

UIC - 1 - ____8-1__

**EPA FALL-OFF
TEST PLAN**

(WDW-2)

DATE:

2008 - Present

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, October 19, 2011 4:06 PM
To: 'Moore, Darrell'
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD
Subject: Navajo Refining Company UIC Class I (NH) Injection Wells WDWs 1, 2 & 3 (UICI-008) Fall Off Test Plan (August 2011)

Darrell:

The New Mexico Oil Conservation Division (OCD) is in receipt of your above subject test plan. OCD has already approved the Fall-Off Test (FOT) Plan with conditions on July 28, 2009. The OCD notes that it is also in the process of reviewing C-103s Sundry Notices for the upcoming FOTs.

OCD observes some changes in this FOT Plan submittal that are not acceptable to the OCD. For example, Exhibit 1 is not an acceptable exhibit to the OCD for reasons specified in the 2010 FOT report review and later during the May 2011 meeting in Santa Fe. However, the operator continues to submit exhibits with certain assumptions that have not been accepted or approved by the OCD, i.e., that the injection wells are show interconnection with the injection zone during past FOTs. Perhaps the operator can conduct the 2011 FOT with the information and exhibits needed to prove the interconnection of injection wells with the injection zone? The Certified PE should provide the exhibits in the 2011 FOT Report with the analysis and conclusions supporting any claims for the OCD to review and consider before approving. This is apparently a FOT frequency per well issue that the operator is attempting to prove.

The OCD provides the following comments, observations, and/or recommendations on the above subject plan below.

Comments:

- The OCD approved the original Fall-Off Test (FOT) Plan based on OCD Guidance dated December 3, 2007. There should not be any significant changes to this FOT Plan because it is flexible where needed to allow operators to implement it on each injection well.
- OCD likes to be notified to witness the installation of bottom hole gauges and to be present at least one hour before injection shut-off and commencement of FOT monitoring.
- OCD is concerned about the Section VI No. 1(e) WDW-3 Cement Bond Log quality being poor from 900 ft. to 1200 ft- especially at the depths: 2662 – 2160; 4876 – 5372; and 6750 – 7600 ft. micro annulus scenario.

Observations:

- Section V No. 2: The objective of the FOT is NOT to achieve or limit a 100 psig pressure differential before vs. after FOT injection vs. shut-off, but it is a minimum pressure differential that OCD stipulates in its guidance for a successful FOT and injection zone that may still continue to be utilized for disposal, i.e., not too pressured up and subject to continued fracturing under daily allowed maximum surface injection pressure operational limits.
- Section V No. 7 and Exhibit 1: OCD observes a bottom hole pressure chart for WDWs 1, 2 and 3 at 7660 feet that the operator presented in the 2010 FOT and again during a May 2011 meeting in Santa Fe, New Mexico to show the interconnection between injection wells and the injection formation. The OCD had commented that there was no explanation or conclusion provided from the Certified PE who conducted and completed the 2010 FOT report that supports the operator's claim that all injection wells are interconnected based on Exhibit 1.

Furthermore, the OCD requested a statement or information supporting the operator's claim by the Certified PE, but never received one. At the meeting, the OCD explained that based on Exhibit 1, there was no support for the claim. In order to make the interconnection determination, during each FOT at each well and off-set injection wells (WDWs not being FOT'd) before and throughout the FOT would need bottom hole pressures monitored in tandem at each well location to establish the interconnectivity of the injection wells with the receiving injection formation under a uniform time scale. This would be a chart that could be plotted that would show during the test the interconnectivity of the wells for each FOT. The OCD doubts that the operator can make the case for interconnectivity between injection wells and injection formation because of the significant distance between the injection wells and fact that sedimentation in formation varies laterally and uniformity in sedimentation, saturated porosity and permeability due to variation in sedimentation would by chance make the injection formation aerielly extensive and uniform over a 3 to 5 mile radius from each injection well. Also, even if by chance there was

uniformity over the mileage specified, the distance between injection wells and corresponding pressure would likely not be observed.

- Exhibit 6: OCD observes in Section B a proposed MIT once every 5 years. OCD's UIC Program requires annual MITs and/or after down hole work is performed on a well.

Recommendations:

- Operator is running survey logs to the bottom of fill or below USDW (fresh water) zones, which excludes an evaluation of casing in the fresh water zone. Please run logs up to surface.
- Be sure to also record and provide injection flow rate and pressure leading up to shut-off and monitoring throughout the FOT monitoring period. OCD needs to confirm that a pseudo steady-state condition was achieved before shut-off. This data is also needed for software modeling of the FOT.
- Please provide electronic data from the FOTs at each well in order for the OCD to run its software model to confirm the results in the report.
- Section V No. 13: Surface pressure monitoring and Horner Plot during injection should be used to confirm radial flow condition is achieved instead of waiting a set period if operator wishes to reduce the injection period.

Disclaimer: *Please be advised that OCD has already approved with conditions Navajo Refining Company's Fall-Off Test (FOT) Plan on July 28, 2009, and is not providing approval of this FOT Plan; however, comments, observations and recommendations herein should help Navajo Refining Company understand the OCD's concerns based on the submittal.*

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490

Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/>

"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:

<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, July 01, 2011 8:48 AM
To: 'Lackey, Johnny'; 'Moore, Darrell'
Cc: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD
Subject: FW: UICI-8 MIT Explanation Due
Attachments: UICI-8 MIT Explanation Due

Johnny and Darrell:

Good morning. The OCD has not received a response to its request for a signed PE opinion on the anomalous differential annulus pressures occurring in WDWs 1, 2 and 3. At the /31 meeting in Santa Fe OCD requested this information by COB on 6/10. Was this sent? If not, when can Navajo Refining Company have its down hole PE Expert provide an opinion for OCD review?

Also, OCD requested a response to the annual Fall-Off Test (FOT) performed in 2010 related to your request for a reduced FOT schedule for the aforementioned WDWs. The response was expected by 6/30 or early July 2011 (5/31 Mtg. in Santa Fe). When can OCD expect to receive this?

Please contact me if you have questions. Thank you.

File: OCD Online WDWs "Annual Report" and "FOT" Thumbnails

Carl J. Chavez, CHMM
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<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)

Chavez, Carl J, EMNRD

Subject: UICI-8 MIT Explanation Due
Location: Office

Start: Fri 6/10/2011 4:00 PM
End: Fri 6/10/2011 4:30 PM

Recurrence: (none)

Organizer: Chavez, Carl J, EMNRD

OCD requested PE explanation for variation in annulus pressure in WDWs 1, 2 & 3 due by today that would explain why OCD should not consider wells failing MIT.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, June 14, 2011 10:53 AM
To: 'Patterson, Bob'; 'Dan Gibson'; 'Moore, Darrell'; 'Lackey, Johnny'; 'Schmaltz, Randy'
Cc: Dade, Randy, EMNRD; Perrin, Charlie, EMNRD; VonGonten, Glenn, EMNRD
Subject: New Mexico UIC Class I (non-hazardous) Well MIT & Annual Fall-Off Test Scheduling with Completion by September 30, 2011

Gentlemen:

Re:

Key Energy Services: UICI-005
Navajo Refining Company: UICI-008; UICI-008-0 & UICI-008-1
Western Refining Southwest, Inc.: UICI-009

Good morning. It is that time of year again to remind operators that their annual MITs and Fall-Off Tests (FOT) for this season must be completed by 9/30/2011. The list of operator names w/ associated UIC Class I (non-hazardous) Wells are provided above.

Operators are aware of the MIT (30 min @ 300 psig or more w/ Bradenhead) requirement(s) that are typically run concurrently (usually before the FOT) with the FOT and more frequent where required.

The FOTs span several days with a couple of important notes to operators from past testing, please install your bottom hole gauge(s) with recorder(s) at least 48-hours in advance of the pump shut-off during the steady-state injection period. Also, you are accountable for your OCD approved FOT Test Plan and the requirements in the UIC Test Guidance at <http://www.emnrd.state.nm.us/oed/documents/UICGuidance.pdf>.

You may access your well information on OCD Online either by API# and/or Permit Number at <http://oedimage.emnrd.state.nm.us/imaging/AEOrderCriteria.aspx> and <http://www.emnrd.state.nm.us/OCD/OCDPermitting/Data/Wells.aspx>. For information on New Mexico's UIC Program and training information, please go to: <http://www.emnrd.state.nm.us/oed/Publications.htm>.

Please contact me at (505) 476-3490 on or before June 30, 2011 to schedule your preferred MIT and FOT date and time. I will work to finalize the witness schedule with each of you. Thank you in advance for your cooperation.

File: Class I (non-hazardous) Well Files UICI- 5, 8, 8-0, 8-1 & 9

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, September 14, 2010 4:08 PM
To: 'Moore, Darrell'; Dade, Randy, EMNRD
Cc: Lackey, Johnny; Ironmonger, Byron; Swafford, Ricky; Whatley, Michael; Brooks, David K., EMNRD; Jones, William V., EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: Fall Off Test

Darrell, et al.:

OCD agreed to allow Navajo to proceed with its most recently proposed test plan procedure, which if successfully implemented, OCD may approve the test procedure proposed in the future. OCD does not know yet whether you will stressed the formation enough to provide for meaningful results and to pulse the formation adequately to determine whether there is connection by all three wells into the injection zone.

The OCD will rely on your results to see if you test plan is feasible. Good luck. Thank you.

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(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Tuesday, September 14, 2010 3:57 PM
To: Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Lackey, Johnny; Ironmonger, Byron; Swafford, Ricky; Whatley, Michael
Subject: Fall Off Test

Carl and Randy

On September 21, 2010 at about 8 am we will begin the Fall Off Test on the Chukka (WWD-2) for Navajo Refining Company. I have attached the procedure with times that OCD approved. If OCD would like to witness we would be glad to have you.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

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Chavez, Carl J, EMNRD

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To: Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Lackey, Johnny; Ironmonger, Byron; Swafford, Ricky; Whatley, Michael
Subject: Fall Off Test
Attachments: Procedure for Testing Chukka Well No 2 (7).doc

Carl and Randy

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Darrell Moore
Environmental Manager for Water and Waste
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Procedure for Testing Well #2 (Chukka)

September 10, 2010

Monday, September 20, 2010

Travel to Artesia, NM (Rusty Smith)

Tuesday, September 21, 2010

1. Install bottom hole memory gauges in all three wells and continue normal injection for 48 hours. Gauges need to be in wells by 11:45 am. Install surface pressure recorder on Chukka Well No. 2. Gauges to be set at the top of the perforations in all three wells as follows;

Mewbourne Well No. 1	7924 feet
Chukka Well No. 2	7570 feet
Gaines Well No. 3	7660 feet

Wednesday, September 22, 2010

Continue normal injection into the wells. Subsurface personnel will return to Houston.

Thursday, September 23, 2010

2. On September 16, 2010 at 12:15 pm, Navajo personnel will shut in offset wells, Mewbourne Well No. 1 and Gaines Well No 3 and start the 30 hour injection period for Chukka Well No. 2. Navajo Refining is to maintain a constant injection rate into the Chukka Well No. 2 for a minimum of 30 hours prior to shutting in the well. The 30 hours was the agreed upon by the OCD and Navajo in the approved test plan.
3. The rate should be constant during the 30 hour injection period this might be best accomplished by opening the pipe line and wellhead valves wide open allowing full flow to the well. Record the rate and wellhead pressure in the control room on a minimum of 15 second intervals during the injection period. Do not exceed 1000 psig wellhead pressure.
4. Plant personnel will record rate, volume, and pressure during the injection period for all wells to confirm that a constant pre-falloff injection rate is maintained.
5. Collect a grab sample of the injection fluid every 10 hours; analyze the fluid for pH and Specific Gravity.



Friday, September 24, 2010

6. Subsurface Personnel to travel to Artesia, NM. (Larry McDonald)
7. On September 17, 2010 at 7:00 pm Navajo personnel will shut in Chukka Well No. 2 for the 30 hour falloff period. Mewbourne Well No.1 and Gaines Well No. 3 will remain shut-in during the 30 hour falloff period.

Saturday, September 25, 2010

8. Leave all three wells shut in and continue to monitor falloff pressures in all three wells.

Sunday, September 26, 2010

9. On September 19, 2010 at 6:30 am acquire down hole pressure memory gauges from all three wells.
10. Tag bottom of fill and make 7 minute gradient stop while coming out of Chukka Well No. 2 every 1000 feet (7000 ft, 6000 ft, 5000 ft, 4000 ft, 3000 ft, 2000 ft, 1000 ft, Surface).
11. Turn well over to Navajo personnel. Subsurface personnel to travel to Houston, TX.



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11. Turn well over to Navajo personnel. Subsurface personnel to travel to Houston, TX.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, August 24, 2010 9:08 AM
To: Dade, Randy, EMNRD
Cc: 'Moore, Darrell'; Lackey, Johnny; Rusty Smith
Subject: FW: Navajo Refining Company (UICI-8; UICI-8-1 & UICI-8-0) Annual Fall-Off Test (FOT) Electronic Test Data Request Work Plan & OCD Clarifications

FYI, in case OCD Artesia is available to witness important aspects of a fall-off test. I am copying Navajo Refining Company (NRC) so they are aware of OCD aspects and/or concerns associated with their FOT and recent work plan submittal for the upcoming FOTs. I think we will have to wait and see how this year's annual FOT results go on these wells to make a final determination of whether it will be approvable for next year and beyond.

The annual FOT for WDWs 1, 2 and 3 will begin one well per month in September 2010 and end in November 2010. Some important aspects of the tests to observe or witness are bottom hole gauge installation at least 48 hours in advance of well shut-in; the period prior to injection shut-in and FOT monitoring for confirmation that a steady-state injection rate condition was achieved (NRC should be monitoring T,P&Q during the 48 hrs. leading up to FOT monitoring); instant or quick shut-off of flow into the well was achieved; and to observe bottom-hole pressure differential after shut-off. If steady-state injection is not achieved coupled with instant shut-off, the test results may be compromised. In addition, there should be some noticeable fall-off in pressure in the injection zone and OCD has required at least 3 days of monitoring to see the pressure fall off. NRC maintains that they need about 24 hours to show the pressure drop off, and this may be acceptable, but we will have to see the test results. There is concern that they may not be creating the pressure buildup necessary to create a pressure differential that will adequately characterize the characteristics of the injection zone, and NRC has formulated some flow rates per well that should create the pressure buildup needed to be consistent and/or comparable with past FOTs.

There are a couple of concerns identified in the FOT work plan (work plan) that I am copying Navajo Refining Company (NRC) so they are aware. The concerns are:

- 1) A steady-state injection condition must be achieved in advance of system shut-off and FOT monitoring. The shut-off should also be instantaneous or quick. Bottom hole temperature, pressure and flow rates should be recorded for 48 hours before shut-in of injection to the well.
- 2) On page 9 of the work plan, the goal is **NOT** to achieve a pressure differential of 100 psi before and after injection shut-in, but OCD uses this rule of thumb for an over pressured injection zone condition if the pressure differential approaches just 100 psi. Therefore, NRC's flow rates in the work plan must create sufficient pressure buildup in the injection zone to allow FOT monitoring to record true injection zone characteristics. In past FOT monitoring, there has been a significant pressure differential realized indicating the injection zone has good porosity, transmissibility, etc.
- 3) NRC must ensure that it submits C-103s for all work performed on each of its disposal wells, i.e., Page 11 No. 10 in the work plan indicates that NRC performed acid stimulation on WDWs 1, 2, and 3. It must also submit C-103s for each well it performs work to for final OCD approvals of their FOTs.
- 4) Page 12 No. 15 of the work plan seems to indicate that NRC's goal is to achieve a pressure differential at FOT monitoring of about 100 psi. Again, per No. 2 above, this is not the goal. We should see a significant pressure drop over the FOT monitoring period, and if it is not consistent with past FOT monitoring results, then NRC's request for a shorter FOT monitoring period may fail in providing true injection zone characteristics.

Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
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Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Tuesday, August 10, 2010 8:21 AM
To: 'Moore, Darrell'
Cc: Lackey, Johnny; 'Ken Davis'; Rusty Smith; Jones, William V., EMNRD
Subject: RE: Annual Fall-Off Test Electronic Test Data Request

Darrell:

Approved. Let's get the tests wrapped up in November 2010 and let OCD know when you want to run the pulse tests for the proposed one well fall-off test to be performed annually consideration for approval. Also, you will need to submit a C-103 and reference your approved fall-off test plan.

One important note is that OCD wants the bottom hole gauges installed a minimum of 48 hours in advance of fall-off test monitoring. We want pressure and flow rate data to verify that a steady-state injection condition was reached and also for the software evaluation. I think I shared this with you recently on things OCD noticed last year on the fall-off test.

Please contact me if you have questions. Thank you.

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From: Moore, Darrell [<mailto:Darrell.Moore@hollycorp.com>]
Sent: Tuesday, August 10, 2010 8:09 AM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; 'Ken Davis'; Rusty Smith
Subject: RE: Annual Fall-Off Test Electronic Test Data Request

Carl

We are scheduling the fall off tests in September, October and November...much like last year. One well each month. The procedure we Fed-Exed you last week is our preferred plan of action. We are waiting for OCD's approval of that plan to finalize the timing of the tests. The electronic data on CD will be no problem.

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Tuesday, August 10, 2010 6:20 AM
To: Moore, Darrell
Cc: Lackey, Johnny
Subject: Annual Fall-Off Test Electronic Test Data Request

Darrell:

Good morning. Similar to last year's fall-off test and electronic data submittal, OCD needs the CD with the electronic data for our software evaluation from this year's test.

Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
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(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [<mailto:Darrell.Moore@hollycorp.com>]
Sent: Tuesday, August 10, 2010 8:09 AM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; 'Ken Davis'; Rusty Smith
Subject: RE: Annual Fall-Off Test Electronic Test Data Request

Carl

We are scheduling the fall off tests in September, October and November...much like last year. One well each month. The procedure we Fed-Exed you last week is our preferred plan of action. We are waiting for OCD's approval of that plan to finalize the timing of the tests. The electronic data on CD will be no problem.

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Tuesday, August 10, 2010 6:20 AM
To: Moore, Darrell
Cc: Lackey, Johnny
Subject: Annual Fall-Off Test Electronic Test Data Request

Darrell:

Good morning. Similar to last year's fall-off test and electronic data submittal, OCD needs the CD with the electronic data for our software evaluation from this year's test.

Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.

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August 4, 2010

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr.,
Santa Fe, New Mexico 87505

**RE: REVISED PRESSURE FALL-OFF PLAN
NAVAJO REFINING COMPANY, LLC
WASTE DISPOSAL WELLS NO'S 1, 2 AND 3**

Dear Carl,

Attached are two explanations for the proposed revisions to Navajo's 2010 Pressure Fall Off (PFO) testing procedure for OCD approval. The first is a proposed Table of Contents formatted to follow the OCD December 3, 2007 guidance and is a combination of the 2009 procedures with some of the 2010 revisions included. The second Table of Contents is the changes made to the 2009 procedure.

We realize that these documents are very repetitive, but it was our understanding that they needed to be "stand alone" documents. Generally, we have shortened the shut-in period to 30 hours. Previous tests indicate that data beyond that time is useless (we have reached radial flow before 30 hours of testing).

In the past, attempts have been made to show communication between the wells which have been unsuccessful due to reservoir pressure stability. As a result of the PFO testing done in 2008, it appears that wells 2 and 3 may be in communication to some degree. To show communication between the wells, we have suggested that pulse interference testing be completed on all three wells at some time during the next year.

To show that the wells are hydraulically connected, it is proposed that each well be isolated and pulse interference tests be completed between the wells. This is to be accomplished by shutting in all three wells for a 72 hour period and placing bottom hole pressure gauges in each well. At the end of the 72 hour period, initiate injection at the highest rate possible into the closest offset well for a period of four (4) hours and shut the

well in for four (4) hours. The offset injection well should have this cycle repeated a minimum of three times.

The proposed procedure would have bottomhole pressure gauges in all three wells. After the 72 hour shut-in period, injection would commence on the number 3 well for a period of four (4) hours and then be shut in for four (4) hours. Repeat the injection/shut-in process two more cycles for a total of three injection/shut-in periods. Repeat this injection process on the number 2 well and then repeat this same cycle on the number 1 well. We would then pull all gauges and analyze the pressure data.

If the analysis shows strong pressure communication between the wells it will be proposed that falloff testing be completed on one well per year with an interference test being completed at the end of the falloff testing. The interference test at the end of the falloff testing will show that the wells continue to stay in communication. Further, the falloff data will represent the reservoir parameters as they exist throughout the reservoir from well to well. This would eliminate the need to test each well individually to obtain the reservoir data allowing the required annual reservoir data to be collected at one well rather than three.

Past attempts to analyze the interference pressure data were unsuccessful in showing a strong hydraulic pressure communication between the wells. The pressure data had a considerable amount of noise in the data. It is believed that it is the result of the reservoir not having fully stabilized prior to initializing the pulse testing. The above procedure may allow the reservoir to stabilize prior to starting a hard pressure pulse throughout the reservoir.

Upon OCD approval, we will implement the proposed testing schedule. It is our intent to perform these tests in September, October and November 2010. One well each month.

Sincerely,

NAVAJO REFINING COMPANY, LLC



Darrell Moore
Environmental Manager for Water and Waste

Encl:

**New Mexico Oil Conservation Division
UIC Class I Well Fall-Off Test Guidance
(December 3, 2007)**

**REVISED 2010 TESTING PROCEDURE
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**Development and Implementation of a Pressure Fall-Off Test Plan for Navajo
Refining Waste Disposal Wells 1 (Mewbourne), 2 (Chukka), and 3 (Gaines)**

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EXHIBITS

EXHIBIT 1: 2009 Annual Falloff Test Results
EXHIBIT 2: Petroleum Refining Waste Analysis
EXHIBIT 3: 2009 Annual Report
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Table IX
Appendix J

EXHIBIT 4: Well Schematics
Well No. 1 (Mewbourne)
Well No. 2 (Chukka)
Well No. 3 (Gaines)

EXHIBIT 5: Historical Data 2008 and 2009 Falloff Test Results
Well No. 1 (Mewbourne)
Well No. 2 (Chukka)
Well No. 3 (Gaines)

New Mexico Oil Conservation Division

UIC Class I Well Fall-Off Test Guidance

Why does a fall-off test need to be performed?

From New Mexico Oil Conservation Division (OCD) Guidance Document.

Fall-off testing is a pressure transient test conducted on injection well formations to assess individual well conditions. The test provides the state regulatory agency with the necessary information to assess the validity of requested or existing injection well permit conditions and satisfy the permitting objective of protecting underground sources of drinking water (USDW). The test may also provide information about reservoir and completion characteristics such as transmissibility, skin factor, bottom-hole injection pressure, reservoir static pressure, and geologic boundaries.

In addition to the state UIC regulatory requirements, Federal UIC regulations in 40 CFR Part 146 have monitoring requirements applying to both Class I hazardous and nonhazardous injection wells that include annual fall-off testing. Specifically, Part 146 regulations state "the Director shall require monitoring of the pressure build up in the injection zone annually, including at a minimum, a shutdown of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve" (§146.13 (Non-hazardous)/§ 146.68 (Hazardous). In the case of Class II wells, the regulations may not directly require that a fall-off test be conducted, but under 40 CFR 146.8(f), EPA or the state agency delegated UIC Class II program primacy can require additional testing such as a fall-off test on individual injection wells to ensure protection of USDW's.

Essentials of Fall-Off (PFO) Testing.

From New Mexico Oil Conservation Division (OCD) Guidance Document.

A fall-off test is a pressure transient test involving shutting in an injection well and measuring the wellbore pressure decline versus time after radial flow conditions are achieved and well established in the preceding injection period. It is analyzed using the same pressure transient techniques for oil and gas well pressure build up and drawdown tests. The fall-off period is a replay of the preceding injection period, but is typically less noisy since no injection occurs while the well's pressure change is measured, similar to the pressure build up period in a production well.

Fall-off test data analysis can provide valuable information about both the condition of the wellbore itself and the nature of the reservoir the well injects into. For example, the skin factor parameter obtained from a fall-off test analysis can indicate whether completion damage exists and provide justification for a well stimulation or remedial treatment. The signature of the derivative may also provide insight into the well's completion, for example a negative half slope indicating spherical flow may be caused from wellbore fill or the well's completion. A properly designed fall-off may also provide

information about natural fractures or geologic boundaries in the reservoir. The test analysis provides a determination of reservoir transmissibility which can be utilized to predict the relationship between reservoir pressure and injection rate, critical to designing appropriate UIC permit conditions. Recommended published technical references on fall-off testing methodology include Society of Petroleum Engineers (SPE) Monographs Volumes 1 and 5 as well as SPE Textbook Series Volumes 1 and 9.

For more detailed information about the basis, recommended calculations, and procedures for fall-off tests, the reader is referred to the US EPA internet URLs provided below:

USEPA Fall-Off Test Course

<http://www.epa.gov/safewater/dwa/electronic/presentations/uic/2003nutsbolts-notebook.pdf>

EPA Region 6 Fall-off Guidelines

<http://www.epa.gov/region6/water/swp/uic/guideline.pdf>

OCD UIC FALL-OFF TEST GUIDANCE

SECTION I – Purpose

The purpose of a fall-off test is to identify injection interval or wellbore problems and injection interval characteristics. The permittee is responsible for developing a testing procedure which will generate adequate data for a meaningful analysis.

SECTION II - Regulatory Citation

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the OCD UIC Permit requires monitoring of the pressure build up in the injection zone at least annually, including at a minimum, shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off. This test is known as the formation pressure fall-off test.

According to the above statement "Permit requires monitoring of the pressure build up in the injection zone at least annually, including at a minimum, shut down of the well for **a time sufficient to conduct a valid observation of the pressure fall-off.**" Historical data shows that a 30 hour shut down time is sufficient to conduct a valid observation of the pressure falloff. This can be seen in the historical data acquired from the 2008 and 2009 falloff test data (Exhibits 1 and 5). Any data obtained after 30 hours was inconclusive in determining the reservoir parameters and the flow regime beyond 30 hours could not be identified.

SECTION III - Developing a Test Plan

A plan for conducting the test shall be submitted to OCD for review and approval prior to conducting the test. Plan approval shall be obtained from OCD prior to commencing the test. The plan shall include a proposed schedule. The test plan must address all items listed in the Sections V through IX of this document.

The Test Plan addresses these requirements and includes the requirements of Section V through IX below.

Proposed Procedure Considerations

The following is a proposed test procedure for Well No. 1 (Mewbourne), Well No. 2 (Chukka), and Well No. 3 (Gaines). The volumes and rates were determined from historical data collected during the previous fall-off testing. The rates, wellhead pressures, and bottom-hole pressure will be recorded throughout the procedure. An analysis will be completed using Pan System © software. An estimate of the tank volumes associated with the injection/fall-off periods are included at the end of the procedure. The reports for each well will be constructed according to Section IX in this test plan. All other considerations have been addressed in the following Sections, IV through IX.

Procedure

1. Navajo Refining is to maintain a constant injection rate into the disposal well for a minimum of 24 hours prior to testing. The approximate anticipated rates for each well are:

Well No. 1 (Mewbourne)	maximum of 260 gpm (8,914 bpd)
Volume injected 30 hours	11,143 bbls;
Well No. 2 (Chukka)	maximum of 175 gpm (6000 bpd)
Volume injected 30 hours	7,500 bbls;
Well No. 3 (Gaines)	maximum of 300 gpm (10,286 bpd)
Volume injected 30 hours	15,000 bbls.

The injection period used for the determination of the total volume of fluid needed for the injection portion of the testing was 30 hours. The volume is determined from the time it takes to reach radial flow in the reservoir brine as a function of radius of investigation.

These rates are based on historical information gathered after an acid stimulation and after the completion of the wells. The rates are estimates based on averages. The initial well system consisted of two wells and a third was added in 2007.

The waste fluid will be used during the testing. Samples of the waste fluid should be gathered periodically for viscosity and density determination. Injection rates, pressure, and time will be recorded and submitted to Subsurface for the fall-off analysis. The viscosity and density data should be included. If necessary, the flow rate will be controlled at the wing valve. The general procedure is to open the wing valve wide open and let the pump pressure control the flow rate. This will maximize the flow to the well at a steady rate with only one well open in the 3-well system.

Adequate waste storage has been accounted for using the storage tank located at the refinery. The tank holds 65,000 barrels. The working volume of the tank is 85% of the total capacity. Tank bottom is calculated at 18 % of the total capacity of the tank. The initial volume for the tank prior to starting the testing was calculated as follows:

Well No. 1 (Mewbourne)

Total Waste Fluid Gain for the Test Period	35,486 bbls
Total Waste Fluid Loss to Well No. 1 for the Test Period	11,143 bbls
Total Waste Fluid Generated	46,629 bbls
Initial Tank Volume Tank 1 (65,000 bbls)	12,000 bbls
Final Tank Volume Tank 1 (65,000 bbls)	48,500 bbls

Well No. 2 (Chukka)

Total Waste Fluid Gain for the Test Period	39,129 bbls
Total Waste Fluid Loss to Well No. 2 for the Test Period	7,500 bbls
Total Waste Fluid Generated	46,629 bbls
Initial Tank Volume Tank 1 (65,000 bbls)	12,000 bbls
Final Tank Volume Tank 1 (65,000 bbls)	48,500 bbls

Well No. 3 (Gaines)

Total Waste Fluid Gain for the Test Period	33,771 bbls
Total Waste Fluid Loss to Well No. 3 for the Test Period	12,857 bbls
Total Waste Fluid Generated	46,628 bbls
Initial Tank Volume Tank 1 (65,000 bbls)	12,000 bbls
Final Tank Volume Tank 1 (65,000 bbls)	47,000 bbls

The general procedure for testing each individual well is to inject into the test well for a period of 30 hours, with the two offset wells shut-in. Following the 30-hour injection period, the test well will be shut-in and the pressure fall-off monitored for 30 hours. The two offset Navajo wells will remain shut-in during the fall-off portion of the testing.

Confirmation of the injection rate and volumes will be provided by the continuous monitoring system at the plant. The plant has the ability to continuously monitor flow rates, wellhead pressures, annulus pressures, filter pod differential pressures, line pressures, and tank levels. Pressures and temperatures will be confirmed via data memory logging gauges. The recording time on the gauges will be set at minimum of 10-second intervals. The surface pressure gauge data can be downloaded to ascertain the status of the fall-off testing at any time during the fall-off segment of the procedure. The surface pressure memory gauge will be attached to a tee just above the crown valve.

2. Install a 5000 psi digital quartz memory pressure gauge on the wellhead. Lower tandem 8000 psi sapphire memory gauges into the wellbore and tag fill. Pull the bottom hole memory gauges up to the top of the perforations. Correlate depths to the wellhead at ground level to kelly bushing height as the reference depth. The top of the perforations for each well are as follows:

Well No. 1 (Mewbourne):	7924 feet RKB;
Well No. 2 (Chukka):	7570 feet RKB;
Well No. 3 (Gaines):	7660 feet RKB.

Monitor injection pressure for one hour after placement to stabilize the gauge. Be sure to sync the time on the gauges to each other and calibrate to the monitoring computer time. Discontinue injection into the test well and block the well in near the wellhead with the wing valve and the motorized gate valve. The well should be blocked in as quickly as possible without creating water hammer effect in the wellbore.

Each wellhead consists of a crown valve, wing valve, and master valve. The crown valves on Well No. 1 and Well No. 2 are two inch ball valves and the crown valve on Well No. 3 is a four inch gate valve. The wells will be shut-in via the four inch wing valves and the motorized gate valves.

3. Monitor the pressure fall-off for minimum of 24 hours. The testing fall-off segment was extended to include a full 30-hour fall-off period for conservative reasons. The 30 hour injection/falloff period was determined based on data collected during the 2008 and 2009 falloff testing. The 2008 and 2009 falloff data clearly shows that radial flow has been reached by the end of the 30 hour period and any data collected after the 30 hour period was inconclusive in determining the reservoir parameters (Exhibit 5).
4. At the end of the fall-off period, discontinue the pressure fall-off test. Tag the bottom of the fill and pull out of the wellbore, with the downhole surface read out and memory gauges making gradient stops every 1000 feet to surface.

The following schedule is proposed after approval of test plan:

Testing of Well No. 3 (Gaines) on the third week of August, 2010;
Testing of Well No. 2 (Chukka) on the third week of September 2010;
Testing of Well No. 1 (Mewbourne) on the third week of October 2010.

Testing Rates

The estimated maximum rates into each test well are as follows:

Well No. 1 (Mewbourne) 260 gpm (8,914 bpd)
Well No. 2 (Chukka) 175 gpm (6000 bpd)
Well No. 3 (Gaines) 300 gpm (10,286 bpd)

This assumes the maximum pressure is 785 psig at the wellhead and can be maintained for 30 hours, and the total generated waste fluid flow rate from the plant processes is 510 gpm. Using the holding tank at the plant, the proposed schedules are based on starting tank volumes as described below.

It is assumed the working capacities of the tanks are 85% of their total capacities. Tank 1 has a total capacity of 65,000 bbls and a working capacity of 55,250 bbls. It is also assumed that the minimum volume for Tank 1 is 11,700 bbls or 18% of its capacity. All calculations were based on the 85% operating capacity of each tank using minimum volume levels.

Well No. 1 (Mewbourne)

The general procedure for testing Well No. 1 would be to inject into Well No. 1 for a period of 30 hours with Well No. 2 and Well No. 3 shut-in. Following the 30 hour injection period Well No. 1 will be shut-in for 30 hours with Well No. 2 and Well No. 3 shut-in. In the first 30 hours, only one well will be operating at its full rate, for the next 30 hours all three wells will be shut-in. The excess volume generated by the plant will be stored in the holding tank at the plant.

Estimated Well Test Rates

HOURS	24	6	24	10
Well 1 Mewbourne Test Rates (gpm)	280	280	0	0
Well 2 Chukka Test Rates (gpm)	0	0	0	0
Well 3 Gaines Test Rates (gpm)	0	0	0	0

Total Waste Fluid Gain for the Test Period	35,486 bbls
Total Waste Fluid Loss to Well No. 1 for the Test Period	11,143 bbls
Total Waste Fluid Generated	46,629 bbls

Well No. 2 (Chukka)

The general procedure for testing Well No. 2 would be to inject into Well No. 2 for a period of 30 hours, with Well No. 1 and Well No. 3 shut-in. Following the 30 hour injection period, Well No. 2 will be shut-in for 30 hours, with Well No. 1 and Well No. 3 shut-in. For the first 30 hours, only one well will be operating at its full rate. For the next 30 hours, all 3 wells will be shut-in. The excess volume generated by the plant will be stored in the holding tank at the plant.

HOURS	24	6	24	10
Well 1 Mewbourne Test Rates (gpm)	0	0	0	0
Well 2 Chukka Test Rates (gpm)	175	175	0	0
Well 3 Gaines Test Rates (gpm)	0	0	0	0

Total Waste Fluid Gain for the Test Period	39,129 bbls
Total Waste Fluid Loss to Well No. 2 for the Test Period	7,500 bbls
Total Waste Fluid	46,629 bbls

Well No. 3 (Gaines)

The general procedure for testing Well No. 3 would be to inject into Well No. 3 for a period of 30 hours with Well No. 1 and Well No. 2 shut-in. Following the 30 hour injection period, Well No. 3 will be shut-in for 30 hours, with Well No. 1 and Well No. 2 shut-in. For the first 30 hours, only one well will be operating at its full rate. For the next 30 hours all 3 wells will be shut-in. The excess volume generated by the plant will be stored in the holding tank at the plant.

HOURS	24	6	24	10
Well 1 Mewbourne Test Rates (gpm)	0	0	0	0
Well 2 Chukka Test Rates (gpm)	0	0	0	0
Well 3 Gaines Test Rates (gpm)	300	300	0	0

Total Waste Fluid Gain for the Test Period	33,771 bbls
Total Waste Fluid Loss to Well No. 3 for the Test Period	12,857 bbls
Total Waste Fluid	46,628 bbls

SECTION IV - Scheduling of Test and Report

The schedule for the test must be mutually agreed upon between OCD and the permittee so that OCD has the opportunity to witness the test. The operator should submit a summary report to OCD within 30 days of test completion.

It is currently estimated that the Test Plan will be submitted to OCD for approval during July 2010. Subsequently, after approval, the field work will be performed in August, September, and October. The report will be submitted 30 days thereafter for each individual well.

SECTION V - General Test Operational Considerations

A successful fall-off test involves consideration of numerous factors of which most are under the control of the permittee. These include but are not limited to the following:

1. Confirmation of a constant injection rate can be maintained in the test well during the injectivity portion of the test.

The injection rate of the injectate fluid will be maintained by throttling the flow with the wellhead wing valves and nearby injectate flow line valves, or other control system.

2. The injection rate is sufficient to produce a measurable pressure build up that will result in valid test data.

These injection rates or equivalent conditions will be maintained to insure a 100 psi pressure differential. Historically, the reservoir has produced greater than 100 psi on previous testing after the maximum injection rate has been achieved.

3. Consideration for using the normal waste liquid during the injectivity portion of the test, unless the waste will be corrosive to the down-hole pressure gauge.

The normal injectate will be maintained throughout the test period.

4. Calculating the total volume of injection fluid needed for the injectivity portion of the test.

- a. Arrange for additional fluids and storage of such fluid.

It is not anticipated any additional fluids, other than the liquid waste injectate, will be needed.

- b. Reduce the injection rate to reduce the total fluid requirement.

Every effort will be made to maintain the injection rate required for a successful pressure fall-off test as well as the disposal rate required to maintain refinery operation. (see procedure)

5. Sustaining a constant injection rate after installing the pressure gauges to allow stabilization of the gauges prior to initiating the fall-off test. A three day period is recommended, but adjustments may be made because rates have previously been stabilized or historical test results indicate a lesser time is adequate.

A constant injection rate will be maintained throughout the required 30-hour build up period. Historical, for the 2008 and 2009 falloff testing 30 hours is sufficient time to adequately perform a falloff analysis of the reservoir. In Exhibit 5 the 2008 and 2009 falloff test show that the data obtained after the 30 hour period was inconclusive in determining reservoir parameters.

6. Ensuring adequate waste storage is available for the duration of the fall-off test.

The need for additional storage is not anticipated at the well site. The refinery facility storage tank will be used; one tank at 65,000 bbls.

7. Shutting in offset wells completed in the same formation as the test well prior to the test. If impractical, then maintaining stable measured injection rates into the offset injection wells prior to and during the fall-off test.

We plan to inject into one well at a constant rate for the 30 hours build up period. After the 30 hour period, all 3 wells will be shut-in for the 30 hour pressure fall-off period. However, if this method is not feasible, it will be necessary to maintain constant injection rates into the offset injection wells during each of the PFO Tests on WDW-1, 2 & 3. This will allow us to maintain constant injection rates into WDW-1 & 2 when WDW-3 is shut-in, constant injection rates into WDW-2 & 3 when WDW-1 is shut-in and constant injection rates into WDW-1 & 3 when WDW-2 is shut-in.

8. Installing a crown valve on the well prior to starting the injectivity portion of the test so the well does not have to be shut-in to install the pressure gauges. Running both memory gauges in the hole through a lubricator installed into the crown valve for safety.

All three wells have crown valves.

9. Locating the shut-in valve, ceasing flow to the well at or near the wellhead to minimize the wellbore storage in the well. Shut-in must be accomplished as instantaneously as possible to prevent erratic pressure behavior during the shut-in caused by the rate fluctuations.

All three wells have wing valves or nearby injectate flow line valves that will be used to shut-in each well for the required PFO Test period. If necessary, other controllers will be implemented from the control room.

10. Evaluating the condition of the well, including wellbore fill, junk in the hole or wellbore damage, which may increase the length of shut-in time needed for the well to obtain a valid fall-off test and therefore also necessitate a longer injectivity period.

All three wells were recently treated with a Coiled Tubing/HCl acid stimulation, utilizing a sonic pulse tool and found that there was no wellbore fill across the perforated interval.

11. Using a surface readout down-hole pressure gauge and tandem down-hole memory electronic pressure gauges, one of which is surface readout capable, with a pressure resolution level of 0.0002% of the gauge's full pressure range. Gauge pressure range should exceed the maximum pressure expected during the testing with the larger the percentage of the gauge pressure range utilized, the better.

The previously approved memory gauges used on these wells were sapphire gauges with an accuracy of 0.025% full scale (FS) or 0.01% of the reading and will have a resolution of 0.0003%. The pressure range of the gauges is from 0-10,000 psi. This gauge is a typical bottom-hole memory gauge with the best accuracy available in the area.

12. Maintaining a test operations log throughout the fall-off test and submitting the log as part of the test report. The log should list all key test events, dates, and times. For example, the time the gauges were activated, run in the well and placed on bottom as well their setting depths. Synchronization of times and events is especially important in tests involving multiple wells.

A field supervisor will be present throughout the testing period and all operating system control room monitors will be active and creating the aforementioned log.

13. If available, monitoring test progress with appropriate plots at the well site to insure valid test data is obtained and problematic tests can be identified and aborted.

Where applicable, this requirement will be implemented. A surface pressure logging gauge will be installed on the wellhead.

14. Configuring the test gauges to obtain pressure data more frequently in the early portion of the test when the rate of pressure decline is greater, if the memory capacity of the gauge is limited. Memory capacity of the gauge should allow for a 10-day total recording time interval, unless a shorter test time is sufficient based on prior testing or appropriate test design calculations. Larger time increments may be used to obtain data later in the test when the rate of pressure decline is less. The recording frequency of the gauges and overall length of test should be set based on results of previous tests or test design calculations.

Based on previous testing, a 10-second to 15-second interval will be adequate.

15. Using the injection facility pump if capable of maintaining a constant injection rate at the desired pre-fall-off test rate. If an alternate pump is needed, design the pump to operate as smoothly as possible at the desired constant rate. If feasible, design the test for a constant injection rate to cause a minimum of 100 psi differential pressure between the final injection and shut-in pressures.

The injection facility pump will be used to maintain the appropriate injection rate and differential pressure requirement.

SECTION VI. Background Information

Acquisition of the following information is recommended for the planning, design, and analysis of the fall-off test.

1. Current wellbore schematic (Exhibit 4)

- a. Size and type of injection tubing (include type of internal coating, if applicable)

- Well No. 1: 4 ½", 11.6 lb/ft, N-80, SMLS, R3, LT&C, set at 7,879'
- Well No. 2: 3 ½", 9.2 lb/ft, J-55, SMLS, NUE 10 rd, set at 7,528'
- Well No. 3: 4 ½", 11.6 lb/ft, J-55, LT&C, set at 7,575'

- b. Packer depth

- Well No. 1: 7,879'
- Well No. 2: 7,528'
- Well No. 3: 7,575'

c. Tubing length including the depth of any seating or profile nipples, and the last date tubing was run. When tubing was originally installed.

