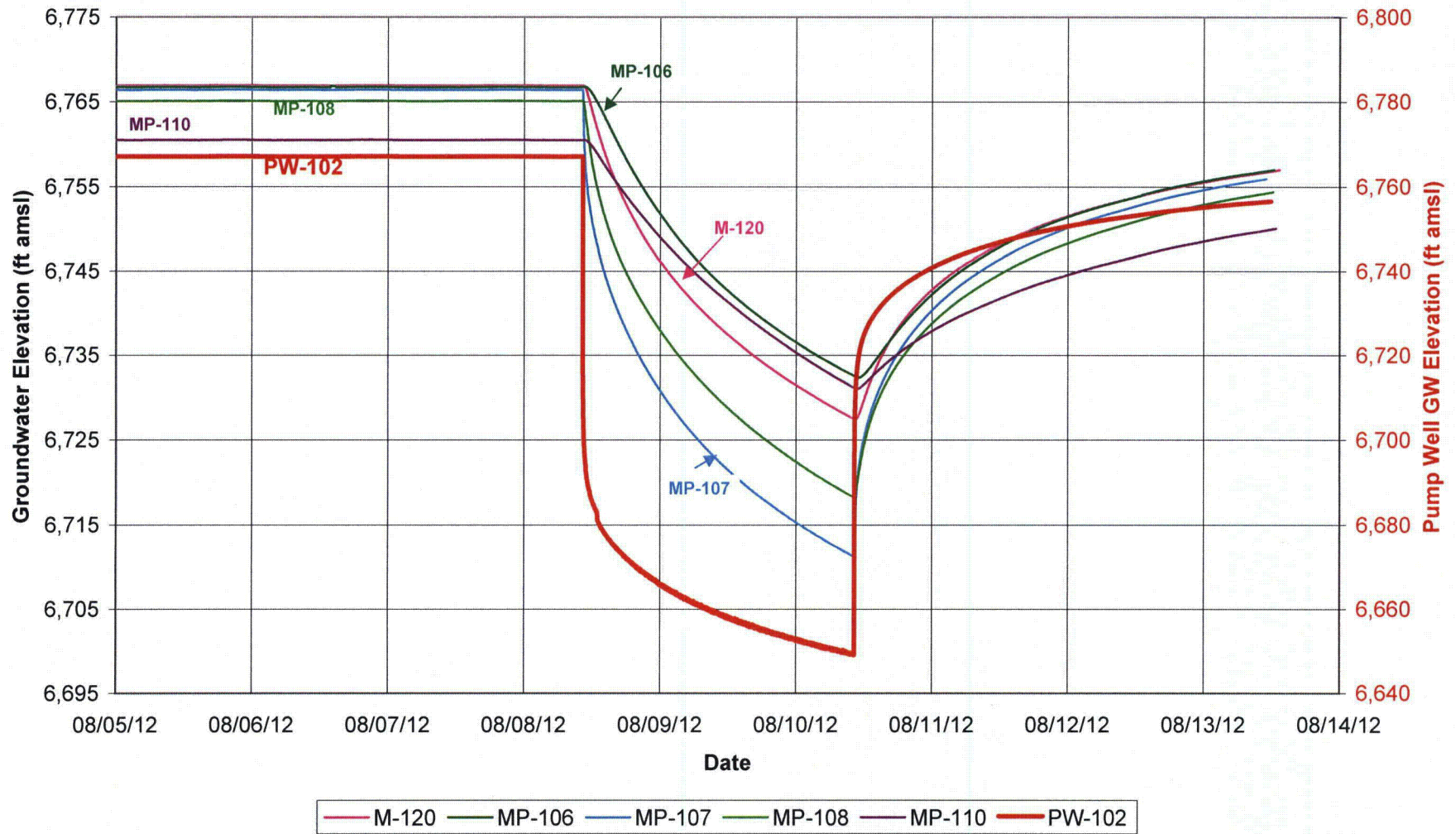
0 500 1,000
 FEET

Coordinate System: NAD 83 WY SPWC

**Figure 6-1. Water Level Elevation vs. Time, MU1 Repeat North Test
West and North of Fault
HJ Horizon Production Zone Monitor Wells**



**Figure 6-2. Water Level Elevation vs. Time, MU1 Repeat North Test
Central and North of Fault
HJ Horizon Production Zone Monitor Wells**



**Figure 6-3. Water Level Elevation vs. Time, MU1 Repeat North Test
East and North of Fault
HJ Horizon Production Zone Monitor Wells**

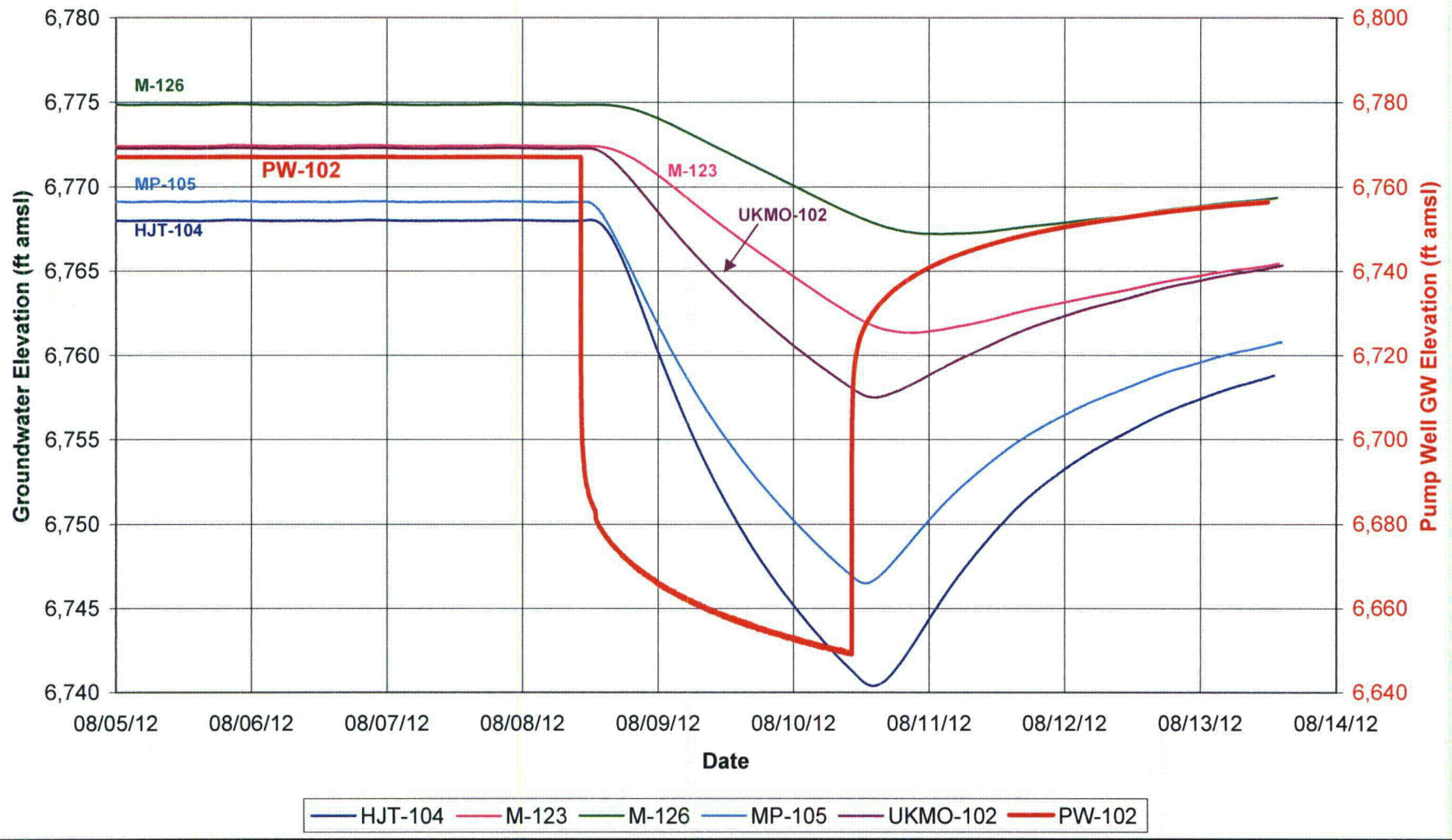
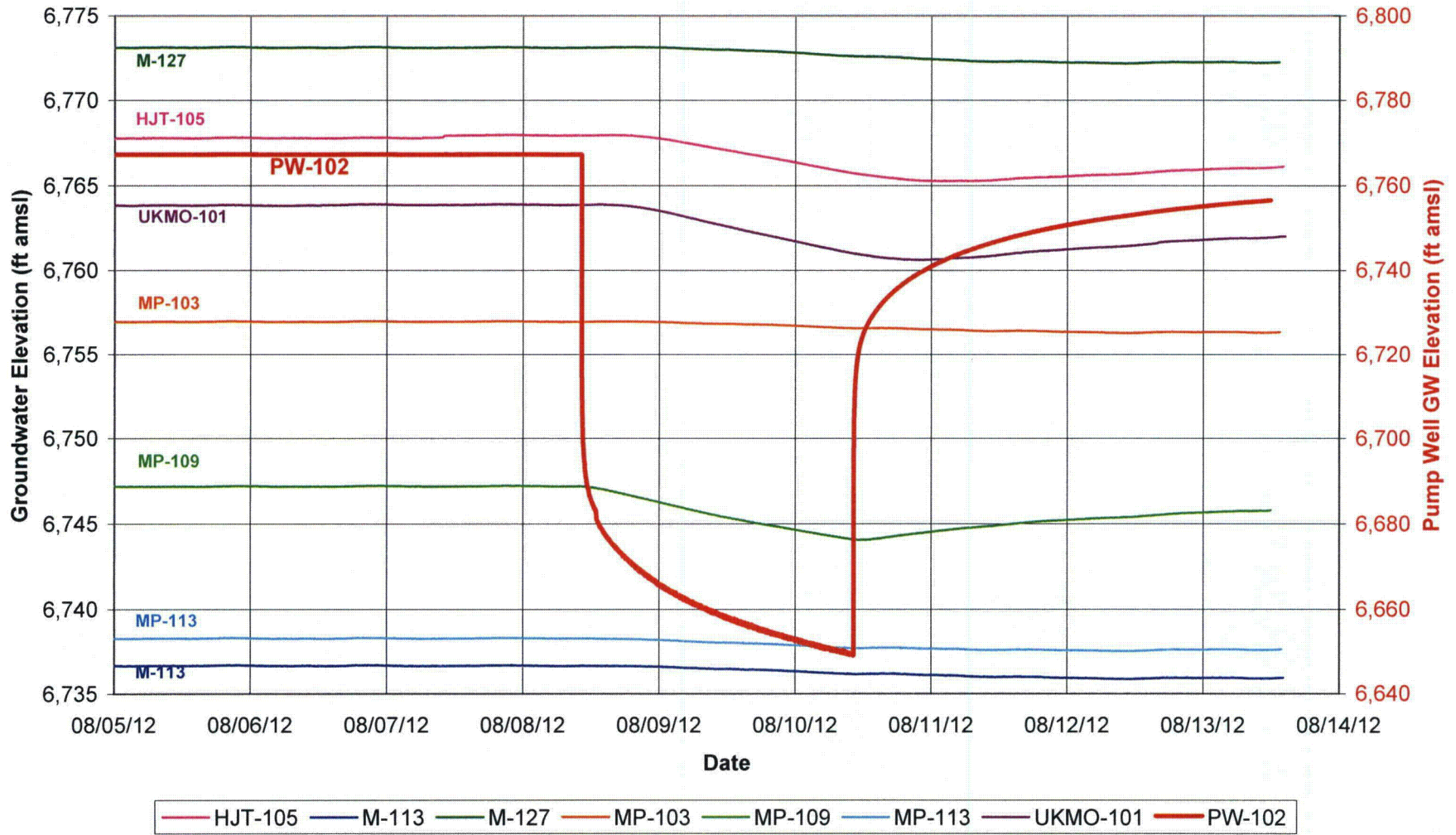
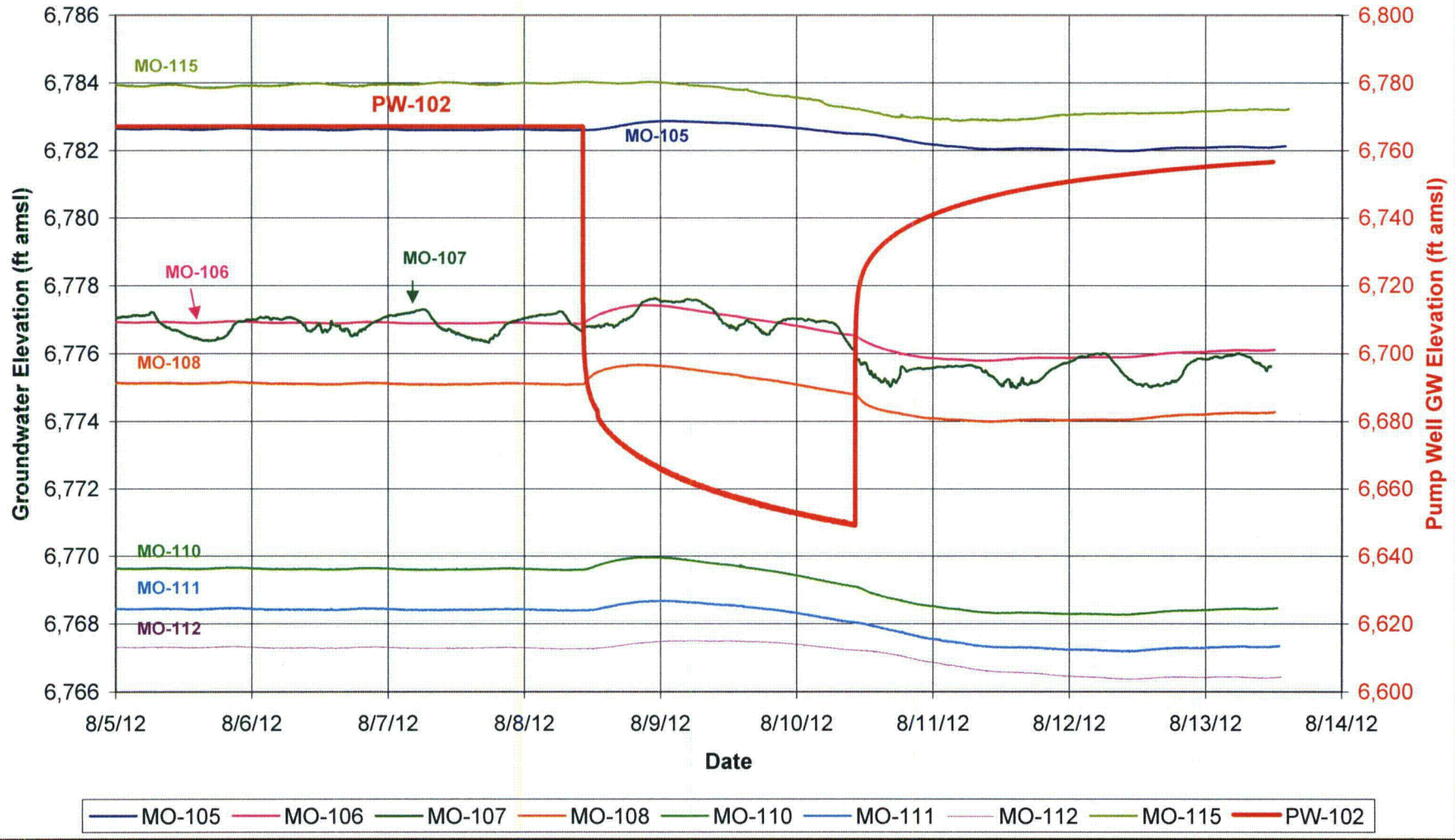