- Well No. 1: 7879'
- Well No. 2: 7528'
- Well No. 3: 7575'

d. Size, type, and depth of casings

- Well No. 1: Surface Casing-13 3/8", 48 lb/ft, J-55, ST&C, set at 390'
Intermediate Casing-9 5/8", 36 lb/ft, J-55, ST&C, set at 2,555'
Protection Casing-7", 29 lb/ft, N-80, LT&C: 9094' to 7031'; 7",
29 lb/ft, P-110, LT&C: 7031' to 5845'; 7", 26 lb/ft, P-110,
LT&C: 5845" to surface
- Well No. 2: Surface Casing-8 5/8", 32 lb/ft, set at 1,995'
Protection Casing-5 1/2", 17 lb/ft, L-80, LT&C: 8869' to surface
- Well No. 3: Surface Casing-13 3/8" at 400'
Intermediate Casing-9 5/8" at 2,600'
Protection Casin-7" at 9450', 26lb/ft, & 29 lb/ft

e. Cement tops with method of determining the top of cement

- Well No. 1: On July 12, 1998, 9 5/8" protection casing was set from 2548' to the surface. It was confirmed that a continuous column of cement with good bonding characteristics behind the 9 5/8" protection casing from 2548' to 400'. The hydraulic coupling was lost above 400' and the tool would not respond.

Exhibit 3.3.1-2 shows the intermediate casing at 9 5/8", 36 lb/ft, J-55, was set in a 12 1/4" open hole at 2,555' and cemented to the surface with 800 sacks of Class C Lite containing 1/2 lb/sack flocele, 2 lb/sack Gilsonite and 12% salt, followed by 200 sacks of Class C containing 2% Calcium Chloride. With 133 sacks of lead cement circulated to the surface, the volume of cement placed behind pipe approximated the estimated annular hole volume, which was based on an average hole diameter of 14-inches.

On July 13, 1998 a cement bond log was run from 2548' to 580'. The log indicated an apparent cement compressive strength of 4,300 psi and bond index calculations ranged from 25% to 100% and averaged 72%.

- Well No. 2: On May 9, 1999, a bond log was performed within the 9 5/8" protection casing from 1910 feet to the surface. It was confirmed that a continuous column of cement with good bonding characteristics behind the 9 5/8" protection casing from 1910' to 116'. The hydraulic coupling was lost above 400' and the tool would not respond.

Exhibit 2.2-2 shows the 8 5/8" surface casing was originally set in an 11-inch open hole to a depth of 1955' (KB) and cemented to surface using 700 sacks of Class 'H' cement with 2% gel and 100 sacks of Class 'H' neat. A total of 200 sacks of cement were recorded circulated to surface. The calculated volume between an 11' hole and 8 5/8" casing is (0.2407 cubic feet per foot X 1955 feet) 471 cubic feet. The volume of cement pumped is (1.18 cubic feet per sack X 800 sacks) 944 cubic feet for an excess of 473 cubic feet or 400 sacks circulated to surface. The calculated volume of cement and apparent volume of actual cement pumped indicated excess cement was circulated to surface. (Re-entry and Completion report for Well No. 2)

- Well No. 3: On October 13, 2006, a CBL/VDL revealed cement had not been circulated to the surface behind the 7" protective casing, as was indicated in the state records. The TOC behind the 7" protective casing was located at 900' and the cement bond quality was poor down to 1200'. There were indications on the log that a micro annulus may be present from 2662' to 2160', from 4876' to 5372', and from 6750' to 7600'. The CBL indicated there was good bonding between the 7" casing and the cement to isolate the injection interval. (Re-entry and Completion report for Well No. 3)

f. Top and bottom perforation/completion depths including the size of perforation holes and date perforated

- Well No. 1: Upper Zone - 7924-7942', 7974-8030', 8050-8056', 8066-8080', 8118-8127', 8132-8140', 8160-8164', 8170-8188'.

Lower Zone - 8220-8254', 8260-8270', 8280-8302', 8360-8366', 8370-8378', 8400-8410', 8419-8423', 8430-8446', 8460-8464', 8470-8476'.

- Well No. 2: Zone 1 - 7570-7620', 7676-7736'
Zone 2 - 7826-7834', 7858-7800', 7886-7904', 7916-7936', 7944-7964', 7990-8042', 8096-8116', 8191-8201', 8304-8319', 8395-8399'.

- Well No. 3: Original Open Perforations – 7676-7698'
New Upper Perforations – 7660-8450'
New Lower Perforations – 8540-8620'
 - Average hole sizes are approximately ½-inch in diameter.
- g. Total depth, plug back depth, and the most recent depth to wellbore fill and date measured
- Well No. 1: TD-10,200', PBTD-9004', July 24, 1998 at 8470'-76'
 - Well No. 2: TD-10,372', PBTD-8770'
 - Well No. 3: TD-10,119', PBTD-9022'
- h. Location of the pressure measuring tool during the test
- Well No. 1: 7924'
 - Well No. 2: 7570'
 - Well No. 3: 7660'
2. Copy of an electric log encompassing the completed interval
- Exhibit 3 (Appendix J - 2008 Annual Report)
3. Copy of relevant portions of any porosity log used to estimate formation porosity
- Exhibit 3 (Figure: 2.0-2 – 2008 Annual Report)
4. PVT Data
- a. Estimation of formation fluid and reservoir rock compressibility
- $3.6 \times 10^{-6} \text{ 1/psi}$
- b. Formation fluid viscosity with reference temperature
- 0.72 cp at 112° F
- c. Formation fluid specific gravity/density with reference temperature
- 8.6 ppg at 112° F

This data may or may not be available since it will not exist for older wells when the regulations did not require it. When necessary, it will be estimated.

5. Injection fluids

- a. Description of fluids injected
 - b. Injection fluid specific gravity/density with reference temperature
 - c. Injection fluid compressibility
 - d. Injection fluid viscosity with reference temperature
- Petroleum Refinery Waste Analytical Data for all three wells (See Exhibit 4)

6. Daily rate history data for a minimum of one month preceding the fall-off test

The daily rate history will be provided with fall-off test report.

9. Cumulative injection into the formation from test well and offset wells

The total injection volumes for each well will be included in final reports.

8. Pressure gauges

- a. Description of the down-hole surface pressure readout or memory gauge

The memory gauges that will be used for each well are sapphire gauges with an accuracy of 0.025% full scale (FS) or 0.01% of the reading and will have a resolution of 0.0003% (FS). The pressure range of the gauges will be from 0-10,000 psi. These are typical bottom-hole memory gauges with the best accuracy available in the area. The gauges will be lowered to the top of the injection interval at 7924 feet in Mewbourne Well No. 1, 7820 feet in Chukka Well No. 2, and 7660 feet in Gaines Well No. 3. The recording period will be set to record pressures at a minimum of every 10 seconds.

- b. List the full range, accuracy and resolution of the gauges

- +/-0.025% F.S. + 0.01% of reading
- Will also provide a data specification sheet of gauges that were used to run the fall-off with each well report.

- c. A calibration certificate showing date the gauges were last calibrated

Current calibration certificates for the gauges used in each well will be provided with final reports.

9. One mile Area of Review (AOR)

- a. Identification of wells located within the one mile AOR

Exhibit 3 (Table VII)

- b. Ascertaining the status of wells within the one mile AOR

Exhibit 3 (Table IX)

- c. Providing details on any offset producers and injectors completed in the same injection interval

Area of Review (AOR) lists all wells. The only wells that will affect the PFO Test are Navajo's current injection wells. The wells will be referred to as offset wells. These wells and the controlled rates are referenced in the general procedure. A update to the AOR will be included in each well report.

10. Geology

- a. Description of the geologic environment of the injection interval

The proposed injection zones are porous carbonates of the lower portion of the Wolfcamp Formation and the Cisco and Canyon Formations. The Lower Wolfcamp is the shallowest porous unit in the proposed injection interval. The Wolfcamp Formation consists of light brown to tan, fine to medium-grained, fossiliferous limestone with variegated shale interbeds. The Cisco Formation of the Northwest Shelf is described as consisting of uniform, light-colored, chalky, fossiliferous limestone interbedded with variegated shales. Cisco, at the edge of the Permian basin, is also described as consisting of biothermal (mound) reefs composed of thick, porous, coarse-grained dolomites. Locally, the Cisco consists of porous dolomite that is 745 feet thick in the Chukka Well No. 2, 650 feet thick in Mewbourne Well No. 1, and 720 feet thick in Gaines Well No. 3.

The Canyon Formation consists of white to tan to light brown fine grained, chalky, fossiliferous limestone with gray and red shale interbeds.

In summary, permeability values in the injection zone from producing fields in the region range up to 200 md. However, based on test data for the Mewbourne Well No. 1, Chukka Well No. 2, and Gaines Well No. 3, permeability values as high as 2733 md or higher occur in intervals in the injection zone. All three share the same injection interval.

- b. Discussion on the presence of pinchouts, channels, and faults, if applicable.

N/A

- c. Providing a portion of a relevant structure map, if necessary.

N/A

SECTION VII. Conducting the Fall-off Test

The following are recommended procedures for conducting the fall-off test. Alternative procedures that will produce valid test results and satisfy the requirements of OCD and the regulations will be considered by the OCD.

We anticipate additional analysis may be performed to confirm these results. If same zone injection is confirmed, it may be beneficial to annually run PFO tests on one well instead of all three for different (probably longer) periods of time.

1. Install a digital surface recorder, connected to a rate meter and a digital surface transducer, capable of adequately measuring surface injection rates and wellhead injection pressures during the test.

Digital pressure recorders (Sapphire or other similar gauges) will be located just above the perforated interval and on the wellhead. Injection rates will be monitored with the normal operation instrumentation. Historically the wells wellhead pressures will fall to zero psig at some point during the falloff segment of the testing depending upon the weight of the waste fluid at the time of the testing. The plant has the ability to record rates and wellhead pressure through flow meters and pressure indicating gauges at each well site. The instrumentation is connected to the plant by a RTU and wireless transmitters.

2. Confirm the constant pre-fall-off test injection rate is maintained prior to the fall-off.

The rate will be maintained through plant monitoring and flow equipment for each well.

3. Confirm pressure gauges have stabilized prior to shutting in the well for the fall-off test.

For each well the gauges will remain on bottom for one hour to stabilize. This should be sufficient for pressure gauge stabilization.

4. Following installation of the bottom-hole pressure gauges and surface recorders, regulate injection to the stabilized designated pre-fall-off test injection rate that will result in a sufficiently sized pressure increase (above shut-in pressure) on the wellhead. If the injection rate was stabilized prior to running the down-hole gauges and the gauge installation did not disrupt the injection rate, monitoring the gauge for a minimum of one hour may be sufficient for verifying that the bottom-hole pressure is stabilized prior to initiating the fall-off test.

As indicated in 2 & 3 of the above section, every effort will be made to comply with this requirement.

5. The injection rate shall be high enough and continuous for a period of time sufficient to produce a pressure build up that will result in valid test data. The injection rate shall result in a pressure build up such that a semi-log straight line can be determined from the Horner plot or other appropriate semi-log plot. The injection rate shall be the maximum injection rate that can be feasibly maintained constantly, in order to maximize pressure changes in the formation and provide valid test results, but not exceeding the daily injection pressure and volume limit of the UIC Permit.

We anticipate a pressure build up of 100 psi or greater will be maintained during critical portions of the pressure fall off testing for each well.

6. Confirm the liquid injection density is held relatively constant during the injectivity portion of the test by periodically measuring one or more of the following:
 - a. Density
 - b. Chloride concentration
 - c. Total dissolved solids concentration
 - d. Conductivity
 - e. pH

Samples of the injectate for each well will be taken and where possible, analyzed before shut-in.

7. The surface readout down-hole pressure gauge must be located at or near the top of the injection interval, unless previous testing indicates a more appropriate location.

The down-hole digital pressure gauges will be located at the top of the perforations at the following depths.

- Well No. 1: 7924'
- Well No. 2: 7570'
- Well No. 3: 7660'

8. If the stabilization injection period is interrupted for any reason and for any length of time, the stabilization injection period must be restarted, unless superposition analysis can be applied and valid test results obtained.

If the testing is interrupted as stated above the test will be shut down and restarted from the beginning for any one of the well test on wells 1 through 3.

9. The well must be shut-in at the wellhead or as near as feasible to the wellhead to minimize wellbore storage and after flow.

The PFO test well(s) will be shut-in utilizing the wing valve on the wellhead or the nearby injectate flow line valve.

10. The well shut-in must be accomplished as instantaneously as possible to prevent erratic pressure behavior during the test.

Every effort will be made to shut-in the PFO test well instantaneously.

11. Following shut-in at the well, shut-in relevant tubing valves to ensure complete shut-in of the well. Bottom-hole shut-in is preferred to surface shut-in, but not required. Shut-in the well with no disturbances for at least seven days or other approved time period as determined from previous tests results or the test design.

Previous testing on each one of the wells has indicated only 30 hour shut-in period is necessary. Historically during the 2008 and 2009 falloff test the data obtained after the 30 hour period could not be analyzed. Exhibit 5 contains the 2008 and 2009 falloff data and analysis and clearly shows that radial flow was achieved before the end of the 30 hour period. The data obtained after the 30 hour period is highly scattered and banded indicating that the limit of the gauge resolution had been reached making the data unusable for analysis. The log-log plots for 2008 and 2009 clearly show that radial flow has been achieved before the end of a 30 hour shut-in period.

12. Upon completion of the test, tag fill depth with gauges, pull out bottom-hole gauges making stops every 1000 feet for 5-minutes to obtain gradient data, rig down, and resume normal injection into the well as needed.

The absence of fill across the perforations will be confirmed before starting the PFO testing and if necessary reconfirmed prior to the gradient stop portion of the PFO tests for each well.

13. The fall-off portion of the test must be conducted for a length of time sufficient to reach radial flow, i.e., the pressure is no longer influenced by wellbore storage or skin effects and enough data points lie within the infinite acting period that the semi-log straight line is well developed. A log-log with derivative plot should be prepared during the fall-off to verify radial flow is occurring.

This requirement has been considered during PFO Test Plan development and implemented into the general procedure for each well.

SECTION VIII - Evaluation of the Test Results

A licensed professional who is knowledgeable in the methods of pressure transient test analysis, must evaluate and summarize the test results. The following information and evaluations shall be provided in the test report:

1. A log-log plot with a derivative diagnostic plot shall be used to identify flow regimes.
2. The wellbore storage portion and infinite acting portion of the test shall be identified on the plot. Type curves shall be used to verify results.
3. A Horner plot or other appropriate semi-log plot must be used to calculate the kh/u product and to determine P^* . The wellbore storage and infinite acting portions of the test should be identified on the plot. An expanded semi-log plot containing the entire infinite acting portion must be reproduced to permit a closer inspection of the semi-log slope and any data fluctuations. The slope used to calculate the transmissibility (kh/u) and to determine P^* must be drawn on both semi-log plots.
4. The "h" value (injection interval thickness) used in the analysis must be agreed upon between OCD and the permittee. For formations with characteristics such as fracture- controlled karst reservoirs with porosity and permeability influenced by basement structural patterns and subaerial exposure, the entire thickness of the injection interval should be considered. A reliable literature value can be used if site specific data is not available.
5. The viscosity used in analyzing the test shall be that of the liquid through which the pressure transient was propagating during the infinite acting portion of the test. The information used to determine the viscosity shall be provided. Distance estimates to the waste front may also be needed.
6. Any test that was not shut-in long enough to develop an infinite acting period, or cannot be properly analyzed for transmissibility (kh/u) from the semi-log plot, should be rerun using a procedure that will result in valid test results, unless other arrangements have been made with OCD.

7. All equations and assumptions used in the analysis shall be provided with the appropriate parameters substituted into the equations.
8. A plot of the temperature data shall be provided for review. Any temperature anomalies shall be noted to determine if they correspond to pressure anomalies since the temperature compensation mechanism of the pressure gauge may be influenced by temperature fluctuations.
9. Explain any anomalous pressure data responses. Investigate any potential physical causes for the anomaly in addition to potential reservoir response characteristics.

Navajo will comply with these requirements in the test results for each well.

SECTION IX - Report Components

Include the following information in the report to the OCD in Santa Fe - Attention environmental Bureau of the Division (see address under OCD contacts listed in the Contacts Section). The information in the report includes general information, an overview of the test, analysis of the test data, summary of the results and a comparison of the results with previous test results and UIC permit parameters. Submit the report to OCD within 30 days of test completion.

1. Facility information
 - a. Name: Navajo Refining Company (Subsidiary of Holly Corporation)
 - b. Location: Highway 82 East, Artesia, New Mexico 88211
 - c. Operator's OGRD number: 94081

The above Data will be included in the report for each well.

2. Well information:
 - a. OCD UIC Permit number authorizing injection
 - Well No. 1: UIC-CLI-008-1
 - Well No. 2: UIC-CLI-008-2
 - Well No. 3: UIC-CLI-008-3
 - b. Well classification
 - Well No. 1: Class I Non Hazardous
 - Well No. 2: Class I Non Hazardous
 - Well No. 3: Class I Non Hazardous

c. Well name and number

- WDW-1 (Mewbourne)
- WDW-2 (Chukka)
- WDW-3 (Gaines)

d. API number

- Well No. 1: 30-015-27592
- Well No. 2: 30-015-20894
- Well No. 3: 30-015-26575

e. Legal location

- Well No. 1: 660 FSL, 2310-FEL, Sect 31 T17S R28E
- Well No. 2: 1980 FNL, 660-FWL, Sect 12 T18S R27E
- Well No. 3: 790 FSL, 2250-FWL, Sect 1 T18S R27E

3. Current wellbore schematic as described in Section VI

Current wellbore schematics will be attached and presented as figures for each well report. A copy of the well schematic for each well can be found in Exhibit 4.

4. Copy of an electric log encompassing the completed interval

A copy of an electric log encompassing the completed interval will be attached and presented as exhibits for each well report.

5. Copy of relevant portions of any porosity log used to estimate formation porosity

A copy of porosity logs used to estimate formation porosity will be attached and presented as exhibits for each well report.

6. PVT data of the formation and injection fluid as described in Section VI

- a. Estimation of formation fluid and reservoir rock compressibility 3.6×10^{-6} /psi
- b. Formation fluid viscosity with reference temperature 0.72 cp at 112° F
- c. Formation fluid specific gravity/density with reference temperature 8.6 ppg at 112° F

7. Daily rate history data for a minimum of one month preceding the fall-off test

The daily rate history will be provided with fall-off test report for each well.

8. Cumulative injection into the formation from test well and offset wells

Current cumulative volumes will be provided in the test report for each well.

9. Pressure gauges

- a. Describe the type of down-hole surface pressure readout gauge used including manufacturer and type

The memory gauges that will be used are sapphire gauges that will have an accuracy of 0.025% full scale (FS) or 0.01% of the reading and will have a resolution of 0.0003% (FS). The pressure range of the gauges will be from 0-10,000 psi. These are typical bottom hole memory gauges with the best accuracy available in the area. The gauges will be lowered to the top of the injection interval at 7924 feet in Mewbourne Well No. 1, 7820 feet in Chukka Well No. 2, and 7660 feet in Gaines Well No. 3. The recording period will be set to record pressures at a minimum of every 10 seconds for each well.

- b. List the full range, accuracy and resolution of the gauge

- $\pm 0.025\%$ F.S. + 0.01% of reading
- Will also provide a data specification sheet of gauges that were used to run the fall-off with report for each well.

- c. Provide the manufacturer's recommended frequency of calibration and a calibration certificate showing date the gauge was last calibrated.

Current calibration certificates will be provided with final report for each well.

10. One mile Area of Review (AOR)

- a. Identify wells located within the one mile AOR

Exhibit 3 (Table VII)

- b. Ascertain the status of wells within the one-mile AOR

Exhibit 3 (Table IX)

- c. Provide details on any offset producers and injectors completed in the same injection interval

Area of Review (AOR) lists all wells. The only wells that will affect the PFO Test are Navajo's well(s). These wells and the controlled rates are referenced in the procedure for each well.

11. Geology

- a. Describe geologic environment of the injection interval.

The proposed injection zones are porous carbonates of the lower portion of the Wolfcamp Formation and the Cisco and Canyon Formations. The Lower Wolfcamp is the shallowest porous unit in the proposed injection interval. The Wolfcamp Formation consists of light brown to tan, fine to medium-grained, fossiliferous limestone with variegated shale interbeds.

The Cisco Formation of the Northwest Shelf is described as consisting of uniform, light-colored, chalky, fossiliferous limestone interbedded with variegated shales. Cisco, at the edge of the Permian basin, is also described as consisting of biothermal (mound) reefs composed of thick, porous, coarse-grained dolomites. Locally, the Cisco consists of porous dolomite that is 745 feet thick in the Chukka Well No. 2, 650 feet thick in Mewbourne Well No. 1, and 720 feet thick in Gaines Well No. 3.

The Canyon Formation consists of white to tan to light brown fine grained, chalky, fossiliferous limestone with gray and red shale interbeds.

In summary, permeability values in the injection zone from producing fields in the region range up to 200 md. However, based on test data for the Mewbourne Well No. 1, Chukka Well No. 2, and Gaines Well No. 3, permeability values as high as 2733 md or higher occur in intervals in the injection zone. Each well report will include a short description of the injection interval as described above.

- b. Discuss the presence of geologic features, i.e., pinchouts, channels, and faults, if applicable.

N/A

- c. Provide a portion of a relevant structure map, if necessary.

N/A

12. Offset wells

(Area of Review lists all wells within the AOR. The AOR was update in 2009 and the only wells that will affect the PFO Test are the Navajo's injection wells. These wells and controlled rates will be referenced in the procedure and accounted for in the analysis if necessary.)

- a. Identify the distance between the test well and any offset wells completed in the same injection interval
- b. Report the status of the offset wells during both the injection and shut-in portions of the test
- c. Describe the impact, if any, the offset wells had on the test

13. Chronological listing of the daily testing activities (operations log)

Chronology of activities will be included in each well report with a minimum of the following items:

- a. Date of the test
- b. Time of the injection period
- c. Type of injection fluid
- d. Final injection pressure and temperature prior to shutting in the well
- e. Total shut-in time
- f. Final static pressure and temperature at the end of the fall-off portion of the test

14. Describe the location of the shut-in valve used to cease flow to the well for the shut-in portion of the test.

Each well will be shut-in with a 4-inch gate valve, one at the wellhead and one at the filter pods. The valves will be locked out and tagged out.

15. Provide each of the following; including the equations used to calculate each, the equations with the appropriate parameters substituted in them, description of parameters used in calculations with references as to how the values were derived:

- a. Radius of test investigation

$$r_{\text{waste}} = \left[\frac{0.13368 V}{\pi h \phi} \right]^{1/2}$$

- b. Time to beginning of the infinite acting portion of the test

$$t_{\text{waste}} = 948 \frac{\phi \mu_{\text{waste}} c_t r_{\text{waste}}^2}{k}$$

- c. Slope or slopes determined from the semi-log plot

Determined from Pan Systems V3.5 © Horner or Superposition Plot

- d. The value for transmissibility (kh/u)

$$\frac{k h}{\mu} = 162.6 \frac{q_{last} B}{m}$$

- e. Permeability (k)

$$k = \frac{k h}{h}$$

- f. Skin factor (s)

$$s = 1.151 \left[\frac{P_{wf} - P_{1hr}}{m} - \log \left[\frac{k}{\phi \mu c_t r_w^2} \right] + 3.23 \right]$$

- g. Pressure drop due to skin (ΔP_{skin})

$$\Delta P_{skin} = 0.869ms$$

- h. Flow efficiency $((P_{wf} - \Delta P_{skin} - P_{static}) / (P_{wf} - P_{static}))$

- i. Flow capacity (kh) or mobility thickness

$$k h = \left(\frac{k h}{\mu} \right) \mu_{res}$$

- j. $P_{1 \text{ hour}}$ (extrapolated pressure at one hour)

Determined from Pan Systems© V3.5, which is the extrapolated straight line at one hour on the Horner Plot.

16. Explain any pressure or temperature anomaly

Any pressure and temperature anomalies will be explained in the report for each well.

17. Describe the test results

- a. Discuss if the test reached radial flow or if it was dominated by wellbore storage or another type of flow regime.

Will be determined from Log-Log Plot

- b. Describe the reservoir results as homogeneous or heterogeneous explaining how this was determined.

Note: Initial assumption will be homogeneous reservoir in semi-steady state flow. An explanation will be included in the well reports.

18. Provide the following graphs:

The following graphs will be provided by the Pan System V3.5 © and will include the identifiable flow regimes on each plot, which will be included in each well report.

- a. Cartesian plot of pressure and temperature versus time
- b. Cartesian plot of injection rate versus time
- c. Log-log and derivative plots with the flow regions identified
 - i. Identify the wellbore storage period
 - ii. Identify the radial flow period in.
 - iii. Identify any other relevant flow regimes
 - iv. Semi-log plot and expanded semi-log plot (typically Horner plots)
 - v. Identify the flow regions on each
 - vi. Draw the semi-log straight line
 - vii. Identify the P^* (false extrapolated pressure)
 - viii. Calculate $P_{1 \text{ hour}}$ (extrapolated pressure at one hour)
- e. Plot of the digital surface rates and pressures from the surface pressure gauge

Subsurface will attach a data logging surface gauge to the wellhead to generate data and plot. Navajo will provide the rates from their flow meters. This will be included in the well report for each well. As a note, historically the wellhead pressure at some point in time during the pressure falloff will go to zero and then on a vacuum.

- f. Plot of digital pressures and times from the bottom hole gauges

Data will be provided from down-hole gauges for plot. The plots for each well will be generated by the Pan Systems© V3.5 software.

- g. Complete injection rate history plot (injection rate and wellhead pressure vs. calendar time)

Injection rate history will be provided in Pan System © Report for each well.

- h. Current Hall plot with explanation for any changes to the slope of this plot

Explanation will be provided in report for each well.

19. Comparison of permeability (k), transmissibility (kh/u), skin (s), false extrapolated pressure (P*), and depth to fill with the same values determined from fall-off tests previously conducted in the well.

A table will be provided comparing the results from previous testing with the report for each well.

20. A statement that the raw test data generated by the test will be kept on file by the permittee for a period of not less than 3 years and will be made available to OCD upon request during this time period. The raw test data need not be submitted to OCD unless requested.

Navajo will comply with this and a table of acquired pressure, rate, and analytical data will be included with the report for each well.

SECTION X – Contacts

OCD Contacts:

Mr. Carl Chavez
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87505
Phone: 505-476-3490
E-mail: carlj.chavez@state.nm.us

Mr. William Jones
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87505
Phone: 505-476-3448
E-mail: william.jones@state.nm.us

USEPA Contacts:

Mr. Ken Johnson
USEPA Region 6 (6WQ-SG)
1445 Ross Avenue
Dallas, TX 75202-2733
Phone: 214-665-8473
E-mail: Johnson. ken-e@epa.gov

Ms. Susan Lopez McKenzie
USEPA Region 6 (6WQ-SG)
1445 Ross Avenue
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Phone: 214-665-7198
E-mail: lopez.susan@epa.gov

THE FOLLOWING CHANGES WERE MADE TO THE 2009 TEST PLAN

Table of Contents

Added to 2010 Revised Test Plan:

XI. Additional Information

EXHIBIT 5: Historical Data 2008 and 2009 Falloff Test Results

Well No. 1 (Mewbourne)

Well No. 2 (Chukka)

Well No. 3 (Gaines)

SECTION II - Regulatory Citation

Added to 2010 Revised Test Plan:

According to the above statement "Permit requires monitoring of the pressure build up in the injection zone at least annually, including at a minimum, shut down of the well for a **time sufficient to conduct a valid observation of the pressure fall-off.**" Historical data shows that a 30 hour shut down time is sufficient to conduct a valid observation of the pressure falloff. This can be seen in the historical data acquired from the 2008 and 2009 falloff test data (Exhibit 5). Any data obtained after 30 hours was inconclusive in determining the reservoir parameters and the flow regime beyond 30 hours could not be identified.

SECTION III - Developing a Test Plan

From 2009 Test Plan:

1. Navajo Refining is to maintain a constant injection rate into the disposal well for a minimum of 24 hours prior to testing. The rate should be approximately as follows for each well:

Well No. 1 (Mewbourne)	maximum of 330 gpm (11,314 bpd)
Volume injected 3 days	33,943 bbls;
Well No. 2 (Chukka)	maximum of 175 gpm (6000 bpd)
Volume injected 3 days	18,000 bbls;
Well No. 3 (Gaines)	maximum of 350 gpm (12,000 bpd)
Volume injected 3 days	36,000 bbls.

The injection period was extended for 72 hours pasted the minimum 24 hour injection period as a conservative estimate for volume. The volume is determined from the time it takes to reach radial flow in the reservoir brine as a function of radius of investigation.

These rates are based on historical information gathered after an acid stimulation and after the completion of the wells. The rates are estimates based on averages. The initial well system consisted of two wells and a third was added in 2007.

The waste fluid will be used during the testing. Samples of the waste fluid should be gathered periodically for viscosity and density determination. Injection rates, pressure, and time will be recorded and submitted to Subsurface for fall-off analysis. The viscosity and density data should be included. If necessary, the flow rate will be controlled at the wing valve. The general procedure is to open the wing valve wide open and let the pump pressure control the flow rate. This will maximize the flow to the well at a steady rate with only one well open in the 3 well system.

Adequate waste storage has been accounted for using the two storage tanks located at the refinery. The two tanks hold 80,000 bbls and 65,000 bbls. The working volumes of the tanks are 85% of the total capacity. Tank bottoms are calculated at 18 % of the total capacity of the tanks. The initial volumes for each tank prior to starting the testing were calculated as follows:

Well No. 1 (Mewbourne)

Total Waste Fluid Gain for the Test Period	70,971 bbls
Total Waste Fluid Loss to Well No. 1 for the Test Period	33,943 bbls
Total Waste Fluid	104,914 bbls
Initial Tank Volume Tank 1 (80,000 bbls)	55,000 bbls
Initial Tank Volume Tank 2 (65,000 bbls)	19,500 bbls
Final Tank Volume Tank 1 (80,000 bbls)	62,779 bbls
Final Tank Volume Tank 2 (65,000 bbls)	48,750 bbls

Well No. 2 (Chukka)

Total Waste Fluid Gain for the Test Period	86,914 bbls
Total Waste Fluid Loss to Well No. 2 for the Test Period	18,000 bbls

Total Waste Fluid	104,914 bbls
Initial Tank Volume Tank 1 (80,000 bbls)	33,000 bbls
Initial Tank Volume Tank 2 (65,000 bbls)	16,000 bbls
Final Tank Volume Tank 1 (80,000 bbls)	67,457 bbls
Final Tank Volume Tank 2 (65,000 bbls)	50,457 bbls

Well No. 3 (Gaines)

Total Waste Fluid Gain for the Test Period	68,914 bbls
Total Waste Fluid Loss to Well No. 3 for the Test Period	36,000 bbls
Total Waste Fluid	104,914 bbls
Initial Tank Volume Tank 1 (80,000 bbls)	60,000 bbls
Initial Tank Volume Tank 2 (65,000 bbls)	16,000 bbls
Final Tank Volume Tank 1 (80,000 bbls)	58,971 bbls
Final Tank Volume Tank 2 (65,000 bbls)	49,943 bbls

The general procedure for testing each individual well would be to inject into the test well for a period of 3 days with the two offset wells shut-in. Following the 3 day injection period, the test well and the two offset wells will be shut-in for an additional 72 hours. The first 3 days, only one well will be operating at its full rate for the next 3 days all 3 wells will be shut-in.

Confirmation of the injection rate and volumes will be provided by the continuous monitoring system at the plant. The plant has the ability to continuously monitor flow rates, wellhead pressures, annulus pressures, filter pod differential pressures, line pressures, and tank levels. Pressures and temperatures will be confirmed via data memory logging gauges. The recording time on the gauges will be set at minimum of 10-second intervals. The surface pressure gauge data can be downloaded to ascertain the status of the fall-off testing at any time during the fall-off segment of the procedure. The surface pressure memory gauge will be attached to a tee just above the crown valve.

Revisions Made in 2010 Test Plan:

1. Navajo Refining is to maintain a constant injection rate into the disposal well for a minimum of 24 hours prior to testing. The approximate anticipated rates for each well are:

Well No. 1 (Mewbourne)	maximum of 260 gpm (8,914 bpd)
Volume injected 30 hours	11,143 bbls;
Well No. 2 (Chukka)	maximum of 175 gpm (6000 bpd)
Volume injected 30 hours	7,500 bbls;
Well No. 3 (Gaines)	maximum of 300 gpm (10,286 bpd)
Volume injected 30 hours	15,000 bbls.

The injection period used for the determination of the total volume of fluid needed for the injection portion of the testing was 30 hours. The volume is determined from the time it takes to reach radial flow in the reservoir brine as a function of radius of investigation.

These rates are based on historical information gathered after an acid stimulation and after the completion of the wells. The rates are estimates based on averages. The initial well system consisted of two wells and a third was added in 2007.

The waste fluid will be used during the testing. Samples of the waste fluid should be gathered periodically for viscosity and density determination. Injection rates, pressure, and time will be recorded and submitted to Subsurface for fall-off analysis. The viscosity and density data should be included. If necessary, the flow rate will be controlled at the wing valve. The general procedure is to open the wing valve wide open and let the pump pressure control the flow rate. This will maximize the flow to the well at a steady rate with only one well open in the 3 well system.

Adequate waste storage has been accounted for using the storage tank located at the refinery. The tank holds 65,000 bbls. The working volume of the tank is 85% of the total capacity. Tank bottom is calculated at 18 % of the total capacity of the tanks. The initial volumes for each tank prior to starting the testing were calculated as follows:

Well No. 1 (Mewbourne)

Total Waste Fluid Gain for the Test Period	35,486 bbls
Total Waste Fluid Loss to Well No. 1 for the Test Period	11,143 bbls
Total Waste Fluid Generated	46,629 bbls
Initial Tank Volume Tank 1 (65,000 bbls)	12,000 bbls
Final Tank Volume Tank 1 (65,000 bbls)	48,500 bbls

Well No. 2 (Chukka)

<i>Total Waste Fluid Gain for the Test Period</i>	<i>39,129 bbls</i>
<i>Total Waste Fluid Loss to Well No. 2 for the Test Period</i>	<i>7,500 bbls</i>
<i>Total Waste Fluid Generated</i>	<i>49,629 bbls</i>
<i>Initial Tank Volume Tank 1 (65,000 bbls)</i>	<i>12,000 bbls</i>
<i>Final Tank Volume Tank 1 (65,000 bbls)</i>	<i>52,000 bbls</i>

Well No. 3 (Gaines)

<i>Total Waste Fluid Gain for the Test Period</i>	<i>33,771 bbls</i>
<i>Total Waste Fluid Loss to Well No. 3 for the Test Period</i>	<i>12,857 bbls</i>
<i>Total Waste Fluid Generated</i>	<i>46,628 bbls</i>
<i>Initial Tank Volume Tank 1 (65,000 bbls)</i>	<i>12,000 bbls</i>
<i>Final Tank Volume Tank 1 (65,000 bbls)</i>	<i>47,000 bbls</i>

The general procedure for testing each individual well is to inject into the test well for a period of 30 hours, with the two offset wells shut-in. Following the 30 hour injection period, the test well will be shut-in and the pressure fall-off monitored for 30 hours. The two offset Navajo wells will remain shut-in during the fall-off portion of the testing.

Confirmation of the injection rate and volumes will be provided by the continuous monitoring system at the plant. The plant has the ability to continuously monitor flow rates, wellhead pressures, annulus pressures, filter pod differential pressures, line pressures, and tank levels. Pressures and temperatures will be confirmed via data memory logging gauges. The recording time on the gauges will be set at minimum of 10-second intervals. The surface pressure gauge data can be downloaded to ascertain the status of the fall-off testing at any time during the fall-off segment of the procedure. The surface pressure memory gauge will be attached to a tee just above the crown valve.

From 2009 Test Plan:

- 3. Monitor the pressure fall-off for minimum of 24 hours. The testing fall-off segment was extended to include a full 72 hour fall-off period for conservative reasons. During the fall-off segment of the testing, download surface pressure data and evaluate the fall-off to determine if the radial flow period has been reached.**

Revisions Made in 2010 Test Plan:

3. Monitor the pressure fall-off for minimum of 24 hours. The testing fall-off segment was extended to include a full 30-hour fall-off period for conservative reasons. The 30 hour injection/falloff period was determined based on data collected during the 2008 and 2009 falloff testing. The 2008 and 2009 falloff data clearly shows that radial flow has been reached by the end of the 30 hour period and any data collected after the 30 hour period was inconclusive in determining the reservoir parameters (Exhibit 5).

From 2009 Test Plan:

4. At the end of the fall-off period, discontinue the pressure fall-off test. Tag the bottom of the fill and pull out of the wellbore, with the memory gauges making gradient stops every 1000 feet to surface.

Revisions Made in 2010 Test Plan:

4. *At the end of the fall-off period, discontinue the pressure fall-off test. Tag the bottom of the fill and pull out of the wellbore, with the downhole surface read out and memory gauges making gradient stops every 1000 feet to surface.*

From 2009 Test Plan:

The following schedule is proposed:

Testing of Well No. 3 (Gaines) on the third week of July, 2009;

Testing of Well No. 2 (Chukka) on the third week of August 2009;

Testing of Well No. 1 (Mewbourne) on the third week of September 2009.

Testing Rates

The estimated maximum rates into each test well are as follows:

Well No. 1 (Mewbourne) 330 gpm (11,314 bpd);

Well No. 2 (Chukka) 175 gpm (6000 bpd);

Well No. 3 (Gaines) 350 gpm (12,000 bpd).

This assumes the maximum pressure is 785 psig at the wellhead and can be maintained for 3 days and the total generated waste fluid flow rate from the plant processes is 510 gpm. Using the two holding tanks at the plant the proposed schedules are based on starting tank volumes as described below.

It is assumed the working capacities of the tanks are 85% of their total capacities. Tank 1 has a total capacity of 80,000 bbls and a working capacity of 68,000 bbls. Tank 2 has a total capacity of 65,000 bbls and a working capacity of 55,250 bbls. It is also assumed that minimum volumes for Tank 1 and Tank 2 are 14,000 bbls and 11,700 bbls respectively or 18% of their capacity. All calculations were based on the 85% operating capacity of each tank using minimum volume levels.

Revisions Made in 2010 Test Plan:

The following schedule is proposed after approval of test plan:

Testing of Well No. 3 (Gaines) on the third week of August, 2010;

Testing of Well No. 2 (Chukka) on the third week of September 2010;

Testing of Well No. 1 (Mewbourne) on the third week of October 2010.

Testing Rates

The estimated maximum rates into each test well are as follows:

Well No. 1 (Mewbourne) 260 gpm (8,914 bpd)

Well No. 2 (Chukka) 175 gpm (6000 bpd)

Well No. 3 (Gaines) 300 gpm (10,286 bpd)

This assumes the maximum pressure is 785 psig at the wellhead and can be maintained for 30 hours, and the total generated waste fluid flow rate from the plant processes is 510 gpm. Using the two holding tanks at the plant, the proposed schedules are based on starting tank volumes as described below.

It is assumed the working capacities of the tanks are 85% of their total capacities. Tank 1 has a total capacity of 65,000 bbls and a working capacity of 55,250 bbls. It is also assumed that minimum volume for Tank 1 is 11,700 bbls or 18% of its capacity. All calculations were based on the 85% operating capacity of each tank using minimum volume levels.

From 2009 Test Plan:

Well No. 1 (Mewbourne)

The general procedure for testing Well No. 1 would be to inject into Well No. 1 for a period of 3 days with Well No. 2 and Well No. 3 shut-in. Following the three day injection period Well No. 1 will be shut-in for 3 additional days with Well No. 2 and Well No. 3 shut-in. The first 3 days, only one well will be operating at its full rate, for the next 3 days all three wells will be shut-in. The excess volume generated by the plant will be stored in the two holding tanks at the plant. Tank 1 has a capacity of 80,000 barrels (bbls) and Tank 2 has a capacity of 65,000 bbls. The calculations are based on an 85% working capacity of the tanks.

Estimated Well Test Rates

DAYS	1	2	3	4	5	6
Well 1 Mewbourne Test Rates (gpm)	330	330	330	0	0	0
Well 2 Chukka Test Rates (gpm)	0	0	0	0	0	0
Well 3 Gaines Test Rates (gpm)	0	0	0	0	0	0

Total Waste Fluid Gain for the Test Period	70,971 bbls
Total Waste Fluid Loss to Well No. 1 for the Test Period	33,943 bbls
Total Waste Fluid	104,914 bbls

(This Table was removed from the 2010 Test Plan Revisions)

Estimated Tank Volumes During the Testing

Starting Volume in Tanks

Tank 1 Volume (drawdown tank)	55,000 bbls	69%
Tank 2 Volume (overflow tank)	19,500 bbls	30%

Tank Volumes After 1 Days

Tank 1 Volume (drawdown tank)	43,686 bbls	55%
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Tank 2 Volume (overflow tank)	25,671 bbls	39%
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Tank Volumes After 2 Days

Tank 1 Volume (drawdown tank)	32,371 bbls	40%
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Tank 2 Volume (overflow tank)	31,848 bbls	49%
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Tank Volumes After 3 Days

Tank 1 Volume (drawdown tank)	21,057 bbls	26%
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Tank 2 Volume (overflow tank)	38,014 bbls	58%
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Tank Volumes After 4 Days

Tank 1 Volume (overflow tank)	22,807 bbls	35%
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Tank 2 Volume (overflow tank)	48,750 bbls	75%
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Tank Volumes After 5 Days

Tank 1 Volume (overflow tank)	45,293 bbls	57%
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Tank 2 Volume (full tank)	48,750 bbls	75%
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Tank Volumes After 6 Days

Tank 1 Volume (overflow tank)	62,779 bbls	78%
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Tank 2 Volume (full tank)	48,750 bbls	75%
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Revisions Made in 2010 Test Plan:**Well No. 1 (Mewbourne)**

The general procedure for testing Well No. 1 would be to inject into Well No. 1 for a period of 30 hours with Well No. 2 and Well No. 3 shut-in. Following the 30 hour injection period Well No. 1 will be shut-in for 30 hours with Well No. 2 and Well No. 3 shut-in. In the first 30 hours, only one well will be operating at its full rate, for the next

30 hours all three wells will be shut-in. The excess volume generated by the plant will be stored in the holding tank at the plant.