Figure 6-4. Water Level Elevation vs. Time, MU1 Repeat North Test
 South of Fault
 HJ Horizon Production Zone Monitor Wells

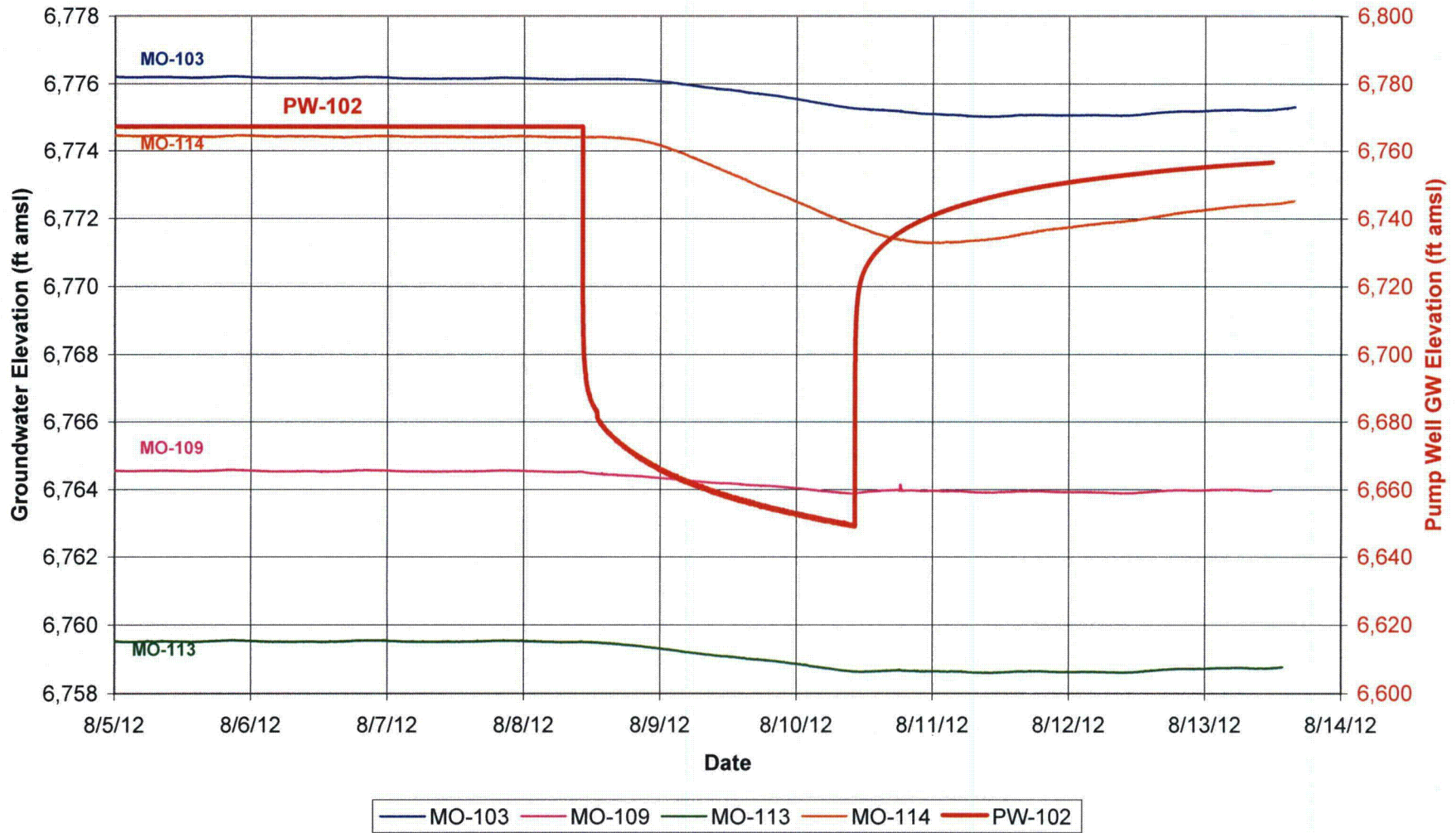


Lost Creek, Repeat of Mine Unit 1
 PW-101 and PW-102 Tests
 May 2

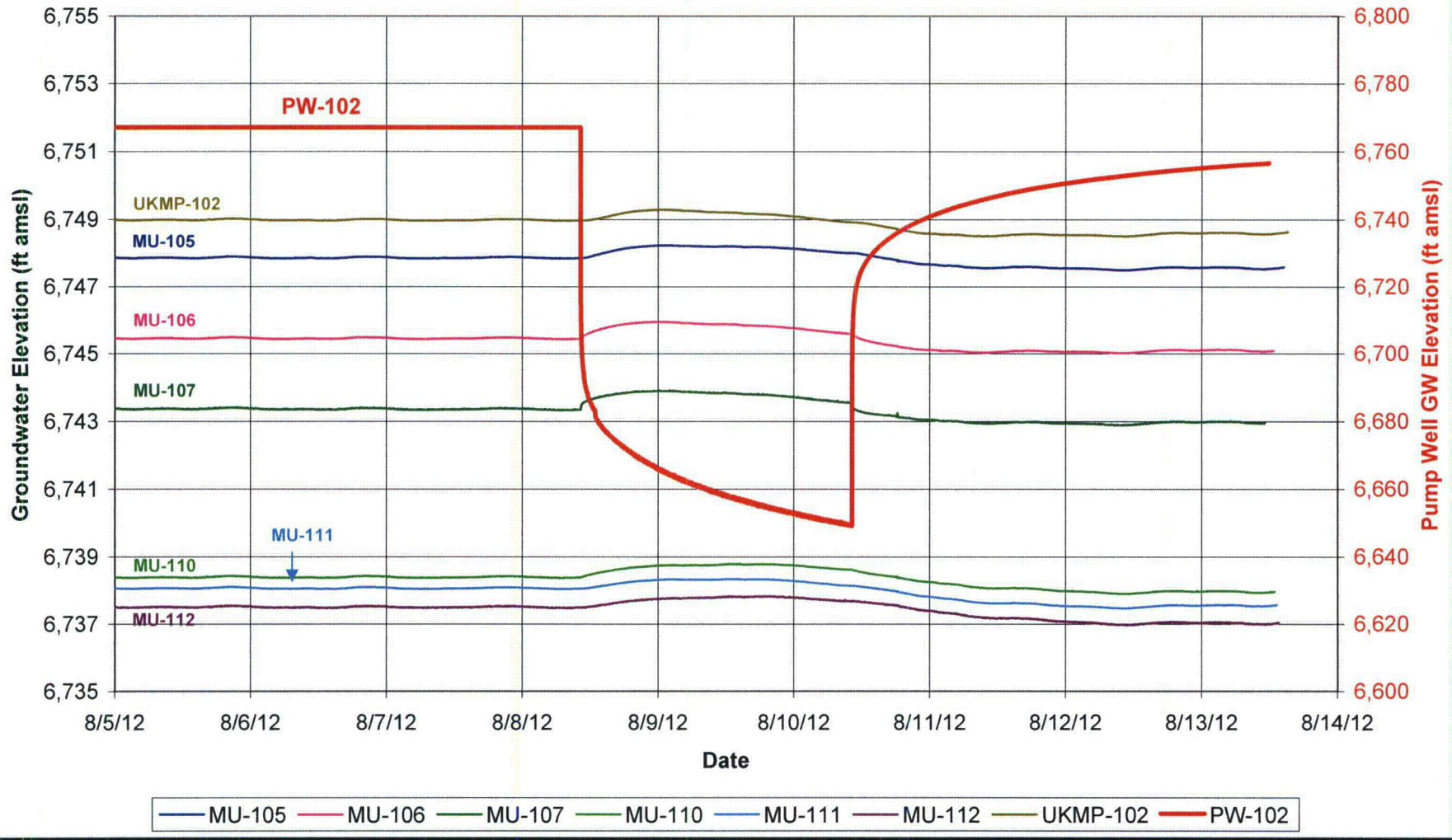
Figure 6-5. Water Level Elevation vs. Time, MU1 Repeat North Test
 North of Fault
 FG Horizon Overlying Monitor Wells



**Figure 6-6. Water Level Elevation vs. Time, MU1 Repeat North Test
South of Fault
FG Horizon Overlying Monitor Wells**



**Figure 6-7. Water Level Elevation vs. Time, MU1 Repeat North Test
North of Fault
KM Horizon Underlying Monitor Wells**



**Figure 6-8. Water Level Elevation vs. Time, MU1 Repeat North Test
South of Fault
KM Horizon Underlying Monitor Wells**

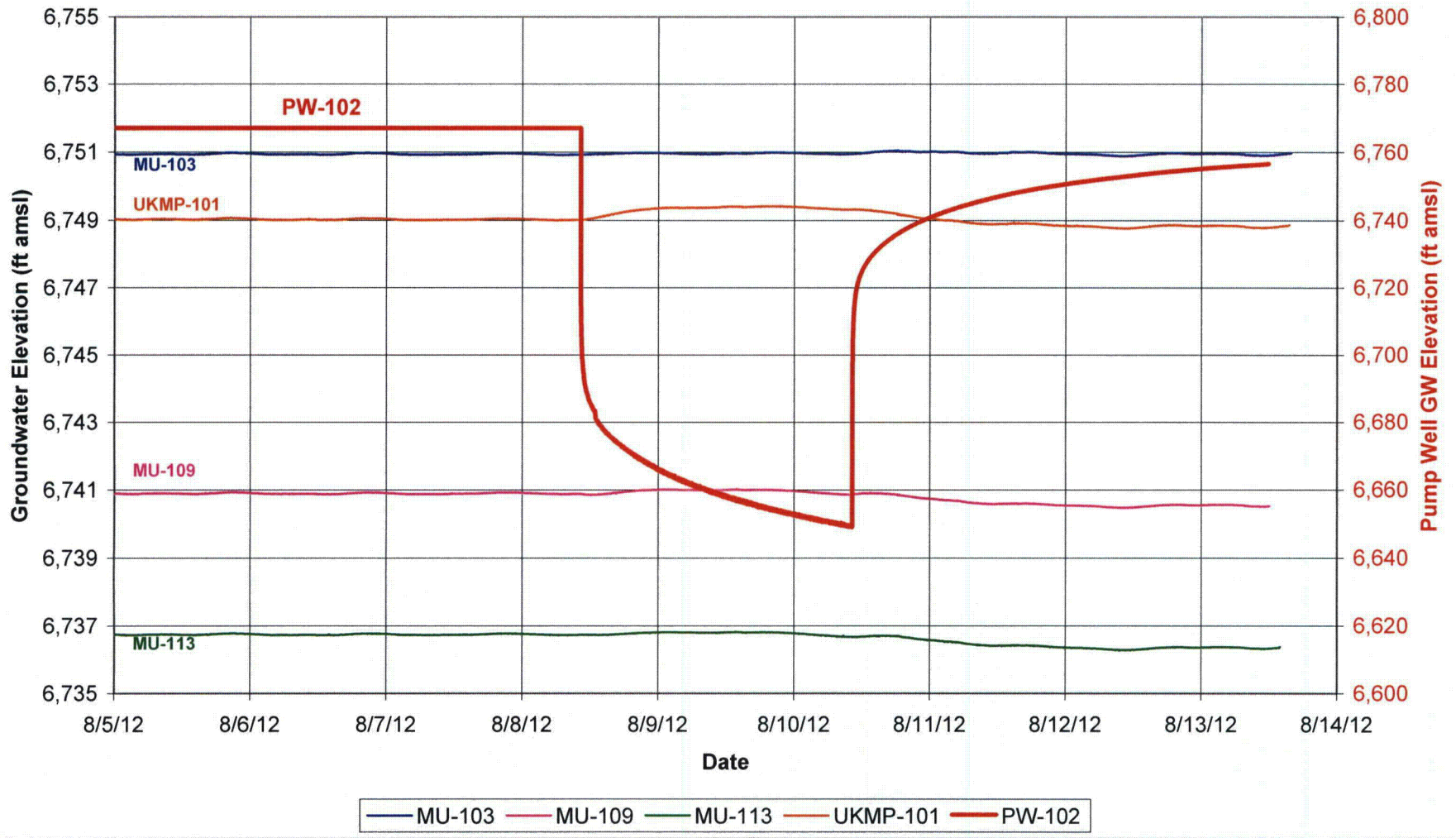


Figure 6-9. Water Level Elevation vs. Time, MU1 Repeat South Test
 West and South of Fault
 HJ Horizon Production Zone Monitor Wells

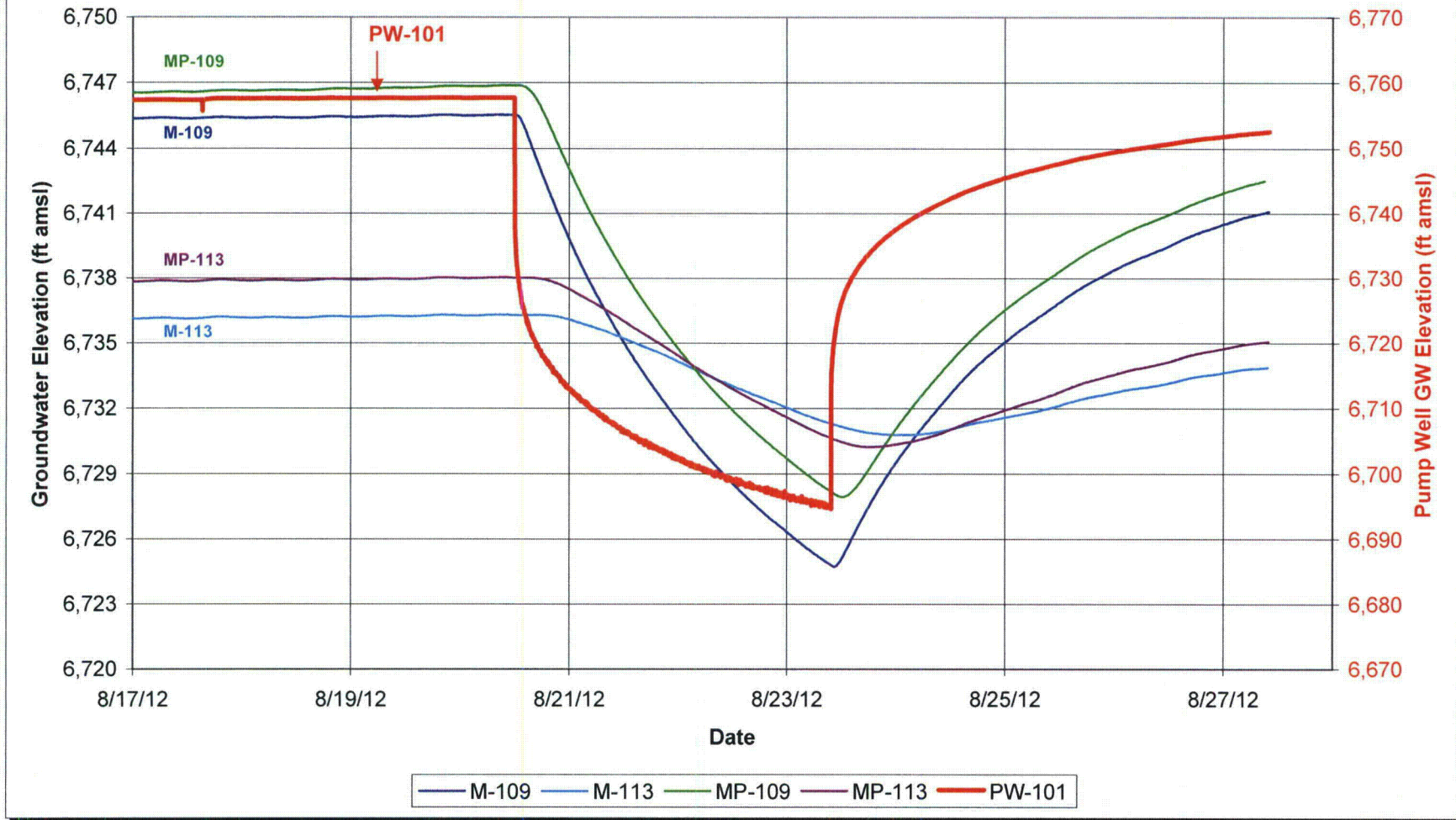


Figure 6-10. Water Level Elevation vs. Time, MU1 Repeat South Test
 Central and South of Fault
 HJ Horizon Production Zone Monitor Wells