Estimated Well Test Rates

HOURS	24	6	24	10
Well 1 Mewbourne				
Test Rates (gpm)	280	280	0	0
Well 2 Chukka				
Test Rates (gpm)	0	0	0	0
Well 3 Gaines				
Test Rates (gpm)	0	0	0	0

Total Waste Fluid Gain for the Test Period	35,489 bbls
Total Waste Fluid Loss to Well No. 1 for the Test Period	11,143 bbls
Total Waste Fluid Generated	46,629 bbls

From 2009 Test Plan:

Well No. 2 (Chukka)

The general procedure for testing Well No. 2 would be to inject into Well No. 2 for a period of 3 days with Well No. 1 and Well No. 3 shut-in. Following the 3 day injection period Well No. 2 will be shut-in for 3 additional days with Well No. 1 and Well No. 3 shut-in. The first 3 days, only one well will be operating at its full rate, for the next 3 days all 3 wells will be shut-in. The excess volume generated by the plant will be stored in the two holding tanks at the plant. Tank 1 has a capacity of 80,000 barrels (bbls) and Tank 2 has a capacity of 65,000 bbls. The calculations are based on an 85% working capacity of the tanks.

Estimated Well Test Rates

DAYS	1	2	3	4	5	6
Well 1 Mewbourne						
Test Rates (gpm)	0	0	0	0	0	0

Well 2 Chukka						
Test Rates (gpm)	175	175	175	0	0	0
Well 3 Gaines						
Test Rates (gpm)	0	0	0	0	0	0

Total Waste Fluid Gain for the Test Period	86,914 bbls
Total Waste Fluid Loss to Well No. 2 for the Test Period	18,000 bbls
Total Waste Fluid	104,914 bbls

(This Table was removed from the 2010 Test Plan Revisions)

Estimated Tank Volumes During the Testing

Starting Volumes in Tanks

Tank 1 Volume (drawdown tank)	33,000 bbls	41%
Tank 2 Volume (overflow tank)	16,000 bbls	25%

Tank Volumes After 1 Days

Tank 1 Volume (drawdown tank)	27,000 bbls	34%
Tank 2 Volume (overflow tank)	27,486 bbls	42%

Tank Volumes After 2 Days

Tank 1 Volume (drawdown tank)	21,000 bbls	26%
Tank 2 Volume (overflow tank)	38,971 bbls	60%

Tank Volumes After 3 Days

Tank 1 Volume (drawdown tank)	15,000 bbls	19%
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Tank 2 Volume (overflow tank)	50,457 bbls	78%
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Tank Volumes After 4 Days

Tank 1 Volume (overflow tank)	32,486 bbls	41%
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Tank 2 Volume (full tank)	50,457 bbls	78%
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Tank Volumes After 5 Days

Tank 1 Volume (overflow tank)	49,971 bbls	62%
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Tank 2 Volume (full tank)	50,457 bbls	78%
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Tank Volumes After 6 Days

Tank 1 Volume (overflow tank)	67,457 bbls	84%
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Tank 2 Volume (full tank)	50,457 bbls	78%
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Revisions Made in 2010 Test Plan:**Well No. 2 (Chukka)**

The general procedure for testing Well No. 2 would be to inject into Well No. 2 for a period of 30 hours, with Well No. 1 and Well No. 3 shut-in. Following the 30 hour injection period, Well No. 2 will be shut-in for 30 hours, with Well No. 1 and Well No. 3 shut-in. For the first 30 hours, only one well will be operating at its full rate. For the next 30 hours, all 3 wells will be shut-in. The excess volume generated by the plant will be stored in the holding tank at the plant.

HOURS	24	6	24	10
Well 1 Mewbourne				
Test Rates (gpm)	0	0	0	0
Well 2 Chukka				
Test Rates (gpm)	175	175	0	0
Well 3 Gaines				
Test Rates (gpm)	0	0	0	0

<i>Total Waste Fluid Gain for the Test Period</i>	<i>39,129 bbls</i>
<i>Total Waste Fluid Loss to Well No. 2 for the Test Period</i>	<i>7,500 bbls</i>
<i>Total Waste Fluid</i>	<i>49,629 bbls</i>

From 2009 Test Plan:

Well No. 3 (Gaines)

The general procedure for testing Well No. 3 would be to inject into Well No. 3 for a period of 3 days with Well No. 1 and Well No. 2 shut-in. Following the 3 day injection period Well No. 3 will be shut-in for 3 additional days with Well No. 1 and Well No. 2 shut-in. The first 3 days, only one well will be operating at its full rate, for the next 3 days all 3 wells will be shut-in. The excess volume generated by the plant will be stored in the two holding tanks at the plant. Tank 1 has a capacity of 80,000 barrels (bbls) and Tank 2 has a capacity of 65,000 bbls. The calculations are based on a 85% working capacity of the tanks.

Estimated Well Test Rates

DAYS	1	2	3	4	5	6
Well 1 Mewbourne Test Rates (gpm)	0	0	0	0	0	0
Well 2 Chukka Test Rates (gpm)	0	0	0	0	0	0
Well 3 Gaines Test Rates (gpm)	350	350	350	0	0	0

<i>Total Waste Fluid Gain for the Test Period</i>	<i>68,914 bbls</i>
<i>Total Waste Fluid Loss to Well No. 3 for the Test Period</i>	<i>36,000 bbls</i>
<i>Total Waste Fluid</i>	<i>104,914 bbls</i>

(This Table was removed from the 2010 Test Plan Revisions)

Estimated Tank Volumes During the Testing

Starting Volumes in Tanks

Tank 1 Volume (drawdown tank)	60,000 bbls	75%
Tank 2 Volume (overflow tank)	16,000 bbls	25%

Tank Volumes After 1 Days

Tank 1 Volume (drawdown tank)	48,000 bbls	60%
Tank 2 Volume (overflow tank)	21,486 bbls	33%

Tank Volumes After 2 Days

Tank 1 Volume (drawdown tank)	36,000 bbls	45%
Tank 2 Volume (overflow tank)	26,971 bbls	41%

Tank Volumes After 3 Days

Tank 1 Volume (drawdown tank)	24,000 bbls	30%
Tank 2 Volume (overflow tank)	32,457 bbls	50%

Tank Volumes After 4 Days

Tank 1 Volume	24,000 bbls	30%
Tank 2 Volume	49,943 bbls	77%

Tank Volumes After 5 Days

Tank 1 Volume (overflow tank)	41,486 bbls	52%
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Tank 2 Volume (full tank)	49,943 bbls	77%
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Tank Volumes After 6 Days

Tank 1 Volume	58,971 bbls	74%
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Tank 2 Volume	49,943 bbls	77%
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Revisions Made in 2010 Test Plan:

Well No. 3 (Gaines)

The general procedure for testing Well No. 3 would be to inject into Well No. 3 for a period of 30 hours with Well No. 1 and Well No. 2 shut-in. Following the 30 hour injection period, Well No. 3 will be shut-in for 30 hours, with Well No. 1 and Well No. 2 shut-in. For the first 30 hours, only one well will be operating at its full rate. For the next 30 hours all 3 wells will be shut-in. The excess volume generated by the plant will be stored in the holding tank at the plant.

HOURS	24	6	24	10
Well 1 Mewbourne				
Test Rates (gpm)	0	0	0	0
Well 2 Chukka				
Test Rates (gpm)	0	0	0	0
Well 3 Gaines				
Test Rates (gpm)	300	300	0	0

Total Waste Fluid Gain for the Test Period	33,771 bbls
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Total Waste Fluid Loss to Well No. 3 for the Test Period	12,857 bbls
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Total Waste Fluid	46,628 bbls
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SECTION IV - Scheduling of Test and Report

From 2009 Test Plan:

It is currently estimated that the Test Plan will be submitted to OCD for approval during July 2009. Subsequently, after approval, the field work will be performed in July, August, and September. The report will be submitted 30 days thereafter.

Revisions Made in 2010 Test Plan:

It is currently estimated that the Test Plan will be submitted to OCD for approval during July 2010. Subsequently, after approval, the field work will be performed in August, September, and October. The report will be submitted 30 days thereafter for each individual well.

SECTION V - General Test Operational Considerations

5. Sustaining a constant injection rate after installing the pressure gauges to allow stabilization of the gauges prior to initiating the fall-off test. A three day period is recommended, but adjustments may be made because rates have previously been stabilized or historical test results indicate a lesser time is adequate.

From 2009 Test Plan:

A constant injection rate will be maintained throughout the required 3 day build up and 3 day pressure fall-off test period.

Revisions Made in 2010 Test Plan:

A constant injection rate will be maintained throughout the required three day build up period. Historical, for the 2008 and 2009 falloff testing 30 hours is sufficient time to adequately perform a falloff analysis of the reservoir. In Exhibit 5 the 2008 and 2009 falloff test show that the data obtained after the 30 hour period was inconclusive in determining reservoir parameters and was not able to analyze. The data after 30 hour had added no intrinsic value to the reservoir determination.

7. Shutting in offset wells completed in the same formation as the test well prior to the test. If impractical, then maintaining stable measured injection rates into the offset injection wells prior to and during the fall-off test.

From 2009 Test Plan:

We plan to inject into one well at a constant rate for the 3 day build up period. After the 3 day period, all 3 wells will be shut-in for the 3 day pressure fall-off period. However, if this method is not feasible, it will be necessary to maintain constant injection rates into the offset injection wells during each of the PFO Tests on WDW-1, 2 & 3. This will allow us to maintain constant injection rates into WDW-1 & 2 when WDW-3 is shut-in, constant injection rates into WDW-2 & 3 when WDW-1 is shut-in and constant injection rates into WDW-1 & 3 when WDW-2 is shut-in.

Revisions Made in 2010 Test Plan:

We plan to inject into one well at a constant rate for the 30 hours build up period. After the 30 hour period, all 3 wells will be shut-in for the 30 hour pressure fall-off period. However, if this method is not feasible, it will be necessary to maintain constant injection rates into the offset injection wells during each of the PFO Tests on WDW-1, 2 & 3. This will allow us to maintain constant injection rates into WDW-1 & 2 when WDW-3 is shut-in, constant injection rates into WDW-2 & 3 when WDW-1 is shut-in and constant injection rates into WDW-1 & 3 when WDW-2 is shut-in.

SECTION VII. Conducting the Fall-off Test

11. Following shut-in at the well, shut-in relevant tubing valves to ensure complete shut-in of the well. Bottom-hole shut-in is preferred to surface shut-in, but not required. Shut-in the well with no disturbances for at least seven days or other approved time period as determined from previous tests results or the test design.

From 2009 Test Plan:

Previous testing (See 2008 Annual Bottom-Hole Pressure Survey) has indicated only a three day shut-in period is necessary

Revisions Made in 2010 Test Plan:

Previous testing on each one of the wells has indicated only 30 hour shut-in period is necessary. Historically during the 2008 and 2009 falloff test the data obtained after the 30 hour period could not be analyzed. Exhibit 5 contains the 2008 and 2009 falloff data and analysis and clearly shows that radial flow was achieved before the end of the 30 hour period. The data obtained after the 30 hour period is highly scattered and banded indicating that the limit of the gauge resolution had been reached making the data unusable for analysis. The log-log plots for 2008 and 2009 clearly show that radial flow has been achieved before the end of a 30 hour shut-in period.

SECTION VII - Evaluation of the Test Results

12. Offset wells

From 2009 Test Plan:

(Area of Review list all wells. The only wells that will affect the PFO Test is Navajo's well(s). These wells and then controlled rates will be referenced in the procedure.)

Revisions Made in 2010 Test Plan:

(Area of Review lists all wells within the AOR. The AOR was update in 2009 and the only wells that will affect the PFO Test are the Navajo's injection wells. These wells and controlled rates will be referenced in the procedure and accounted for in the analysis if necessary.)



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Edinburgh Petroleum Services Ltd.

Report File:

2009_WDW-1.pan

PanSystem

Well Test Analysis Report

Company	Navajo Refining Company
Location	Artesia, New Mexico
Well	Mewbourne Well No. 1 (WDW-1)
Date	October 23 - 29, 2009
Test	Falloff
Gauge Type/Serial Number	Spartek/#76931
Gauge Depth	7,924 feet
Injection Interval	7,924 feet - 8,476 feet
Completion Type	Perforated
Top of Fill	9,001 feet
Analyst	LKM
Subsurface Project No.	70A6365

PanSystem

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Well Test Analysis Report

Reservoir Description

Fluid type : Water

Well orientation : Vertical

Number of wells : 1

Number of layers : 1

Layer Parameters Data

	Layer 1
Formation thickness	175.0000 ft
Average formation porosity	0.1000
Water saturation	0.0000
Gas saturation	0.0000
Formation compressibility	0.000000 psi-1
Total system compressibility	8.4000e-6 psi-1
Layer pressure	3591.618000 psia
Temperature	0.000000 deg F

Well Parameters Data

	WDW-1
Well radius	0.3646 ft
Distance from observation to active well	0.000000 ft
Wellbore storage coefficient	0.091439 bbl/psi
Storage Amplitude	0.000000 psi
Storage Time Constant	0.000000 hr
Second Wellbore Storage	0.000000 bbl/psi
Time Change for Second Storage	0.000000 hr
Well offset - x direction	0.0000 ft
Well offset - y direction	0.0000 ft

Fluid Parameters Data

	Layer 1
Oil gravity	0.000000 API
Gas gravity	0.000000 sp grav
Gas-oil ratio (produced)	0.000000 scf/STB
Water cut	0.000000
Water salinity	0.000000 ppm
Check Pressure	3420.440000 psia
Check Temperature	0.000000 deg F
Gas-oil ratio (solution)	0.000000 scf/STB
Bubble-point pressure	0.000000 psia
Oil density	0.000 lb/ft3
Oil viscosity	0.000 cp
Oil formation volume factor	0.000 RB/STB
Gas density	0.000 lb/ft3
Gas viscosity	0.0 cp
Gas formation volume factor	0.000 ft3/scf
Water density	0.000 lb/ft3
Water viscosity	0.570 cp

PanSystem

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Well Test Analysis Report

Fluid Parameters Data (cont)

	Layer 1
Water formation volume factor	1.000 RB/STB
Oil compressibility	0.000000 psi-1
Initial Gas compressibility	0.000000 psi-1
Water compressibility	0.000000 psi-1

Layer 1 Correlations

Not Used

Layer 1 Model Data

Layer 1 Model Type : Radial homogeneous

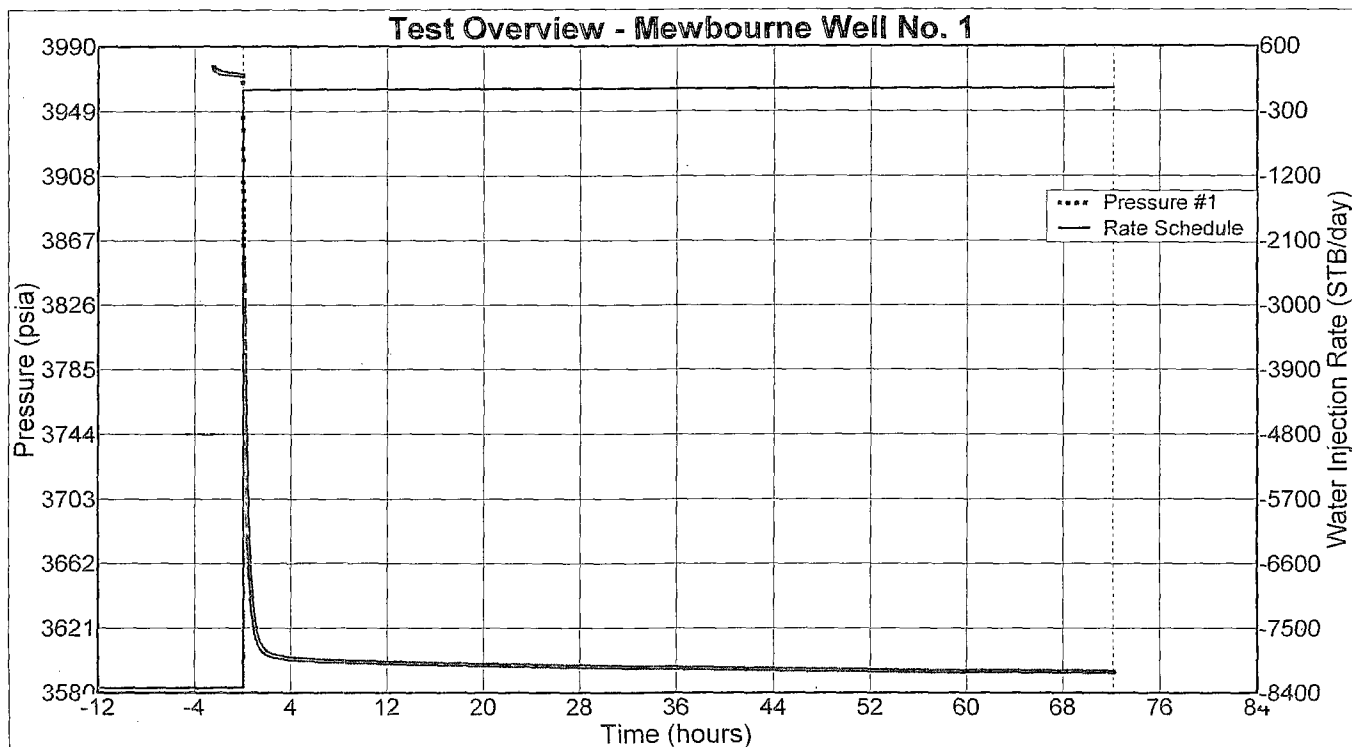
	Layer 1
Permeability	882.9870 md
Skin factor (Well 1)	76.7254

Rate Change Data

Time Hours	Pressure psia	Rate STB/day
-803.550000	0.000000	0.000000
-707.550000	0.000000	-4382.400000
-683.550000	0.000000	-1433.860000
-563.550000	0.000000	0.000000
-539.550000	0.000000	-4254.770000
-203.550000	0.000000	-4462.970000
-76.500000	0.000000	-4112.800000
-76.483330	0.000000	-4853.610000
-76.466670	0.000000	-5914.450000
-76.350000	0.000000	-6225.260000
-76.333330	0.000000	-6789.710000
-76.300000	0.000000	-7722.350000
-75.533330	0.000000	-7666.290000
-75.250000	0.000000	-7418.400000
-67.100000	0.000000	-7971.770000
-64.483330	0.000000	-8257.370000
-64.383330	0.000000	-7891.200000
-64.366670	0.000000	-6054.090000
-64.350000	0.000000	-2149.960000
-64.333330	0.000000	-4161.270000
-64.316670	0.000000	-8860.770000
-63.700000	0.000000	-8328.690000
-63.583330	0.000000	-8062.630000
-63.500000	0.000000	-7693.030000
-63.450000	0.000000	-7340.570000
-63.300000	0.000000	-7007.660000
-62.883330	0.000000	-8390.060000
-62.816670	0.000000	-7958.400000
-62.583330	0.000000	-5958.510000

Rate Change Data (cont)

Time Hours	Pressure psia	Rate STB/day
-62.233330	0.000000	-8491.890000
-62.083330	0.000000	-8056.800000
-61.866670	0.000000	-7384.460000
-61.683330	0.000000	-6364.460000
-61.183330	0.000000	-8404.800000
-60.600000	0.000000	-8026.630000
-58.933330	0.000000	-8211.430000
-58.666670	0.000000	-7995.430000
-0.002596	3971.087000	-8335.890000
72.117646	3592.514000	0.000000





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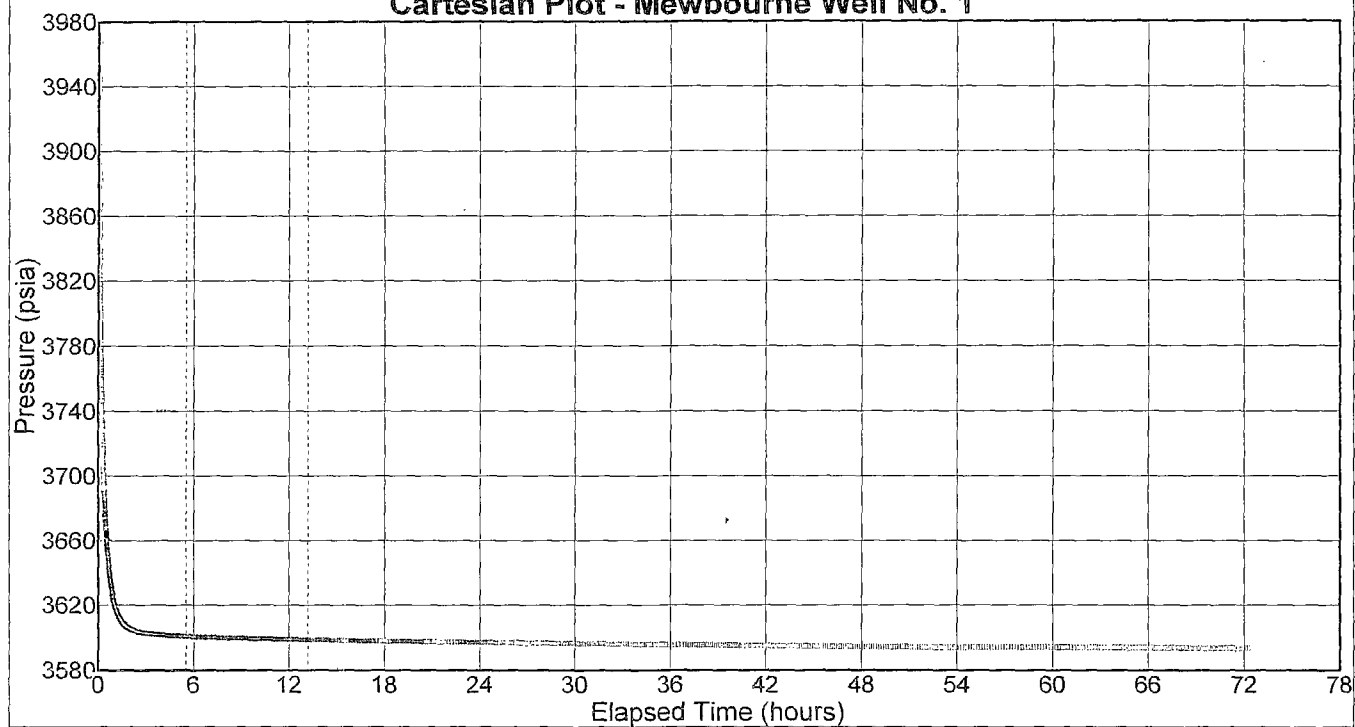
Report File:

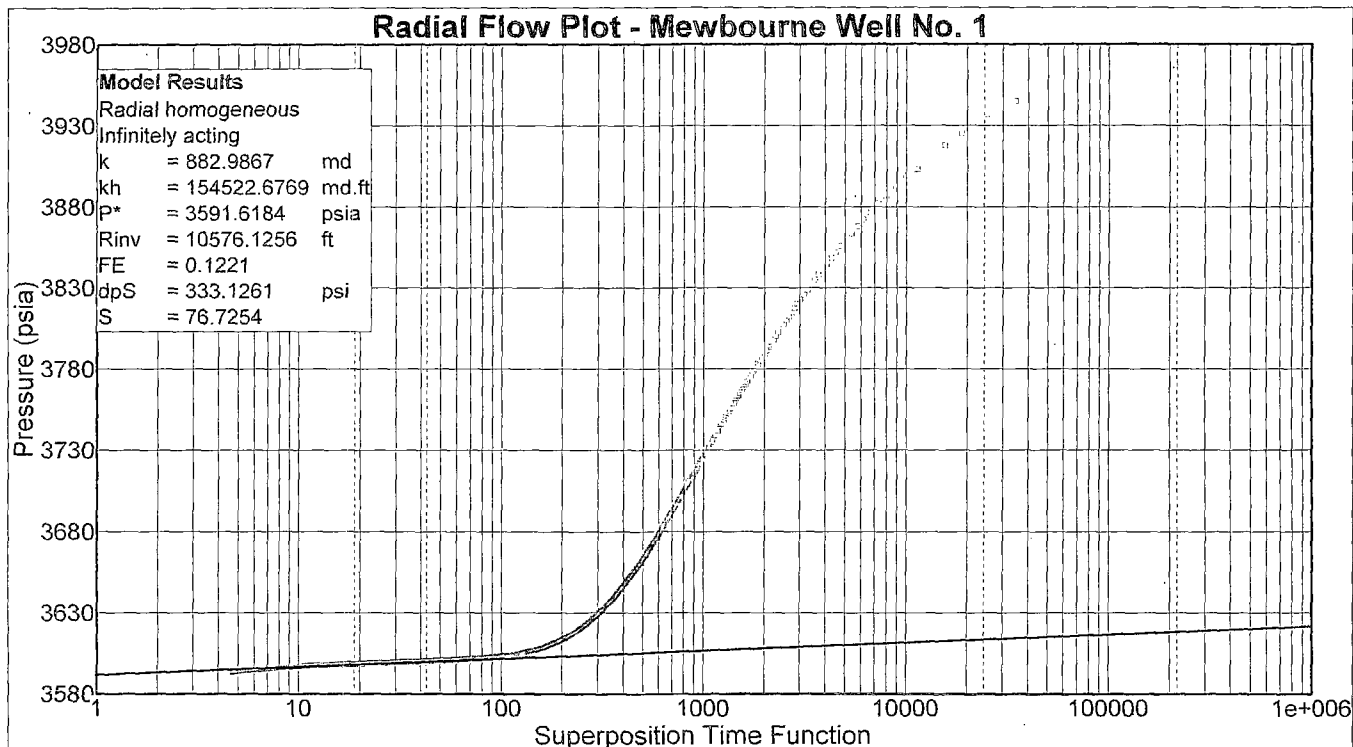
2009_WDW-1.pan

PanSystem

Well Test Analysis Report

Cartesian Plot - Mewbourne Well No. 1





Radial Flow Plot - Mewbourne Well No. 1 Model Results

Radial homogeneous - Infinitely acting

Classic Wellbore Storage

	Value
Permeability	882.986725 md
Permeability-thickness	1.5452e5 md.ft
Extrapolated pressure	3591.618387 psia
Radius of investigation	1.0576e4 ft
Flow efficiency	0.122125
dP skin (constant rate)	333.126088 psi
Skin factor	76.725432

Radial Flow Plot - Mewbourne Well No. 1 Line Details

Line type : Radial flow

Slope : 4.99868

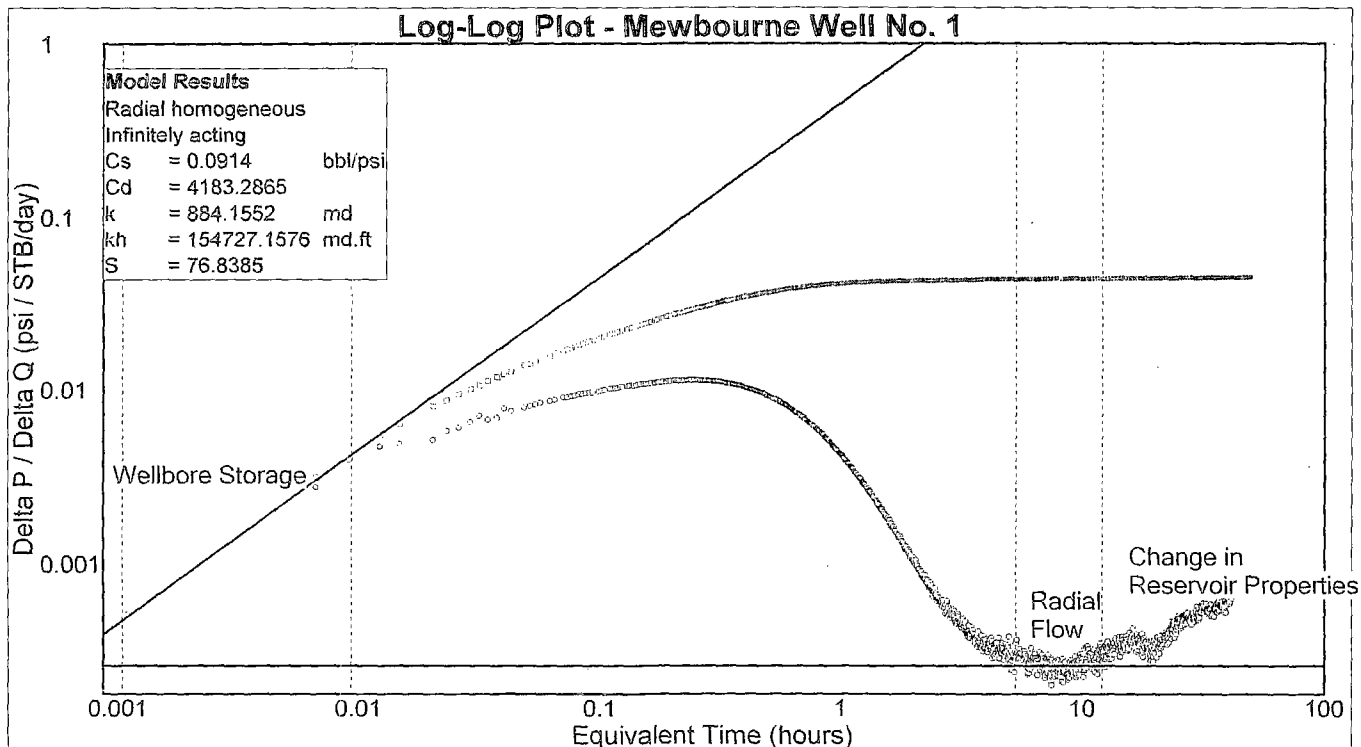
Intercept : 3591.62

Coefficient of Determination : 0.996681

	Radial flow
Extrapolated pressure	3591.618387 psia
Pressure at dt = 1 hour	3603.406573 psia

Number of Intersections = 0

Well Test Analysis Report



Log-Log Plot - Mewbourne Well No. 1 Model Results

Radial homogeneous - Infinitely acting

Classic Wellbore Storage

	Value
Wellbore storage coefficient	0.091439 bbl/psi
Dimensionless wellbore storage	4183.286516
Permeability	884.155186 md
Permeability-thickness	1.5473e5 md.ft
Skin factor	76.838547