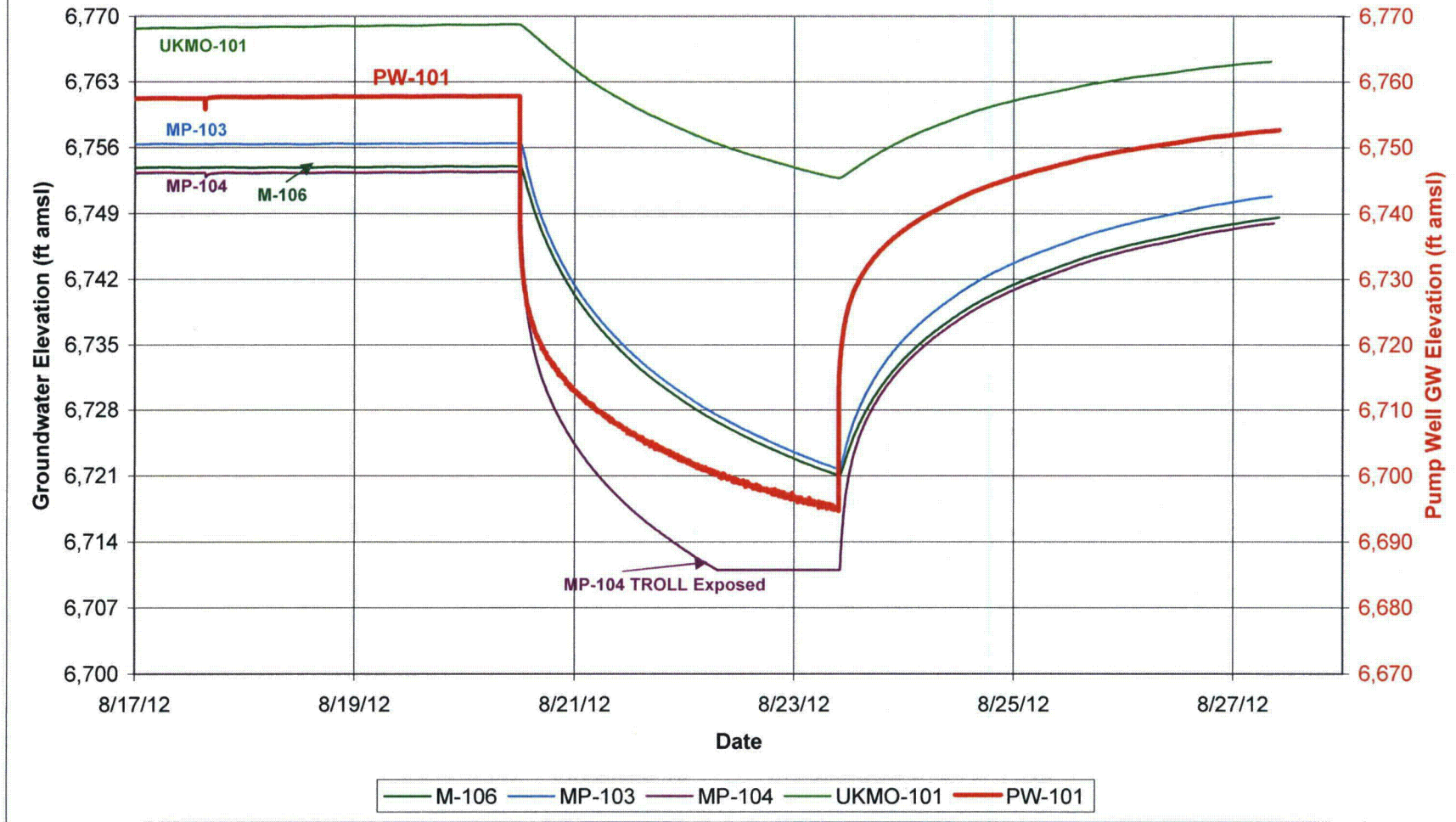
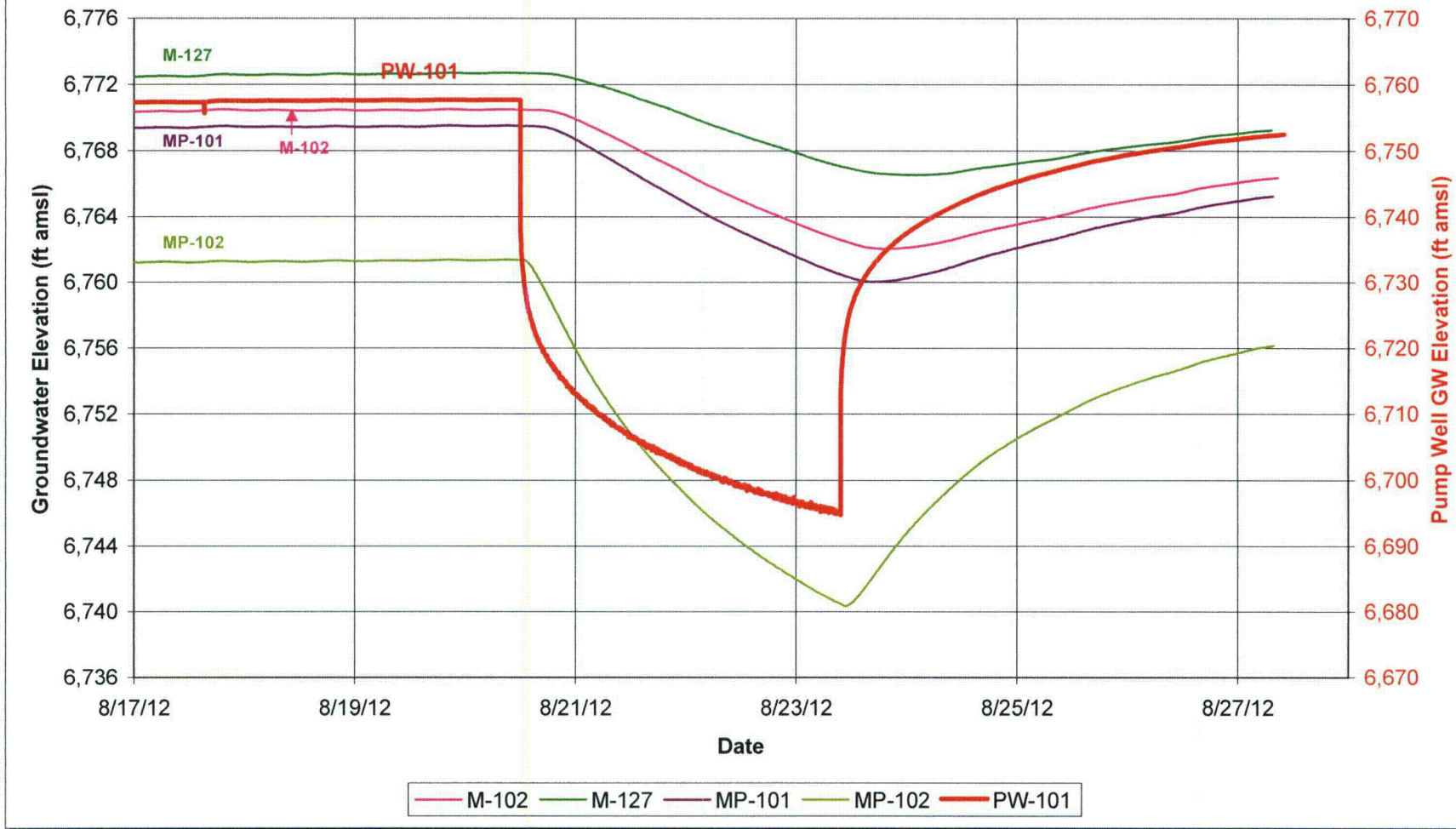


Figure 6-11. Water Level Elevation vs. Time, MU1 Repeat South Test
 East and South of Fault
 HJ Horizon Production Zone Monitor Wells



Lost Creek, Repeat of Mine Unit 1
 PW-101 and PW-102 Tests
 May 2013

**Figure 6-12. Water Level Elevation vs. Time, MU1 Repeat South Test
North of Fault
HJ Horizon Production Zone Monitor Wells**

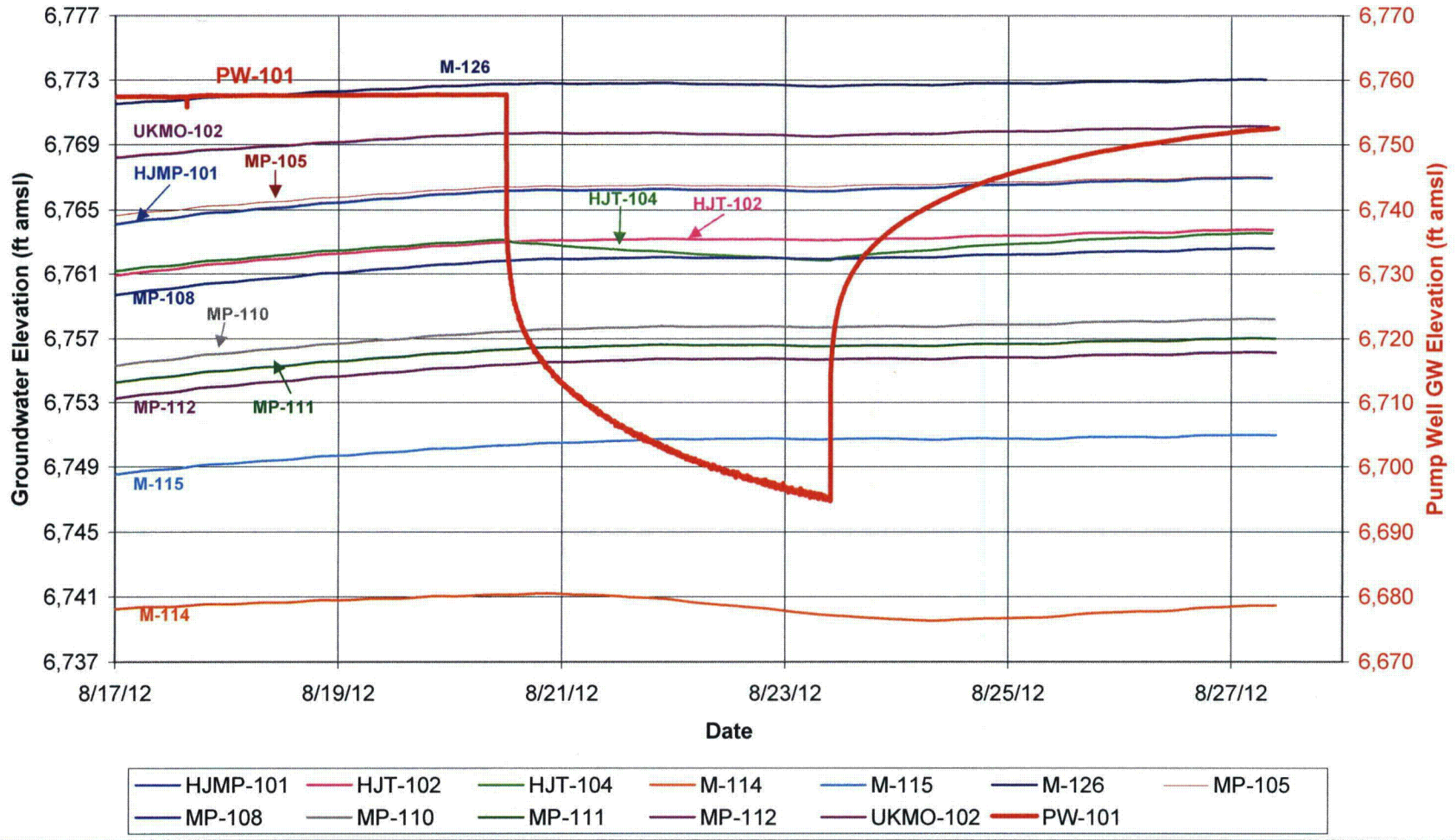


Figure 6-13. Water Level Elevation vs. Time, MU1 Repeat South Test
 South of Fault
 FG Horizon Overlying Monitor Wells