Log-Log Plot - Mewbourne Well No. 1 Line Details

Line type : Radial flow

Slope : 0

Intercept : 0.000260084

Coefficient of Determination : Not Used

Line type : Wellbore storage

Slope : 1

Intercept : 0.455678

Coefficient of Determination : Not Used

Number of Intersections = 0

Test Overview - Mewbourne Well No. 1

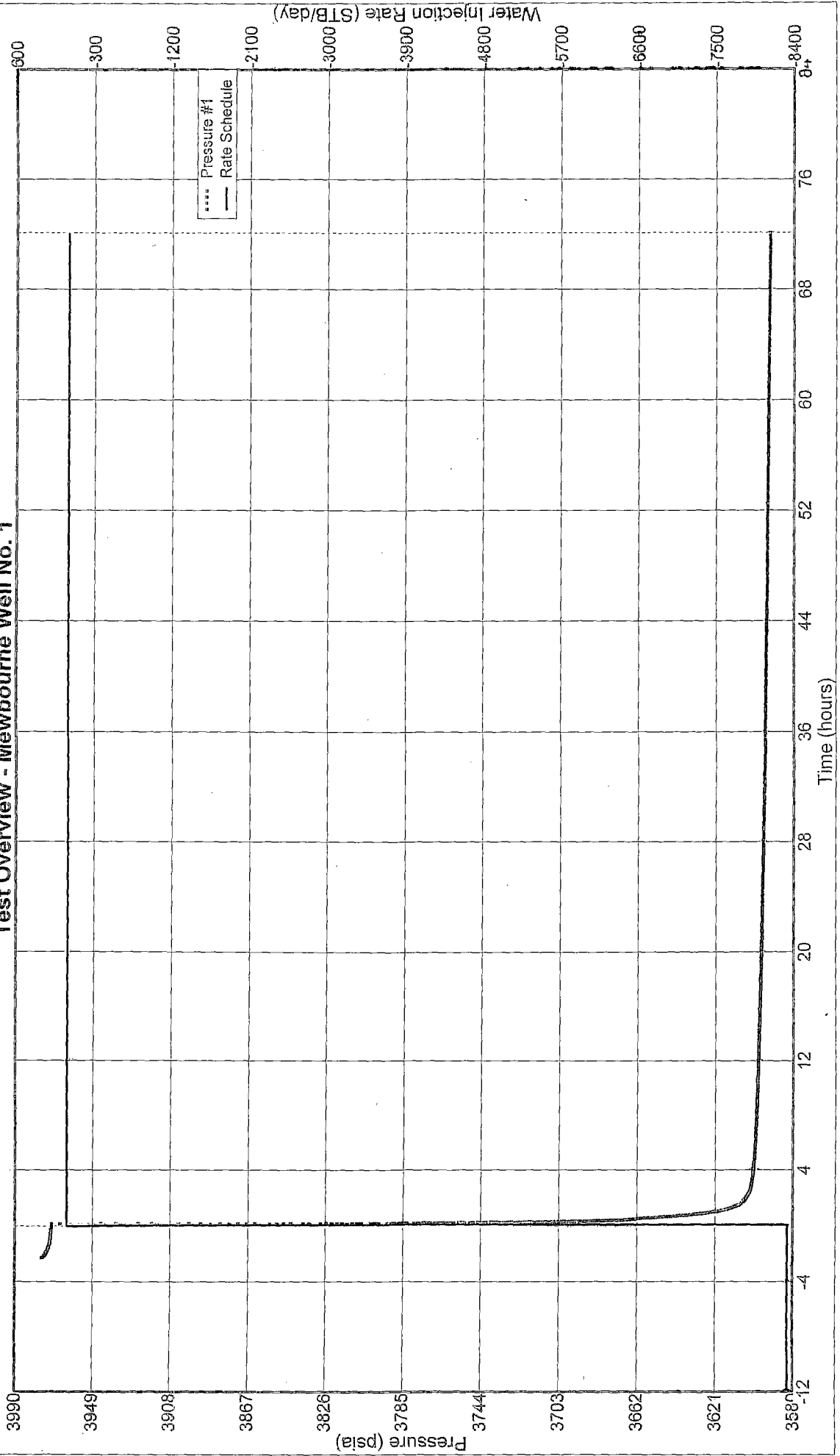


FIGURE 9

Pressure/Temperature Plot - Mewbourne Well No. 1

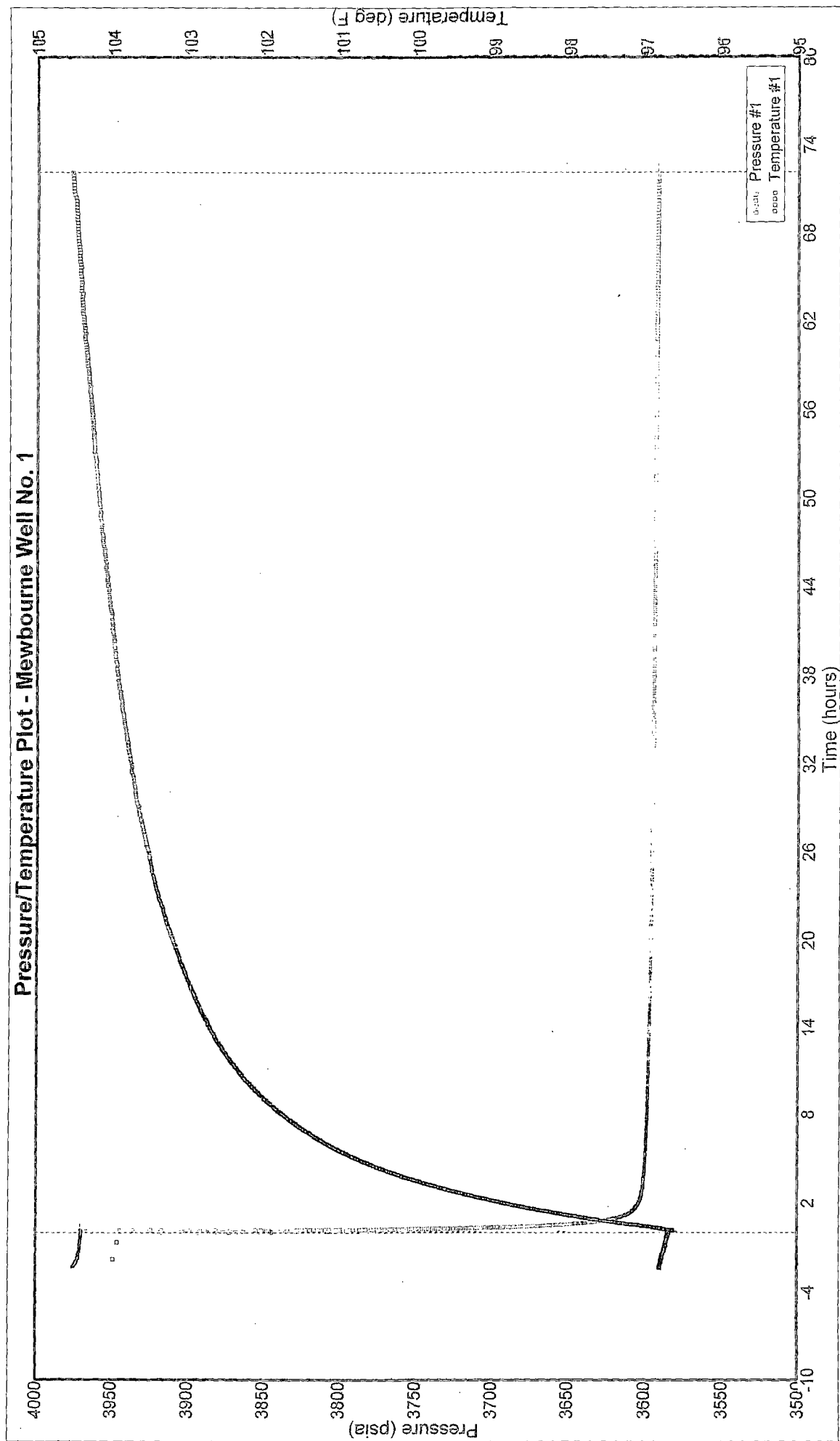


FIGURE 10

BHP Pressure/Injection Rate - Mewbourne Well No. 1

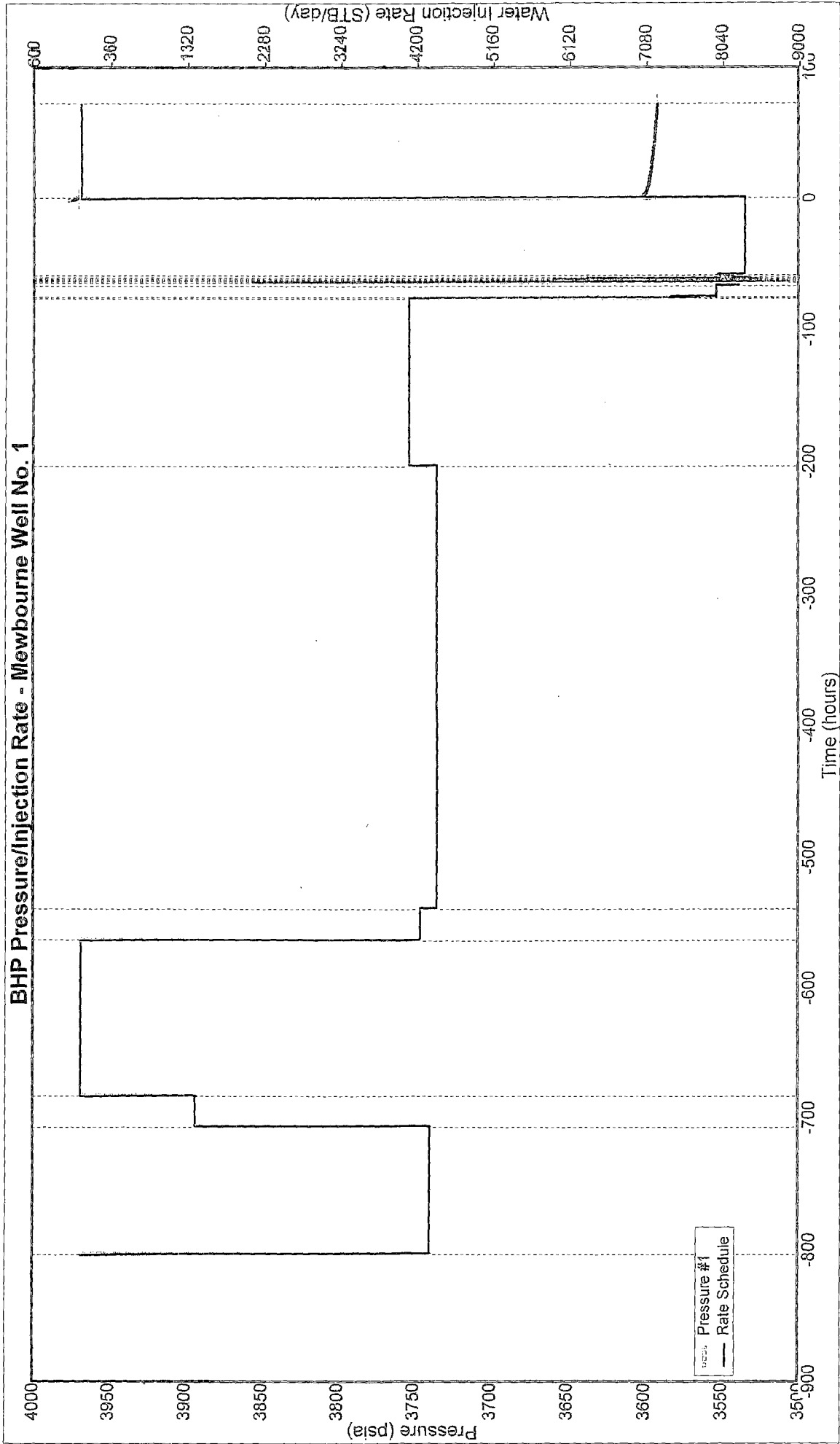


FIGURE 11

Surface Pressures/Rates - Mewbourne Well No. 1

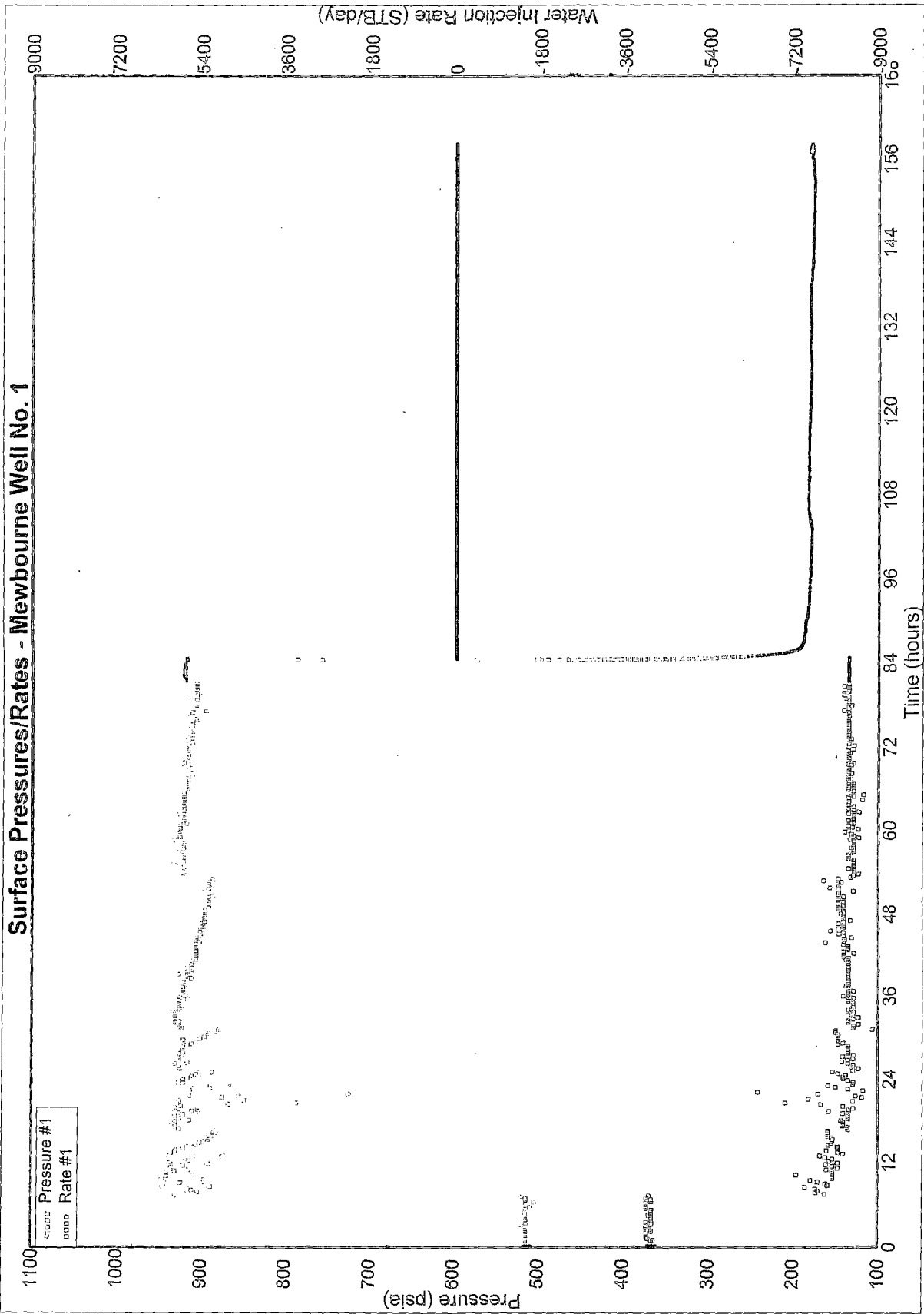


FIGURE 12

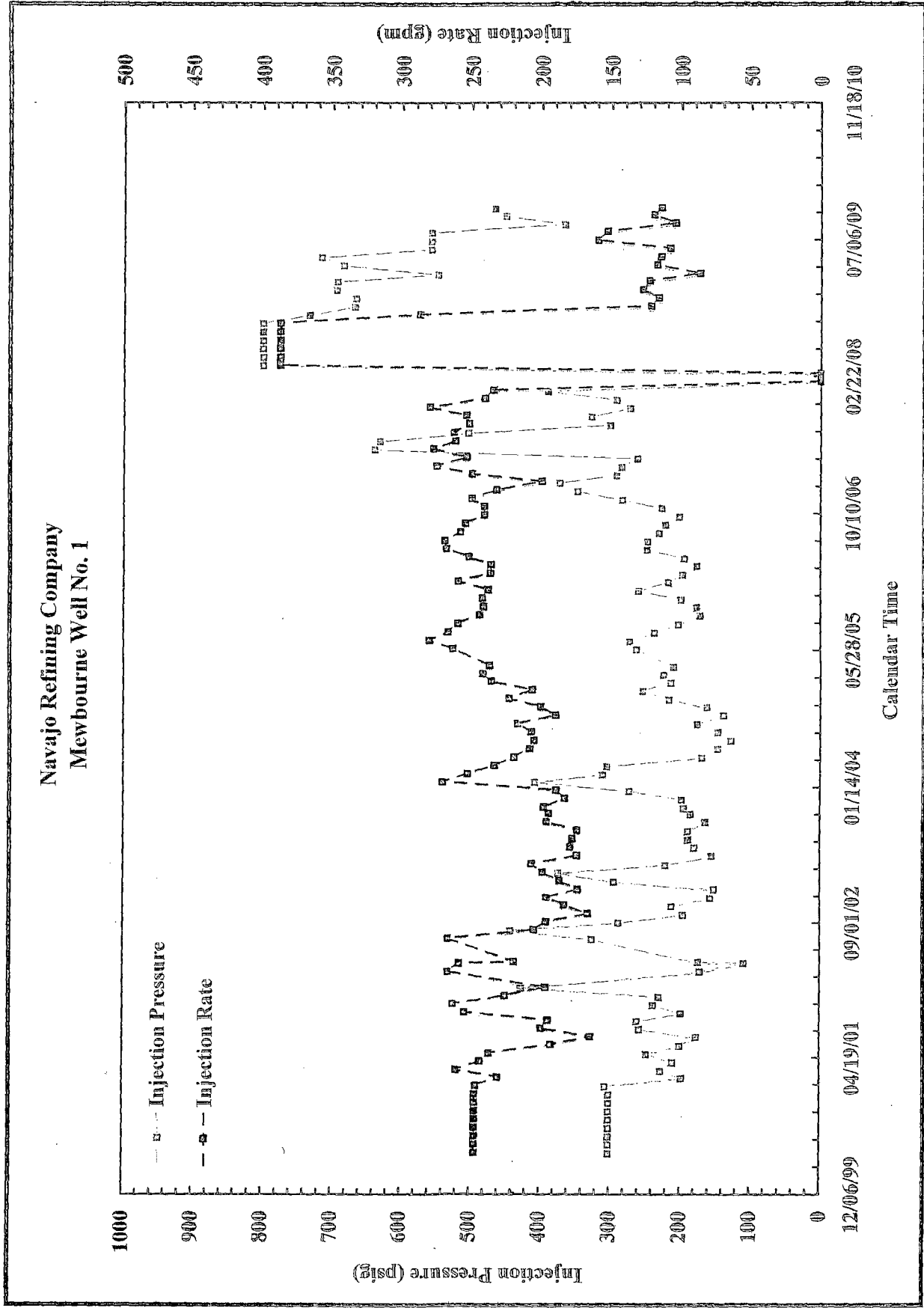


FIGURE 13

Log-Log Plot - Mewbourne Well No. 1

Model Results	
Radial homogeneous	
Infinitely acting	bbl/psi
Cs	= 0.0914
Cd	= 4183.2865
kh	= 884.1552 md
lkh	= 154727.1576 md.ft
S	= 76.8385

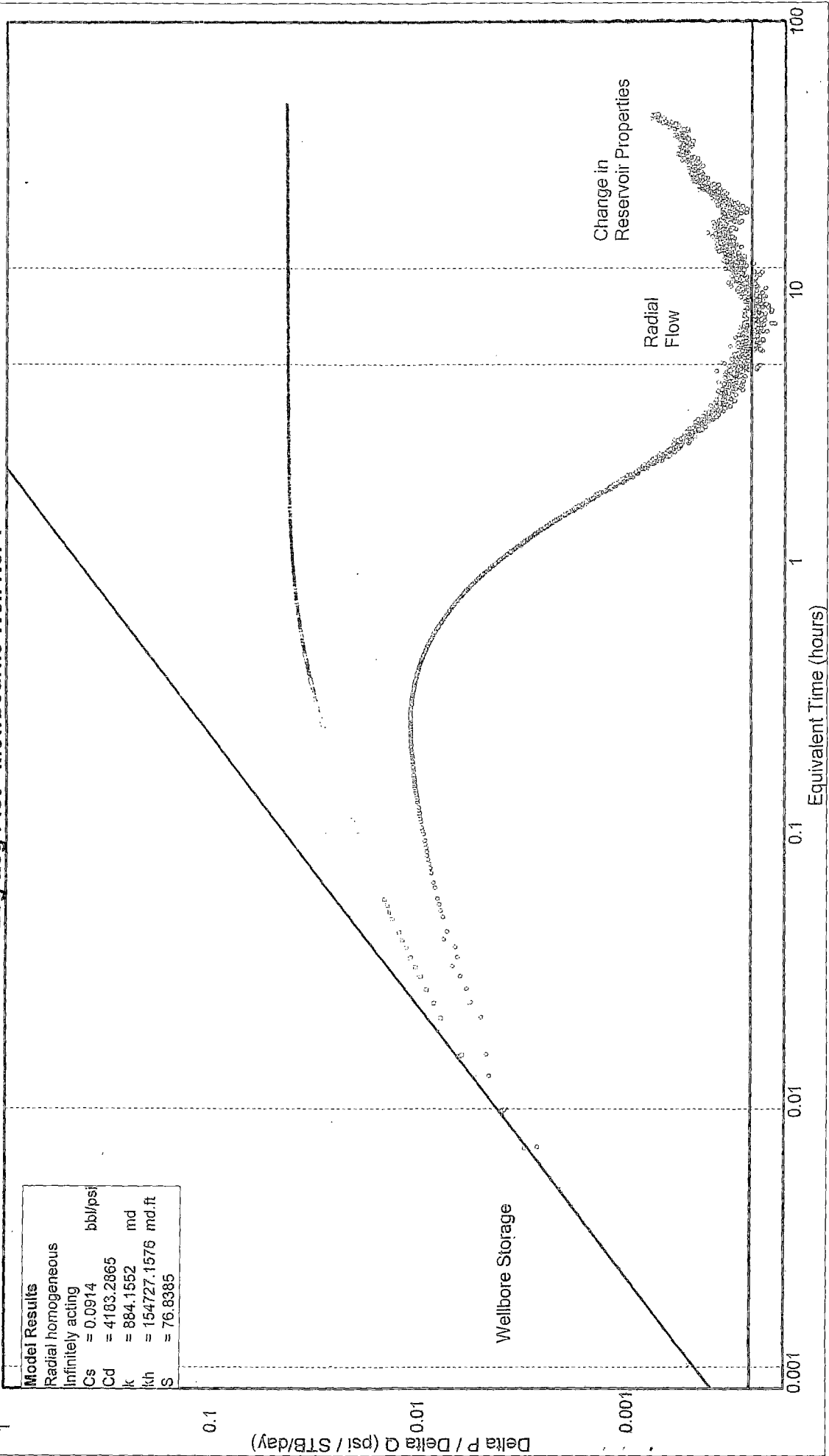


FIGURE 14

Radial Flow Plot - Mewbourne Well No. 1

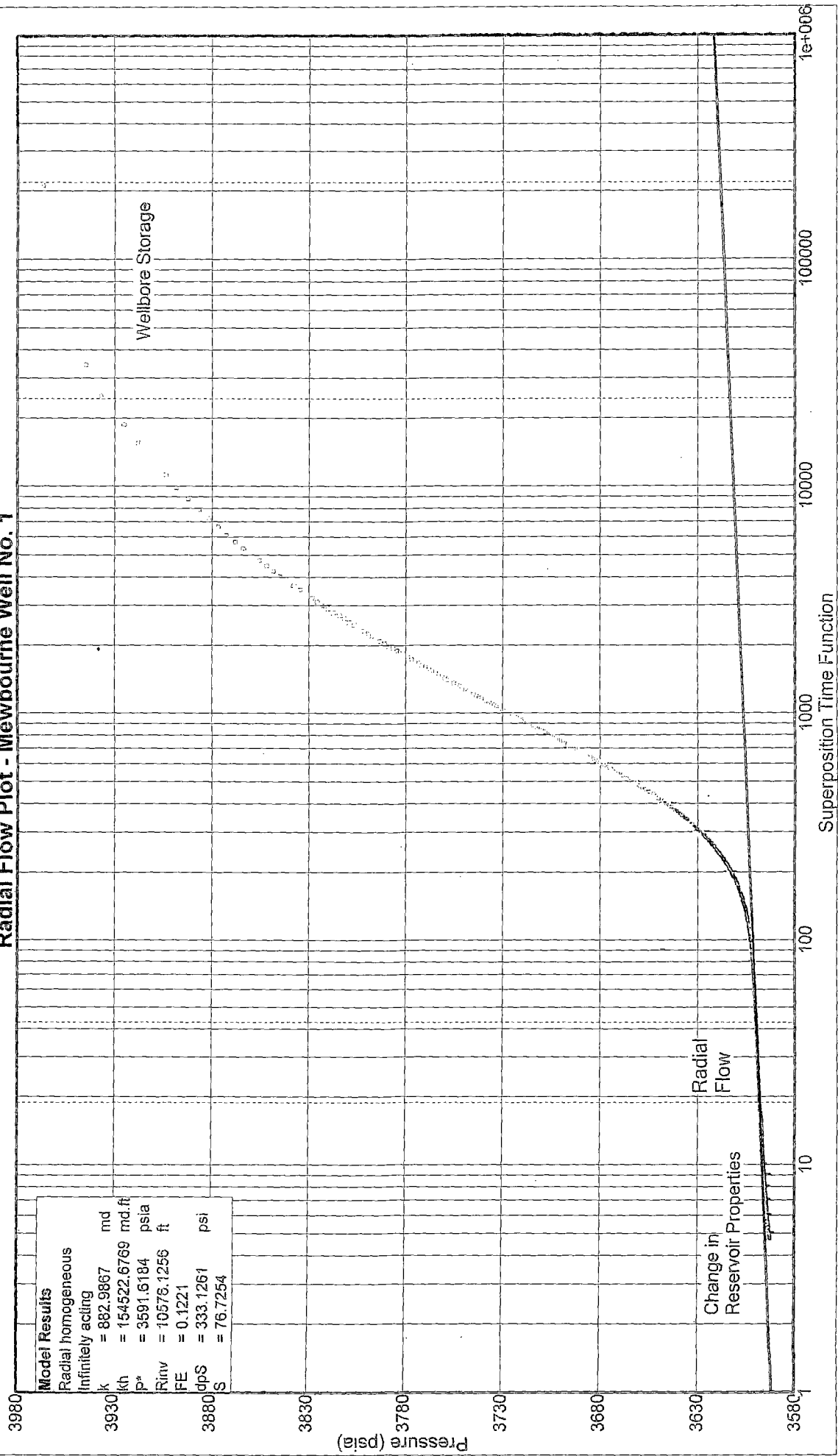
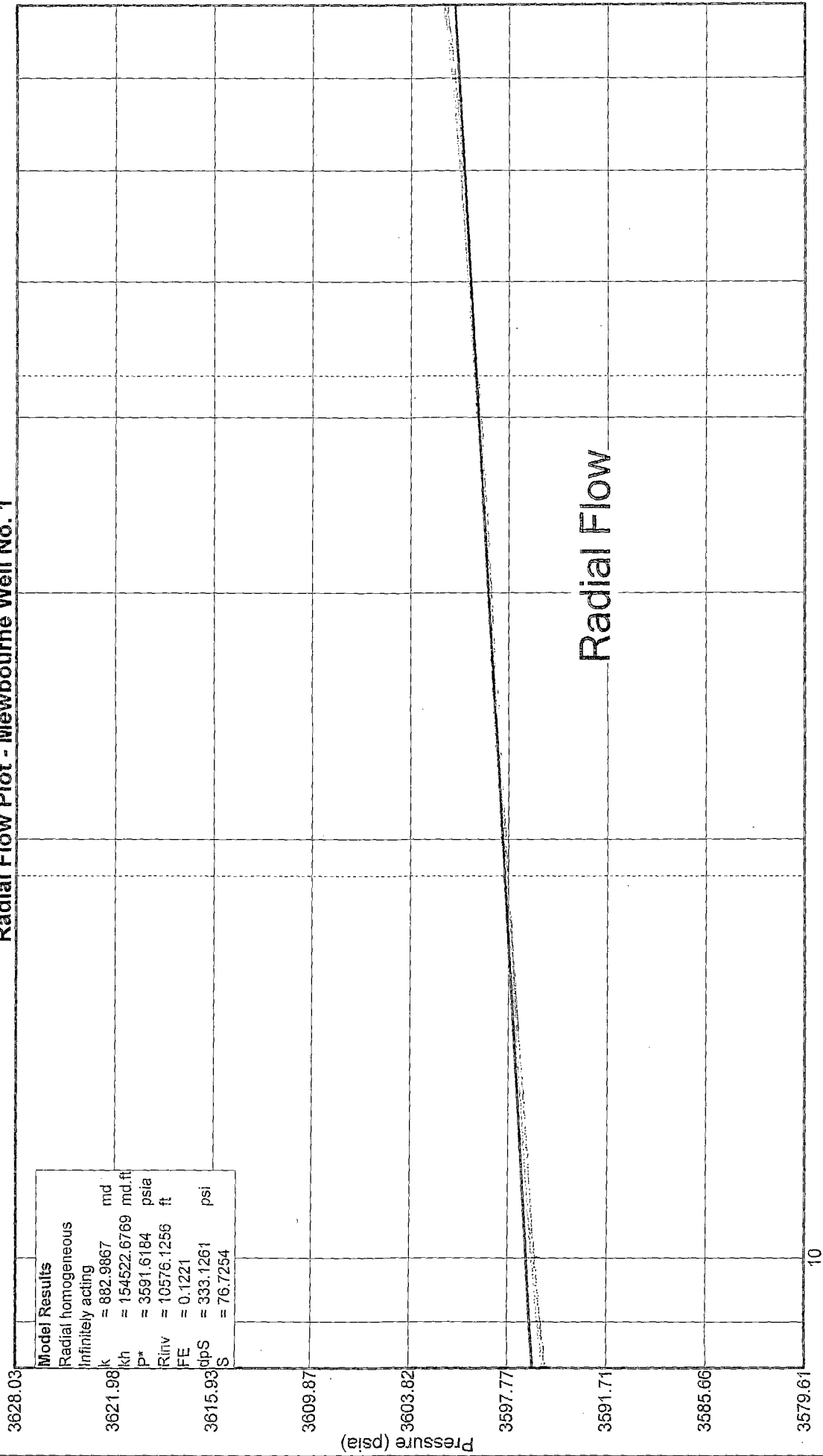


FIGURE 15

Radial Flow Plot - Mewbourne Well No. 1



Superposition Time Function

FIGURE 16



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Production Optimization Systems

Report File:

PanSystem Version 3.5

Analysis Date:

11/16/2009

Well Test Analysis Report

Company	Navajo Refining Company
Location	Artesia, New Mexico
Well	Chukka Well #2
Date	October 1 - October 4, 2009
Test	Injection / Falloff
Gauge Type / Serial No.	SRO Spartek Systems / No. 76841
Gauge Depth	7,570 feet
Injection Interval	7,570 feet - 8,399 feet
Completion Type	Perforated
Top of Fill	8,775 feet
Analyst	RLS
Subsurface Project Number	70A6365

Remarks:

Well Test Analysis Report

Reservoir Description

Fluid type : Water

Well orientation : Vertical

Number of wells : 1

Number of layers : 1

Layer Parameters Data

	Layer 1
Formation thickness	175.0000 ft
Average formation porosity	0.1000
Water saturation	0.0000
Gas saturation	0.0000
Formation compressibility	0.000000 psi-1
Total system compressibility	8.4000e-6 psi-1
Layer pressure	0.000000 psia
Temperature	0.000000 deg F

Well Parameters Data

	Well 1
Well radius	0.3281 ft
Distance from observation to active well	0.000000 ft
Wellbore storage coefficient	0.107026 bbl/psi
Storage Amplitude	25.000000 psi
Storage Time Constant	0.050000 hr
Second Wellbore Storage	0.000000 bbl/psi
Time Change for Second Storage	0.000000 hr
Well offset - x direction	0.0000 ft
Well offset - y direction	0.0000 ft

Fluid Parameters Data

	Layer 1
Oil gravity	0.000000 API
Gas gravity	0.000000 sp grav
Gas-oil ratio (produced)	0.000000 scf/STB
Water cut	0.000000
Water salinity	0.000000 ppm
Check Pressure	0.000000 psia
Check Temperature	0.000000 deg F
Gas-oil ratio (solution)	0.000000 scf/STB
Bubble-point pressure	0.000000 psia
Oil density	0.000 lb/ft3
Oil viscosity	0.000 cp
Oil formation volume factor	0.000 RB/STB
Gas density	0.000 lb/ft3
Gas viscosity	0.0 cp
Gas formation volume factor	0.000 ft3/scf
Water density	0.000 lb/ft3
Water viscosity	0.590 cp
Water formation volume factor	1.000 RB/STB
Oil compressibility	0.000000 psi-1
Initial Gas compressibility	0.000000 psi-1
Water compressibility	0.000000 psi-1

Well Test Analysis Report

Layer 1 Correlations

Not Used

Layer 1 Model Data

Layer 1 Model Type : Radial homogeneous

	Layer 1
Permeability	760.0000 md
Skin factor (Well 1)	37.0000

Rate Change Data

Time Hours	Pressure psia	Rate STB/day
-775.216733	0.000000	-4444.545033
-55.216733	0.000000	-6422.400000
-31.216733	0.000000	-6469.200000
-6.513558	3622.754491	-6328.800000
1.344770	3637.724551	-6328.800000
9.517513	3626.017832	-6328.800000
81.819819	3448.781578	0.000000

Well Test Analysis Report

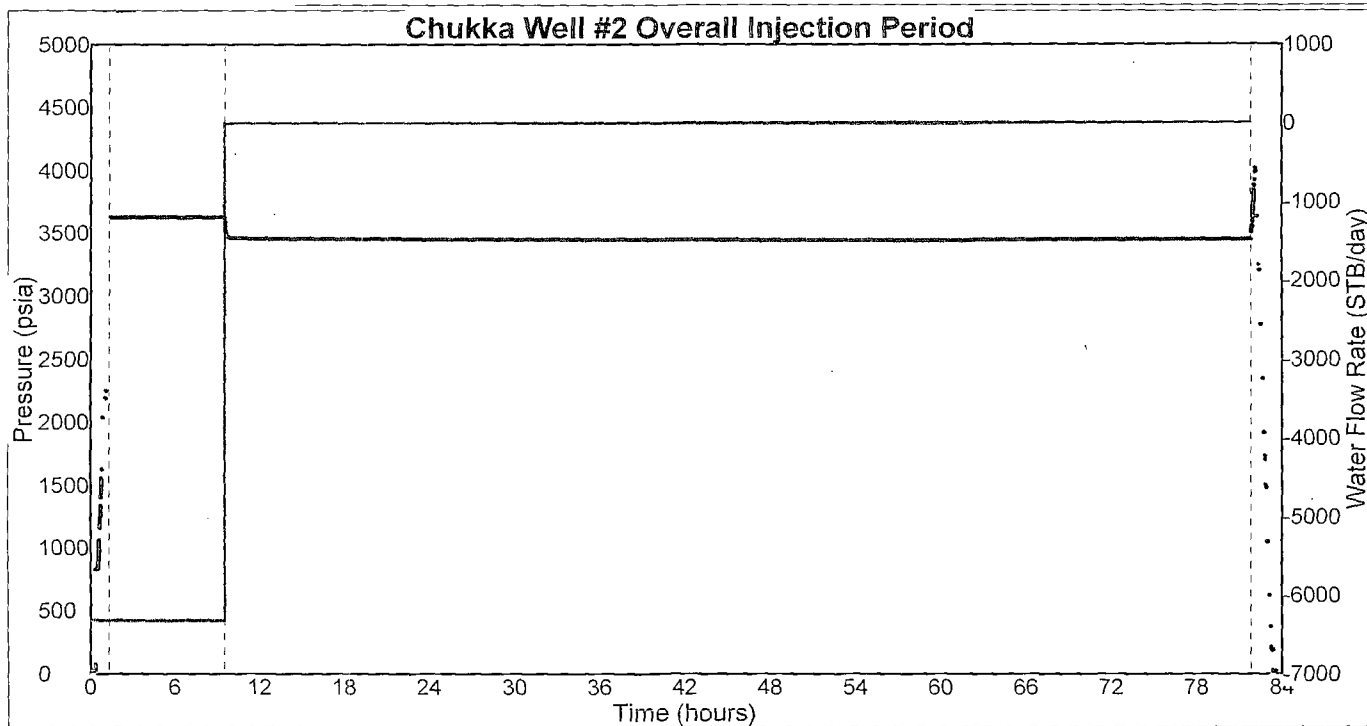
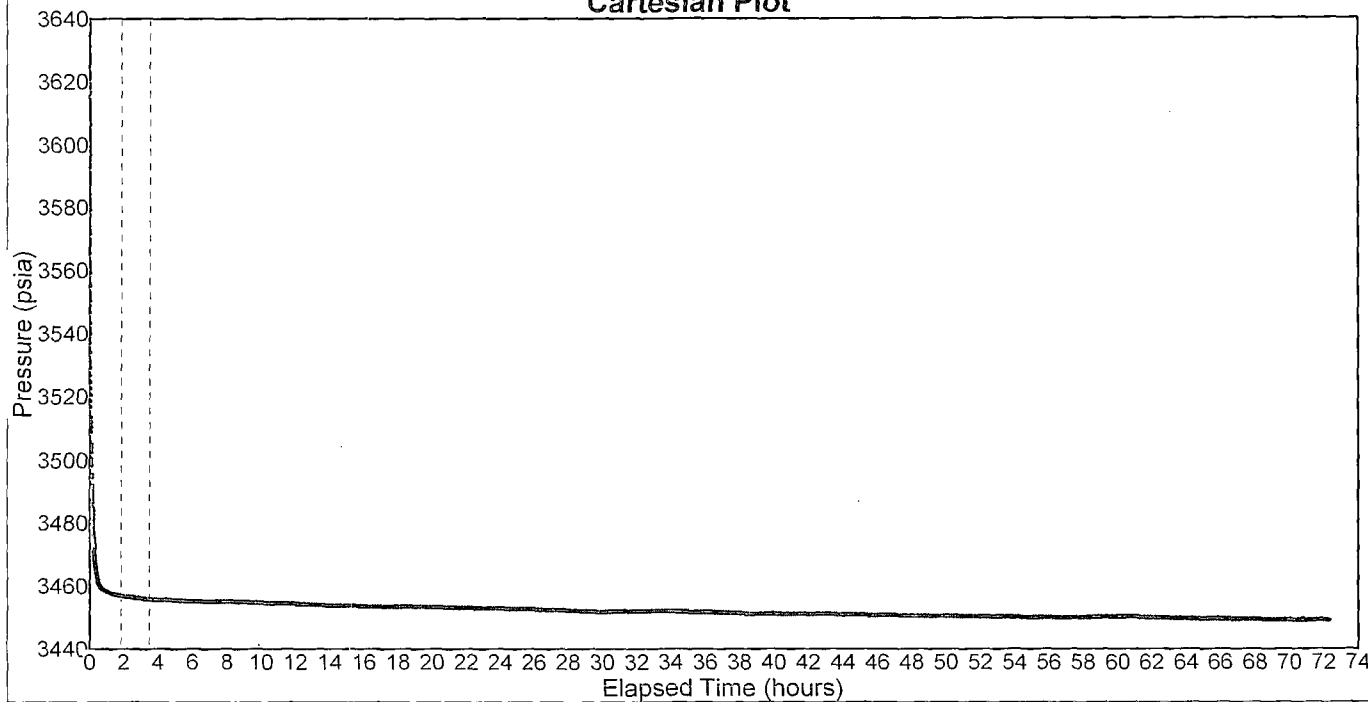


FIGURE 11

Cartesian Plot



Well Test Analysis Report

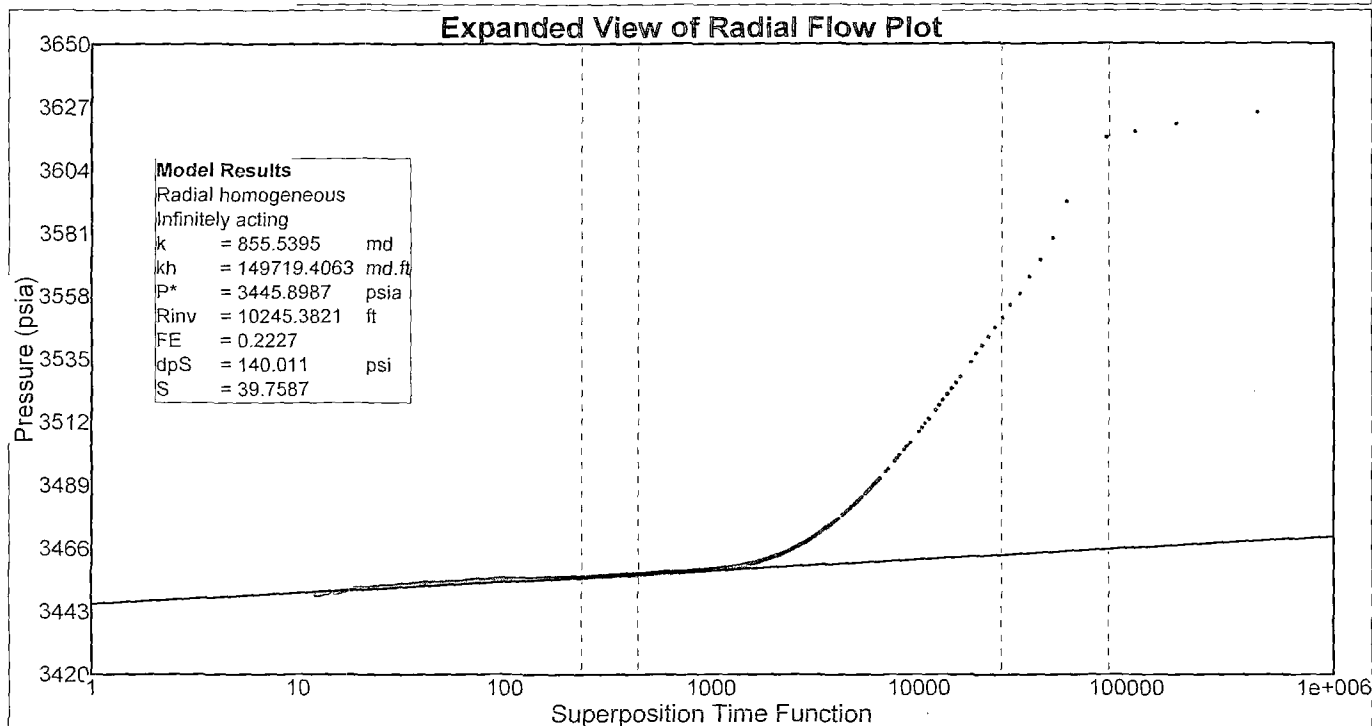


FIGURE 16

Expanded View of Radial Flow Plot Model Results

Radial homogeneous - Infinitely acting

Fair Wellbore Storage

	Value
Permeability	855.539465 md
Permeability-thickness	1.4972e5 md.ft
Extrapolated pressure	3445.898721 psia
Radius of investigation	1.0245e4 ft
Flow efficiency	0.222676
dP skin (constant rate)	140.010965 psi
Skin factor	39.75869

Expanded View of Radial Flow Plot Line Details

Line type : Radial flow

Slope : 4.0543

Intercept : 3445.9

Coefficient of Determination : Not Used

	Radial flow
Extrapolated pressure	3445.898721 psia
Pressure at dt = 1 hour	3457.719995 psia

Number of Intersections = 0

Well Test Analysis Report

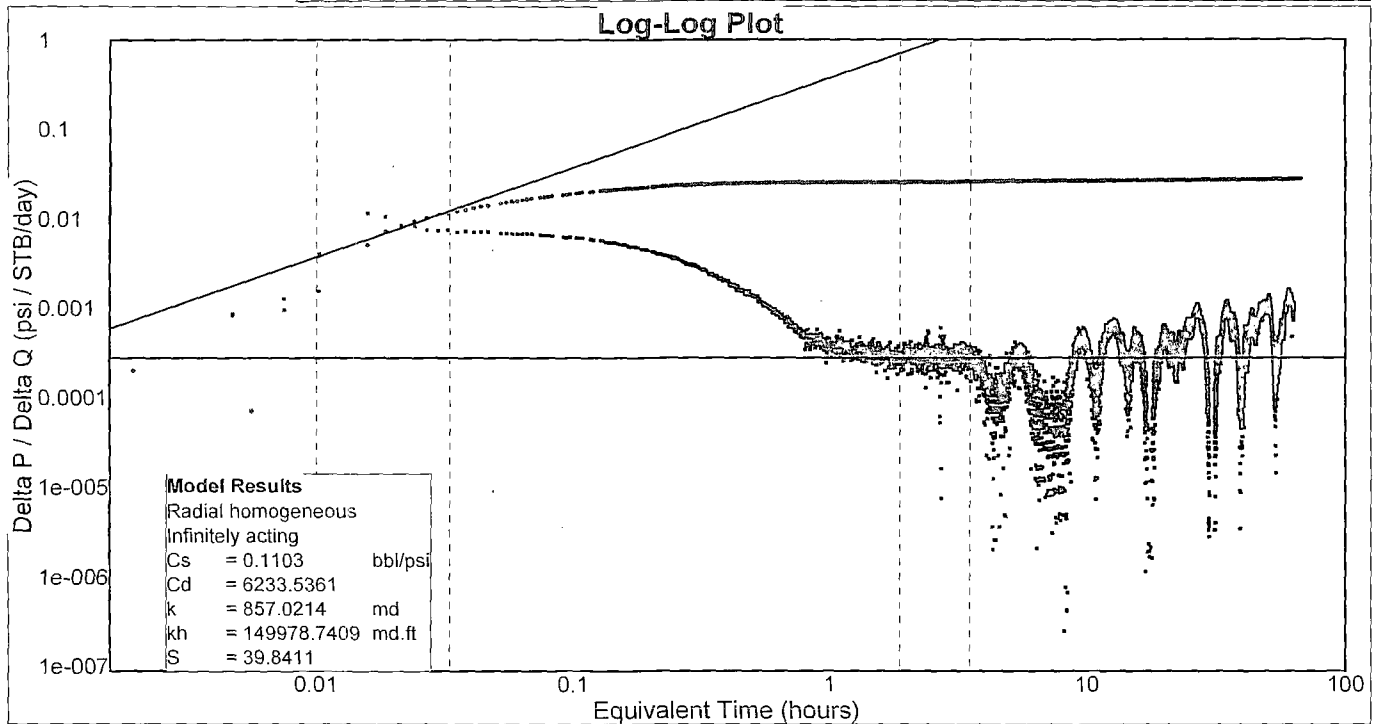


FIGURE 14

Log-Log Plot Model Results

Radial homogeneous - Infinitely acting

Fair Wellbore Storage

	Value
Wellbore storage coefficient	0.110338 bbl/psi
Dimensionless wellbore storage	6233.536095
Permeability	857.021377 md
Permeability-thickness	1.4998e5 md.ft
Skin factor	39.841114

Log-Log Plot Line Details

Line type : Radial flow

Slope : 0

Intercept : 0.000277733

Coefficient of Determination : Not Used

Line type : Wellbore storage

Slope : 1

Intercept : 0.377626

Coefficient of Determination : Not Used

Number of Intersections = 0

Test Overview

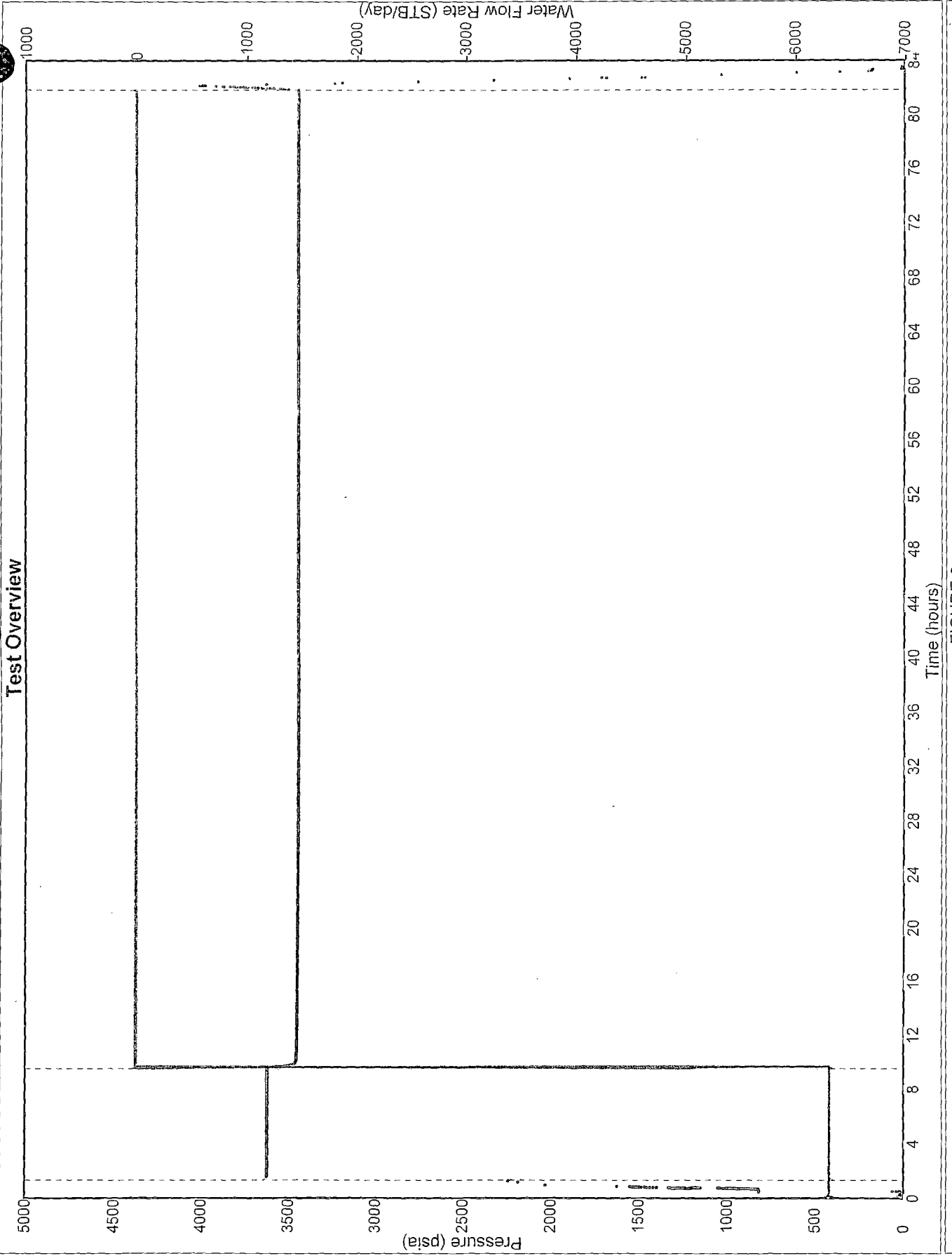


FIGURE 9

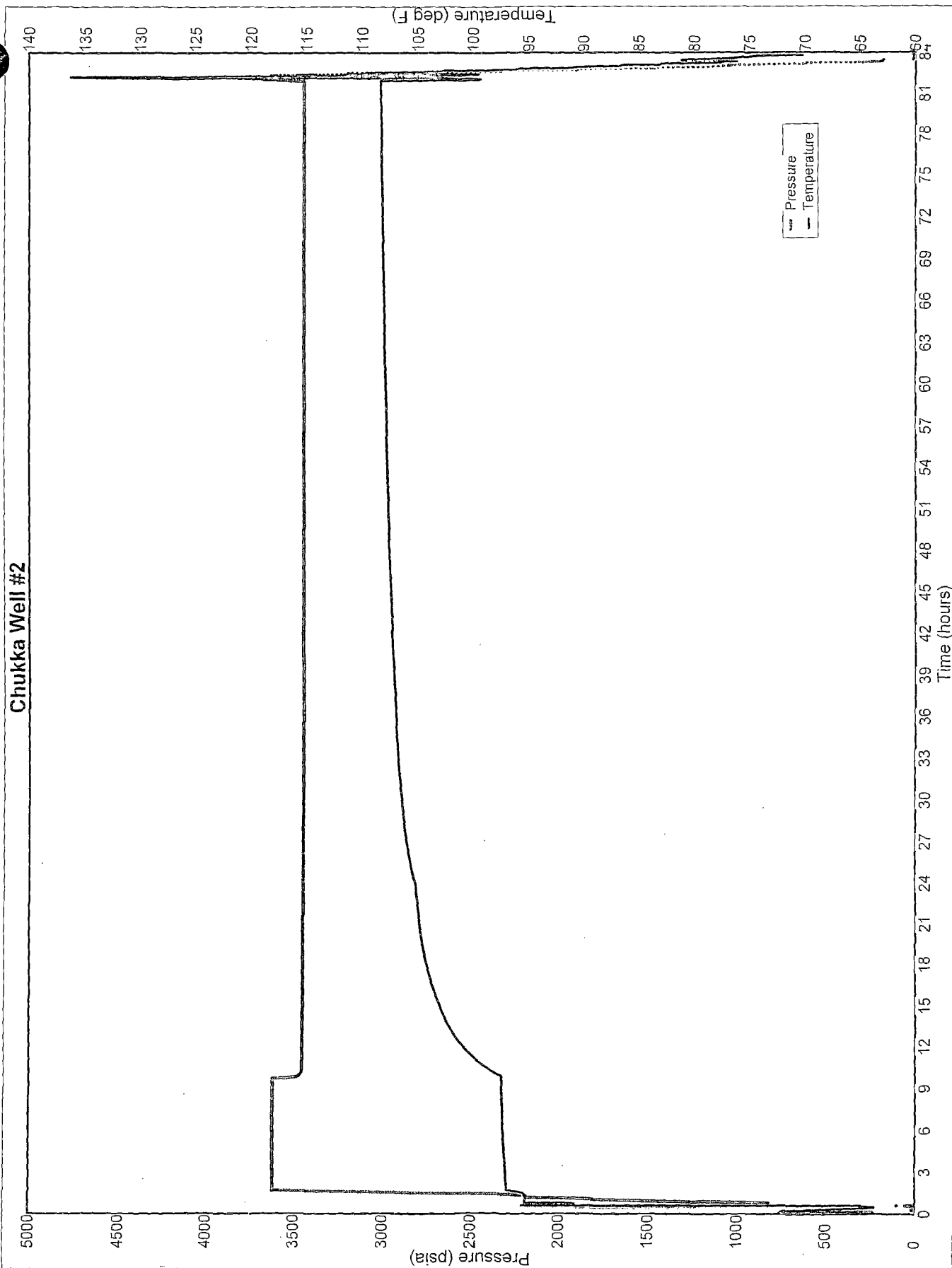


FIGURE 10

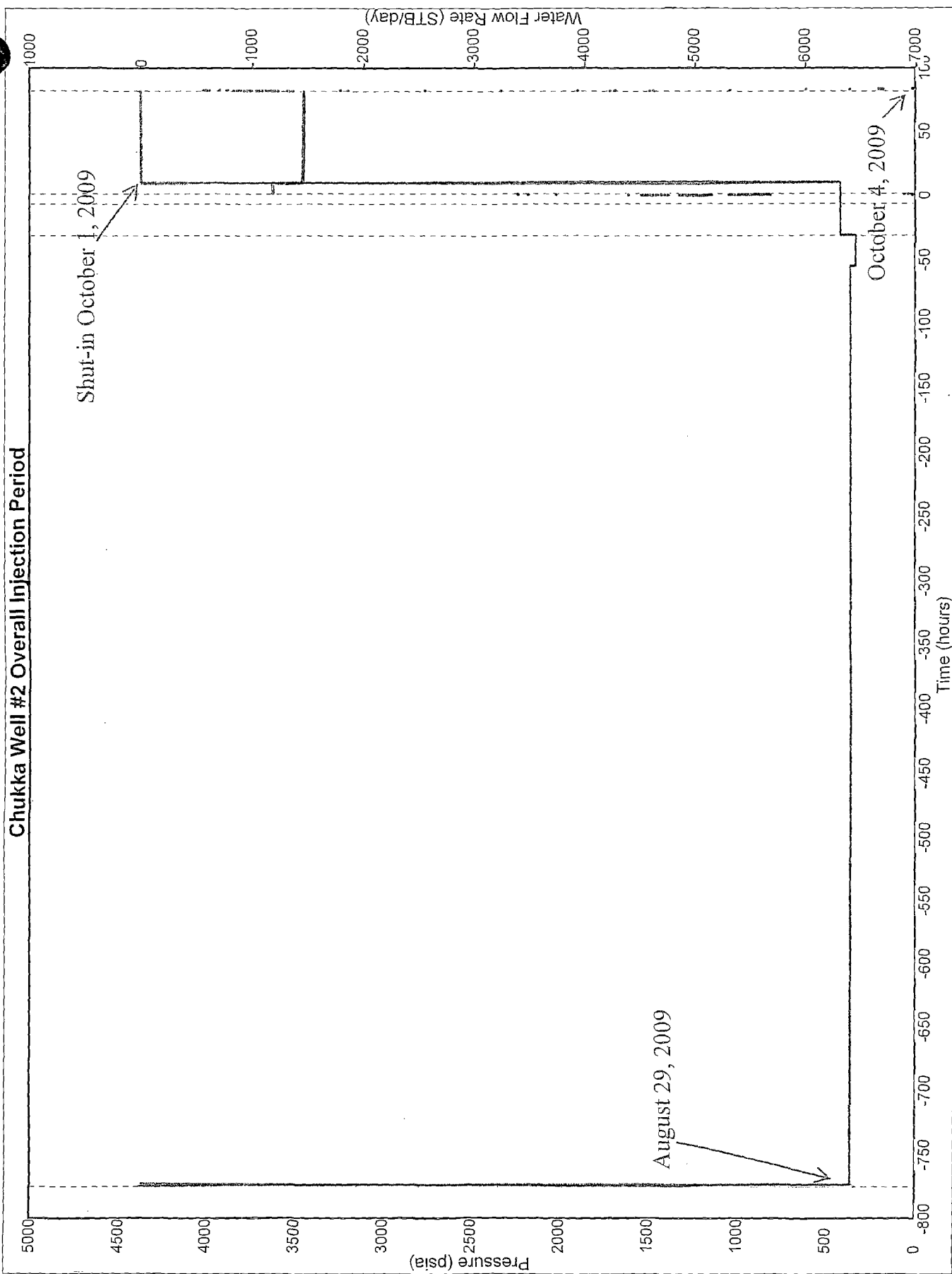


FIGURE 11

Chukka Well No. 2
 Cartesian Plot of Surface Pressure and Injection Rates
 January 1, 2009 to October 2, 2009