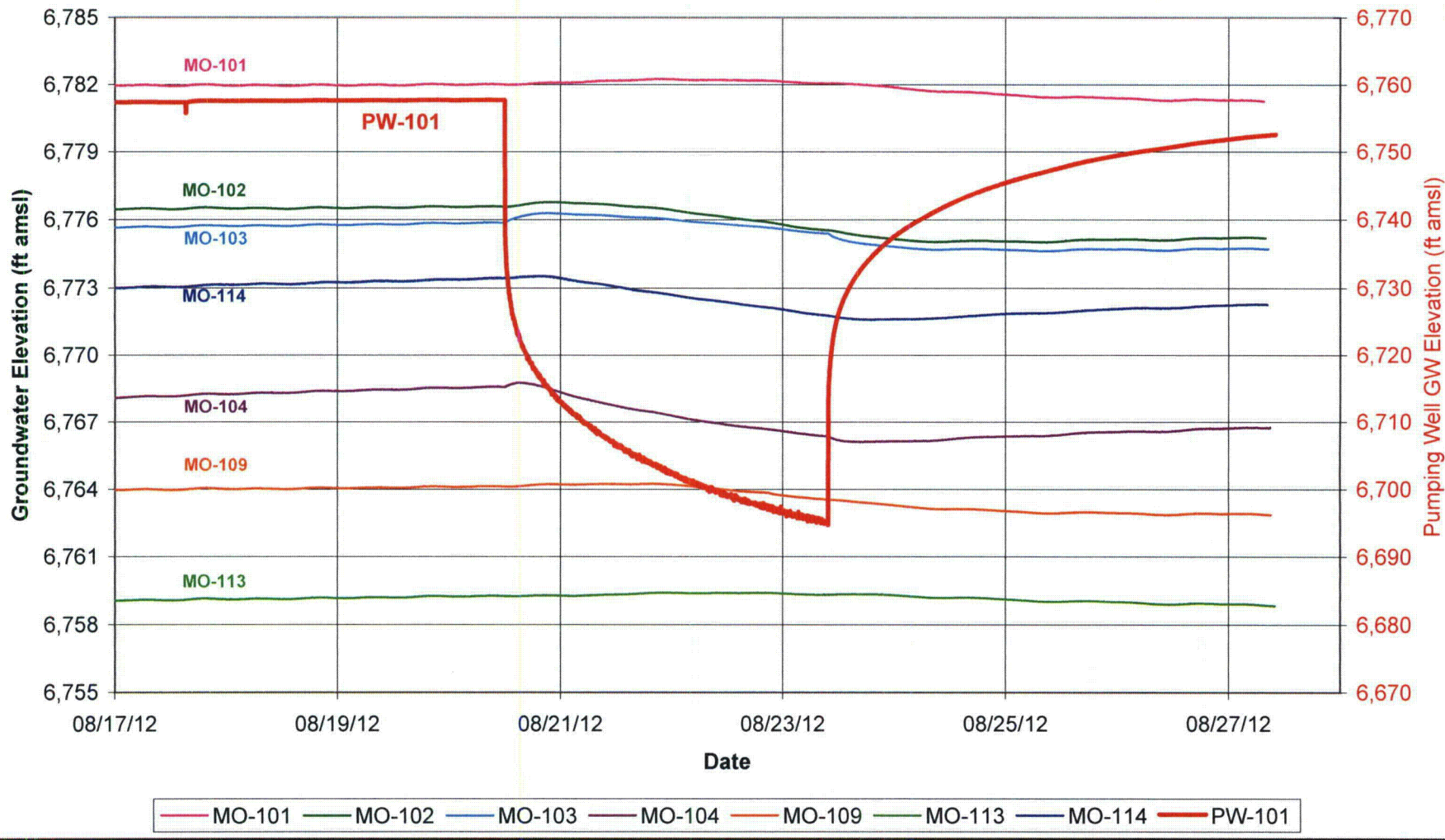


Figure 6-14. Water Level Elevation vs. Time, MU1 Repeat South Test
 North of Fault
 FG Horizon Overlying Monitor Wells

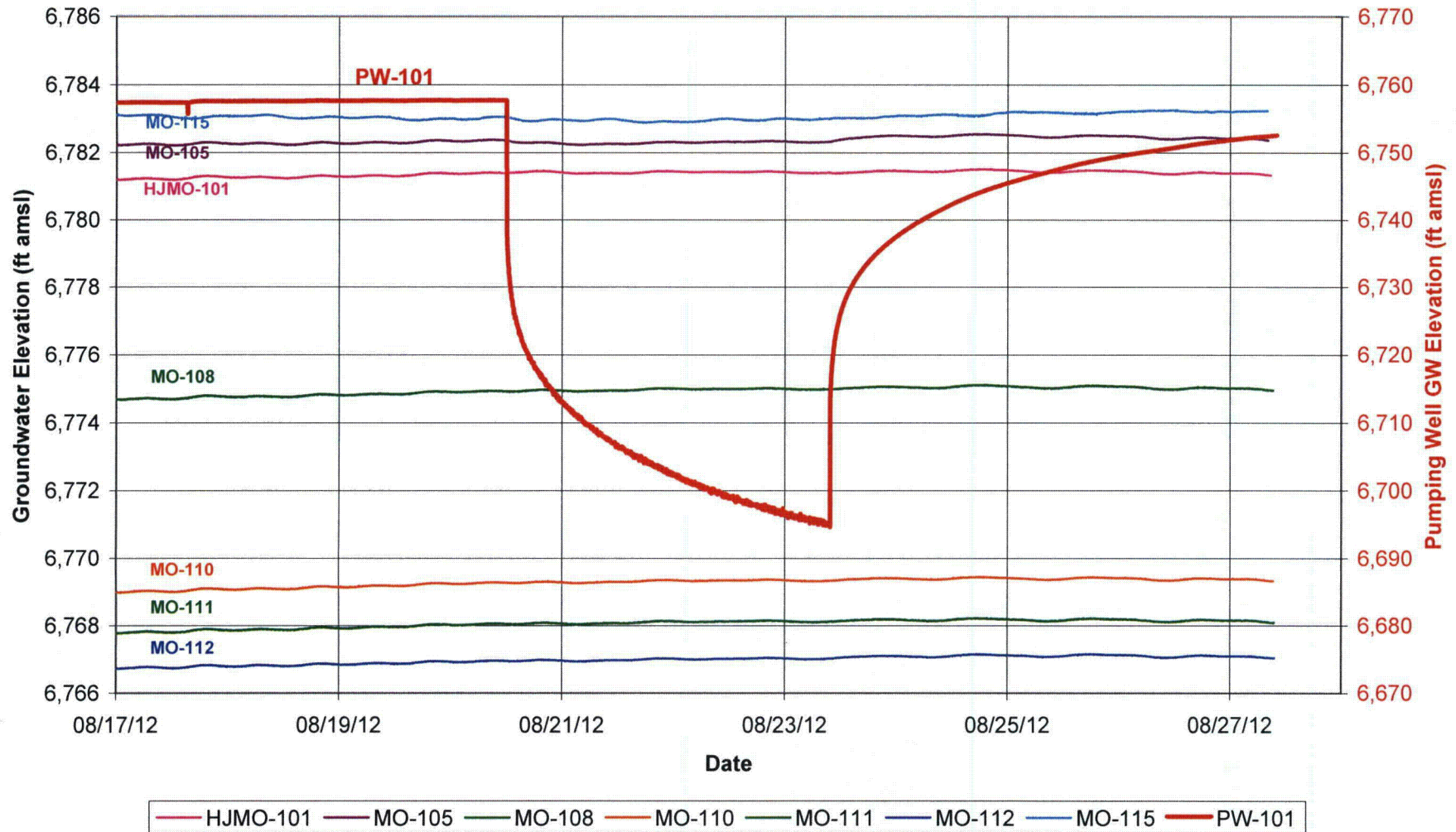


Figure 6-15. Water Level Elevation vs. Time, MU1 Repeat South Test
 South of Fault
 KM Horizon Underlying Monitor Wells

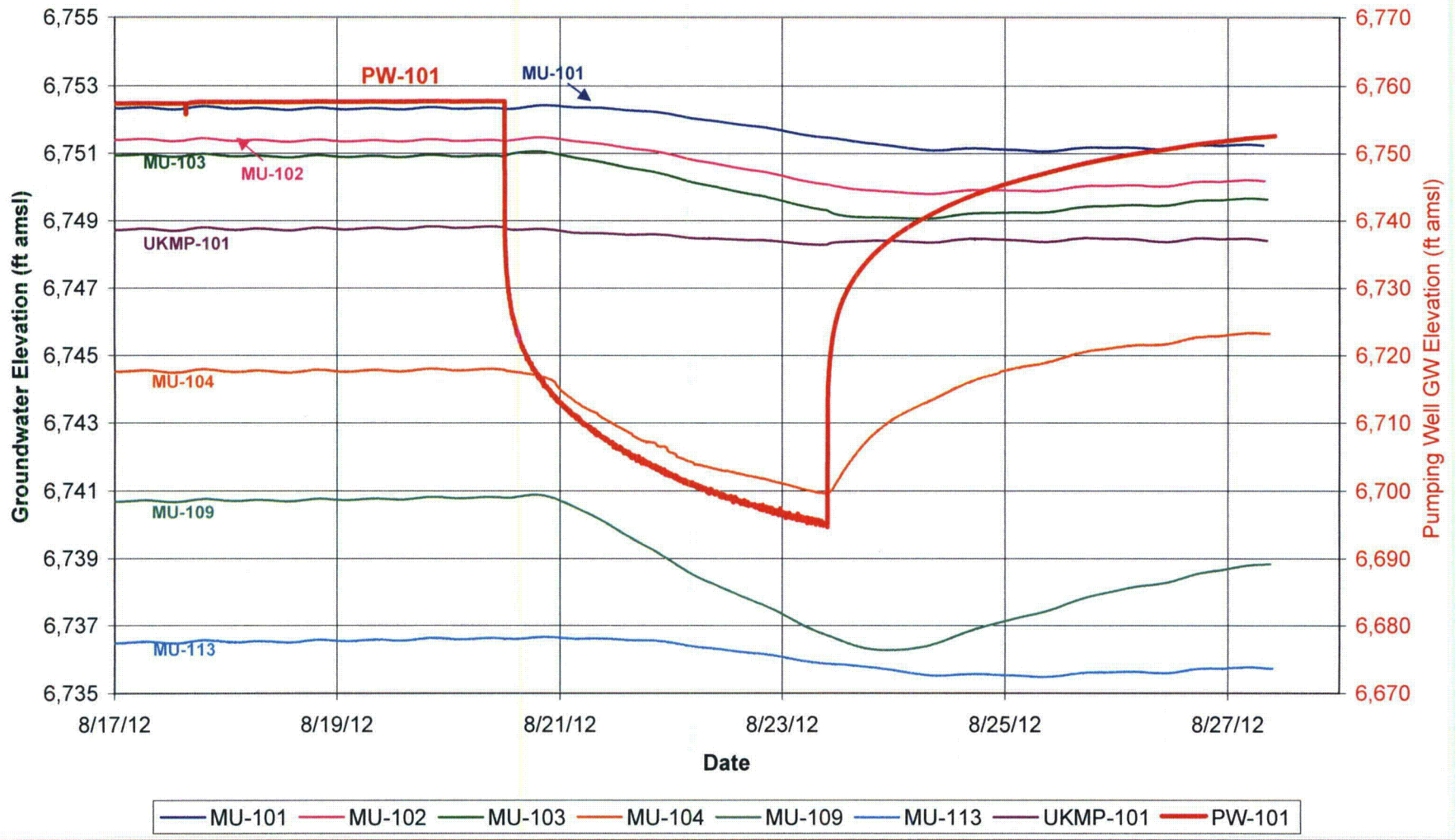
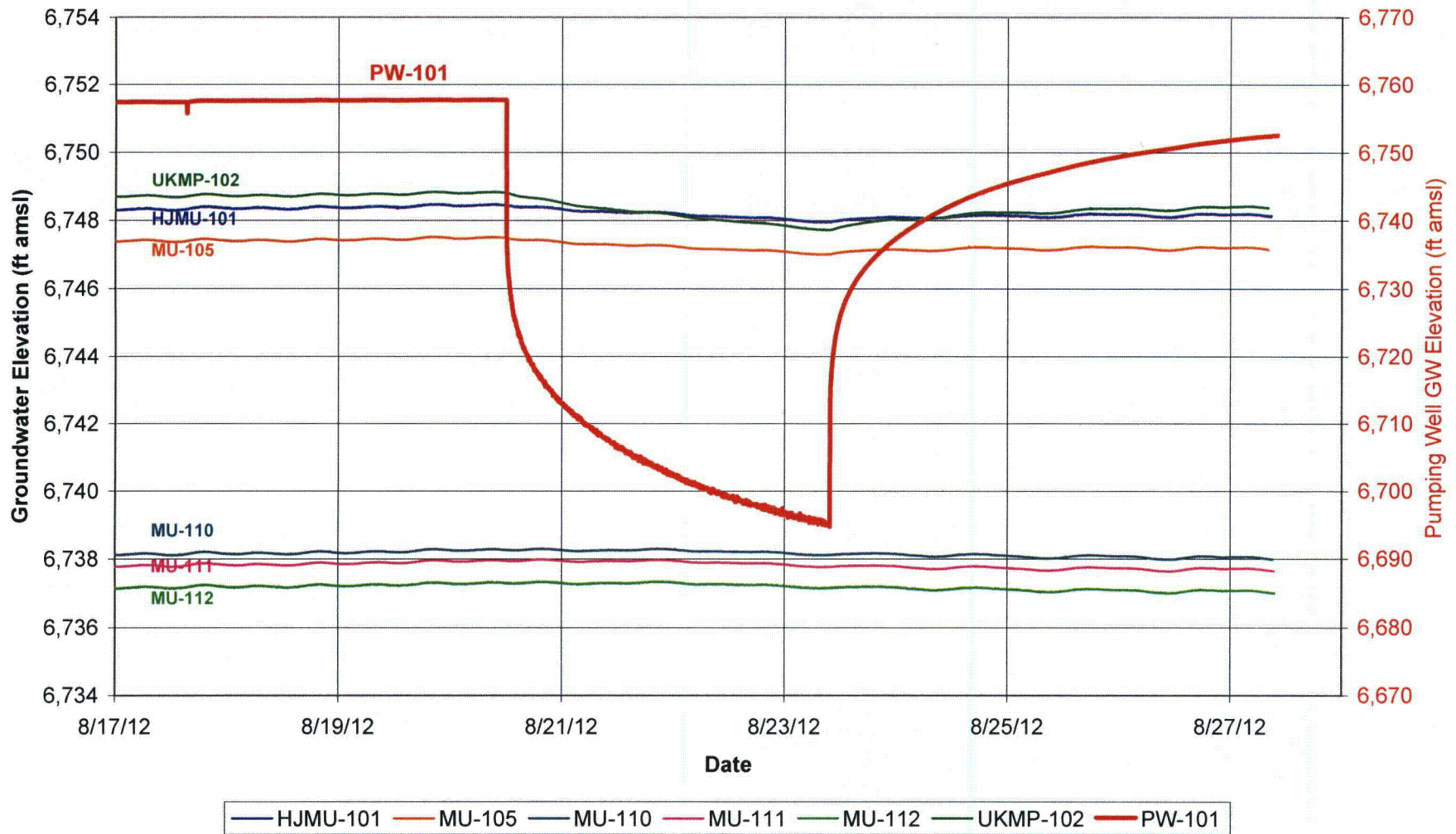
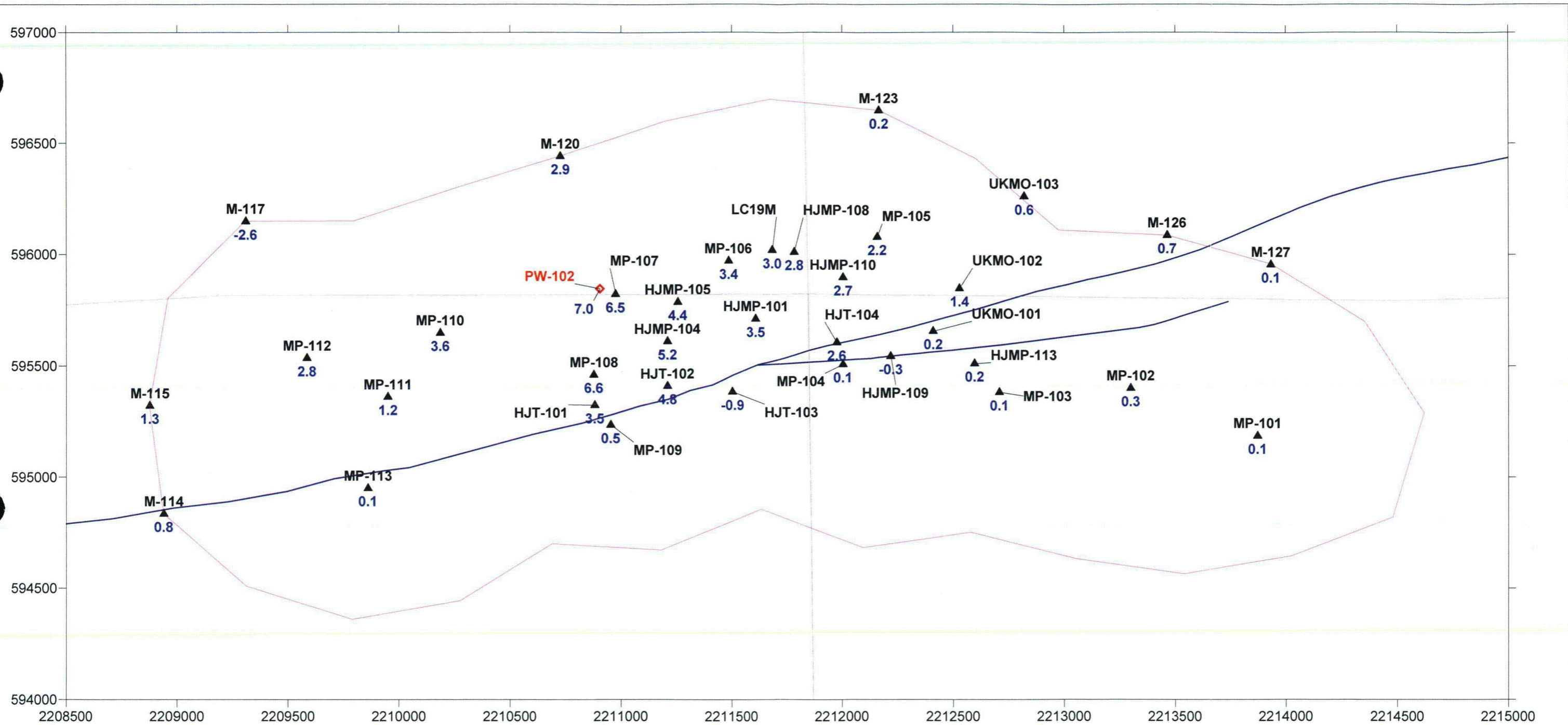

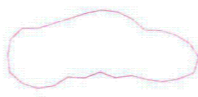


Figure 6-16. Water Level Elevation vs. Time, MU1 Repeat South Test
 North of Fault
 KM Horizon Underlying Monitor Wells





◆ HJ Horizon Pumping Well
 ▲ HJ Horizon Production Zone Observation Well
 0.5 Drawdown Differential (ft)
 (Positive equals greater drawdown
 in 2012 test, negative equals less
 drawdown)