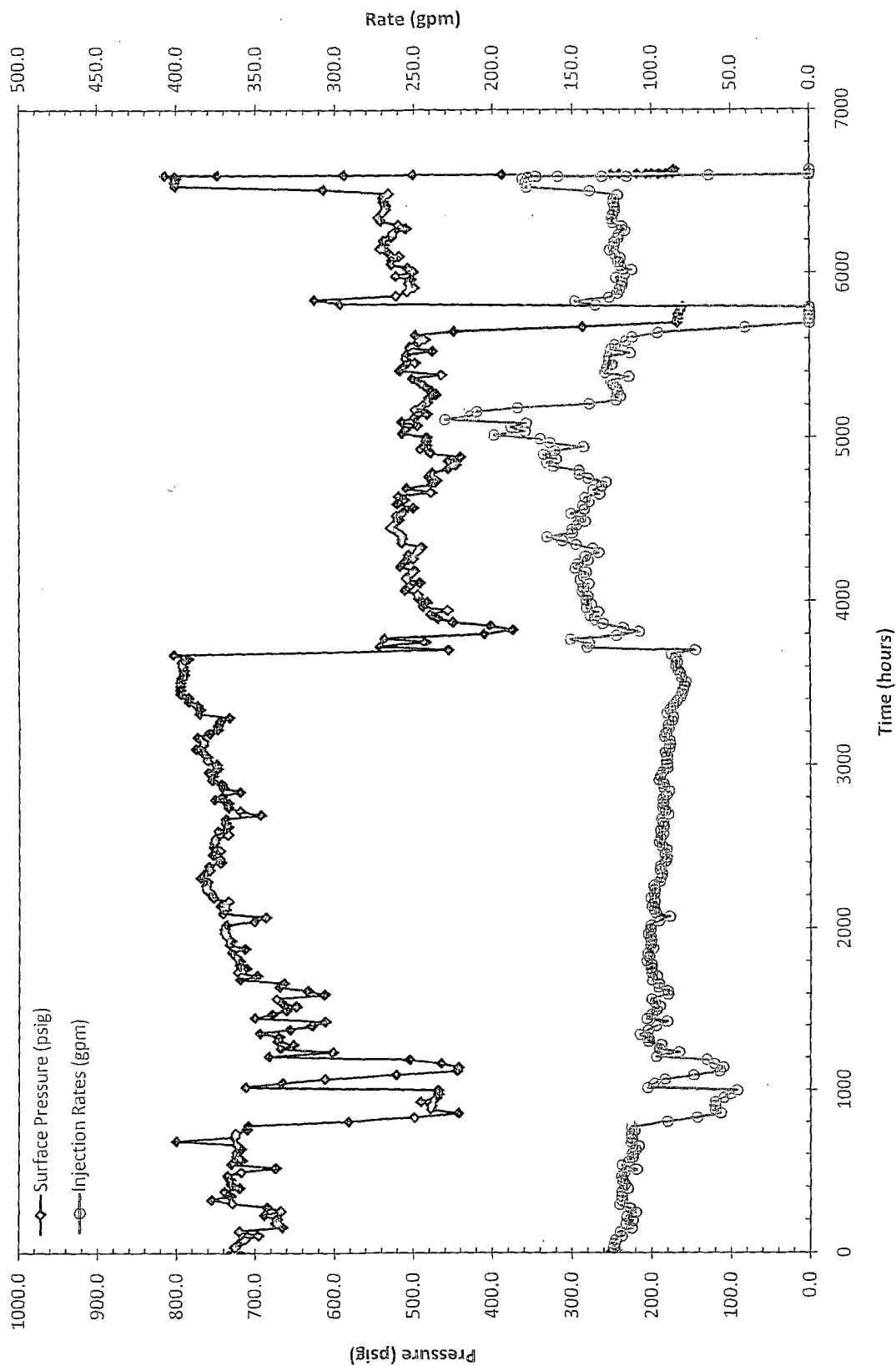


FIGURE 12

Chukka Well No. 2
 Cartesian Plot of Surface Pressure and Injection Rates
 March 25, 2001 to October 26, 2009

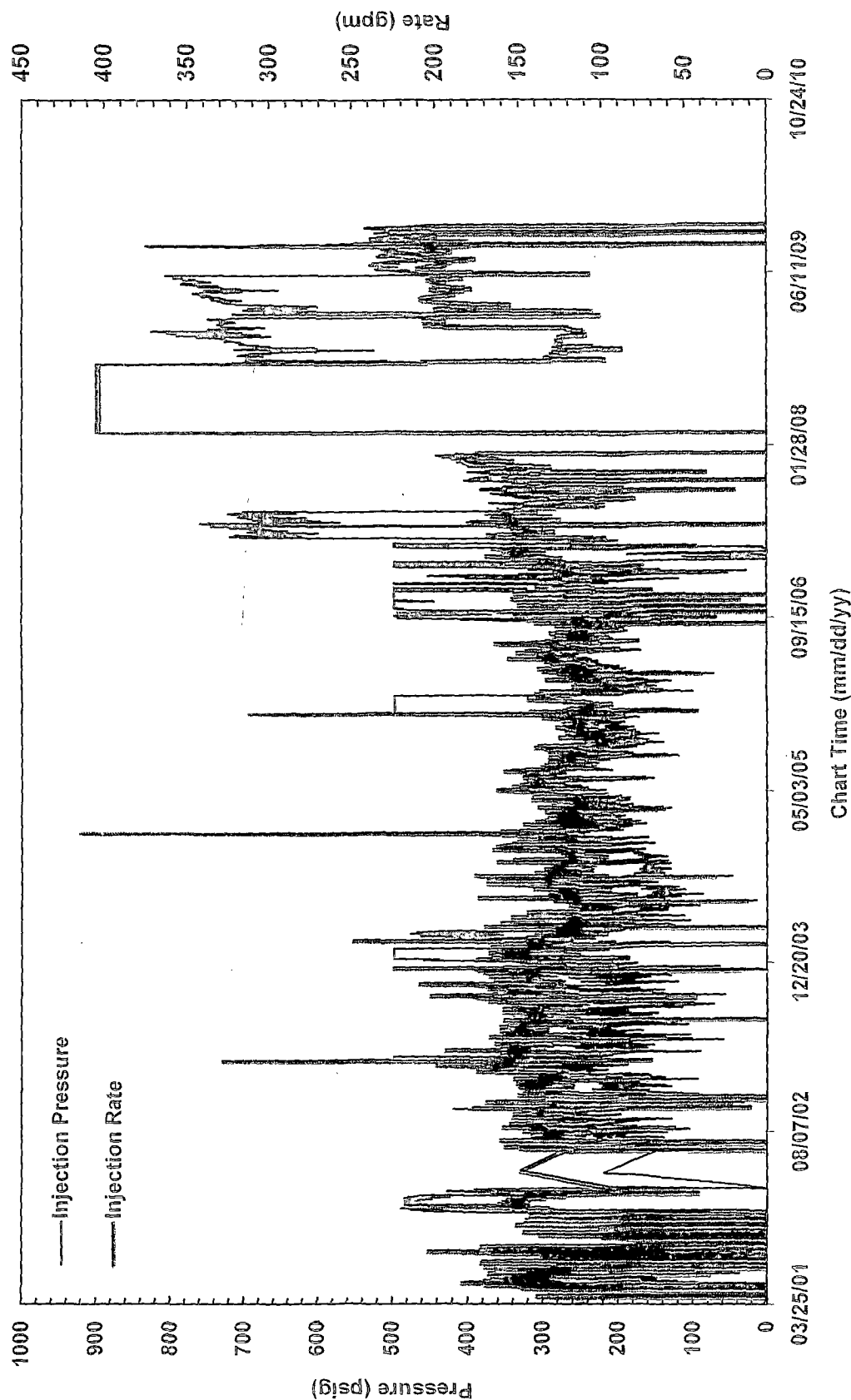


FIGURE 13

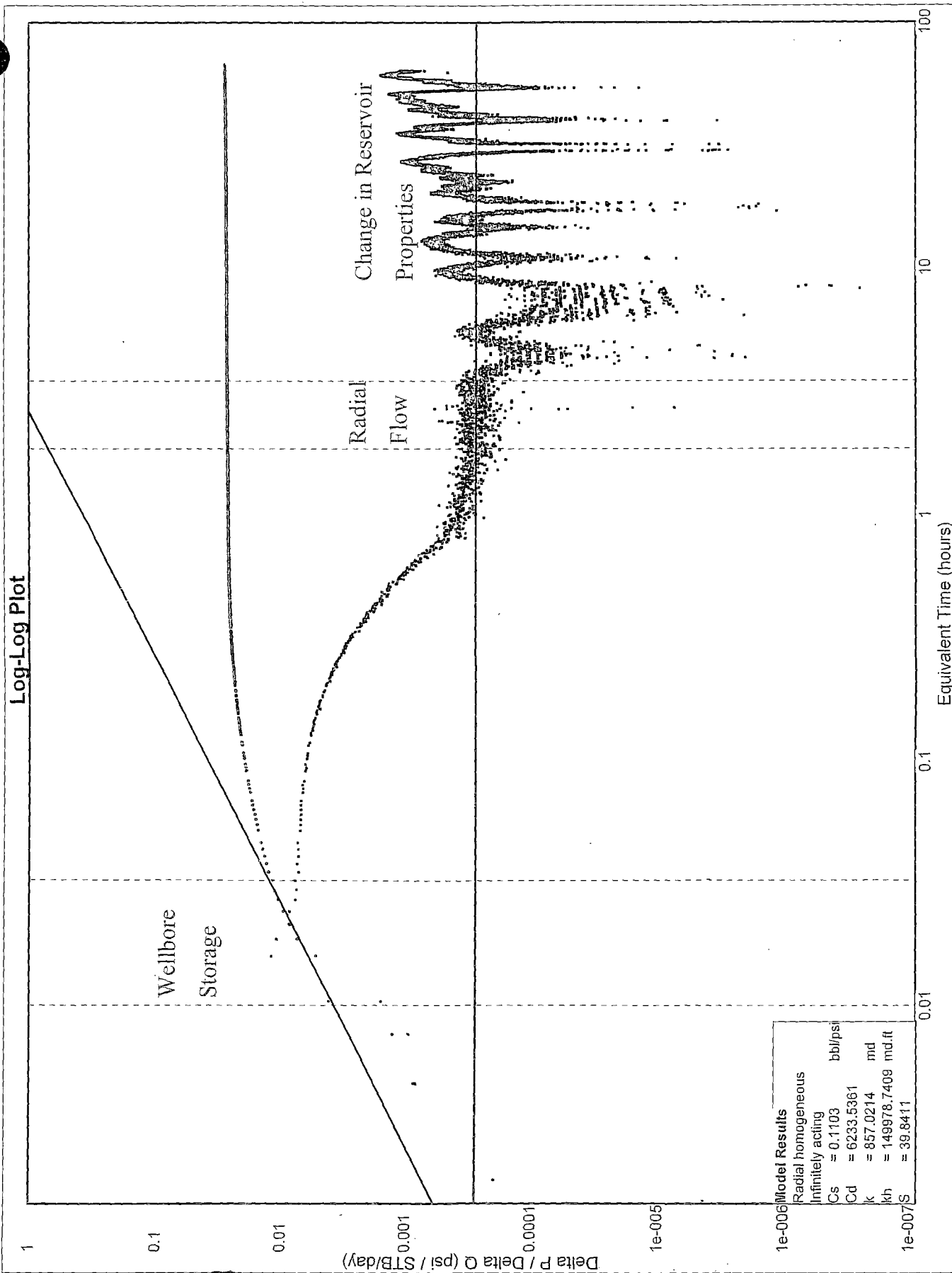


FIGURE 14

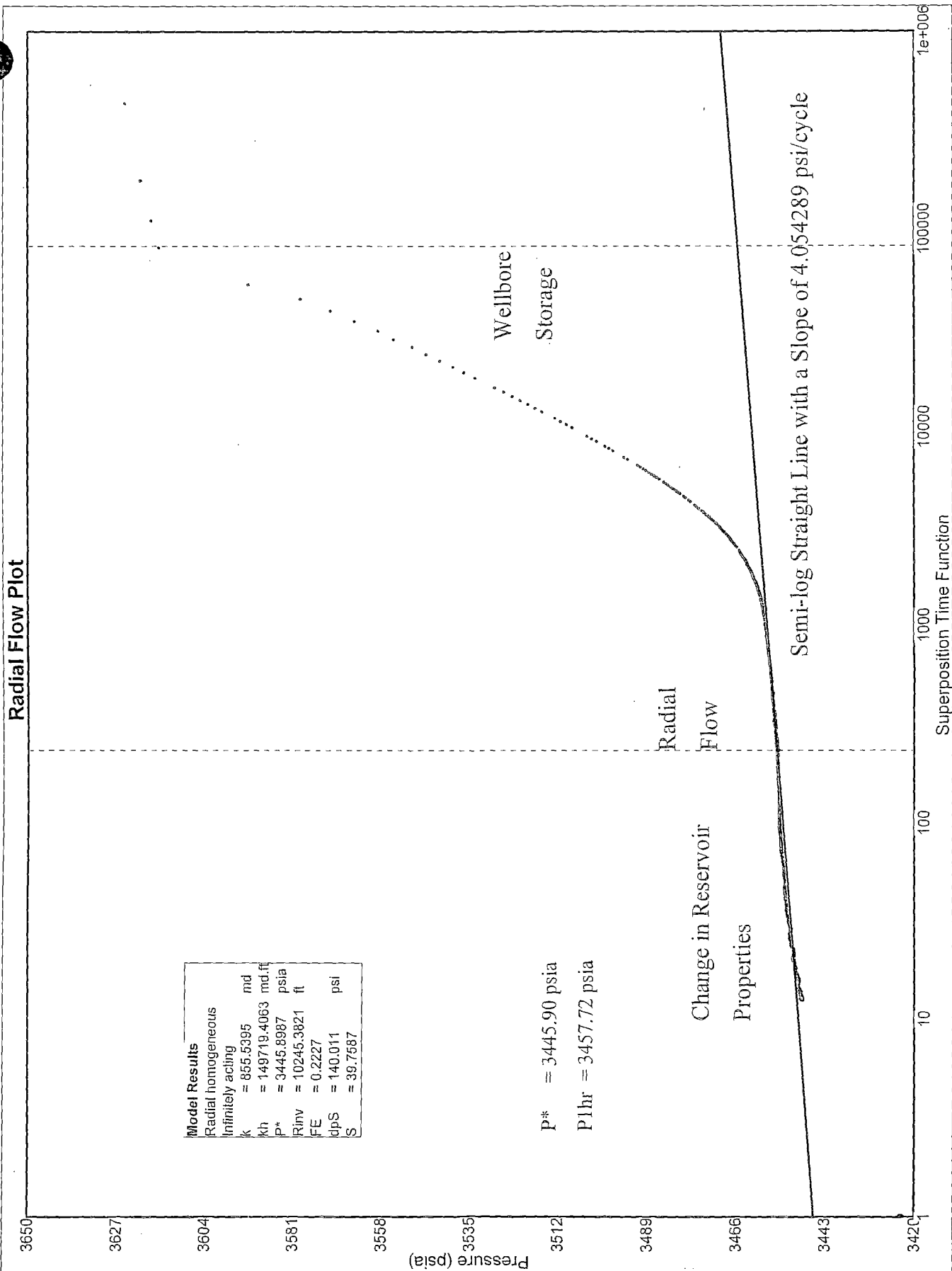
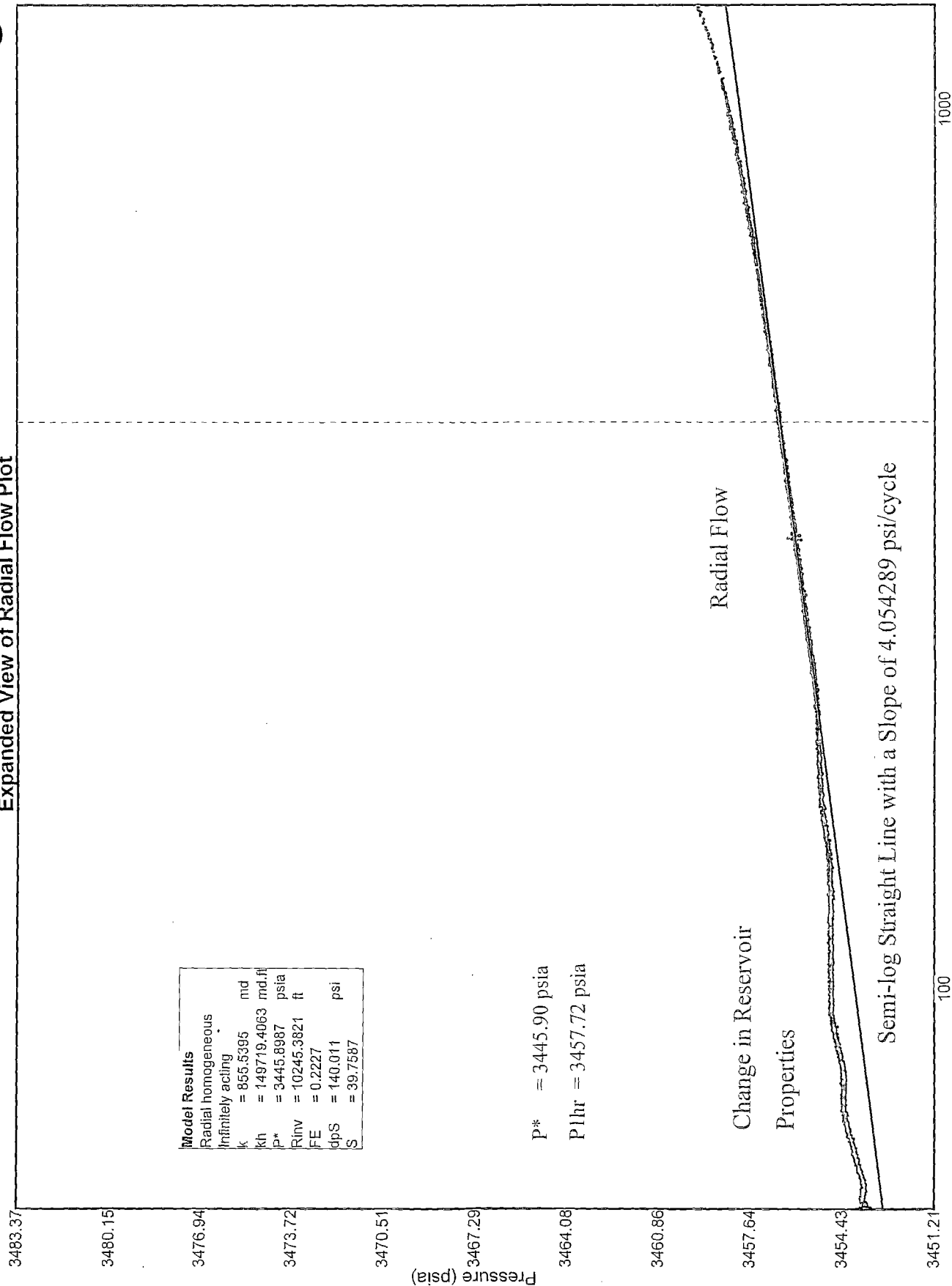


FIGURE 15

Expanded View of Radial Flow Plot



Model Results			
Radial homogeneous			
Infinitely acting			
k	= 855.5395	md	ft
kh	= 149719.4063	md.ft	
P*	= 3445.8987	psia	
Rinv	= 10245.3821	ft	
FE	= 0.2227		
dpS	= 140.011	psi	
S	= 39.7587		

P* = 3445.90 psia
P1hr = 3457.72 psia

Superposition Time Function

FIGURE 16



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Production Optimization Systems

Report File:

Navajo Well No. 3 Gaines :

PanSystem Version 3.5

Well Test Analysis Report

Company	Navajo Refining Company
Location	Artesia, New Mexico
Well	Gaines Well #3
Date	August 24 - 30, 2009
Test	Injection/Falloff
Gauge Type/Serial Number	Spartek.#80780
Gauge Depth	7,663 feet
Injection Interval	7,660 feet - 8,620 feet
Completion Type	Perforated
Top of Fill	8,986 feet
Analyst	LKM
Subsurface Project No.	70A6365

Reservoir Description

Fluid type : Water

Well orientation : Vertical

Number of wells : 1

Number of layers : 1

Layer Parameters Data

	Layer 1
Formation thickness	175.0000 ft
Average formation porosity	0.1000
Water saturation	0.0000
Gas saturation	0.0000
Formation compressibility	0.000000 psi-1
Total system compressibility	8.4000e-6 psi-1
Layer pressure	3475.675745 psia
Temperature	114.820000 deg F

Well Parameters Data

	Well 1
Well radius	0.3646 ft
Distance from observation to active well	0.000000 ft
Wellbore storage coefficient	0.043509 bbl/psi
Storage Amplitude	0.000000 psi
Storage Time Constant	0.000000 hr
Second Wellbore Storage	0.035103 bbl/psi
Time Change for Second Storage	0.016000 hr
Well offset - x direction	0.0000 ft
Well offset - y direction	0.0000 ft

Fluid Parameters Data

	Layer 1
Oil gravity	0.000000 API
Gas gravity	0.000000 sp grav
Gas-oil ratio (produced)	0.000000 scf/STB
Water cut	0.000000
Water salinity	0.000000 ppm
Check Pressure	3484.080000 psia
Check Temperature	114.820000 deg F
Gas-oil ratio (solution)	0.000000 scf/STB
Bubble-point pressure	0.000000 psia
Oil density	0.000 lb/ft3
Oil viscosity	0.000 cp
Oil formation volume factor	0.000 RB/STB
Gas density	0.000 lb/ft3
Gas viscosity	0.0 cp
Gas formation volume factor	0.000 ft3/scf
Water density	0.000 lb/ft3
Water viscosity	0.540 cp

Fluid Parameters Data (cont)

	Layer 1
Water formation volume factor	1.000 RB/STB
Oil compressibility	0.000000 psi-1
Initial Gas compressibility	0.000000 psi-1
Water compressibility	0.000000 psi-1

Layer 1 Correlations

Not Used

Layer 1 Model Data

Layer 1 Model Type : Radial homogeneous

	Layer 1
Permeability	718.830698 md
Skin factor (Well 1)	15.588053

Rate Change Data

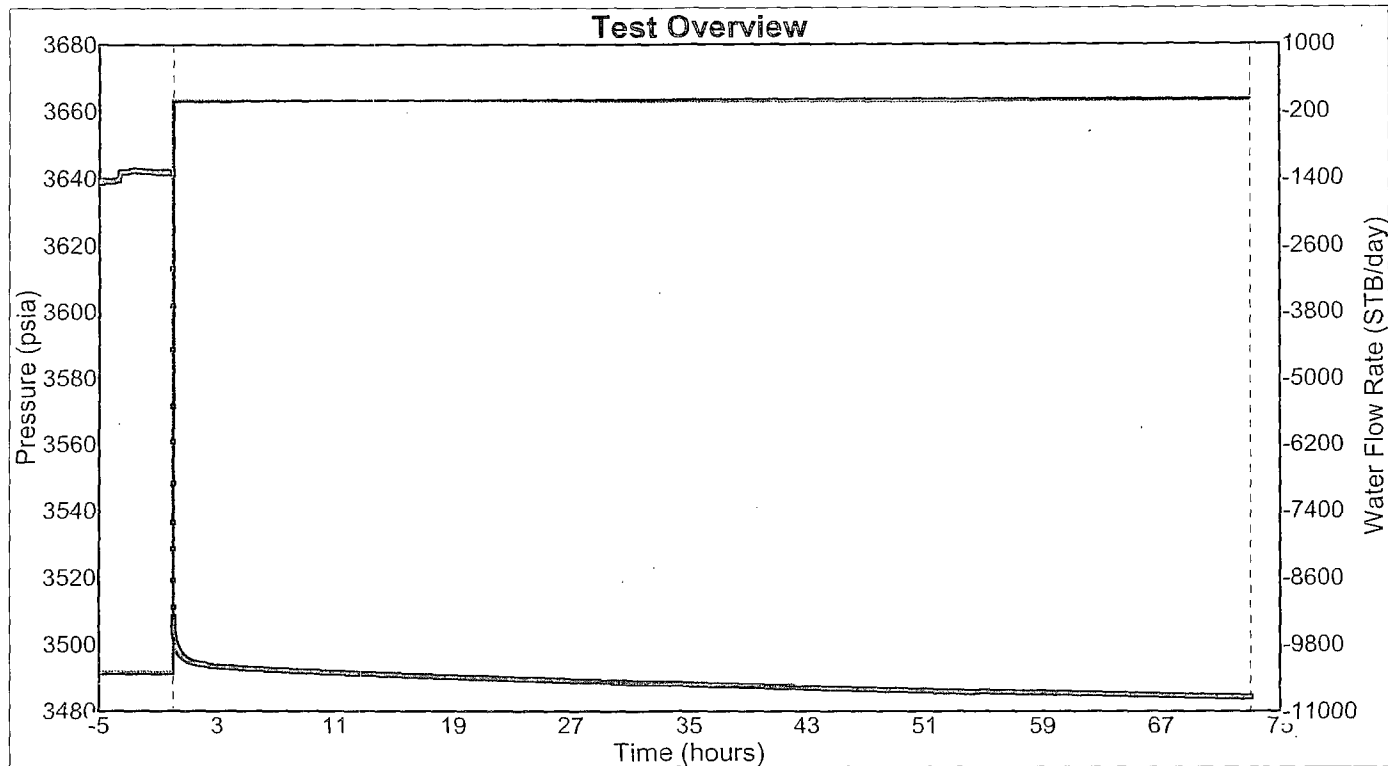
Time	Pressure	Rate
Hours	psia	STB/day
-925.483330	0.000000	-7006.000000
-901.483330	0.000000	-7073.940000
-877.483330	0.000000	-6813.490000
-853.483330	0.000000	-7164.460000
-829.483330	0.000000	-7021.020000
-805.483330	0.000000	-7107.950000
-781.483330	0.000000	-7208.180000
-757.483330	0.000000	-7508.980000
-733.483330	0.000000	-7197.630000
-709.483330	0.000000	-7375.970000
-685.483330	0.000000	-7304.950000
-661.483330	0.000000	-7168.640000
-637.483330	0.000000	-6937.170000
-613.483330	0.000000	-6870.560000
-589.483330	0.000000	-7152.810000
-565.483330	0.000000	-6632.390000
-541.483330	0.000000	-6736.960000
-517.483330	0.000000	-6677.310000
-493.483330	0.000000	-6495.640000
-469.483330	0.000000	-6562.180000
-445.483330	0.000000	-6656.030000
-421.483330	0.000000	-6903.070000
-397.483330	0.000000	-7067.910000
-373.483330	0.000000	-6741.210000
-349.483330	0.000000	-6845.950000
-325.483330	0.000000	-7010.790000
-301.483330	0.000000	-6822.860000
-277.483330	0.000000	-6786.210000
-253.483330	0.000000	-6905.040000

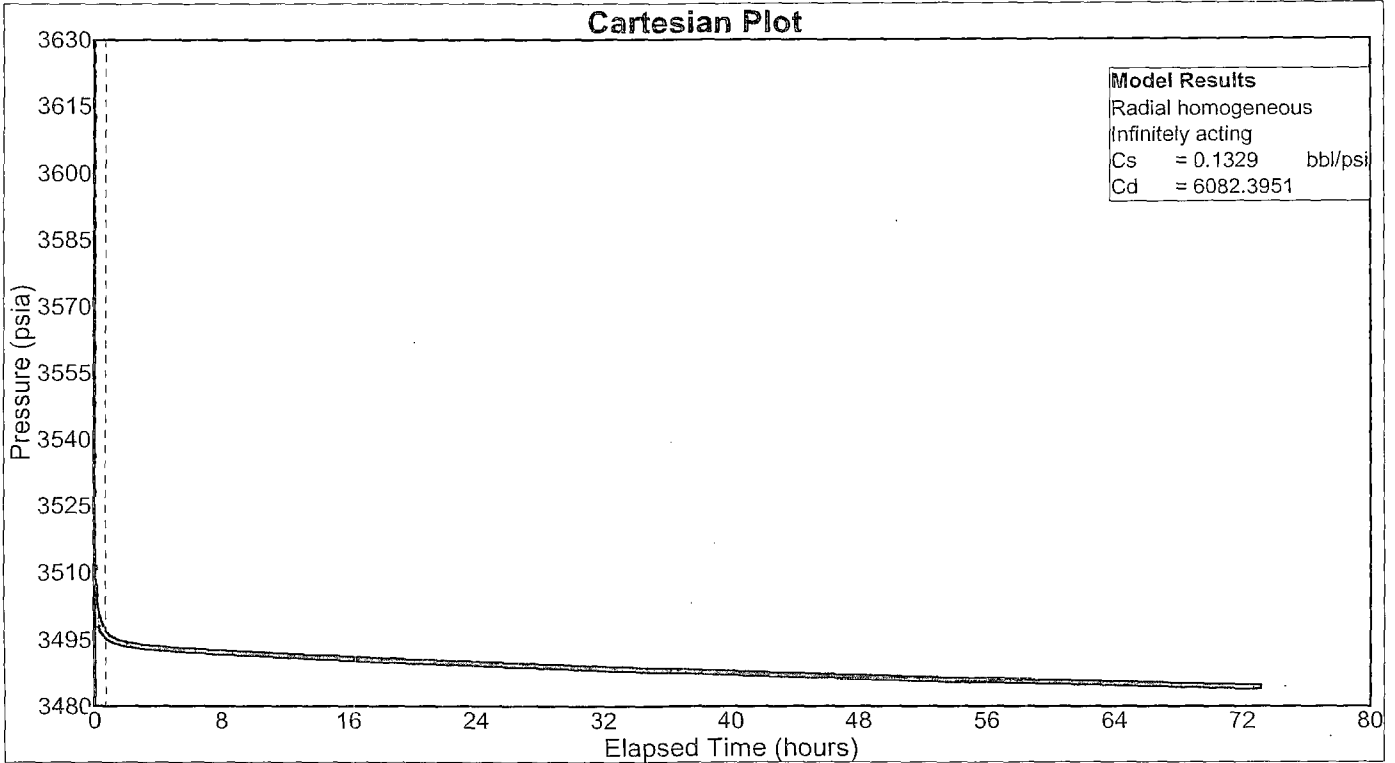
Rate Change Data (cont)

Time	Pressure	Rate
Hours	psia	STB/day
-229.483330	0.000000	-7031.590000
-205.483330	0.000000	-7052.840000
-181.483330	0.000000	-7064.320000
-157.483330	0.000000	-7042.000000
-133.483330	0.000000	-6504.350000
-109.483330	0.000000	-6133.120000
-85.483330	0.000000	-8259.030000
-72.983330	0.000000	-1.0413e4
-61.483330	0.000000	-1.0585e4
-37.483330	0.000000	-1.0407e4
-13.483330	0.000000	-1.0446e4
0.000007	3641.573000	-1.0323e4
73.037550	3484.078000	0.000000



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Cartesian Plot Model Results

Radial homogeneous - Infinitely acting

Classic Wellbore Storage

	Value
Wellbore storage coefficient	0.13295 bbl/psi
Dimensionless wellbore storage	6082.395108

Cartesian Plot Line Details

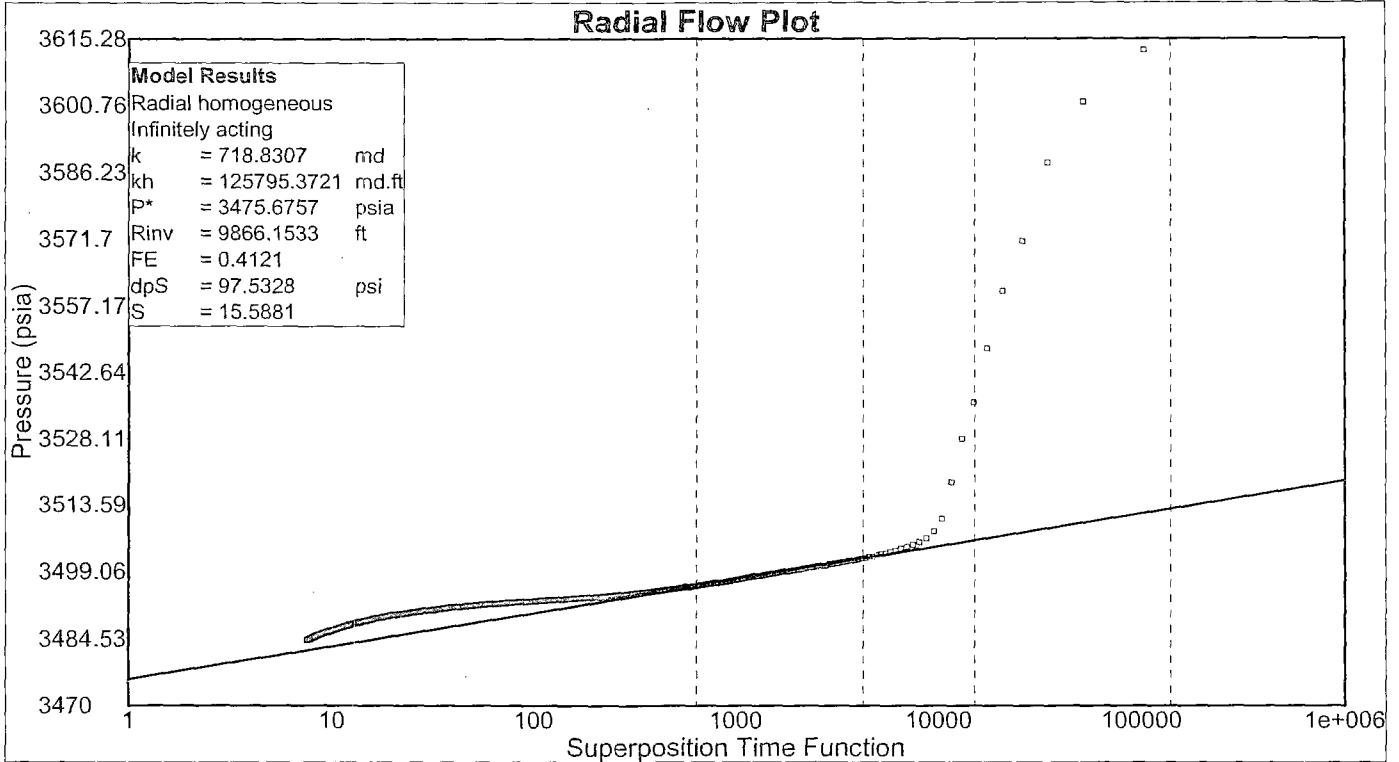
Line type : Wellbore storage

Slope : -3235.16

Intercept : 3627.89

Coefficient of Determination : 0.994898

Number of Intersections = 0



Radial Flow Plot Model Results

Radial homogeneous - Infinitely acting

Classic Wellbore Storage

	Value
Permeability	718.830698 md
Permeability-thickness	1.2580e5 md.ft
Extrapolated pressure	3475.675745 psia
Radius of investigation	9866.153307 ft
Flow efficiency	0.412089
dP skin (constant rate)	97.532793 psi
Skin factor	15.588053

Radial Flow Plot Line Details

Line type : Radial flow

Slope : 7.20352

Intercept : 3475.68

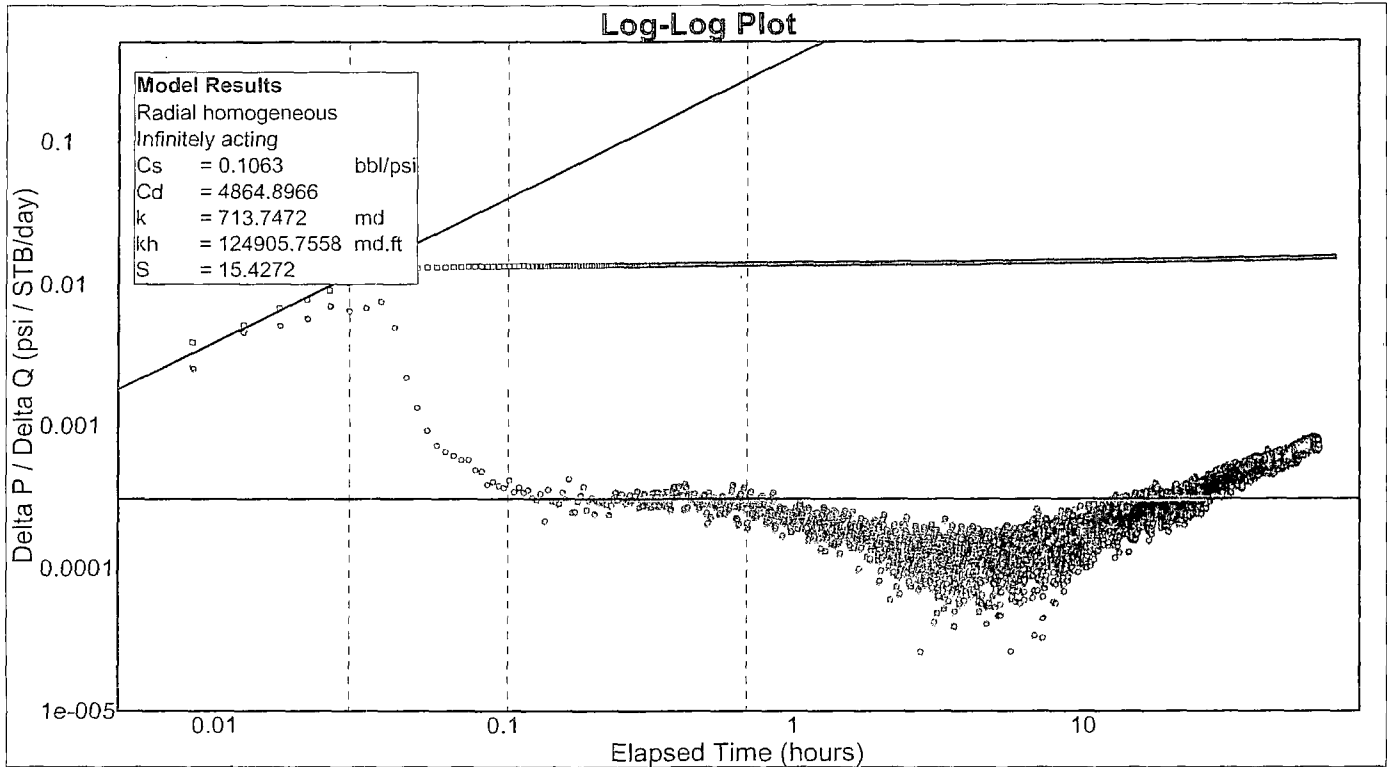
Coefficient of Determination : 0.998862

	Radial flow
Extrapolated pressure	3475.675745 psia
Pressure at dt = 1 hour	3494.712188 psia

Number of Intersections = 0



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Log-Log Plot Model Results

Radial homogeneous - Infinitely acting

Classic Wellbore Storage

	Value
Wellbore storage coefficient	0.106338 bbl/psi
Dimensionless wellbore storage	4864.896562
Permeability	713.747176 md
Permeability-thickness	1.2491e5 md.ft
Skin factor	15.427202

Log-Log Plot Line Details

Line type : Wellbore storage

Slope : 1

Intercept : 0.391834

Coefficient of Determination : Not Used

Line type : Radial flow

Slope : 0

Intercept : 0.000305222

Coefficient of Determination : Not Used

Number of Intersections = 0

Test Overview

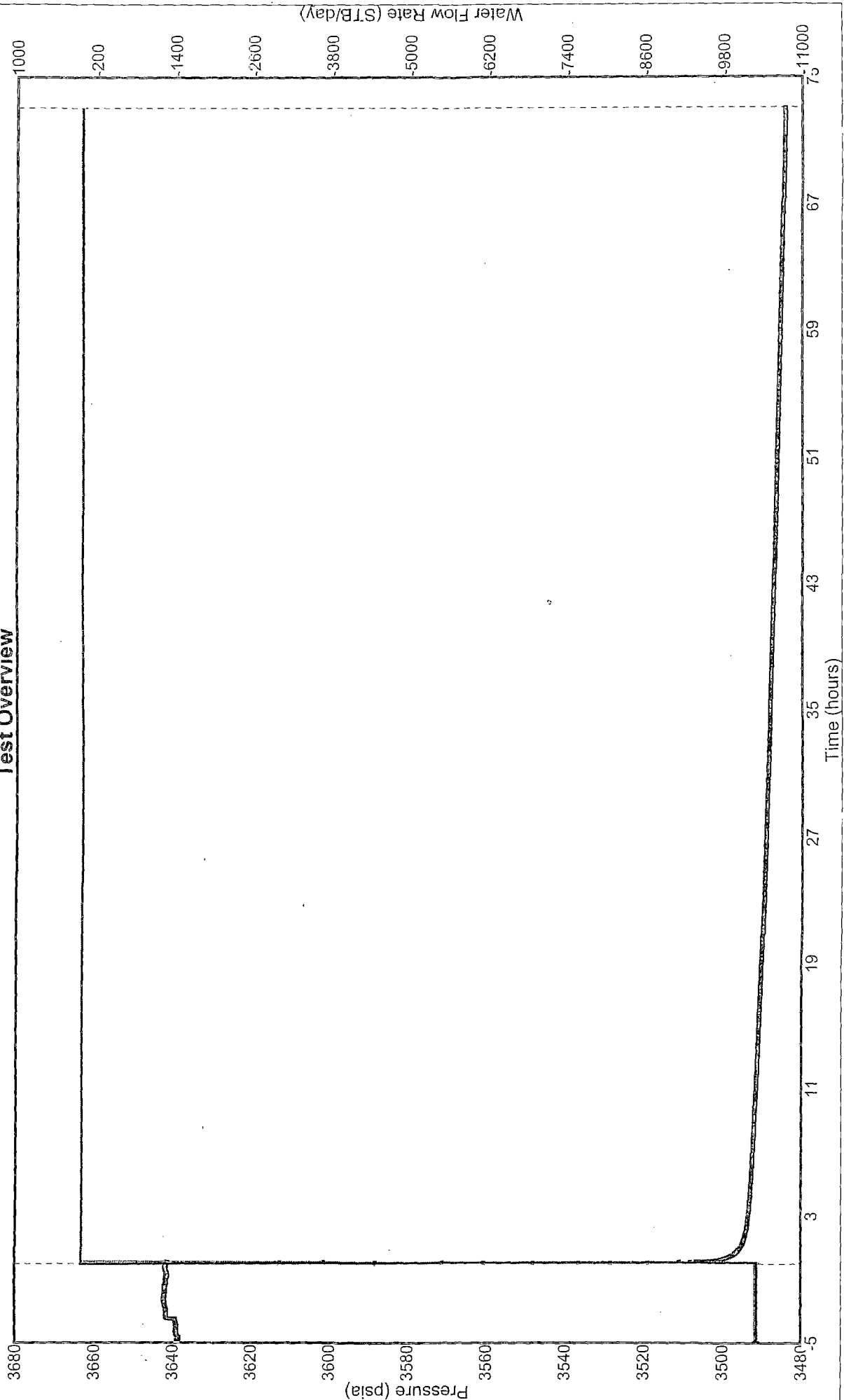


FIGURE 9

Gaines Well #3

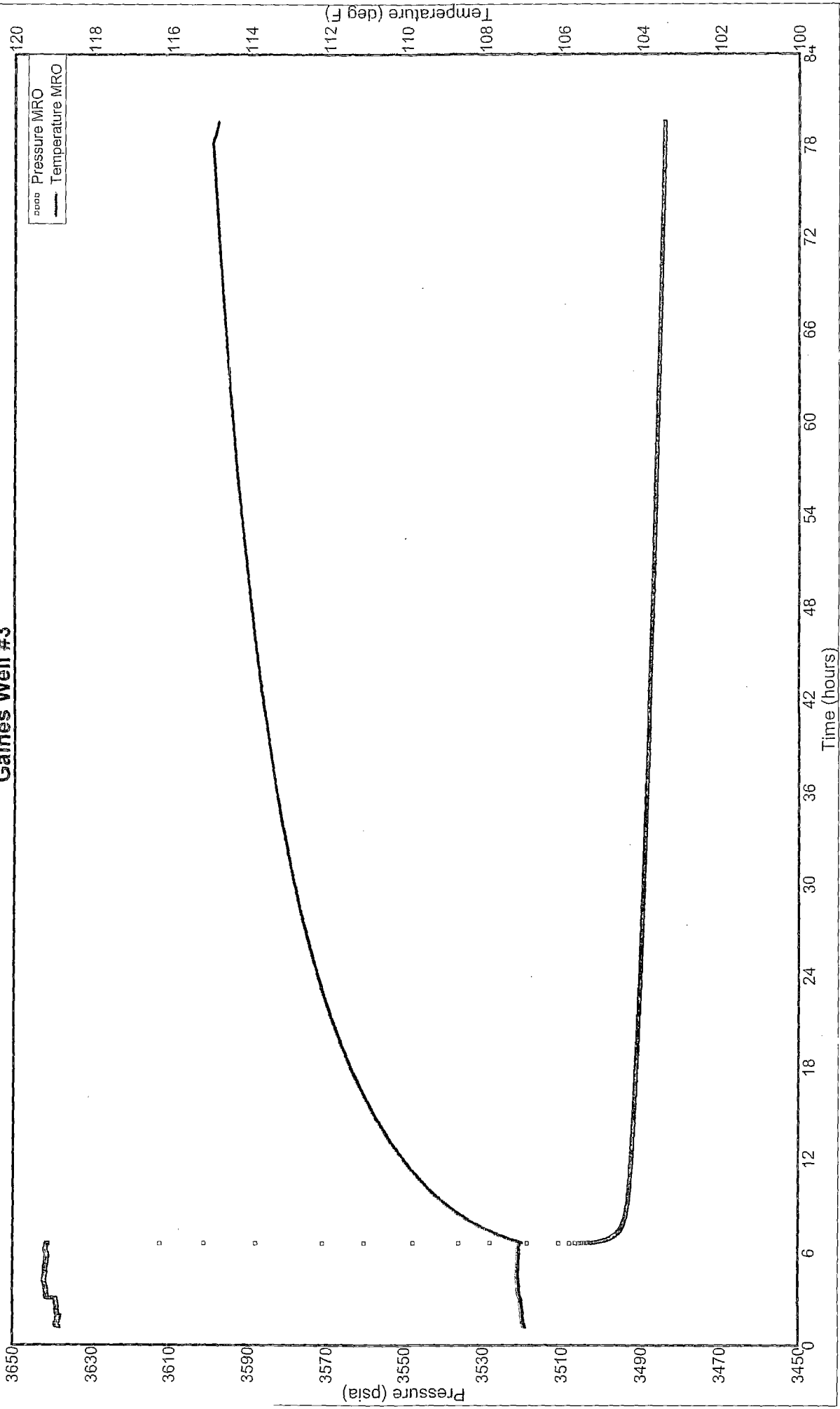


FIGURE 10

Gaines Well #3 Overall Injection Period

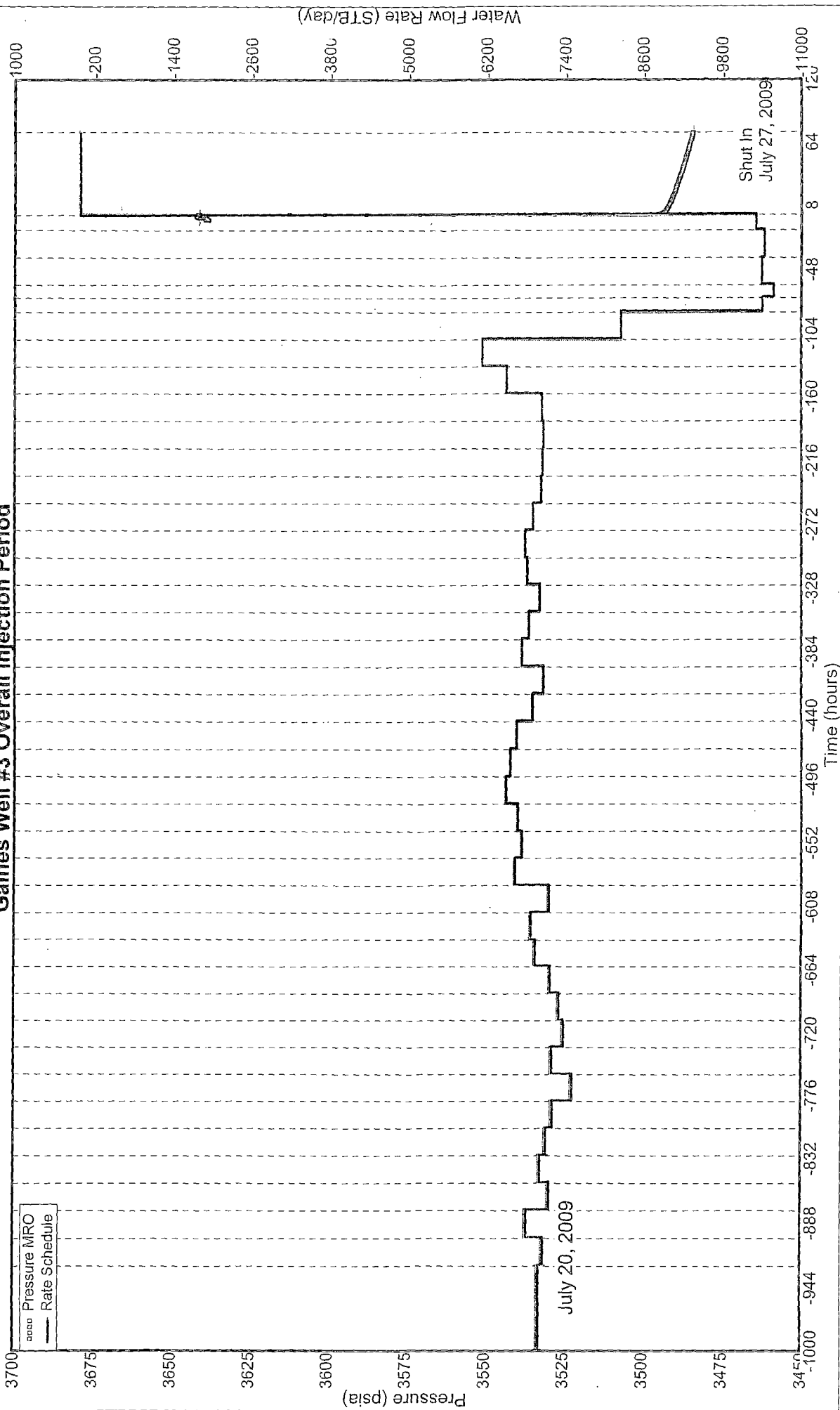


FIGURE 11

Gaines Well #3 Surface Pressures and Rates

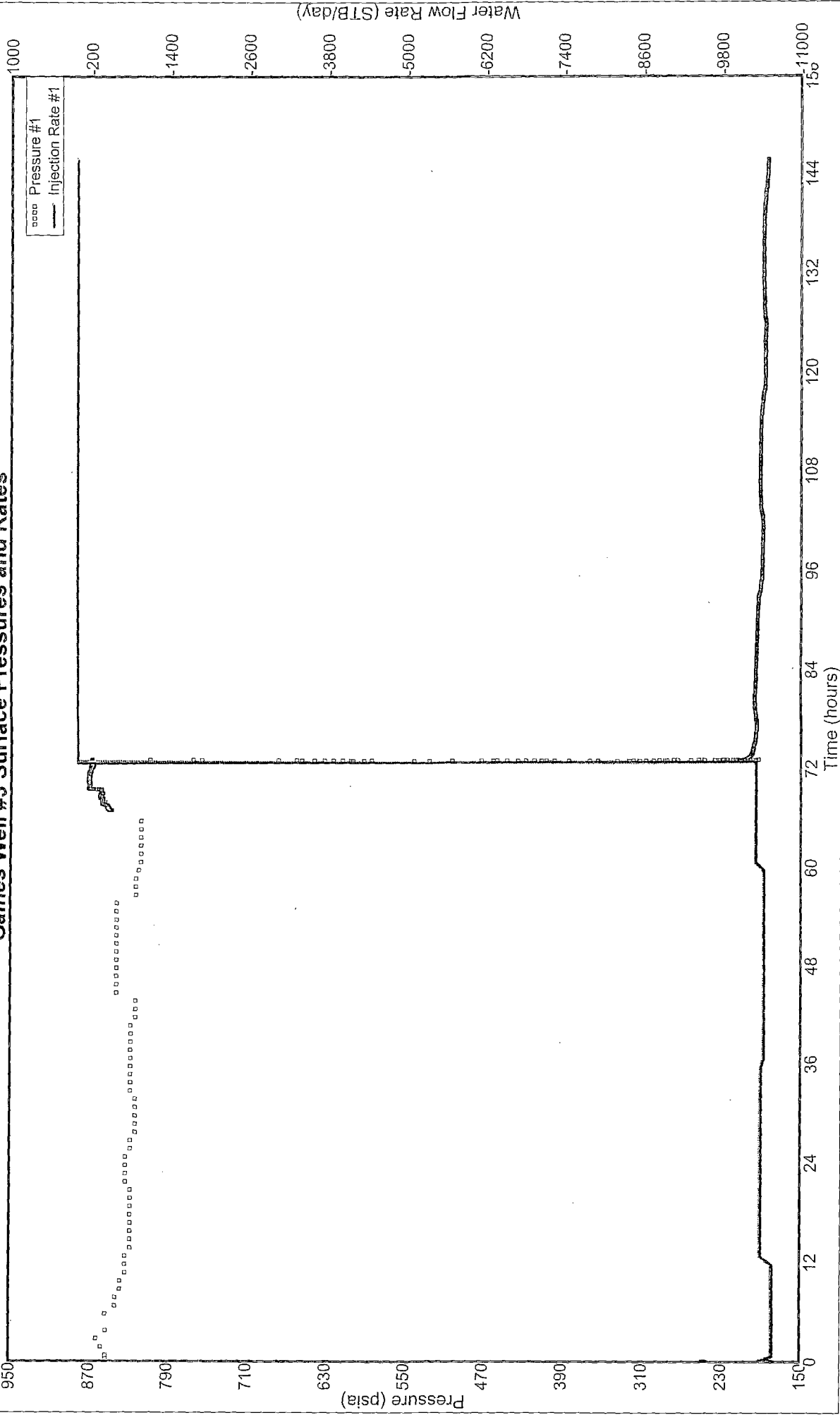


FIGURE 12

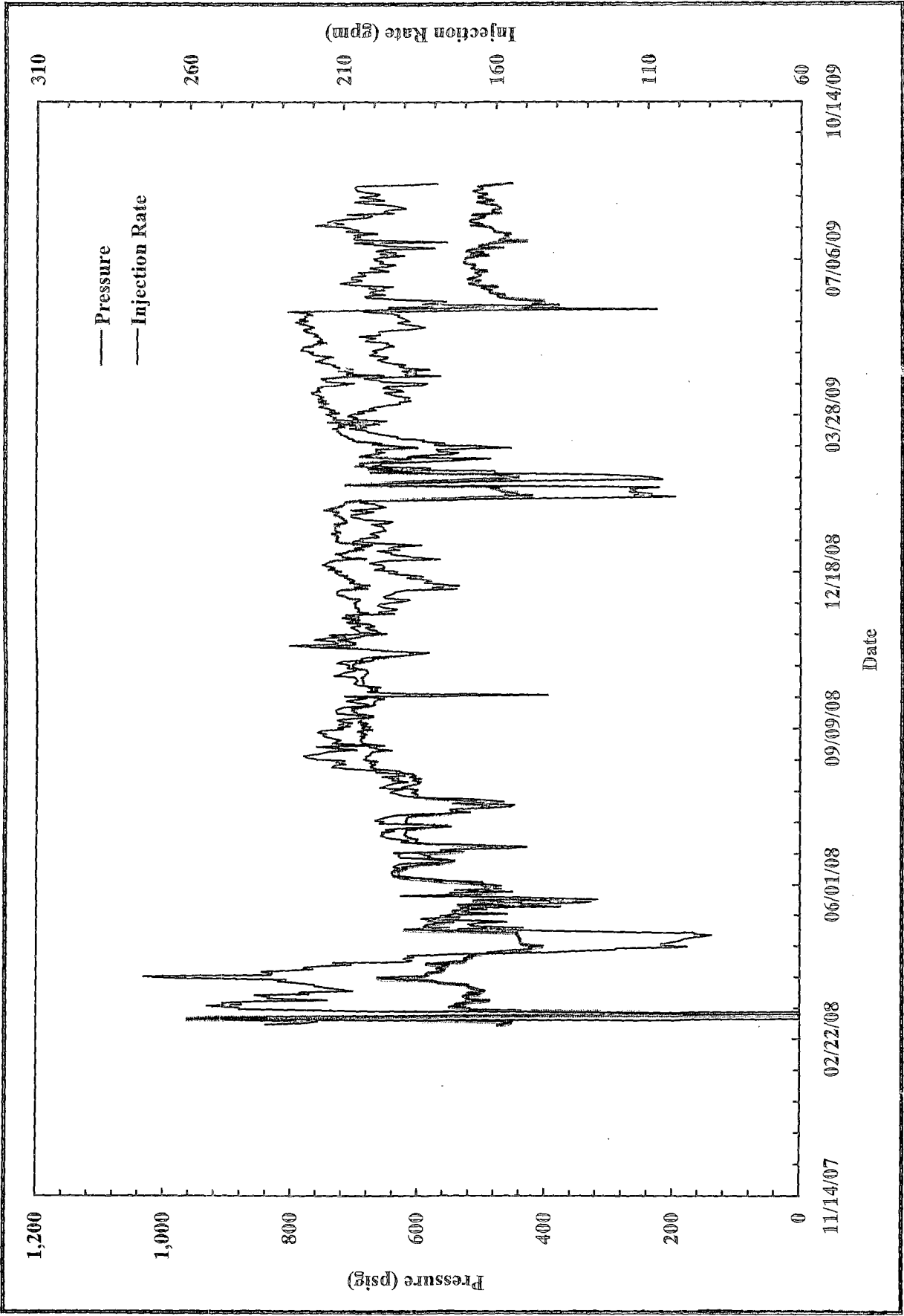


FIGURE 13

Log-Log Plot

Model Results	
Radial homogeneous	
Infinitely acting	bbl/psi
Cs	= 0.1063
Cd	= 4864.8966
k	= 713.7472 md
kh	= 124905.7558 md.ft
S	= 15.4272

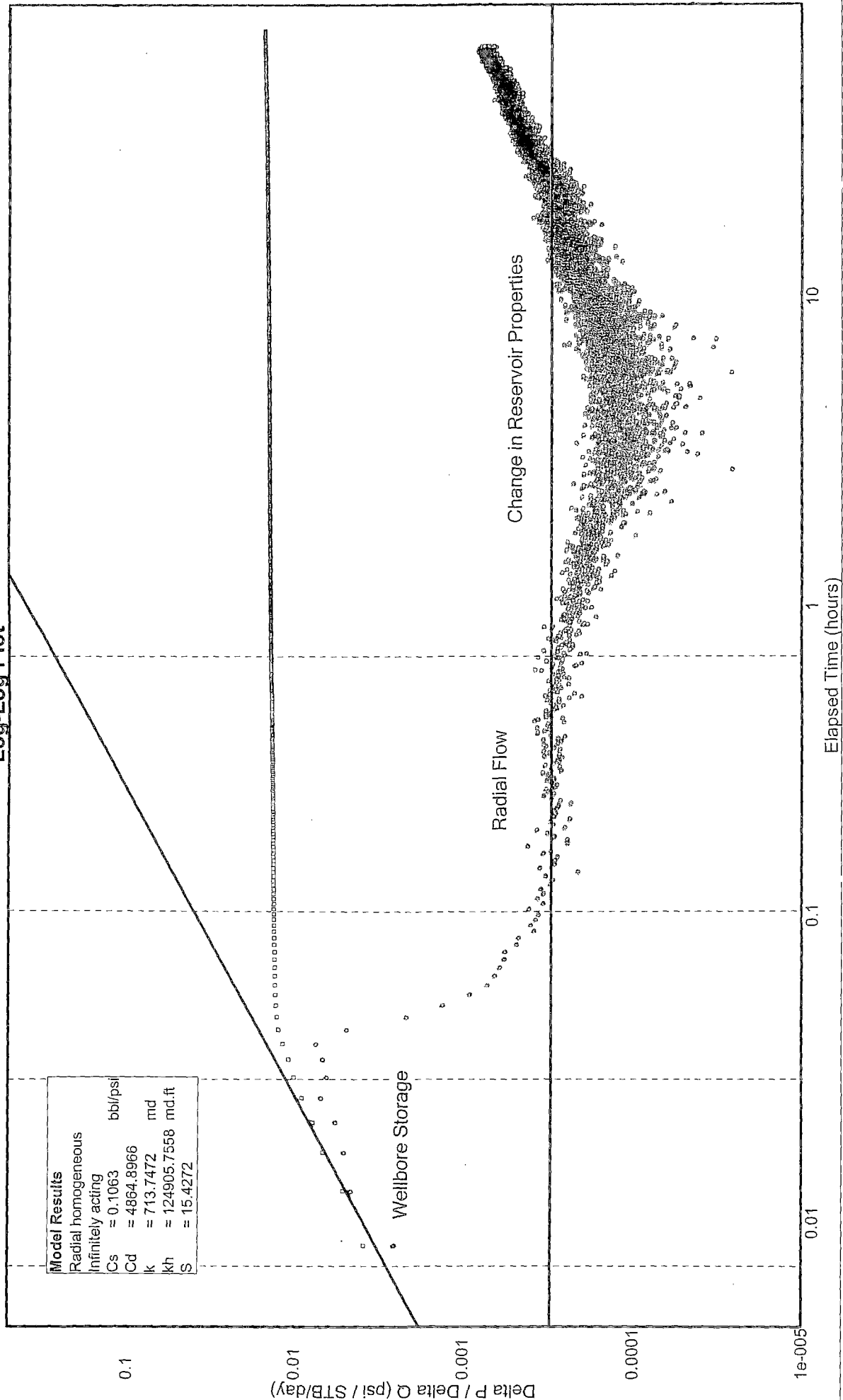


FIGURE 14

Radial Flow Plot

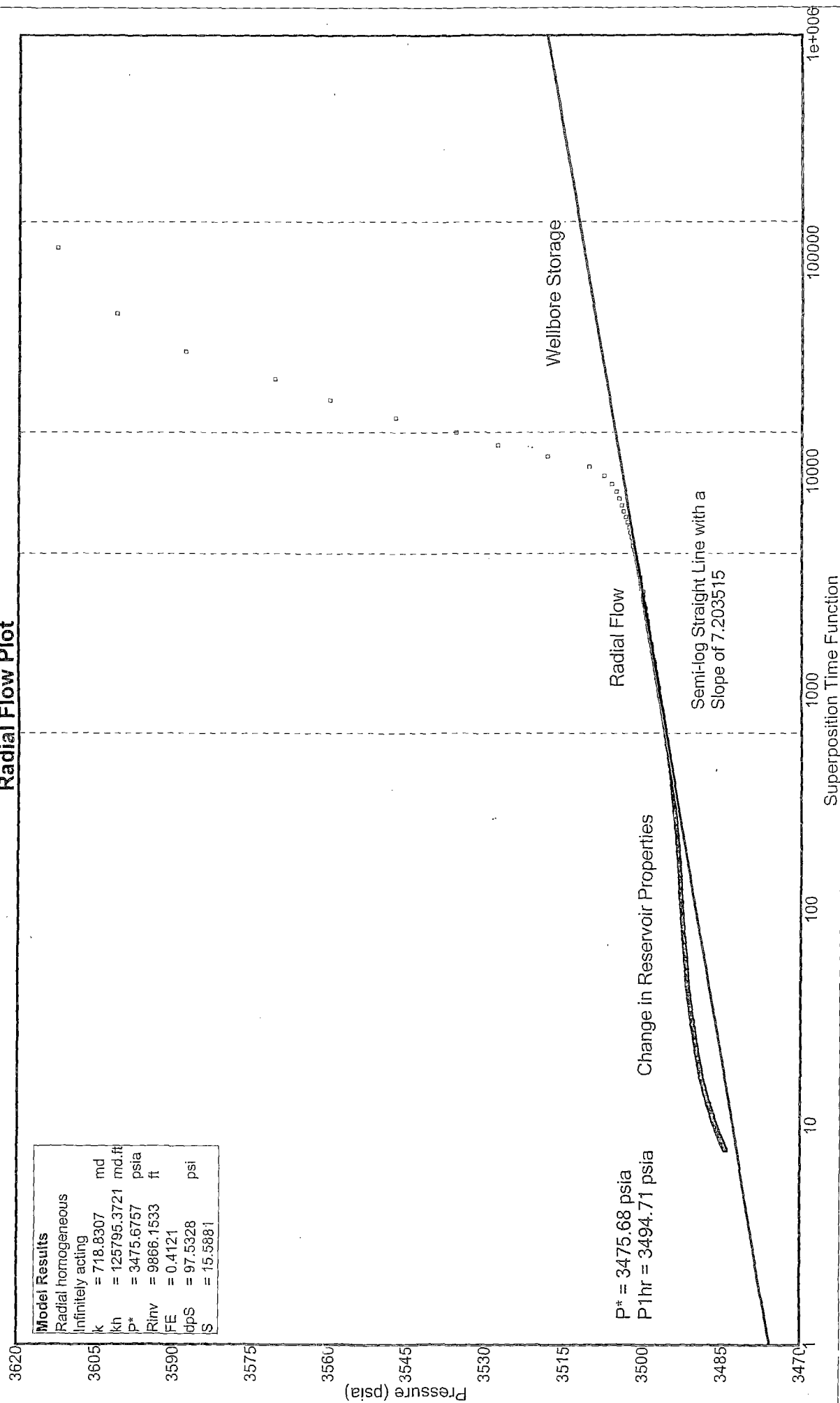


FIGURE 15

Radial Flow Plot

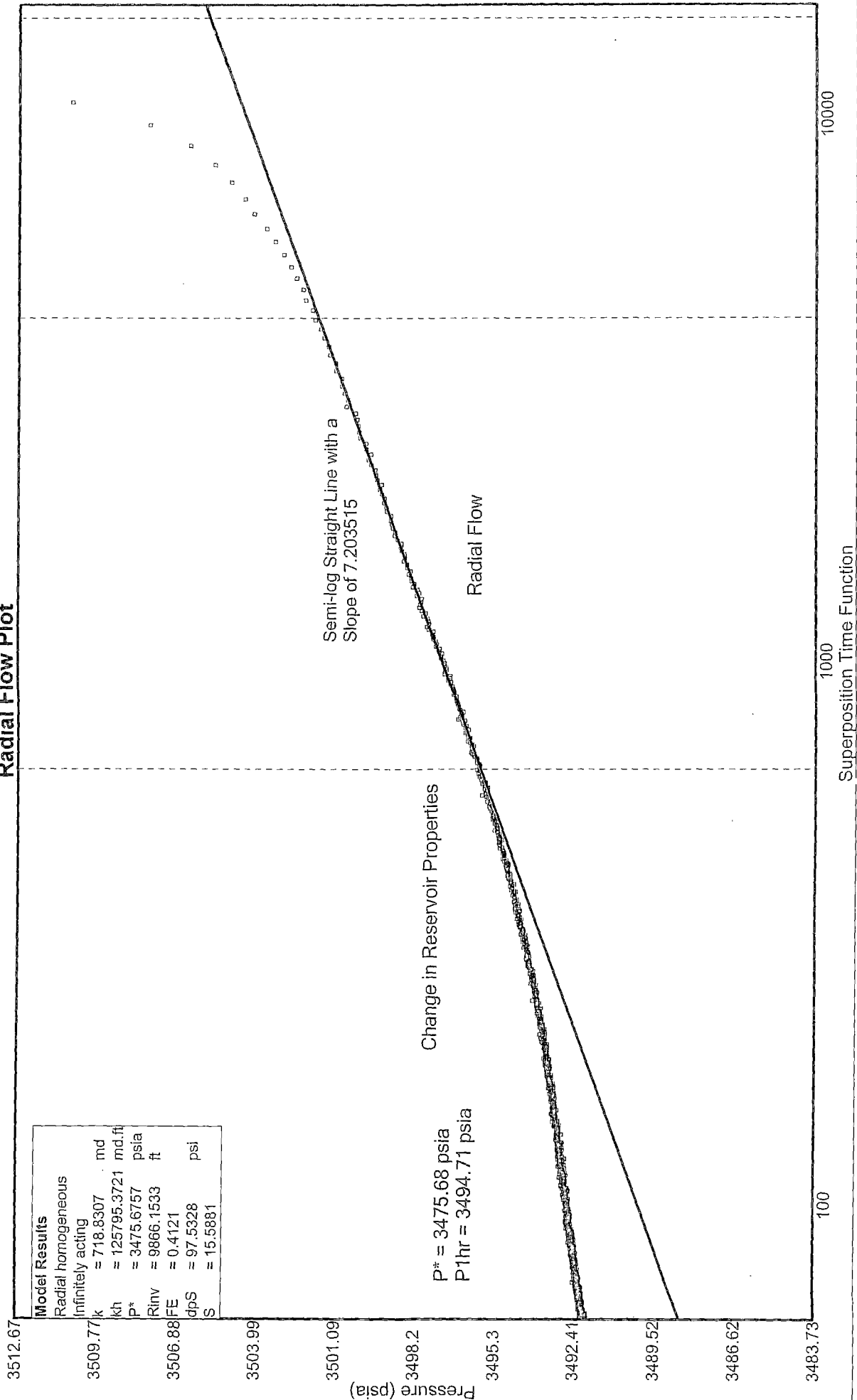


FIGURE 16

EXHIBIT 2



ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

17-Dec-08

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (575) 746-5421

Re: Injection Wells

Work Order : 0812122

Dear Aaron,

ALS Laboratory Group received 1 sample on 12/4/2008 10:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 17.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

JayLynn F Thibault

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-08-TX

ALS Group USA, Corp.

Part of the **ALS Laboratory Group**

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338

Phone: (281) 530-5656 Fax: (281) 530-5887

www.alsglobal.com www.elabi.com

A Campbell Brothers Limited Company

ALS Laboratory Group*Date: 17-Dec-08***Client:** Navajo Refining Company**Project:** Injection Wells**Work Order:** 0812122**Work Order Sample Summary**

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0812122-01	Effluent To Inj. Wells	Water		12/3/2008 15:25	12/4/2008 10:10	☐

ALS Laboratory Group

Date: 17-Dec-08

Client: Navajo Refining Company

Project: Injection Wells

Work Order: 0812122

Sample ID: Effluent To Inj. Wells

Lab ID: 0812122-01

Collection Date: 12/3/2008 03:25 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470			Prep Date: 12/15/2008 Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	12/15/2008 06:37 PM
METALS			SW6020			Prep Date: 12/8/2008 Analyst: ALR
Arsenic	0.103		0.00500	mg/L	1	12/9/2008 02:09 AM
Cadmium	ND		0.00200	mg/L	1	12/9/2008 02:09 AM
Chromium	ND		0.00500	mg/L	1	12/9/2008 02:09 AM
Copper	ND		0.00500	mg/L	1	12/9/2008 02:09 AM
Lead	ND		0.00500	mg/L	1	12/9/2008 02:09 AM
Molybdenum	0.0843		0.00500	mg/L	1	12/9/2008 02:09 AM
Nickel	0.00662		0.00500	mg/L	1	12/9/2008 02:09 AM
Selenium	0.653		0.0500	mg/L	10	12/10/2008 04:06 PM
Silver	ND		0.00500	mg/L	1	12/9/2008 02:09 AM
Zinc	0.0624		0.00500	mg/L	1	12/9/2008 02:09 AM
BOD			SM5210 B			Prep Date: 12/5/2008 Analyst: DM
Biochemical Oxygen Demand	48.4		2.00	mg/L	1	12/5/2008 03:00 PM
CYANIDE			M4500CN E&G			Analyst: KKP
Cyanide	0.0580		0.0200	mg/L	1	12/11/2008 03:00 PM
Cyanide, Amenable to Chlorination	ND		0.0200	mg/L	1	12/11/2008 03:00 PM
AMMONIA AS N			SM4500 NH3-B-F			Analyst: KKP
Nitrogen, Ammonia (as N)	24.3		0.625	mg/L	25	12/10/2008 01:00 PM
OIL AND GREASE			E1664			Analyst: MAM
Oil and Grease	6.00		2.00	mg/L	1	12/12/2008 03:00 PM
PHENOLICS			E420.1			Analyst: DM
Phenolics, Total Recoverable	0.665		0.0500	mg/L	1	12/15/2008 03:15 PM
TOTAL KJELDAHL L NITROGEN			M4500 NH3 D			Analyst: RPM
Nitrogen, Total Kjeldahl	28.2		1.00	mg/L	1	12/8/2008 07:00 AM
TOTAL SUSPENDED SOLIDS			M2540D			Analyst: TDW
Suspended Solids (Residue, Non-Filterable)	60.0		2.00	mg/L	1	12/8/2008 09:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
a - Not accredited

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time
n - Not offered for accreditation

Client: Navajo Refining Company

Work Order: 0812122

Project: Injection Wells

QC BATCH REPORT

Batch ID: 33311 Instrument ID ICPMS02 Method: SW6020

MBLK Sample ID: MBLKW3-120808-33311 Units: mg/L Analysis Date: 12/9/2008 02:22 PM

Client ID: Run ID: ICPMS02_081209A SeqNo: 1555470 Prep Date: 12/8/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	0.002495	0.0050								J

LCS Sample ID: MLCSW3-120808-33311 Units: mg/L Analysis Date: 12/9/2008 02:28 PM

Client ID: Run ID: ICPMS02_081209A SeqNo: 1555471 Prep Date: 12/8/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05244	0.0050	0.05	0	105	80-120	0			
Cadmium	0.05188	0.0020	0.05	0	104	80-120	0			
Chromium	0.0506	0.0050	0.05	0	101	80-120	0			
Copper	0.04657	0.0050	0.05	0	93.1	80-120	0			
Lead	0.0509	0.0050	0.05	0	102	80-120	0			
Molybdenum	0.05101	0.0050	0.05	0	102	80-120	0			
Nickel	0.05078	0.0050	0.05	0	102	80-120	0			
Selenium	0.05401	0.0050	0.05	0	108	80-120	0			
Silver	0.05068	0.0050	0.05	0	101	80-120	0			
Zinc	0.05208	0.0050	0.05	0	104	80-120	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 33311 Instrument ID ICPMS02 Method: SW6020

MS Sample ID: 0812117-01CMS Units: mg/L Analysis Date: 12/9/2008 02:54 PM

Client ID: Run ID: ICPMS02_081209A SeqNo: 1555475 Prep Date: 12/8/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05294	0.0050	0.05	0.001126	104	80-120	0			
Cadmium	0.0503	0.0020	0.05	0.0001897	100	80-120	0			
Chromium	0.05013	0.0050	0.05	0.001399	97.5	80-120	0			
Copper	0.04434	0.0050	0.05	0.0008793	86.9	80-120	0			
Lead	0.05066	0.0050	0.05	0.0005488	100	80-120	0			
Molybdenum	0.05264	0.0050	0.05	0.002014	101	80-120	0			
Nickel	0.04974	0.0050	0.05	0.004183	91.1	80-120	0			
Selenium	0.06171	0.0050	0.05	0.009191	105	80-120	0			
Silver	0.04861	0.0050	0.05	0.00006999	97.1	80-120	0			
Zinc	0.05362	0.0050	0.05	0.007323	92.6	80-120	0			

MSD Sample ID: 0812117-01CMSD Units: mg/L Analysis Date: 12/9/2008 03:00 PM

Client ID: Run ID: ICPMS02_081209A SeqNo: 1555476 Prep Date: 12/8/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05573	0.0050	0.05	0.001126	109	80-120	0.05294	5.13	15	
Cadmium	0.04992	0.0020	0.05	0.0001897	99.5	80-120	0.0503	0.758	15	
Chromium	0.0525	0.0050	0.05	0.001399	102	80-120	0.05013	4.62	15	
Copper	0.04488	0.0050	0.05	0.0008793	88	80-120	0.04434	1.21	15	
Lead	0.0503	0.0050	0.05	0.0005488	99.5	80-120	0.05066	0.713	15	
Molybdenum	0.05296	0.0050	0.05	0.002014	102	80-120	0.05264	0.606	15	
Nickel	0.04983	0.0050	0.05	0.004183	91.3	80-120	0.04974	0.181	15	
Selenium	0.06479	0.0050	0.05	0.009191	111	80-120	0.06171	4.87	15	
Silver	0.04952	0.0050	0.05	0.00006999	98.9	80-120	0.04861	1.85	15	
Zinc	0.05265	0.0050	0.05	0.007323	90.7	80-120	0.05362	1.83	15	

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0812122
Project: Injection Wells

QC BATCH REPORT

Batch ID: 33311 Instrument ID ICPMS02 Method: SW6020

DUP Sample ID: 0812117-01CDUP Units: mg/L Analysis Date: 12/9/2008 02:41 PM

Client ID: Run ID: ICPMS02_081209A SeqNo: 1555473 Prep Date: 12/8/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00128	0.0050	0	0	0	0-0	0.001126	0	25	J
Cadmium	ND	0.0020	0	0	0	0-0	0.0001897	0	25	
Chromium	0.001442	0.0050	0	0	0	0-0	0.001399	0	25	J
Copper	0.001068	0.0050	0	0	0	0-0	0.0008793	0	25	J
Lead	ND	0.0050	0	0	0	0-0	0.0005488	0	25	
Molybdenum	0.002052	0.0050	0	0	0	0-0	0.002014	0	25	J
Nickel	0.002117	0.0050	0	0	0	0-0	0.004183	0	25	J
Selenium	0.008773	0.0050	0	0	0	0-0	0.009191	4.65	25	
Silver	ND	0.0050	0	0	0	0-0	0.00006999	0	25	
Zinc	0.007153	0.0050	0	0	0	0-0	0.007323	2.35	25	

The following samples were analyzed in this batch:

0812122-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 33455		Instrument ID Mercury			Method: SW7470					
MBLK	Sample ID: GBLKW2-121508-33455				Units: mg/L		Analysis Date: 12/15/2008 05:31 PM			
Client ID:	Run ID: MERCURY_081215C				SeqNo: 1559517		Prep Date: 12/15/2008		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								
LCS	Sample ID: GLCSW2-121508-33455				Units: mg/L		Analysis Date: 12/15/2008 05:33 PM			
Client ID:	Run ID: MERCURY_081215C				SeqNo: 1559518		Prep Date: 12/15/2008		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0	99	85-115	0			
MS	Sample ID: 0812097-01BMS				Units: mg/L		Analysis Date: 12/15/2008 06:12 PM			
Client ID:	Run ID: MERCURY_081215C				SeqNo: 1559840		Prep Date: 12/15/2008		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.00020	0.005	-0.000028	104	85-115	0			
MSD	Sample ID: 0812097-01BMSD				Units: mg/L		Analysis Date: 12/15/2008 06:14 PM			
Client ID:	Run ID: MERCURY_081215C				SeqNo: 1559843		Prep Date: 12/15/2008		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.00020	0.005	-0.000028	106	85-115	0.00517	1.54	20	
DUP	Sample ID: 0812097-01BDUP				Units: mg/L		Analysis Date: 12/15/2008 06:10 PM			
Client ID:	Run ID: MERCURY_081215C				SeqNo: 1559837		Prep Date: 12/15/2008		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000028	0	20	

The following samples were analyzed in this batch:

0812122-01C

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 O - Referenced analyte value is > 4 times amount spiked
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 B - Analyte detected in assoc. Method Blank
 U - Analyzed for but not detected
 E - Value above quantitation range



Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 33290 Instrument ID WetChem Method: SM5210 B

MBLK Sample ID: WBLKW1-120508-33290 Units: mg/L Analysis Date: 12/5/2008 01:00 PM

Client ID: Run ID: WETCHEM_081210E SeqNo: 1556302 Prep Date: 12/5/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.0								