 Lost Creek Fault and Splay Trace
 Mine Unit 1 Outline



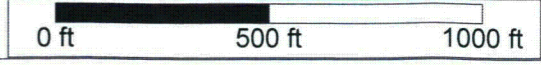
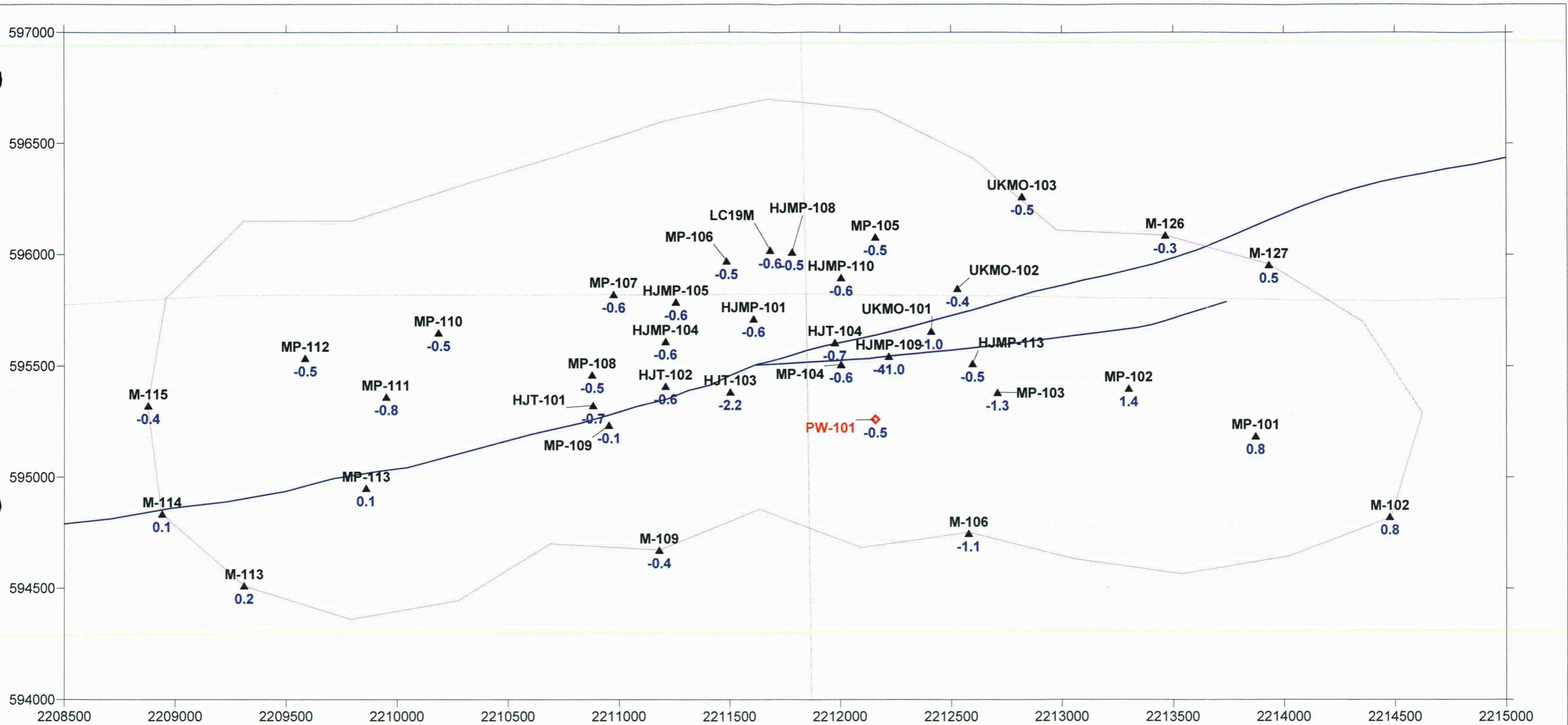
 Lost Creek ISR, LLC
 Casper, Wyoming, USA
 Petrotek
 www.petrotek.com
 Littleton, CO, USA

FIGURE 6-17
HJ Horizon Drawdown Differential
North Test, 2012 vs. 2008 Pump Tests
2012 MU1 Repeat Pump Tests
Lost Creek ISR Project, Wyoming

Issued For: LC ISR, LLC
 Issued /Revised: 05.09.13
 Drawing No.: Figure 6-17.srf
 Drawn By: AAP
 Reviewed By: HPD





◆ HJ Horizon Pumping Well

▲ HJ Horizon Production Zone Observation Well

0.5 Drawdown Differential (ft)
(Positive equals greater drawdown
in 2012 test, negative equals less
drawdown)

— Lost Creek Fault and Splay Trace

○ Mine Unit 1 Outline

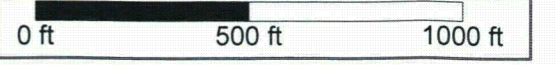
Lost Creek ISR, LLC
Littleton, Colorado, USA

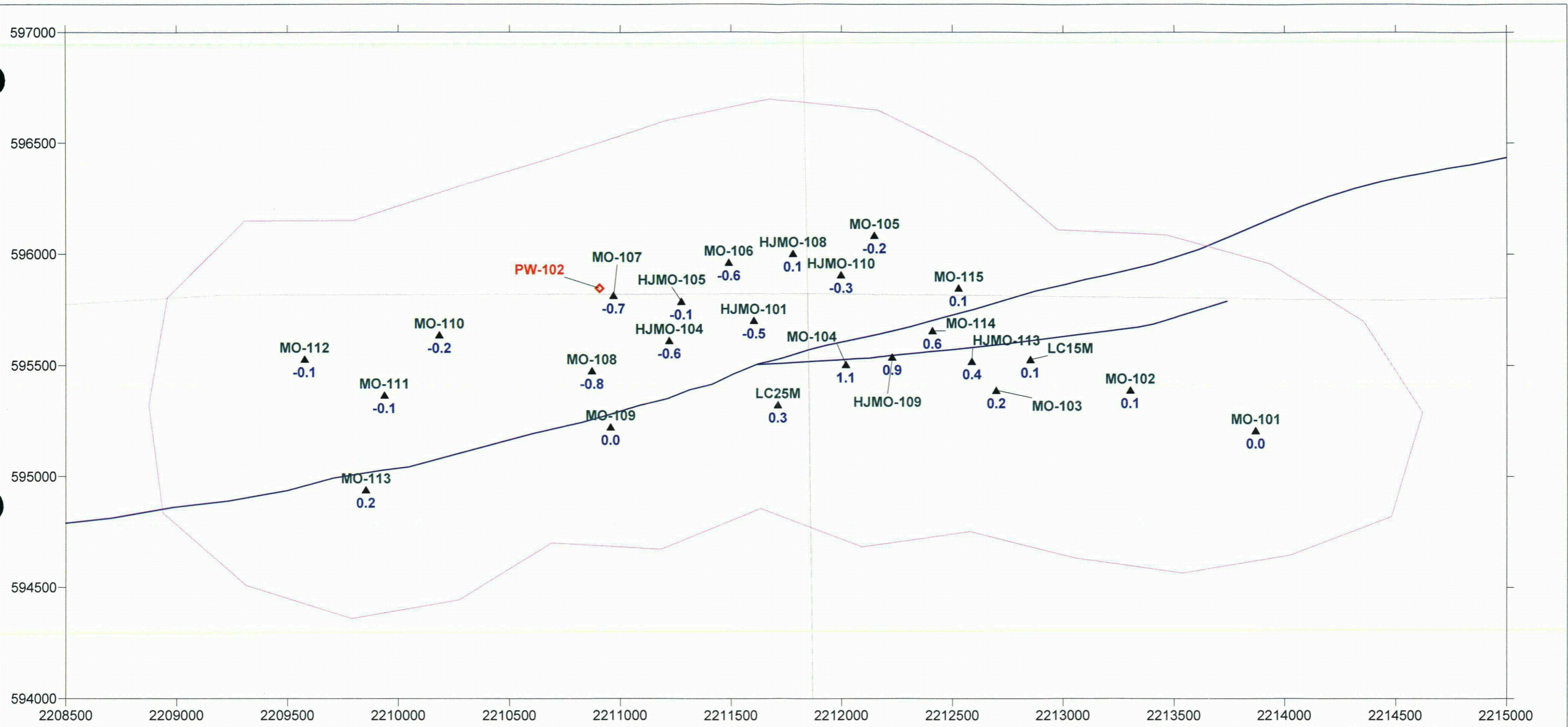
Petrotek
www.petrotek.com
Littleton, CO, USA

FIGURE 6-18
HJ Horizon Drawdown Differential
South Test, 2012 vs. 2008 Pump Tests
2012 MU1 Repeat Pump Tests
Lost Creek ISR Project, Wyoming

Issued For: LC ISR, LLC
Issued /Revised: 05.09.13
Drawing No.: Figure 6-18.srf

Drawn By: AAP
Reviewed By: HPD





- ◆ HJ Horizon Pumping Well
- ▲ Overlying FG Horizon Observation Well
- 0.5 Drawdown Differential (ft)
(Positive equals greater drawdown in 2012 test, negative equals less drawdown)

- Lost Creek Fault and Splay Trace
- Mine Unit 1 Outline



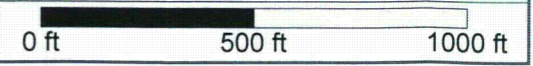
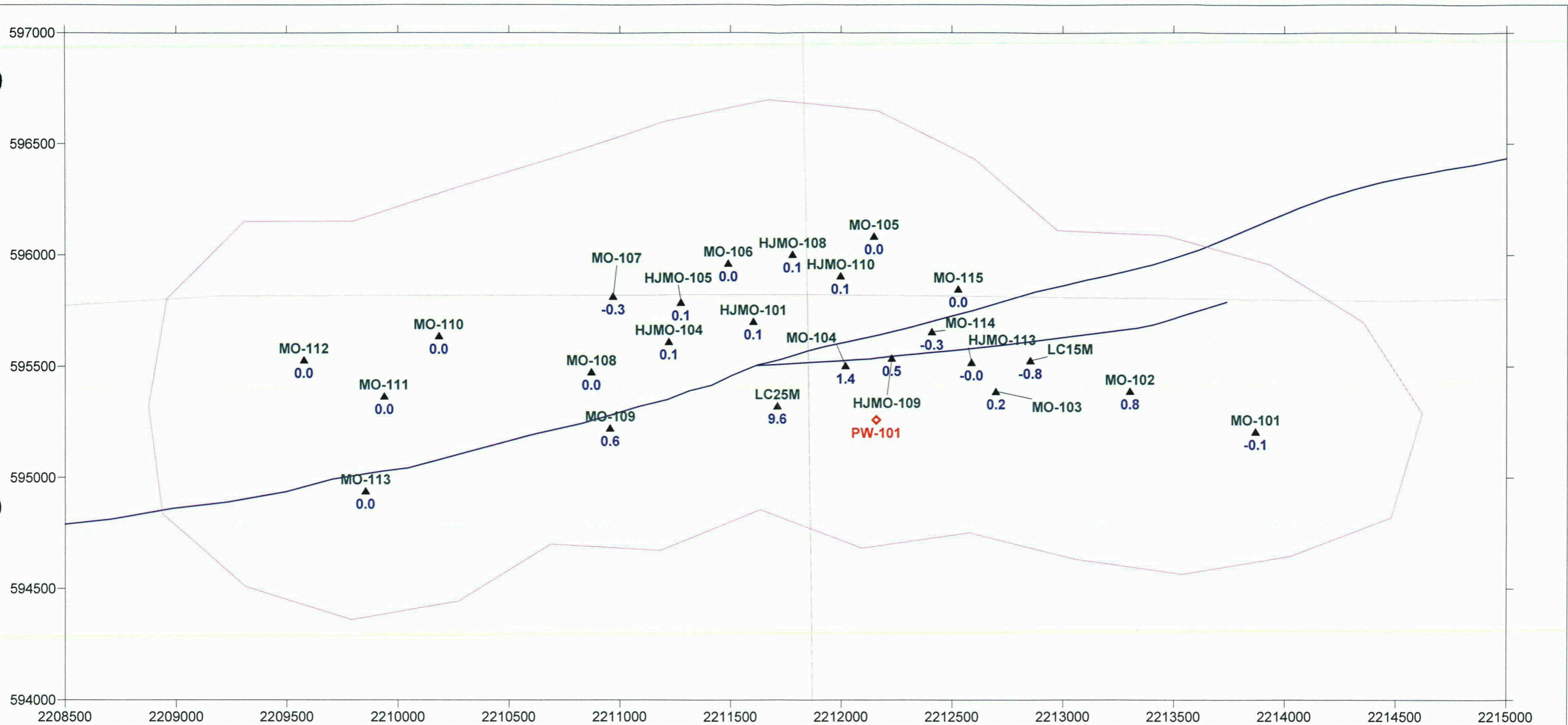