LCS Sample ID: WLCSW1-120508-33290 Units: mg/L Analysis Date: 12/5/2008 01:00 PM

Client ID: Run ID: WETCHEM_081210E SeqNo: 1556303 Prep Date: 12/5/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	193.3	2.0	198	0	97.6	85-115	0			

LCSD Sample ID: WLCSDW1-120508-33290 Units: mg/L Analysis Date: 12/5/2008 01:00 PM

Client ID: Run ID: WETCHEM_081210E SeqNo: 1556307 Prep Date: 12/5/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	192.8	2.0	198	0	97.4	85-115	0			

DUP Sample ID: 0812114-01HDUP Units: mg/L Analysis Date: 12/5/2008 01:00 PM

Client ID: Run ID: WETCHEM_081210E SeqNo: 1556306 Prep Date: 12/5/2008 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	982.8	20	0	0	0	0-0	985.8	0.305	20	

The following samples were analyzed in this batch:

0812122-01B



ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R70944 Instrument ID WetChem Method: M4500 NH3 D

MBLK Sample ID: WBLKW1-120808-R70944 Units: mg/L Analysis Date: 12/8/2008 07:00 AM

Client ID: Run ID: WETCHEM_081208C SeqNo: 1554324 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	ND	1.0								

LCS Sample ID: WLCSW1-120808-R70944 Units: mg/L Analysis Date: 12/8/2008 07:00 AM

Client ID: Run ID: WETCHEM_081208C SeqNo: 1554325 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	20.2	1.0	20	0	101	80-120	0			

MS Sample ID: 0812027-02IMS Units: mg/L Analysis Date: 12/8/2008 07:00 AM

Client ID: Run ID: WETCHEM_081208C SeqNo: 1554329 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	20	1.0	20	1.526	92.4	75-125	0			

DUP Sample ID: 0812027-02IDUP Units: mg/L Analysis Date: 12/8/2008 07:00 AM

Client ID: Run ID: WETCHEM_081208C SeqNo: 1554328 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	1.516	1.0	0	0	0	0-0	1.526	0.657	20	

The following samples were analyzed in this batch:

0812122-01G

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0812122
Project: Injection Wells

QC BATCH REPORT

Batch ID: R70952 Instrument ID Balance1 Method: M2540D

MBLK Sample ID: BLANK-R70952 Units: mg/L Analysis Date: 12/8/2008 09:00 PM

Client ID: Run ID: BALANCE1_081208A SeqNo: 1554423 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	ND	2.0								

LCS Sample ID: LCS-R70952 Units: mg/L Analysis Date: 12/8/2008 09:00 PM

Client ID: Run ID: BALANCE1_081208A SeqNo: 1554424 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	94	2.0	100	0	94	78-120	0			

DUP Sample ID: 0812145-01ADUP Units: mg/L Analysis Date: 12/8/2008 09:00 PM

Client ID: Run ID: BALANCE1_081208A SeqNo: 1554417 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Suspended Solids (Residue, Non-Fi	70	2.0	0	0	0	0-0	69	1.44	20	

The following samples were analyzed in this batch:

0812122-01D

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R71045 Instrument ID UV-2450 Method: SM4500 NH3-

MBLK Sample ID: WBLKW1-121008-R71045 Units: mg/L Analysis Date: 12/10/2008 01:00 PM
 Client ID: Run ID: UV-2450_081210A SeqNo: 1556194 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (as N)	ND	0.025								

LCS Sample ID: WLCSW1-121008-R71045 Units: mg/L Analysis Date: 12/10/2008 01:00 PM
 Client ID: Run ID: UV-2450_081210A SeqNo: 1556195 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (as N)	0.192	0.025	0.2	0	96	80-120	0			

MS Sample ID: 0812086-01BMS Units: mg/L Analysis Date: 12/10/2008 01:00 PM
 Client ID: Run ID: UV-2450_081210A SeqNo: 1556201 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (as N)	0.363	0.025	0.2	0.176	93.5	80-120	0			

DUP Sample ID: 0812086-01BDUP Units: mg/L Analysis Date: 12/10/2008 01:00 PM
 Client ID: Run ID: UV-2450_081210A SeqNo: 1556200 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (as N)	0.173	0.025	0	0	0	0-0	0.176	1.72	20	

The following samples were analyzed in this batch: 0812122-01G

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R71097 Instrument ID UV-2450 Method: M4500CN E&

MBLK Sample ID: WBLKW1-121108-R71097 Units: mg/L Analysis Date: 12/11/2008 03:00 PM
 Client ID: Run ID: UV-2450_081211A SeqNo: 1557039 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	ND	0.020								
Cyanide, Amenable to Chlorination	ND	0.020								

LCS Sample ID: WLCSW1-121108-R71097 Units: mg/L Analysis Date: 12/11/2008 03:00 PM
 Client ID: Run ID: UV-2450_081211A SeqNo: 1557040 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.193	0.020	0.2	0	96.5	80-120	0			

MS Sample ID: 0812191-01BMS Units: mg/L Analysis Date: 12/11/2008 03:00 PM
 Client ID: Run ID: UV-2450_081211A SeqNo: 1557050 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.185	0.020	0.2	0.001	92	80-120	0			

DUP Sample ID: 0812191-01BDUP Units: mg/L Analysis Date: 12/11/2008 03:00 PM
 Client ID: Run ID: UV-2450_081211A SeqNo: 1557049 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	ND	0.020	0	0	0	0-0	0.001	0	20	
Cyanide, Amenable to Chlorination	ND	0.020	0	0	0	0-0	0	0	0	

The following samples were analyzed in this batch: 0812122-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0812122
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R71172 Instrument ID WetChem Method: E1664

MBLK Sample ID: WBLKW1-121208-R71172 Units: mg/L Analysis Date: 12/12/2008 03:00 PM
 Client ID: Run ID: WETCHEM_081212F SeqNo: 1558390 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	ND	2.0								

LCS Sample ID: WLCSW1-121208-R71172 Units: mg/L Analysis Date: 12/12/2008 03:00 PM
 Client ID: Run ID: WETCHEM_081212F SeqNo: 1558391 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	36.3	2.0	40	0	90.8	80-120	0			

DUP Sample ID: 0812073-02BDUP Units: mg/L Analysis Date: 12/12/2008 03:00 PM
 Client ID: Run ID: WETCHEM_081212F SeqNo: 1558402 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	2.5	2.0	0	0	0	0-0	3	18.2	20	

The following samples were analyzed in this batch:

0812122-01E

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0812122
Project: Injection Wells

QC BATCH REPORT

Batch ID: R71220 Instrument ID UV-2450 Method: E420.1

MBLK Sample ID: WBLKW1-121508-R71220 Units: mg/L Analysis Date: 12/15/2008 03:15 PM

Client ID: Run ID: UV-2450_081215A SeqNo: 1559301 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.050								

LCS Sample ID: WLCSW1-121508-R71220 Units: mg/L Analysis Date: 12/15/2008 03:15 PM

Client ID: Run ID: UV-2450_081215A SeqNo: 1559302 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.519	0.050	0.5	0	104	80-120	0			

MS Sample ID: 0812219-01BMS Units: mg/L Analysis Date: 12/15/2008 03:15 PM

Client ID: Run ID: UV-2450_081215A SeqNo: 1559316 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.53	0.050	0.5	0.021	102	80-120	0			

DUP Sample ID: 0812219-01BDUP Units: mg/L Analysis Date: 12/15/2008 03:15 PM

Client ID: Run ID: UV-2450_081215A SeqNo: 1559315 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.028	0.050	0	0	0	0-0	0.021	0	20	J

The following samples were analyzed in this batch:

0812122-01F

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

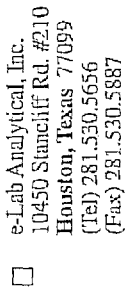
R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



Chain of Custody Form

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

The Chain of Custody is a Legal Document. All Information must be completed accurately.

Customer Information				Project Information				Parameter/Method Request for Analysis												
Purchase Order	Work Order	Company Name	Send Report to	Project Name	Project Number	Bill to Company	Invoice Address	City/State/Zip	Phone	Fax	e-Mail Address	No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	Analyzer	Holder
		Navajo Refining Co	Aaron Strange	Injection Wells								1	Effluent To Inj. Wells	12/3/08	1525	L	Y	7	X	
		P.O. Box 159										2								
		Antesia NM 88210										3								
		575-748-3311										4								
		575-746-5421										5								
												6								
												7								
												8								
												9								
												10								

Requisitioned by: Aaron Strange

Requisitioned by: Aaron Strange

Date: 12/3/08

Date: 12/3/08

Time: 1615

Time: 1615

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box)

☐ 5 WK Days ☐ 10 WK Days ☐ 20 WK Days

Results Due Date:

☐ 5 WK Days ☐ 10 WK Days ☐ 20 WK Days

Logged by (Laboratory): Aaron Strange

Preservative (Key): 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂SO₄ 6-NaHCO₃ 7-Other: 8-4°C 9-50351

Received by (Laboratory): Aaron Strange

Received by (Laboratory): Aaron Strange

Notes:

QC Package: (Check One Box Below)

☐ Level II Std QC ☐ TRAP Checklist

☐ Level III Std QC/Raw Data ☐ TRAP Level IV

☐ Level IV SW846/CLP ☐ Other

QC Package: (Check One Box Below)

☐ Level II Std QC ☐ TRAP Checklist

☐ Level III Std QC/Raw Data ☐ TRAP Level IV

☐ Level IV SW846/CLP ☐ Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to e-Lab Analytical, Inc.

2. Unless otherwise agreed in a formal contract, services provided by e-Lab Analytical, Inc. are expressly limited to the terms and conditions stated on the reverse.

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ALS Laboratory Group

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 12/4/2008 10:10

Work Order Number 0812122

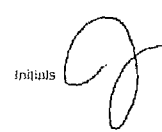
Received by: RNG

Checklist completed by


Signature

12/5/08
Date

Reviewed by


Initials

12/4/08
Date

Matrix: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☒	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.3c</u>	<u>002</u>	
Cooler(s)/Kiln(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐

Adjusted?

Checked by

Login Notes:

Client contacted:

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

W108#0812122



ALS e-Lab Analytical

10450 Standcliff Rd., Suite 210
Houston, Texas 77099
Tel. 281.530.5658
Fax. 218.530.5887

Date: 12

Name: 1

Company:

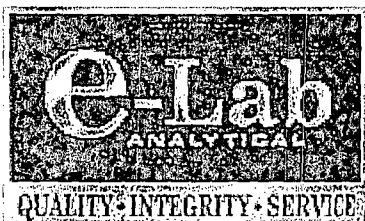
CUSTODY SEAL

12/04 Time: 1615
LARRY SPRANDE
NAVAJO Refining Co.

Seal

Date:

12/4/04



e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

July 23, 2004

Darrell Moore
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5281
Fax: (505) 746-5421

Re: Injection Wells

Work Order : **0407074**

Dear Darrell Moore,

e-Lab Analytical, Inc. received 2 samples on 7/8/2004 8:40:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Patricia A. Dathome

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: July 23, 2004

CLIENT: Navajo Refining Company

Project: Injection Wells

Work Order: 0407074

Work Order Sample Summary

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0407074-01	Inj Wells	Water		7/7/2004 09:00	7/8/2004 08:40	☐
0407074-02	Trip Blank	Water		7/7/2004	7/8/2004 08:40	☐

e-Lab Analytical, Inc.

Date: *July 23, 2004*

CLIENT: Navajo Refining Company

Project: Injection Wells

Work Order: 0407074

Case Narrative

Semivolatile (sample Inj. Wells) Surrogates were outside of control limits due to a matrix interference. Sample was re-extracted and re-analyzed and surrogates recoveries were confirmed.

Batch 9539 Metals MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: July 23, 2004

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL						
Mercury	ND	0.000200		mg/L	1	7/17/2004 6:08:25 PM
ICP METALS, TOTAL						
Aluminum	0.556	0.100		mg/L	10	7/9/2004 10:24:00 PM
Arsenic	0.171	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Barium	0.0354	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Beryllium	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Boron	0.240	0.200		mg/L	10	7/9/2004 10:24:00 PM
Cadmium	ND	0.00200		mg/L	2	7/23/2004 2:11:00 PM
Calcium	216	25.0		mg/L	50	7/9/2004 9:39:00 PM
Chromium	0.00818	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Cobalt	ND	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Copper	0.00655	0.00400		mg/L	2	7/23/2004 12:23:00 AM
Iron	4.42	0.400		mg/L	2	7/23/2004 12:23:00 AM
Lead	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Magnesium	34.1	2.00		mg/L	10	7/9/2004 10:24:00 PM
Manganese	0.116	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Molybdenum	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Nickel	0.0195	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Potassium	24.9	0.400		mg/L	2	7/23/2004 12:23:00 AM
Selenium	0.432	0.0500		mg/L	10	7/9/2004 10:24:00 PM
Silver	ND	0.0100		mg/L	2	7/23/2004 2:11:00 PM
Sodium	1,580	10.0		mg/L	50	7/9/2004 9:39:00 PM
Vanadium	ND	0.0100		mg/L	2	7/23/2004 12:23:00 AM
Zinc	0.0677	0.0100		mg/L	2	7/23/2004 12:23:00 AM
SEMIVOLATILE ORGANICS BY GC/MS						
1,2,4-Trichlorobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,5-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2,4,6-Trichlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylnaphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
2-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
3-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Methylphenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitroaniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
4-Nitrophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Acenaphthylene	ND	12		µg/L	1	7/15/2004 1:53:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: July 23, 2004

CLIENT: Navajo Refining Company
 Work Order: 0407074
 Project: Injection Wells
 Lab ID: 0407074-01

Client Sample ID: Inj Wells
 Collection Date: 7/7/2004 9:00:00 AM
 Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benz(a)anthracene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Benzidine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Hexachloroethane	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Indeno(1,2,3-cd)pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Isophorone	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodi-n-propylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodimethylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
N-Nitrosodiphenylamine	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Naphthalene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Nitrobenzene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pentachlorophenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenanthrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Phenol	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Pyrene	ND	12		µg/L	1	7/15/2004 1:53:00 AM
Surr: 2,4,6-Tribromophenol	28.6	39-153	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorobiphenyl	45.7	40-147		%REC	1	7/15/2004 1:53:00 AM
Surr: 2-Fluorophenol	12.1	21-110	S	%REC	1	7/15/2004 1:53:00 AM
Surr: 4-Terphenyl-d14	40.9	39-141		%REC	1	7/15/2004 1:53:00 AM
Surr: Nitrobenzene-d5	40.8	37-140		%REC	1	7/15/2004 1:53:00 AM
Surr: Phenol-d6	7.92	11-100	S	%REC	1	7/15/2004 1:53:00 AM
VOLATILES BY GC/MS		SW8260			Analyst: PC	
1,1,1-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
2-Butanone	16	10		µg/L	1	7/19/2004 2:58:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	7/19/2004 2:58:00 PM
2-Hexanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Acetone	87	10		µg/L	1	7/19/2004 2:58:00 PM
Benzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromoform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Bromomethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Carbon disulfide	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: July 23, 2004

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells
Lab ID: 0407074-01

Client Sample ID: Inj Wells
Collection Date: 7/7/2004 9:00:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloroform	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Chloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Ethylbenzene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
m,p-Xylene	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Methylene chloride	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Styrene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Toluene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Trichloroethene	ND	5.0		µg/L	1	7/19/2004 2:58:00 PM
Vinyl acetate	ND	10		µg/L	1	7/19/2004 2:58:00 PM
Vinyl chloride	ND	2.0		µg/L	1	7/19/2004 2:58:00 PM
Xylenes, Total	ND	15		µg/L	1	7/19/2004 2:58:00 PM
Surr: 1,2-Dichloroethane-d4	85.9	71-126		%REC	1	7/19/2004 2:58:00 PM
Surr: 4-Bromofluorobenzene	93.8	74-125		%REC	1	7/19/2004 2:58:00 PM
Surr: Dibromofluoromethane	89.3	73-126		%REC	1	7/19/2004 2:58:00 PM
Surr: Toluene-d8	89.9	75-125		%REC	1	7/19/2004 2:58:00 PM
FLASHPOINT		SW1010				Analyst: MAG
Ignitability	>200	50		°F	1	7/16/2004
CYANIDE, REACTIVE		SW-846				Analyst: MAG
Reactive Cyanide	ND	0.0300		mg/L	1	7/16/2004
SULFIDE, REACTIVE		SW-846				Analyst: MAG
Reactive Sulfide	ND	40.0		mg/L	1	7/16/2004
ANIONS BY ION CHROMATOGRAPHY		E300				Analyst: MG
Chloride	992	50.0		mg/L	100	7/13/2004 3:25:00 AM
Sulfate	2,270	100		mg/L	100	7/13/2004 3:25:00 AM
Surr: Dichloroacetic acid (surr)	107	80-120		%REC	100	7/13/2004 3:25:00 AM
ALKALINITY		E310.1				Analyst: HDO
Alkalinity, Bicarbonate (As CaCO3)	157	5.00		mg/L	1	7/12/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	7/12/2004
Alkalinity, Total (As CaCO3)	157	5.00		mg/L	1	7/12/2004
CONDUCTIVITY		E120.1				Analyst: HDO
Specific Conductance	7,200	1.00		µmhos/cm	1	7/12/2004

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: July 23, 2004

CLIENT: Navajo Refining Company

Client Sample ID: Inj Wells

Work Order: 0407074

Collection Date: 7/7/2004 9:00:00 AM

Project: Injection Wells

Lab ID: 0407074-01

Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			E150.1			Analyst: LMD
pH	6.92	0.100		pH units	1	7/8/2004
TOTAL DISSOLVED SOLIDS			E160.1			Analyst: LMD
Total Dissolved Solids (Residue, Filterable)	4,960	10.0		mg/L	1	7/8/2004

Qualifiers: ND - Not Detected at the Reporting Limit
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E - Value above quantitation range
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Lab Analytical, Inc.

Date: Jul 23 2004

CLIENT: Navajo Refining Company

Work Order: 0407074

Project: Injection Wells

QC BATCH REPORT

Batch ID: 9539 InstrumentID: ICP4500

MBLK Sample ID: MBLKW3-070904 Test Code: SW6020 Units: mg/L Analysis Date: 07/09/04 21:25

Client ID: Run ID: ICP4500_040709A SeqNo: 505844 Prep Date: 7/9/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.003459	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								



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O - Referenced analyte value is > 4 times amount spiked

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R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9539 InstrumentID: ICP4500

LCS Sample ID: MLC3W3-070904 Test Code: SW6020 Units: mg/L Analysis Date: 07/09/04 21:29
 Client ID: Run ID: ICP4500_040709A SeqNo: 505845 Prep Date: 7/9/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04844	0.010	0.05	0	96.9	79-126	0			
Arsenic	0.04766	0.0050	0.05	0	95.3	80-121	0			
Barium	0.04274	0.0050	0.05	0	85.5	79.8-119	0			
Beryllium	0.04529	0.0020	0.05	0	90.6	78.9-120	0			
Boron	0.4936	0.020	0.5	0	98.7	80-120	0			
Cadmium	0.04849	0.0020	0.05	0	97	79.1-119	0			
Calcium	4.804	0.50	5	0	96.1	80-121	0			
Chromium	0.04798	0.0050	0.05	0	96	79.3-121	0			
Cobalt	0.04761	0.0050	0.05	0	95.2	82-121	0			
Copper	0.04535	0.0050	0.05	0	90.7	83-121	0			
Iron	4.902	0.20	5	0	98	80-120	0			
Lead	0.04454	0.0050	0.05	0	89.1	80-118	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.04778	0.0050	0.05	0	95.6	82-119	0			
Molybdenum	0.04486	0.0050	0.05	0	89.7	84.6-115	0			
Nickel	0.04723	0.0050	0.05	0	94.5	85-120	0			
Potassium	4.953	0.20	5	0	99.1	80-120	0			
Selenium	0.0466	0.0050	0.05	0	93.2	79.2-118	0			
Silver	0.04787	0.0050	0.05	0	95.7	83-117	0			
Sodium	5.081	0.20	5	0	102	82.4-120	0			
Vanadium	0.04735	0.0050	0.05	0	94.7	82.1-119	0			
Zinc	0.04587	0.0050	0.05	0	91.7	83-118	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9539 InstrumentID: ICP4500

MS Sample ID: 0407028-83CMS Test Code: SW6020 Units: mg/L Analysis Date: 07/10/04 0:14

Client ID: Run ID: ICP4500_040709A SeqNo: 505874 Prep Date: 7/9/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05038	0.010	0.05	0.002733	95.3	79-126	0			
Arsenic	0.04968	0.0050	0.05	0.003932	91.5	80-121	0			
Barium	0.07232	0.0050	0.05	0.02595	92.7	79.8-119	0			
Beryllium	0.0509	0.0020	0.05	0.0005094	101	78.9-120	0			
Boron	0.623	0.020	0.5	0.09092	106	80-120	0			
Cadmium	0.04574	0.0020	0.05	0.0003332	90.8	79.1-119	0			
Calcium	90.82	0.50	5	84.69	123	80-121	0			SEO
Chromium	0.04515	0.0050	0.05	0	90.3	79.3-121	0			
Cobalt	0.04827	0.0050	0.05	0.004039	88.5	82-121	0			
Copper	0.04228	0.0050	0.05	0.0009502	82.7	83-121	0			S
Iron	5.002	0.20	5	0.2496	95	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-118	0			
Magnesium	28.5	0.20	5	23.83	93.4	80-120	0			O
Manganese	0.1942	0.0050	0.05	0.1499	88.6	82-119	0			
Molybdenum	0.04699	0.0050	0.05	0	94	84.6-115	0			
Nickel	0.05298	0.0050	0.05	0.01094	84.1	85-120	0			S
Potassium	7.353	0.20	5	2.353	100	80-120	0			
Selenium	0.046	0.0050	0.05	0.003609	84.8	79.2-118	0			
Silver	0.04262	0.0050	0.05	0	85.2	83-117	0			
Sodium	164.1	0.20	5	161.8	46	82.4-120	0			SEO
Vanadium	0.0482	0.0050	0.05	0.0006576	95.1	82.1-119	0			
Zinc	0.04617	0.0050	0.05	0.004682	83	83-118	0			S

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9539 InstrumentID: ICP4500

MSD Sample ID: 0407028-83CMSD Test Code: SW6020 Units: mg/L Analysis Date: 07/10/04 0:19

Client ID: Run ID: ICP4500_040709A SeqNo: 505875 Prep Date: 7/9/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05215	0.010	0.05	0.002733	98.8	79-126	0.05038	3.45	15	
Arsenic	0.04869	0.0050	0.05	0.003932	89.5	80-121	0.04968	2.01	15	
Barium	0.07266	0.0050	0.05	0.02595	93.4	79.8-119	0.07232	0.469	15	
Beryllium	0.05198	0.0020	0.05	0.0005094	103	78.9-120	0.0509	2.1	15	
Boron	0.6325	0.020	0.5	0.09092	108	80-120	0.623	1.51	15	
Cadmium	0.04625	0.0020	0.05	0.0003332	91.8	79.1-119	0.04574	1.11	15	
Calcium	93.55	0.50	5	84.69	177	80-121	90.82	2.96	15	SEO
Chromium	0.04685	0.0050	0.05	0	93.7	79.3-121	0.04515	3.7	15	
Cobalt	0.04998	0.0050	0.05	0.004039	91.9	82-121	0.04827	3.48	15	
Copper	0.04371	0.0050	0.05	0.0009502	85.5	83-121	0.04228	3.33	15	
Iron	5.13	0.20	5	0.2496	97.6	80-120	5.002	2.53	15	
Lead	0.0471	0.0050	0.05	0	94.2	80-118	0.04748	0.804	15	
Magnesium	30.14	0.20	5	23.83	126	80-120	28.5	5.59	15	SO
Manganese	0.2008	0.0050	0.05	0.1499	102	82-119	0.1942	3.34	15	
Molybdenum	0.04735	0.0050	0.05	0	94.7	84.6-115	0.04699	0.763	15	
Nickel	0.05422	0.0050	0.05	0.01094	86.6	85-120	0.05298	2.31	15	
Potassium	7.483	0.20	5	2.353	103	80-120	7.353	1.75	15	
Selenium	0.04327	0.0050	0.05	0.003609	79.3	79.2-118	0.046	6.12	15	
Silver	0.04351	0.0050	0.05	0	87	83-117	0.04262	2.07	15	
Sodium	173.9	0.20	5	161.8	242	82.4-120	164.1	5.8	15	SEO
Vanadium	0.04997	0.0050	0.05	0.0006576	98.6	82.1-119	0.0482	3.61	15	
Zinc	0.04806	0.0050	0.05	0.004682	86.8	83-118	0.04617	4.01	15	

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CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9539 Instrument ID: ICP4500

DUP Sample ID: 0407028-83CDUP Test Code: SW6020 Units: mg/L Analysis Date: 07/10/04 0:09
Client ID: Run ID: ICP4500_040709A SeqNo: 505873 Prep Date: 7/9/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.002615	0.010	0	0	0	0-0	0.002733	0	25	J
Arsenic	0.003323	0.0050	0	0	0	0-0	0.003932	0	25	J
Barium	0.026	0.0050	0	0	0	0-0	0.02595	0.192	25	
Beryllium	0.000439	0.0020	0	0	0	0-0	0.0005094	0	25	J
Boron	0.08249	0.020	0	0	0	0-0	0.09092	9.72	25	
Cadmium	0.0002675	0.0020	0	0	0	0-0	0.0003332	0	25	J
Chromium	ND	0.0050	0	0	0	0-0	0.0003544	0	25	
Cobalt	0.003999	0.0050	0	0	0	0-0	0.004039	0	25	J
Copper	0.001006	0.0050	0	0	0	0-0	0.0009502	0	25	J
Iron	0.2425	0.20	0	0	0	0-0	0.2496	2.89	25	
Lead	ND	0.0050	0	0	0	0-0	0.0001737	0	25	
Magnesium	22.32	0.20	0	0	0	0-0	23.83	6.54	25	
Manganese	0.1501	0.0050	0	0	0	0-0	0.1499	0.133	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.0005272	0	25	
Nickel	0.01059	0.0050	0	0	0	0-0	0.01094	3.25	25	
Potassium	2.237	0.20	0	0	0	0-0	2.353	5.05	25	
Selenium	ND	0.0050	0	0	0	0-0	0.003609	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001129	0	25	
Vanadium	0.0005641	0.0050	0	0	0	0-0	0.0006576	0	25	J
Zinc	0.00462	0.0050	0	0	0	0-0	0.004682	0	25	J

DUP Sample ID: 0407028-83CDUP Test Code: SW6020 Units: mg/L Analysis Date: 07/12/04 20:25
Client ID: Run ID: ICP4500_040712A SeqNo: 506283 Prep Date: 7/9/2004 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	85.98	5.0	0	0	0	0-0	85.98	0	25	
Sodium	175.6	2.0	0	0	0	0-0	175.6	0	25	

The following samples were analyzed in this batch:

0407074-01B

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

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E - Value above quantitation range



CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9641 Instrument ID: Mercury

MBLK Sample ID: GBLKW1-071704 Test Code: SW7470 Units: mg/L Analysis Date: 07/17/04 17:39

Client ID: Run ID: MERCURY_040717C SeqNo: 509754 Prep Date: 7/17/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0			

LCS Sample ID: GLCSW1-071704 Test Code: SW7470 Units: mg/L Analysis Date: 07/17/04 17:41

Client ID: Run ID: MERCURY_040717C SeqNo: 509755 Prep Date: 7/17/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00503	0.00020	0.005	0	101	83-115	0			

LCSD Sample ID: GLCSDW1-071704 Test Code: SW7470 Units: mg/L Analysis Date: 07/17/04 17:43

Client ID: Run ID: MERCURY_040717C SeqNo: 509756 Prep Date: 7/17/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00506	0.00020	0.005	0	101	83-115	0.00503	0.595	20	

MS Sample ID: 0407082-18CMS Test Code: SW7470 Units: mg/L Analysis Date: 07/17/04 17:50

Client ID: Run ID: MERCURY_040717C SeqNo: 509759 Prep Date: 7/17/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	-0.000006	96.5	83-115	0			

MSD Sample ID: 0407082-18CMSD Test Code: SW7470 Units: mg/L Analysis Date: 07/17/04 17:51

Client ID: Run ID: MERCURY_040717C SeqNo: 509760 Prep Date: 7/17/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00484	0.00020	0.005	-0.000006	96.9	83-115	0.00482	0.414	20	

DUP Sample ID: 0407082-18CDUP Test Code: SW7470 Units: mg/L Analysis Date: 07/17/04 17:48

Client ID: Run ID: MERCURY_040717C SeqNo: 509758 Prep Date: 7/17/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000006	0	20	

The following samples were analyzed in this batch:

0407074-01B

ND - Not Detected at the Reporting Limit

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9560 InstrumentID: SV-2

MBLK Sample ID: SBLKW1-040712 Test Code: SW8270 Units: µg/L Analysis Date: 07/13/04 15:58
 Client ID: Run ID: SV-2_040713A SeqNo: 507356 Prep Date: 7/12/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3-Nitroaniline	ND	10								
4-Methylphenol	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Benzo(a)anthracene	ND	10								
Benzenidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	82.25	10	100	0	82.2	39-153	0			
Surr: 2-Fluorobiphenyl	78.39	10	100	0	78.4	40-147	0			
Surr: 2-Fluorophenol	33.79	10	100	0	33.8	21-110	0			
Surr: 4-Terphenyl-d14	84.32	10	100	0	84.3	39-141	0			
Surr: Nitrobenzene-d5	70.65	10	100	0	70.7	37-140	0			
Surr: Phenol-d6	18.81	10	100	0	18.8	11-100	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9560 InstrumentID: SV-2

LCS Sample ID: SLCSW1-040712 Test Code: SW8270 Units: µg/L Analysis Date: 07/13/04 16:29
 Client ID: Run ID: SV-2_040713A SeqNo: 507357 Prep Date: 7/12/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.26	10	50	0	62.5	50-115	0			
2,4,5-Trichlorophenol	86.7	10	100	0	86.7	68-128	0			
2,4,6-Trichlorophenol	85.39	10	100	0	85.4	66-125	0			
2-Methylnaphthalene	34.79	10	50	0	69.6	47-122	0			
2-Methylphenol	61.44	10	100	0	61.4	51-115	0			
2-Nitroaniline	46.51	10	50	0	93	64-128	0			
2-Nitrophenol	76.92	10	100	0	76.9	60-119	0			
3-Nitroaniline	44.47	10	50	0	88.9	61-118	0			
4-Methylphenol	81.14	10	150	0	54.1	44-115	0			
4-Nitroaniline	44.56	10	50	0	89.1	61-123	0			
4-Nitrophenol	29.12	10	100	0	29.1	17-100	0			
Acenaphthene	40.9	10	50	0	81.8	68-115	0			
Acenaphthylene	40.88	10	50	0	81.8	67-116	0			
Aniline	32.02	10	50	0	64	40-130	0			
Anthracene	43.56	10	50	0	87.1	70-129	0			
Ben(a)anthracene	42.22	10	50	0	84.4	55-131	0			
Ben(a)pyrene	30.17	10	50	0	60.3	10-115	0			
Hexachloroethane	30.87	10	50	0	61.7	46-115	0			
Indeno(1,2,3-cd)pyrene	48.4	10	50	0	96.8	42-123	0			
Isophorone	39.55	10	50	0	79.1	63-117	0			
N-Nitrosodi-n-propylamine	42.61	10	50	0	85.2	67-115	0			
N-Nitrosodimethylamine	21.15	10	50	0	42.3	28-115	0			
N-Nitrosodiphenylamine	46.31	10	50	0	92.6	72-144	0			
Naphthalene	33.4	10	50	0	66.8	52-115	0			
Nitrobenzene	38.35	10	50	0	76.7	65-115	0			
Pentachlorophenol	70.64	10	100	0	70.6	65-123	0			
Phenanthrene	41.84	10	50	0	83.7	69-119	0			
Phenol	23.79	10	100	0	23.8	16-115	0			
Pyrene	40.12	10	50	0	80.2	51-130	0			
Surr: 2,4,6-Tribromophenol	87.89	10	100	0	87.9	39-153	0			
Surr: 2-Fluorobiphenyl	82.26	10	100	0	82.3	40-147	0			
Surr: 2-Fluorophenol	40.23	10	100	0	40.2	21-110	0			
Surr: 4-Terphenyl-d14	86.41	10	100	0	86.4	39-141	0			
Surr: Nitrobenzene-d5	75.5	10	100	0	75.5	37-140	0			
Surr: Phenol-d6	23.26	10	100	0	23.3	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



CLIENT: Navajo Refining Company
 Work Order: 0407074
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 9560 InstrumentID: SV-2

LCSD Sample ID: SLCSDW1-040712 Test Code: SW8270 Units: µg/L Analysis Date: 07/13/04 16:59
 Client ID: Run ID: SV-2_040713A SeqNo: 507358 Prep Date: 7/12/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	31.58	10	50	0	63.2	50-115	31.26	1.01	30	
2,4,5-Trichlorophenol	87.3	10	100	0	87.3	68-128	86.7	0.685	30	
2,4,6-Trichlorophenol	86.39	10	100	0	86.4	66-125	85.39	1.16	30	
2-Methylnaphthalene	33.56	10	50	0	67.1	47-122	34.79	3.61	30	
2-Methylphenol	60.16	10	100	0	60.2	51-115	61.44	2.11	30	
2-Nitroaniline	47.23	10	50	0	94.5	64-128	46.51	1.53	30	
2-Nitrophenol	75.92	10	100	0	75.9	60-119	76.92	1.32	30	
3-Nitroaniline	40.62	10	50	0	81.2	61-118	44.47	9.05	30	
4-Methylphenol	81.3	10	150	0	54.2	44-115	81.14	0.188	30	
4-Nitroaniline	42.15	10	50	0	84.3	61-123	44.56	5.54	30	
4-Nitrophenol	30.34	10	100	0	30.3	17-100	29.12	4.08	30	
Acenaphthene	39.88	10	50	0	79.8	68-115	40.9	2.52	30	
Acenaphthylene	39.7	10	50	0	79.4	67-116	40.88	2.93	30	
Aniline	31.01	10	50	0	62	40-130	32.02	3.2	30	
Anthracene	42.13	10	50	0	84.3	70-129	43.56	3.34	30	
Benzo(a)anthracene	41.72	10	50	0	83.4	55-131	42.22	1.2	30	
Benidine	28.39	10	50	0	56.8	10-115	30.17	6.06	30	
Hexachloroethane	29.4	10	50	0	58.8	46-115	30.87	4.89	30	
Indeno(1,2,3-cd)pyrene	44.19	10	50	0	88.4	42-123	48.4	9.1	30	
Isophorone	38.71	10	50	0	77.4	63-117	39.55	2.15	30	
N-Nitrosodi-n-propylamine	41.17	10	50	0	82.3	67-115	42.61	3.43	30	
N-Nitrosodimethylamine	22.1	10	50	0	44.2	28-115	21.15	4.41	30	
N-Nitrosodiphenylamine	44.6	10	50	0	89.2	72-144	46.31	3.77	30	
Naphthalene	32.74	10	50	0	65.5	52-115	33.4	1.99	30	
Nitrobenzene	38.2	10	50	0	76.4	65-115	38.35	0.387	30	
Pentachlorophenol	72.91	10	100	0	72.9	65-123	70.64	3.15	30	
Phenanthrene	40.12	10	50	0	80.2	69-119	41.84	4.2	30	
Phenol	24.22	10	100	0	24.2	16-115	23.79	1.79	30	
Pyrene	40.25	10	50	0	80.5	51-130	40.12	0.331	30	
Surr: 2,4,6-Tribromophenol	86.61	10	100	0	86.6	39-153	87.89	1.46	30	
Surr: 2-Fluorobiphenyl	81.97	10	100	0	82	40-147	82.26	0.35	30	
Surr: 2-Fluorophenol	39.11	10	100	0	39.1	21-110	40.23	2.82	30	
Surr: 4-Terphenyl-d14	85.17	10	100	0	85.2	39-141	86.41	1.45	30	
Surr: Nitrobenzene-d5	75.33	10	100	0	75.3	37-140	75.5	0.231	30	
Surr: Phenol-d6	23.6	10	100	0	23.6	11-100	23.26	1.46	30	

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



CLIENT: Navajo Refining Company
 Work Order: 0407074
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 9560 InstrumentID: SV-2

MS Sample ID: 0407082-18DMS Test Code: SW8270 Units: µg/L Analysis Date: 07/13/04 18:00
 Client ID: Run ID: SV-2_040713A SeqNo: 507360 Prep Date: 7/12/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.77	11	53.19	0	72.9	50-115	0			
2,4,5-Trichlorophenol	91.48	11	106.4	0	86	68-128	0			
2,4,6-Trichlorophenol	92.28	11	106.4	0	86.7	66-125	0			
2-Methylnaphthalene	39.59	11	53.19	0	74.4	47-122	0			
2-Methylphenol	68.77	11	106.4	0	64.6	51-115	0			
2-Nitroaniline	49.37	11	53.19	0	92.8	64-128	0			
2-Nitrophenol	92.66	11	106.4	0	77.7	60-119	0			
3-Nitroaniline	39.84	11	53.19	0	74.9	61-118	0			
4-Methylphenol	95.14	11	159.6	0	59.6	44-115	0			
4-Nitroaniline	41.31	11	53.19	0	77.7	61-123	0			
4-Nitrophenol	36.34	11	106.4	0	34.2	17-100	0			
Acenaphthene	46.9	11	53.19	0	88.2	68-115	0			
Acenaphthylene	42.53	11	53.19	0	80	67-116	0			
Aniline	31.51	11	53.19	0	59.2	40-130	0			
Anthracene	45.14	11	53.19	0	84.9	70-129	0			
Benzo(a)anthracene	44.52	11	53.19	0	83.7	55-131	0			
Benidine	24.16	11	53.19	0	45.4	10-115	0			
Hexachloroethane	42.45	11	53.19	0	79.8	46-115	0			
Indeno(1,2,3-cd)pyrene	49.91	11	53.19	0	93.8	42-123	0			
Isophorone	41.24	11	53.19	0	77.5	63-117	0			
N-Nitrosodi-n-propylamine	46.57	11	53.19	0	87.5	67-115	0			
N-Nitrosodimethylamine	26.9	11	53.19	0	50.6	28-115	0			
N-Nitrosodiphenylamine	47.19	11	53.19	0	88.7	72-144	0			
Naphthalene	37.95	11	53.19	0	71.4	52-115	0			
Nitrobenzene	42.36	11	53.19	0	79.6	65-115	0			
Pentachlorophenol	71.64	11	106.4	0	67.3	65-123	0			
Phenanthrene	43.67	11	53.19	0	82.1	69-119	0			
Phenol	29.8	11	106.4	0	28	16-115	0			
Pyrene	41.73	11	53.19	0	78.4	51-130	0			
Surr: 2,4,6-Tribromophenol	88.29	11	106.4	0	83	39-153	0			
Surr: 2-Fluorobiphenyl	88.06	11	106.4	0	82.8	40-147	0			
Surr: 2-Fluorophenol	46.77	11	106.4	0	44	21-110	0			
Surr: 4-Terphenyl-d14	88.44	11	106.4	0	83.1	39-141	0			
Surr: Nitrobenzene-d5	81.74	11	106.4	0	76.8	37-140	0			
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	0			



ND - Not Detected at the Reporting Limit

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: 9560 InstrumentID: SV-2

MSD Sample ID: 0407082-18DMSD Test Code: SW8270 Units: µg/L Analysis Date: 07/13/04 18:30
 Client ID: Run ID: SV-2_040713A SeqNo: 507361 Prep Date: 7/12/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.35	11	53.19	0	72.1	50-115	38.77	1.09	30	
2,4,5-Trichlorophenol	95.8	11	106.4	0	90.1	68-128	91.48	4.61	30	
2,4,6-Trichlorophenol	92.06	11	106.4	0	86.5	66-125	92.28	0.244	30	
2-Methylnaphthalene	39.08	11	53.19	0	73.5	47-122	39.59	1.29	30	
2-Methylphenol	70.25	11	106.4	0	66	51-115	68.77	2.12	30	
2-Nitroaniline	48.77	11	53.19	0	91.7	64-128	49.37	1.21	30	
2-Nitrophenol	83.64	11	106.4	0	78.6	60-119	82.66	1.17	30	
3-Nitroaniline	37.37	11	53.19	0	70.3	61-118	39.84	6.4	30	
4-Methylphenol	94.8	11	159.6	0	59.4	44-115	95.14	0.358	30	
4-Nitroaniline	38.45	11	53.19	0	72.3	61-123	41.31	7.17	30	
4-Nitrophenol	36.01	11	106.4	0	33.8	17-100	36.34	0.923	30	
Acenaphthene	47.64	11	53.19	0	89.6	68-115	46.9	1.56	30	
Acenaphthylene	42.64	11	53.19	0	80.2	67-116	42.53	0.255	30	
Aniline	31.17	11	53.19	0	58.6	40-130	31.51	1.09	30	
Anthracene	45.61	11	53.19	0	85.7	70-129	45.14	1.04	30	
Benzo(a)anthracene	45.17	11	53.19	0	84.9	55-131	44.52	1.46	30	
Benzydine	18.51	11	53.19	0	34.8	10-115	24.16	26.5	30	
Hexachloroethane	40.74	11	53.19	0	76.6	46-115	42.45	4.12	30	
Indeno(1,2,3-cd)pyrene	50.25	11	53.19	0	94.5	42-123	49.91	0.68	30	
Isophorone	42.87	11	53.19	0	80.6	63-117	41.24	3.88	30	
N-Nitrosodi-n-propylamine	46.44	11	53.19	0	87.3	67-115	46.57	0.281	30	
N-Nitrosodimethylamine	25.12	11	53.19	0	47.2	28-115	26.9	6.83	30	
N-Nitrosodiphenylamine	47.79	11	53.19	0	89.8	72-144	47.19	1.25	30	
Naphthalene	38.24	11	53.19	0	71.9	52-115	37.95	0.757	30	
Nitrobenzene	42.83	11	53.19	0	80.5	65-115	42.36	1.09	30	
Pentachlorophenol	81.78	11	106.4	0	76.9	65-123	71.64	13.2	30	
Phenanthrene	44.03	11	53.19	0	82.8	69-119	43.67	0.831	30	
Phenol	29.65	11	106.4	0	27.9	16-115	29.8	0.497	30	
Pyrene	42.44	11	53.19	0	79.8	51-130	41.73	1.71	30	
Surr: 2,4,6-Tribromophenol	93.87	11	106.4	0	88.2	39-153	88.29	6.12	30	
Surr: 2-Fluorobiphenyl	87.34	11	106.4	0	82.1	40-147	88.06	0.818	30	
Surr: 2-Fluorophenol	46.17	11	106.4	0	43.4	21-110	46.77	1.28	30	
Surr: 4-Terphenyl-d14	90.02	11	106.4	0	84.6	39-141	88.44	1.78	30	
Surr: Nitrobenzene-d5	80.82	11	106.4	0	76	37-140	81.74	1.14	30	
Surr: Phenol-d6	27.76	11	106.4	0	26.1	11-100	27.76	0.011	30	