 Lost Creek ISR, LLC
 Littleton, Colorado, USA

 www.petrotek.com
 Littleton, CO, USA

FIGURE 6-19
FG Horizon Drawdown Differential
North Test, 2012 vs. 2008 Pump Tests
2012 MU1 Repeat Pump Tests
Lost Creek ISR Project, Wyoming


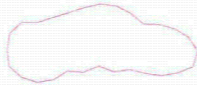
Issued For: LC ISR, LLC
 Issued /Revised: 05.09.13
 Drawing No.: Figure 6-19.srf

Drawn By: AAP
 Reviewed By: HPD





◆ HJ Horizon Pumping Well
 ▲ Overlying FG Horizon Observation Well
 0.5 Drawdown Differential (ft)
 (Positive equals greater drawdown
 in 2012 test, negative equals less
 drawdown)

 Lost Creek Fault and Splay Trace
 Mine Unit 1 Outline


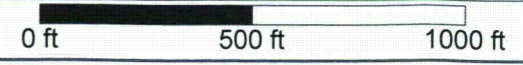
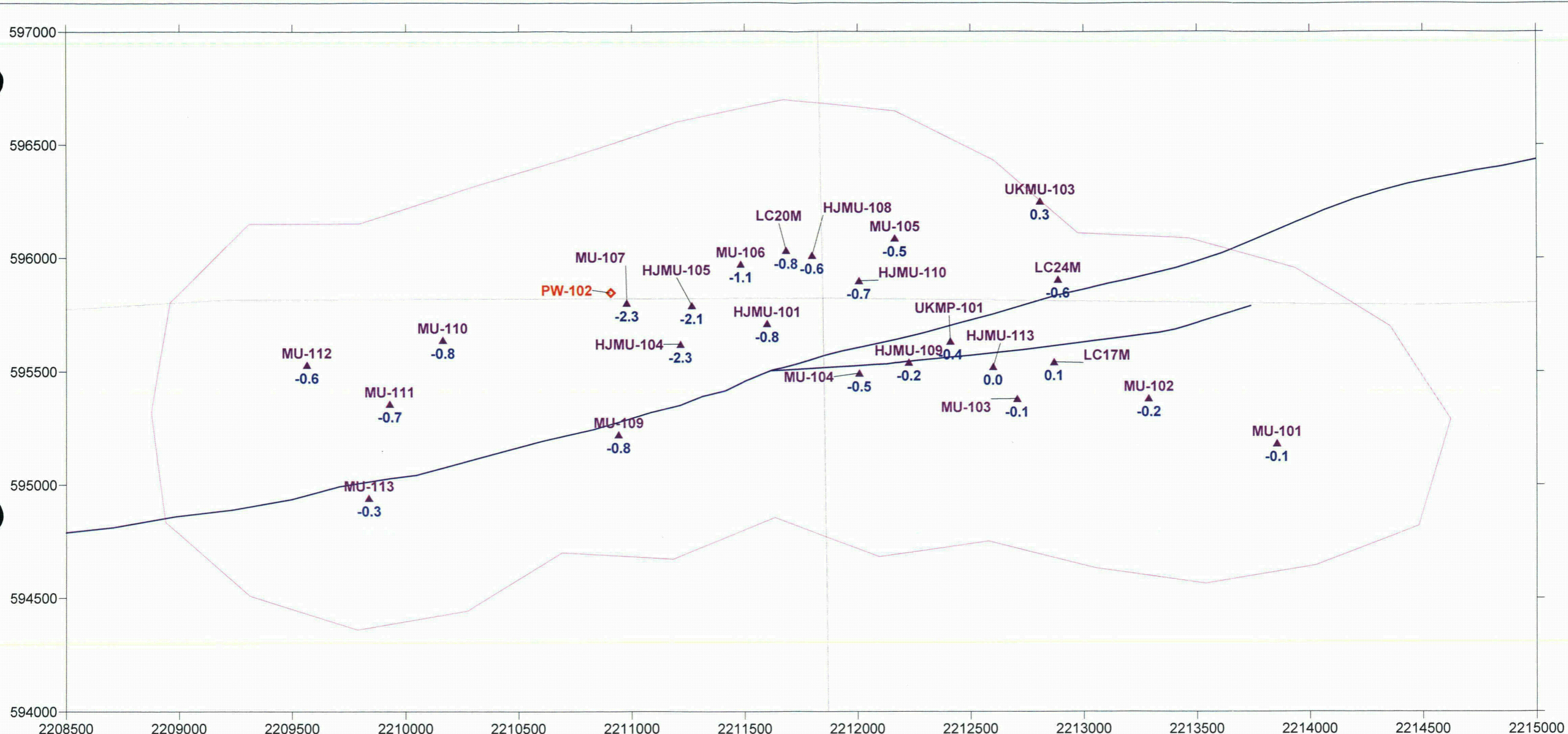
 Lost Creek ISR, LLC
 Littleton, Colorado, USA
 Petrotek
 www.petrotek.com
 Littleton, CO, USA


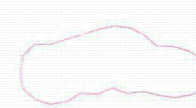
FIGURE 6-20
FG Horizon Drawdown Differential
South Test, 2012 vs. 2008 Pump Tests
2012 MU1 Repeat Pump Tests
Lost Creek ISR Project, Wyoming

Issued For: LC ISR, LLC
 Issued /Revised: 05.09.13
 Drawing No.: Figure 6-20.srf
 Drawn By: AAP
 Reviewed By: HPD





◆ HJ Horizon Pumping Well
 ▲ Underlying KM Horizon Observation Well
 0.5 Drawdown Differential (ft)
 (Positive equals greater drawdown
 in 2012 test, negative equals less
 drawdown)

 Lost Creek Fault and Splay Trace
 Mine Unit 1 Outline



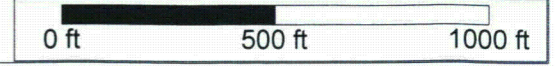
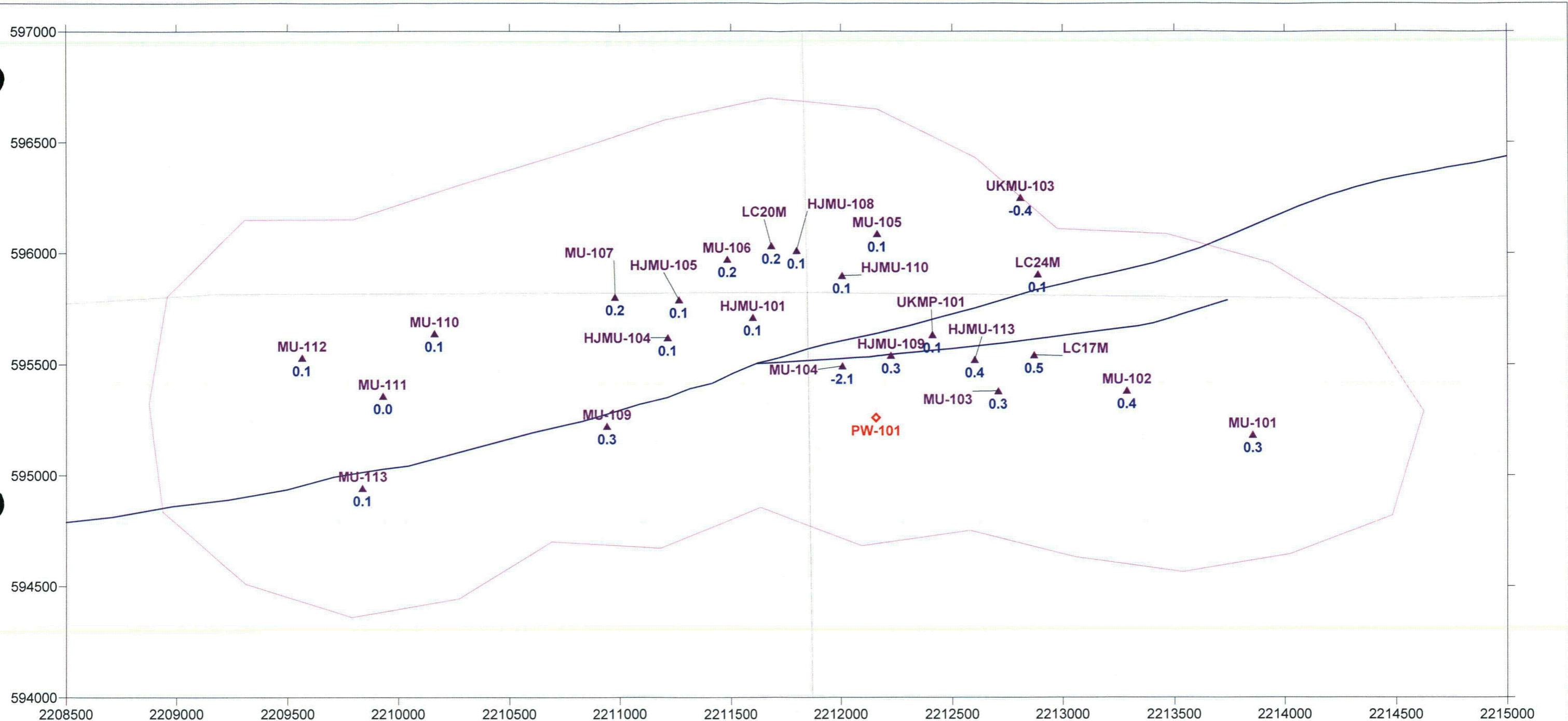
 Lost Creek ISR, LLC
 Littleton, Colorado, USA
 Petrotek
 www.petrotek.com
 Littleton, CO, USA

FIGURE 6-21
KM Horizon Drawdown Differential
North Test, 2012 vs. 2008 Pump Tests
2012 MU1 Repeat Pump Tests
Lost Creek ISR Project, Wyoming

Issued For: LC ISR, LLC
 Issued /Revised: 05.09.13
 Drawing No.: Figure 6-21.srf
 Drawn By: AAP
 Reviewed By: HPD





- ◆ HJ Horizon Pumping Well
- ▲ Underlying KM Horizon Observation Well
- 0.5 Drawdown Differential (ft)
(Positive equals greater drawdown in 2012 test, negative equals less drawdown)

- Lost Creek Fault and Splay Trace
- Mine Unit 1 Outline


 Lost Creek ISR, LLC
 Littleton, Colorado, USA

 www.petrotek.com
 Littleton, CO, USA

FIGURE 6-22
KM Horizon Drawdown Differential
South Test, 2012 vs. 2008 Pump Tests
2012 MU1 Repeat Pump Tests
Lost Creek ISR Project, Wyoming

Issued For: LC ISR, LLC
 Issued /Revised: 05.09.13
 Drawing No.: Figure 6-22.srf
 Drawn By: AAP
 Reviewed By: HPD