The following samples were analyzed in this batch:

0407074-01D

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
 Work Order: 0407074
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R21831 InstrumentID: VOA2

MBLK Sample ID: VBLKW-0719 Test Code: SW8260 Units: µg/L Analysis Date: 07/19/04 11:33
 Client ID: Run ID: VOA2_040719A SeqNo: 510670 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	42.27	5.0	50	0	84.5	71-126	0			
Surr: 4-Bromofluorobenzene	43.71	5.0	50	0	87.4	74-125	0			
Surr: Dibromofluoromethane	43.99	5.0	50	0	88	73-126	0			
Surr: Toluene-d8	44.34	5.0	50	0	88.7	75-125	0			

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P - Dual Column results percent difference > 40%

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21831 InstrumentID: VOA2

LCS Sample ID: VLCSW-0719 Test Code: SW8260 Units: µg/L Analysis Date: 07/19/04 10:42
 Client ID: Run ID: VOA2_040719A SeqNo: 510669 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	49.5	5.0	50	0	99	75.2-120	0			
1,1,2,2-Tetrachloroethane	47.64	5.0	50	0	95.3	72.4-121	0			
1,1,2-Trichloroethane	49.05	5.0	50	0	98.1	80-120	0			
1,1-Dichloroethane	40.8	5.0	50	0	81.6	76.9-120	0			
1,1-Dichloroethene	42.24	5.0	50	0	84.5	72.6-123	0			
1,2-Dichloroethane	50.08	5.0	50	0	100	80-120	0			
2-Butanone	98.22	10	100	0	98.2	69-131	0			
2-Chloroethyl vinyl ether	99.78	10	100	0	99.8	60-135	0			
2-Hexanone	109.7	10	100	0	110	55.6-126	0			
4-Methyl-2-pentanone	105.7	10	100	0	106	67.4-121	0			
Acetone	110	10	100	0	110	64.4-140	0			
Benzene	47.36	5.0	50	0	94.7	80-120	0			
Bromodichloromethane	49.67	5.0	50	0	99.3	80-120	0			
Bromoform	52.48	5.0	50	0	105	77.9-121	0			
Bromomethane	46.73	5.0	50	0	93.5	63.3-137	0			
Carbon disulfide	81.78	10	100	0	81.8	74.1-123	0			
Carbon tetrachloride	50.26	5.0	50	0	101	74.7-120	0			
Chlorobenzene	48.77	5.0	50	0	97.5	80-120	0			
Chloroethane	46	5.0	50	0	92	74.7-126	0			
Chloroform	46.23	5.0	50	0	92.5	80-120	0			
Chloromethane	43.9	5.0	50	0	87.8	64.5-132	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	50.88	5.0	50	0	102	80-120	0			
Ethylbenzene	49.39	5.0	50	0	98.8	80-120	0			
m,p-Xylene	98.82	10	100	0	98.8	80-120	0			
Methylene chloride	41.13	10	50	0	82.3	76.2-120	0			
Styrene	50.69	5.0	50	0	101	80-120	0			
Tetrachloroethene	51.64	5.0	50	0	103	68.5-130	0			
Toluene	48.46	5.0	50	0	96.9	80-120	0			
trans-1,3-Dichloropropene	52.38	5.0	50	0	105	80-120	0			
Trichloroethene	50.2	5.0	50	0	100	78.9-120	0			
Vinyl acetate	106.1	10	100	0	106	62.4-133	0			
Vinyl chloride	46.69	2.0	50	0	93.4	72.7-128	0			
Xylenes, Total	148.4	15	150	0	98.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	40.65	5.0	50	0	81.3	71-126	0			
Surr: 4-Bromofluorobenzene	46.15	5.0	50	0	92.3	74-125	0			
Surr: Dibromofluoromethane	41.66	5.0	50	0	83.3	73-126	0			
Surr: Toluene-d8	45.05	5.0	50	0	90.1	75-125	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21831 InstrumentID: VOA2

MS Sample ID: 0407154-01AMS Test Code: SW8260 Units: µg/L Analysis Date: 07/19/04 14:05
 Client ID: Run ID: VOA2_040719A SeqNo: 510672 Prep Date: DF: 250

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12140	1,200	12500	0	97.1	75.2-120	0			
1,1,2,2-Tetrachloroethane	11150	1,200	12500	0	89.2	72.4-121	0			
1,1,2-Trichloroethane	12470	1,200	12500	0	99.8	80-120	0			
1,1-Dichloroethane	11610	1,200	12500	0	92.9	76.9-120	0			
1,1-Dichloroethene	9668	1,200	12500	0	77.3	72.6-123	0			
1,2-Dichloroethane	12100	1,200	12500	0	96.8	80-120	0			
2-Butanone	24170	2,500	25000	0	96.7	69-131	0			
2-Chloroethyl vinyl ether	23350	2,500	25000	0	93.4	60-135	0			
2-Hexanone	28460	2,500	25000	0	114	55.6-126	0			
4-Methyl-2-pentanone	26920	2,500	25000	0	108	67.4-121	0			
Acetone	28630	2,500	25000	0	115	64.4-140	0			
Benzene	12840	1,200	12500	1617	89.8	80-120	0			
Bromodichloromethane	12110	1,200	12500	0	96.9	80-120	0			
Bromoform	12900	1,200	12500	0	103	77.9-121	0			
Bromomethane	10540	1,200	12500	0	84.3	63.3-137	0			
Carbon disulfide	21710	2,500	25000	0	86.8	74.1-123	0			
Carbon tetrachloride	15530	1,200	12500	3701	94.7	74.7-120	0			
Chlorobenzene	17760	1,200	12500	6761	88	80-120	0			
Chloroethane	11150	1,200	12500	0	89.2	74.7-126	0			
Chloroform	27960	1,200	12500	16690	90.2	80-120	0			
Chloromethane	11340	1,200	12500	0	90.7	64.5-132	0			
cis-1,3-Dichloropropene	12280	1,200	12500	0	98.3	80-120	0			
Dibromochloromethane	12560	1,200	12500	0	101	80-120	0			
Ethylbenzene	12120	1,200	12500	0	97	80-120	0			
m,p-Xylene	24660	2,500	25000	0	98.7	80-120	0			
Methylene chloride	11050	2,500	12500	251	86.4	76.2-120	0			
Styrene	12310	1,200	12500	0	98.5	80-120	0			
Tetrachloroethene	12830	1,200	12500	307.5	100	68.5-130	0			
Toluene	11740	1,200	12500	0	93.9	80-120	0			
trans-1,3-Dichloropropene	12720	1,200	12500	0	102	80-120	0			
Trichloroethene	13050	1,200	12500	382.7	101	78.9-120	0			
Vinyl acetate	16340	2,500	25000	0	65.4	62.4-133	0			
Vinyl chloride	11910	500	12500	0	95.2	72.7-128	0			
Xylenes, Total	36910	3,800	37500	0	98.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	10910	1,200	12500	0	87.3	71-126	0			
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	0			
Surr: Dibromofluoromethane	10810	1,200	12500	0	86.5	73-126	0			
Surr: Toluene-d8	11660	1,200	12500	0	93.3	75-125	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
 Work Order: 0407074
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R21831 Instrument ID: VOA2

MSD Sample ID: 0407154-01AMSD Test Code: SW8260 Units: µg/L Analysis Date: 07/19/04 14:33
 Client ID: Run ID: VOA2_040719A SeqNo: 510673 Prep Date: DF: 250

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12300	1,200	12500	0	98.4	75.2-120	12140	1.31	20	
1,1,2,2-Tetrachloroethane	11100	1,200	12500	0	88.8	72.4-121	11150	0.381	20	
1,1,2-Trichloroethane	12660	1,200	12500	0	101	80-120	12470	1.46	20	
1,1-Dichloroethane	10890	1,200	12500	0	87.2	76.9-120	11610	6.37	20	
1,1-Dichloroethene	10340	1,200	12500	0	82.7	72.6-123	9668	6.67	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	80-120	12100	3.41	20	
2-Butanone	25510	2,500	25000	0	102	69-131	24170	5.39	20	
2-Chloroethyl vinyl ether	23900	2,500	25000	0	95.6	60-135	23350	2.29	20	
2-Hexanone	29060	2,500	25000	0	116	55.6-126	28460	2.07	20	
4-Methyl-2-pentanone	27690	2,500	25000	0	111	67.4-121	26920	2.82	20	
Acetone	28630	2,500	25000	0	115	64.4-140	28630	0.0181	20	
Benzene	13310	1,200	12500	1617	93.5	80-120	12840	3.55	20	
Bromodichloromethane	12400	1,200	12500	0	99.2	80-120	12110	2.29	20	
Bromoform	13180	1,200	12500	0	105	77.9-121	12900	2.16	20	
Bromomethane	11380	1,200	12500	0	91	63.3-137	10540	7.65	20	
Carbon disulfide	22610	2,500	25000	0	90.4	74.1-123	21710	4.08	20	
Carbon tetrachloride	16060	1,200	12500	3701	98.9	74.7-120	15530	3.35	20	
Chlorobenzene	18250	1,200	12500	6761	91.9	80-120	17760	2.71	20	
Chloroethane	11550	1,200	12500	0	92.4	74.7-126	11150	3.48	20	
Chloroform	27240	1,200	12500	16690	84.4	80-120	27960	2.59	20	
Chloromethane	11380	1,200	12500	0	91.1	64.5-132	11340	0.38	20	
cis-1,3-Dichloropropene	12670	1,200	12500	0	101	80-120	12280	3.12	20	
Dibromochloromethane	12910	1,200	12500	0	103	80-120	12560	2.71	20	
Ethylbenzene	12480	1,200	12500	0	99.8	80-120	12120	2.91	20	
m,p-Xylene	25180	2,500	25000	0	101	80-120	24660	2.07	20	
Methylene chloride	10390	2,500	12500	251	81.1	76.2-120	11050	6.19	20	
Styrene	12620	1,200	12500	0	101	80-120	12310	2.5	20	
Tetrachloroethene	13110	1,200	12500	307.5	102	68.5-130	12830	2.1	20	
Toluene	12160	1,200	12500	0	97.3	80-120	11740	3.54	20	
trans-1,3-Dichloropropene	12790	1,200	12500	0	102	80-120	12720	0.554	20	
Trichloroethene	13550	1,200	12500	382.7	105	78.9-120	13050	3.73	20	
Vinyl acetate	16770	2,500	25000	0	67.1	62.4-133	16340	2.6	20	
Vinyl chloride	11890	500	12500	0	95.1	72.7-128	11910	0.11	20	
Xylenes, Total	37950	3,800	37500	0	101	80-120	36910	2.78	20	
Surr: 1,2-Dichloroethane-d4	10830	1,200	12500	0	86.7	71-126	10910	0.714	20	
Surr: 4-Bromofluorobenzene	12050	1,200	12500	0	96.4	74-125	12050	0.0324	20	
Surr: Dibromofluoromethane	11040	1,200	12500	0	88.3	73-126	10810	2.07	20	
Surr: Toluene-d8	11800	1,200	12500	0	94.4	75-125	11660	1.17	20	

The following samples were analyzed in this batch:

0407074-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21602 InstrumentID: WetChem

LCS Sample ID: WLCSW1-070804 Test Code: E150.1 Units: pH units Analysis Date: 07/08/04 0:00

Client ID: Run ID: WETCHEM_040708A SeqNo: 504779 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	85-115		0		

DUP Sample ID: 0407074-01CDUP Test Code: E150.1 Units: pH units Analysis Date: 07/08/04 0:00

Client ID: Inj Wells Run ID: WETCHEM_040708A SeqNo: 504783 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.91	0.10	0	0	0	0-0	6.92	0.145	20	

The following samples were analyzed in this batch:

0407074-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21620 Instrument ID: WetChem

MBLK Sample ID: WBLKW1-070804 Test Code: E160.1 Units: mg/L Analysis Date: 07/08/04 0:00

Client ID: Run ID: WETCHEM_040708F SeqNo: 505164 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: WLCSW1-070804 Test Code: E160.1 Units: mg/L Analysis Date: 07/08/04 0:00

Client ID: Run ID: WETCHEM_040708F SeqNo: 505165 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1058	10	1000	0	106	80-120	0			

DUP Sample ID: 0407068-01EDUP Test Code: E160.1 Units: mg/L Analysis Date: 07/08/04 0:00

Client ID: Run ID: WETCHEM_040708F SeqNo: 505171 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	25900	10	0	0	0	0-0	25620	1.07	20	

The following samples were analyzed in this batch:

0407074-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21657 InstrumentID: WetChem

MBLK Sample ID: WBLKW-071204 Test Code: E310.1 Units: mg/L Analysis Date: 07/12/04 0:00

Client ID: Run ID: WETCHEM_040712B SeqNo: 506101 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO ₃)	ND	5.0								
Alkalinity, Carbonate (As CaCO ₃)	ND	5.0								
Alkalinity, Hydroxide (As CaCO ₃)	ND	5.0								
Alkalinity, Total (As CaCO ₃)	ND	5.0								

LCS Sample ID: WLCSW1-071204 Test Code: E310.1 Units: mg/L Analysis Date: 07/12/04 0:00

Client ID: Run ID: WETCHEM_040712B SeqNo: 506102 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO ₃)	980.7	5.0	0	0.9806	0	0-0	0			
Alkalinity, Carbonate (As CaCO ₃)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO ₃)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO ₃)	980.7	5.0	1000	0	98.1	80-120	0			

BDUP Sample ID: 0407076-01BDUP Test Code: E310.1 Units: mg/L Analysis Date: 07/12/04 0:00

Client ID: Run ID: WETCHEM_040712B SeqNo: 506130 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO ₃)	421.7	5.0	0	0	0	0-0	421.7	0	20	
Alkalinity, Carbonate (As CaCO ₃)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO ₃)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO ₃)	421.7	5.0	0	0	0	0-0	421.7	0	20	

The following samples were analyzed in this batch:

0407074-01C



ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21661 InstrumentID: WetChem

MBLK Sample ID: WBLKW1-071204 Test Code: E120.1 Units: $\mu\text{mhos/cm}$ Analysis Date: 07/12/04 0:00

Client ID: Run ID: WETCHEM_040712D SeqNo: 506172 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: WLCSW1-071204 Test Code: E120.1 Units: $\mu\text{mhos/cm}$ Analysis Date: 07/12/04 0:00

Client ID: Run ID: WETCHEM_040712D SeqNo: 506173 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1440	1.0	1409	0	102	80-120	0			

DUP Sample ID: 0407074-01CDUP Test Code: E120.1 Units: $\mu\text{mhos/cm}$ Analysis Date: 07/12/04 0:00

Client ID: Inj Wells Run ID: WETCHEM_040712D SeqNo: 506175 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	7190	1.0	0	0	0	0-0	7200	0.139	20	

The following samples were analyzed in this batch:

0407074-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21698 InstrumentID: IC201

MBLK	Sample ID: WBLKW1-071204			Test Code: E300		Units: mg/L		Analysis Date: 07/12/04 23:08		
Client ID:	Run ID: IC201_040712B			SeqNo: 506929		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)										
	5.26	0.10	5	0	105	80-120	0			

LCS	Sample ID: WLCSW1-071204			Test Code: E300		Units: mg/L		Analysis Date: 07/12/04 23:37		
Client ID:	Run ID: IC201_040712B			SeqNo: 506930		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.89	0.50	10	0	98.9	80-120	0			
Sulfate	10.41	1.0	10	0	104	80-120	0			
Surr: Dichloroacetic acid (surr)	5.58	0.10	5	0	112	80-120	0			

LCSD	Sample ID: WLCSW1DUP-071			Test Code: E300		Units: mg/L		Analysis Date: 07/13/04 0:05		
Client ID:	Run ID: IC201_040712B			SeqNo: 506931		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.9	0.50	10	0	99	80-120	0			
Sulfate	10.43	1.0	10	0	104	80-120	0			
Surr: Dichloroacetic acid (surr)	5.6	0.10	5	0	112	80-120	0			

MS	Sample ID: 0407016-02AMS			Test Code: E300		Units: mg/L		Analysis Date: 07/13/04 1:31		
Client ID:	Run ID: IC201_040712B			SeqNo: 506934		Prep Date:		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3695	50	1000	2719	97.6	75-125	0			
Sulfate	1255	100	1000	273	98.2	75-125	0			
Surr: Dichloroacetic acid (surr)	528	10	500	0	106	80-120	0			

MSD	Sample ID: 0407016-02AMSD			Test Code: E300		Units: mg/L		Analysis Date: 07/13/04 1:59		
Client ID:	Run ID: IC201_040712B			SeqNo: 506935		Prep Date:		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3686	50	1000	2719	96.7	75-125	3695	0.244	20	
Sulfate	1255	100	1000	273	98.2	75-125	1255	0	20	
Surr: Dichloroacetic acid (surr)	534	10	500	0	107	80-120	528	1.13	20	

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0407074
Project: Injection Wells

QC BATCH REPORT

Batch ID: R21698 InstrumentID: IC201

DUP Sample ID: 0407016-02ADUP Test Code: E300 Units: mg/L Analysis Date: 07/13/04 1:02

Client ID: Run ID: IC201_040712B SeqNo: 506933 Prep Date: DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2515	50	0	0	0	0-0	2719	7.8	20	
Sulfate	259	100	0	0	0	0-0	273	5.26	20	
Surr: Dichloroacetic acid (surr)	538	10	500	0	108	80-120	571	5.95	20	

DUP Sample ID: 0407076-04BDUP Test Code: E300 Units: mg/L Analysis Date: 07/13/04 11:01

Client ID: Run ID: IC201_040712B SeqNo: 506938 Prep Date: DF: 50

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	844	25	0	0	0	0-0	845.5	0.178	20	
Sulfate	2172	50	0	0	0	0-0	2174	0.115	20	
Surr: Dichloroacetic acid (surr)	279	5.0	250	0	112	80-120	284.5	1.95	20	

DUP Sample ID: 0407076-07BDUP Test Code: E300 Units: mg/L Analysis Date: 07/13/04 14:49

Client ID: Run ID: IC201_040712B SeqNo: 506944 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3191	0.50	0	0	0	0-0	3183	0.227	20	E
Sulfate	4941	1.0	0	0	0	0-0	4912	0.6	20	E
Surr: Dichloroacetic acid (surr)	4.38	0.10	5	0	87.6	80-120	5.6	24.4	20	R

The following samples were analyzed in this batch:

0407074-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

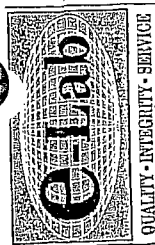
R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Page 3 of 3

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Customer Information								Project Information																															
Purchase Order	Project Name Injection Wells							A	VOC (6260)																														
Work Order	Project Number							B	SVOC (8270)																														
Company Name	Bill To Company							C	Total Metals WQCG - Cations (6020)																														
Send Report To	Invoice Attn							D	Anions: Cl, SO4 (300)																														
Address	P.O. Box 159							E	Alkalinity (310.1)																														
	City/State/Zip							F	pH																														
	Artesia, New Mexico 88211							G	TDS																														
Phone	(505) 748-3311							H	Conductivity																														
Fax	(505) 748-5421							I	Uranium																														
e-Mail Address	e-Mail Address							J	RQ																														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Hold																
1	Inj wells	7/7/04	9:00			11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
Sampler(s) Please Print & Sign <i>Charlie Pymale</i>								Shipment Method FedEx								Required Turnaround Time (Check Box) ☐ STD, 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ Other								Results Due Date															
Relinquished by: <i>[Signature]</i>								Received by (Laboratory): <i>[Signature]</i>								QC Packages: Check One Box Below ☒ Level I STD QC ☐ Level II STD QC ☐ Level III Bld QCRW Data ☐ Level IV SWD40CLP ☐ Other								TRRP Client Bl															
Relinquished by:								Date:								Time:								Temperature:								Other:							
Logged by (Laboratory):								Date:								Time:								Temperature:								Other:							
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄								C-10								C-10								C-10								C-10							

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Preservative Key. and COC Form have been submitted to e-Lab, Inc.

A Tulane attorney argued in a federal court case that evidence provided by the FBI was

e-Lab Analytical, Inc.

Sample Receipt Checklist

Client Name NAVAJO REFINING

Date/Time Received: 7/8/2004 8:40:00 AM

Work Order Number 0407074

Received by: FSM

Checklist completed by

RICHARD SMITH 7-8-04
Signature Date

Reviewed by

[Signature] 7/9/04
Initials Date

Matrix:

W

Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.0c</u>	<u>002</u>	
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes: Trip blank not on CDC; logged in without analysis.

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab, Inc

Date: *July 19, 2004*

CLIENT: e-Lab, Inc

Project: 0407074

Work Order: 0407128

Work Order Sample Summary

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0407128-01	0407074-01E	Water		7/7/2004 09:00	7/9/2004 10:00	☐

e-Lab, Inc

Date: July 19, 2004

CLIENT: e-Lab, Inc

Work Order: 0407128

Project: 0407074

Lab ID: 0407128-01A

Collection Date: 7/7/2004 9:00:00 AM

Client Sample ID: 0407074-01E

Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE				EPA 7.3.3.2		Analyst: KAE
Cyanide, Reactive	ND	0.0300		mg/Kg	1	7/16/2004
FLASHPOINT, P-M CLOSED-CUP				ASTM D93		Analyst: MB
Flashpoint, P-M Closed-cup	>200			°F	1	7/16/2004
SULFIDE, REACTIVE				EPA 7.3.4.2		Analyst: KAE
Sulfide, Reactive	ND	40.0		mg/Kg	1	7/16/2004

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

P - Dual Column results percent difference > 40%

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

H - Analyzed outside of Hold Time

AR Page 1 of 1

e-Lab, Inc

CLIENT: e-Lab, Inc

Work Order: 0407128

Project: 0407074

Date: Jul 19 2004

QC BATCH REPORT

Batch ID: R22476 InstrumentID: WETCHEM

LCS Sample ID: WLCSW1-071504 Test Code: ASTM D93 Units: °F Analysis Date 07/16/04 0:00

Client ID: Run ID: WETCHEM_040716G SeqNo: 329753 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	80	0	81	0	98.8	97.5-102.4	0			

The following samples were analyzed in this batch:

0407128-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: R22479 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-071504 Test Code: EPA 7.3.3.2 Units: mg/Kg Analysis Date 07/16/04 0:00

Client ID: Run ID: WETCHEM_0407161 SeqNo: 329826 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: WLC SW1-071504 Test Code: EPA 7.3.3.2 Units: mg/Kg Analysis Date 07/16/04 0:00

Client ID: Run ID: WETCHEM_0407161 SeqNo: 329827 Prep Date: DF: 25

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	4.238	0.75	19.71	0	21.5	5-100	0			

The following samples were analyzed in this batch: 0407128-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: e-Lab, Inc
Work Order: 0407128
Project: 0407074

QC BATCH REPORT

Batch ID: R22482 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-071604 Test Code: EPA 7.3.4.2 Units: mg/Kg Analysis Date 07/16/04 0:00
Client ID: Run ID: WETCHEM_040716L SeqNo: 329840 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

0407128-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

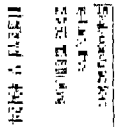
R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



Test	Control	100 mg/kg	200 mg/kg	400 mg/kg
1. Mortality	0	0	0	0
2. Body weight	100	100	100	100
3. Food intake	100	100	100	100
4. Urinary excretion	100	100	100	100
5. Fecal excretion	100	100	100	100
6. Blood chemistry	100	100	100	100
7. Histopathology	100	100	100	100

CHINA-DE-BASTARD FEATHERS

— 100 —

2025-03-20-14
2025-03-20-14
2025-03-20-14

[illegible]

Customer Name	Address	City	State	Zip	Phone	Fax	E-mail	Website	Notes
John Doe	123 Main St	New York	NY	10001	(212) 555-1234	(212) 555-5678	john.doe@example.com	www.johndoe.com	Regular customer
Jane Smith	456 Elm St	Los Angeles	CA	90001	(310) 555-9876	(310) 555-4321	jane.smith@example.com	www.janesmith.com	Occasional customer
Bob Johnson	789 Oak St	Chicago	IL	60601	(312) 555-2345	(312) 555-6789	bob.johnson@example.com	www.bobjohnson.com	New customer
Alice Brown	101 Pine St	San Francisco	CA	94101	(415) 555-3456	(415) 555-7890	alice.brown@example.com	www.alicebrown.com	Long-term customer
Charlie Davis	202 Maple St	Phoenix	AZ	85001	(602) 555-4567	(602) 555-8901	charlie.davis@example.com	www.charliebrown.com	Regular customer
Diana Evans	303 Cedar St	Philadelphia	PA	19101	(215) 555-5678	(215) 555-9012	diana.evans@example.com	www.dianaevans.com	Occasional customer
Frank Green	404 Birch St	San Diego	CA	92101	(619) 555-6789	(619) 555-0123	frank.green@example.com	www.frankgreen.com	New customer
Grace Hall	505 Walnut St	Seattle	WA	98101	(206) 555-7890	(206) 555-1234	grace.hall@example.com	www.gracehall.com	Long-term customer
Henry King	606 Cherry St	Portland	OR	97201	(503) 555-8901	(503) 555-2345	henry.king@example.com	www.henryking.com	Regular customer
Ivy Lee	707 Elm St	San Jose	CA	95101	(408) 555-9012	(408) 555-3456	ivy.lee@example.com	www.ivylee.com	Occasional customer
Jack Miller	808 Oak St	San Antonio	TX	78201	(214) 555-0123	(214) 555-4567	jack.miller@example.com	www.jackmiller.com	New customer
Karen Wilson	909 Pine St	San Jose	CA	95101	(408) 555-1234	(408) 555-5678	karen.wilson@example.com	www.karenwilson.com	Long-term customer
Leo White	1010 Maple St	San Jose	CA	95101	(408) 555-2345	(408) 555-6789	leo.white@example.com	www.leowhite.com	Regular customer
Mia Young	1111 Cedar St	San Jose	CA	95101	(408) 555-3456	(408) 555-7890	mia.young@example.com	www.miayoung.com	Occasional customer
Noah Adams	1212 Birch St	San Jose	CA	95101	(408) 555-4567	(408) 555-8901	noah.adams@example.com	www.noahadams.com	New customer
Olivia Baker	1313 Walnut St	San Jose	CA	95101	(408) 555-5678	(408) 555-9012	olivia.baker@example.com	www.oliviabaker.com	Long-term customer
Peter Clark	1414 Cherry St	San Jose	CA	95101	(408) 555-6789	(408) 555-0123	peter.clark@example.com	www.peterclark.com	Regular customer
Quinn Evans	1515 Elm St	San Jose	CA	95101	(408) 555-7890	(408) 555-1234	quinn.evans@example.com	www.quinnevans.com	Occasional customer
Samuel Green	1616 Oak St	San Jose	CA	95101	(408) 555-8901	(408) 555-2345	samuel.green@example.com	www.samuelgreen.com	New customer
Tina Hall	1717 Pine St	San Jose	CA	95101	(408) 555-9012	(408) 555-3456	tina.hall@example.com	www.tinahall.com	Long-term customer
Uma King	1818 Maple St	San Jose	CA	95101	(408) 555-0123	(408) 555-4567	uma.king@example.com	www.umaking.com	Regular customer
Victor Lee	1919 Cedar St	San Jose	CA	95101	(408) 555-1234	(408) 555-5678	victor.lee@example.com	www.victorlee.com	Occasional customer
Wendy Miller	2020 Birch St	San Jose	CA	95101	(408) 555-2345	(408) 555-6789	wendy.miller@example.com	www.wendymiller.com	New customer
Xavier Wilson	2121 Walnut St	San Jose	CA	95101	(408) 555-3456	(408) 555-7890	xavier.wilson@example.com	www.xavierwilson.com	Long-term customer
Yara Adams	2222 Cherry St	San Jose	CA	95101	(408) 555-4567	(408) 555-8901	yara.adams@example.com	www.yaraadams.com	Regular customer
Zoe Baker	2323 Elm St	San Jose	CA	95101	(408) 555-5678	(408) 555-9012	zoe.baker@example.com	www.zoebaker.com	Occasional customer

e-Lab, Inc

Sample Receipt Checklist

Client Name ELAB-HOU

Date/Time Received: 7/9/2004 10:00:00 AM

Work Order Number 0407128

Received by: TL

Checklist completed by

[Signature] 7/9/04
Signature Date

Reviewed by

[Signature] 7/9/04
Initials Date

Matrix:

Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.8 C</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A

Adjusted?

Checked b

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

ALIGN OPEN END OF FEDEX AIRBILL POUCH HERE

[illegible]

TEL: 249 7 000 35-016
 PostCode
 E-Mail: info@fhnw.ch
 1551 GEMÜNDLICHEN, 020

1983



HOLLAND, MI 48424
 1352 128th Ave.
 E. 33rd N. Michigan
 Sample Roadway
 48424
 HOLLAND, MI 48424

PRIORITY OVERALL
FRI

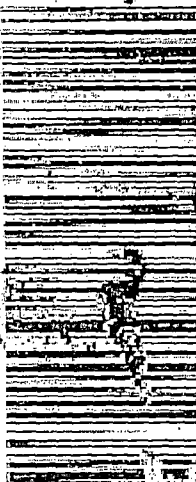
33-6167

REF ID: A66727

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e-Lab Analytical, Inc.

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 281-530-5656 Fax 281-530-5887

December 23, 2004

Jeff Byrd
Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

Tel: (505) 746-5468
Fax: (505) 746-5421

Re: Injection Wells

Work Order : **0412005**

Dear Jeff Byrd,

e-Lab Analytical, Inc. received 1 sample on 12/1/2004 9:05:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by e-Lab Analytical, Inc. The total number of pages in this report is 40.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jeffrey L Croston

Electronically approved by: Jeffrey L Croston

Jeffrey L Croston

e-Lab Analytical, Inc.

Date: *December 23, 2004*

CLIENT: Navajo Refining Company
Project: Injection Wells
Work Order: 0412005

Work Order Sample Summary

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0412005-01	Inj Wells	Water		11/30/2004 07:30	12/1/2004 09:05	☐

e-Lab Analytical, Inc.

Date: *December 23, 2004*

CLIENT: Navajo Refining Company

Project: Injection Wells

Work Order: 0412005

Case Narrative

Batch 11292 Metals MS/MSD was an unrelated sample.

Batch 11279 Semivolatiles MS/MSD were unrelated sample.

Batch R25184 Volatiles MS/MSD was an unrelated sample.

e-Lab Analytical, Inc.

Date: December 23, 2004

CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells
 Lab ID: 0412005-01

Client Sample ID: Inj Wells
 Collection Date: 11/30/2004 7:30:00 AM
 Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
MERCURY, TOTAL						
Mercury	ND	0.000200		mg/L	1	12/10/2004 9:00:00 PM
ICP METALS, TOTAL						
Aluminum	0.0414	0.0100		mg/L	1	12/10/2004 9:00:00 PM
Arsenic	0.193	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Barium	0.0187	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Beryllium	ND	0.00200		mg/L	1	12/10/2004 9:00:00 PM
Boron	0.211	0.200		mg/L	10	12/9/2004 9:13:00 PM
Cadmium	ND	0.00100		mg/L	1	12/10/2004 9:00:00 PM
Calcium	172	25.0		mg/L	50	12/9/2004 5:23:00 PM
Chromium	ND	0.00200		mg/L	1	12/10/2004 9:00:00 PM
Cobalt	0.00208	0.00200		mg/L	1	12/10/2004 9:00:00 PM
Copper	0.00888	0.00200		mg/L	1	12/10/2004 9:00:00 PM
Iron	0.304	0.200		mg/L	1	12/10/2004 9:00:00 PM
Lead	ND	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Magnesium	22.7	0.200		mg/L	1	12/10/2004 9:00:00 PM
Manganese	0.0658	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Molybdenum	0.00632	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Nickel	0.0286	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Potassium	26.6	0.200		mg/L	1	12/10/2004 9:00:00 PM
Selenium	0.300	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Silver	ND	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Sodium	1,880	10.0		mg/L	50	12/9/2004 5:23:00 PM
Vanadium	0.0117	0.00500		mg/L	1	12/10/2004 9:00:00 PM
Zinc	0.0541	0.00500		mg/L	1	12/10/2004 9:00:00 PM
SEMIVOLATILE ORGANICS BY GC/MS						
1,2,4-Trichlorobenzene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
2,4,5-Trichlorophenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
2,4,6-Trichlorophenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
2-Methylnaphthalene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
2-Methylphenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
2-Nitroaniline	ND	11		µg/L	1	12/3/2004 10:18:00 PM
2-Nitrophenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
3&4-Methylphenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
3-Nitroaniline	ND	11		µg/L	1	12/3/2004 10:18:00 PM
4-Nitroaniline	ND	11		µg/L	1	12/3/2004 10:18:00 PM
4-Nitrophenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Acenaphthene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Acenaphthylene	ND	11		µg/L	1	12/3/2004 10:18:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: December 23, 2004

CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells
 Lab ID: 0412005-01

Client Sample ID: Inj Wells
 Collection Date: 11/30/2004 7:30:00 AM
 Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Aniline	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Anthracene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Benz(a)anthracene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Benzidine	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Hexachloroethane	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Indeno(1,2,3-cd)pyrene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Isophorone	ND	11		µg/L	1	12/3/2004 10:18:00 PM
N-Nitrosodi-n-propylamine	ND	11		µg/L	1	12/3/2004 10:18:00 PM
N-Nitrosodimethylamine	ND	11		µg/L	1	12/3/2004 10:18:00 PM
N-Nitrosodiphenylamine	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Naphthalene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Nitrobenzene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Pentachlorophenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Phenanthrene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Phenol	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Pyrene	ND	11		µg/L	1	12/3/2004 10:18:00 PM
Surr: 2,4,6-Tribromophenol	108	39-153		%REC	1	12/3/2004 10:18:00 PM
Surr: 2-Fluorobiphenyl	89.2	40-147		%REC	1	12/3/2004 10:18:00 PM
Surr: 2-Fluorophenol	46.8	21-110		%REC	1	12/3/2004 10:18:00 PM
Surr: 4-Terphenyl-d14	93.6	39-141		%REC	1	12/3/2004 10:18:00 PM
Surr: Nitrobenzene-d5	88.3	37-140		%REC	1	12/3/2004 10:18:00 PM
Surr: Phenol-d6	24.9	11-100		%REC	1	12/3/2004 10:18:00 PM
VOLATILES BY GC/MS		SW8260			Analyst: PC	
1,1,1-Trichloroethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
1,2-Dichloroethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
2-Butanone	ND	10		µg/L	1	12/10/2004 7:44:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	12/10/2004 7:44:00 PM
2-Hexanone	ND	10		µg/L	1	12/10/2004 7:44:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	12/10/2004 7:44:00 PM
Acetone	39	10		µg/L	1	12/10/2004 7:44:00 PM
Benzene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Bromodichloromethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Bromoform	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Bromomethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Carbon disulfide	ND	10		µg/L	1	12/10/2004 7:44:00 PM
Carbon tetrachloride	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: December 23, 2004

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells
Lab ID: 0412005-01

Client Sample ID: Inj Wells
Collection Date: 11/30/2004 7:30:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Chloroethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Chloroform	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Chloromethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Dibromochloromethane	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Ethylbenzene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
m,p-Xylene	ND	10		µg/L	1	12/10/2004 7:44:00 PM
Methylene chloride	ND	10		µg/L	1	12/10/2004 7:44:00 PM
Styrene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Tetrachloroethene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Toluene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Trichloroethene	ND	5.0		µg/L	1	12/10/2004 7:44:00 PM
Vinyl acetate	ND	10		µg/L	1	12/10/2004 7:44:00 PM
Vinyl chloride	ND	2.0		µg/L	1	12/10/2004 7:44:00 PM
Xylenes, Total	ND	15		µg/L	1	12/10/2004 7:44:00 PM
Surr: 1,2-Dichloroethane-d4	105	71-126		%REC	1	12/10/2004 7:44:00 PM
Surr: 4-Bromofluorobenzene	80.8	74-125		%REC	1	12/10/2004 7:44:00 PM
Surr: Dibromofluoromethane	96.4	73-126		%REC	1	12/10/2004 7:44:00 PM
Surr: Toluene-d8	80.4	75-125		%REC	1	12/10/2004 7:44:00 PM
FLASHPOINT		SW1010				Analyst: MAG
Ignitability	>196	50		°F	1	12/6/2004
CYANIDE, REACTIVE		SW-846				Analyst: MAG
Reactive Cyanide	ND	0.0300		mg/Kg	1	12/2/2004
SULFIDE, REACTIVE		SW-846				Analyst: MAG
Reactive Sulfide	ND	40.0		mg/Kg	1	12/2/2004
ANIONS BY ION CHROMATOGRAPHY		E300				Analyst: MG
Chloride	1,200	50.0		mg/L	100	12/8/2004 11:32:00 PM
Sulfate	2,450	100		mg/L	100	12/8/2004 11:32:00 PM
Surr: Dichloroacetic acid (surr)	102	80-120		%REC	100	12/8/2004 11:32:00 PM
ALKALINITY		E310.1				Analyst: IGF
Alkalinity, Bicarbonate (As CaCO3)	132	5.00		mg/L	1	12/6/2004
Alkalinity, Carbonate (As CaCO3)	ND	5.00		mg/L	1	12/6/2004
Alkalinity, Hydroxide (As CaCO3)	ND	5.00		mg/L	1	12/6/2004
Alkalinity, Total (As CaCO3)	132	5.00		mg/L	1	12/6/2004
CONDUCTIVITY		E120.1				Analyst: IGF
Specific Conductance	6,350	1.00		µmhos/cm	1	12/3/2004

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

e-Lab Analytical, Inc.

Date: December 23, 2004

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells
Lab ID: 0412005-01

Client Sample ID: Inj Wells
Collection Date: 11/30/2004 7:30:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PH			E150.1			Analyst: IGF
pH	7.19	0.100		pH units	1	12/1/2004
TOTAL DISSOLVED SOLIDS			E160.1			Analyst: MG
Total Dissolved Solids (Residue, Filterable)	4,940	10.0		mg/L	1	12/3/2004

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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H - Analyzed outside of Hold Time

Lab Analytical, Inc.

Date: Dec 23 2004

CLIENT: Navajo Refining Company

Work Order: 0412005

Project: Injection Wells

QC BATCH REPORT

Batch ID: 11292 InstrumentID: ICP4500

MBLK Sample ID: MBLKW1-120304 Test Code: SW6020 Units: mg/L Analysis Date: 12/08/04 15:12
Client ID: Run ID: ICP4500_041208A SeqNo: 585425 Prep Date: 12/3/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	0.0006782	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	0.07729	0.20								J
Vanadium	ND	0.0050								
Zinc	0.0021	0.0050								J

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U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11292 InstrumentID: ICP4500

LCS Sample ID: MLCSW1-120304 Test Code: SW6020 Units: mg/L Analysis Date: 12/08/04 15:17

Client ID: Run ID: ICP4500_041208A SeqNo: 585426 Prep Date: 12/3/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04516	0.010	0.05	0	90.3	79-126	0			
Arsenic	0.04774	0.0050	0.05	0	95.5	80-121	0			
Barium	0.04532	0.0050	0.05	0	90.6	79.8-119	0			
Beryllium	0.04939	0.0020	0.05	0	98.8	78.9-120	0			
Boron	0.5121	0.020	0.5	0	102	80-120	0			
Cadmium	0.05014	0.0020	0.05	0	100	79.1-119	0			
Calcium	4.515	0.50	5	0	90.3	80-121	0			
Chromium	0.04476	0.0050	0.05	0	89.5	79.3-121	0			
Cobalt	0.04611	0.0050	0.05	0	92.2	82-121	0			
Copper	0.04562	0.0050	0.05	0	91.2	81-120	0			
Iron	4.832	0.20	5	0	96.6	80-120	0			
Lead	0.04448	0.0050	0.05	0	89	80-118	0			
Magnesium	4.737	0.20	5	0	94.7	80-120	0			
Manganese	0.0458	0.0050	0.05	0	91.6	82-119	0			
Molybdenum	0.04286	0.0050	0.05	0	85.7	81-115	0			
Nickel	0.0465	0.0050	0.05	0	93	82-120	0			
Potassium	4.477	0.20	5	0	89.5	80-120	0			
Selenium	0.04793	0.0050	0.05	0	95.9	79.2-118	0			
Silver	0.04639	0.0050	0.05	0	92.8	80-117	0			
Sodium	4.588	0.20	5	0	91.8	80.6-119	0			
Vanadium	0.04421	0.0050	0.05	0	88.4	82.1-119	0			
Zinc	0.04855	0.0050	0.05	0	97.1	79-118	0			

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CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11292 InstrumentID: ICP4500

MS	Sample ID: 0411323-01CMS			Test Code: SW6020		Units: mg/L		Analysis Date: 12/13/04 17:14		
Client ID:	Run ID:	ICP7500_041213A		SeqNo:	587685	Prep Date: 12/3/2004		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1069	0.010	0.05	0.5579	-902	79-126	0			SO
Arsenic	0.05512	0.0050	0.05	0.006109	98	80-121	0			
Barium	0.09539	0.0050	0.05	0.05106	88.7	79.8-119	0			
Beryllium	0.04669	0.0020	0.05	0	93.4	78.9-120	0			
Boron	0.7308	0.020	0.5	0.2504	96.1	80-120	0			
Cadmium	0.04737	0.0020	0.05	0	94.7	79.1-119	0			
Calcium	264.3	0.50	5	266.5	-44	80-121	0			SEO
Chromium	0.04732	0.0050	0.05	0.0007623	93.1	79.3-121	0			
Cobalt	0.04668	0.0050	0.05	0.001722	89.9	82-121	0			
Copper	0.04436	0.0050	0.05	0.0009763	86.8	80-120	0			
Iron	6.504	0.20	5	2.249	85.1	80-120	0			
Lead	0.04604	0.0050	0.05	0.000464	91.2	80-118	0			
Magnesium	114.1	0.20	5	106.8	146	80-120	0			SEO
Manganese	0.1654	0.0050	0.05	0.1179	95	82-119	0			
Molybdenum	0.05048	0.0050	0.05	0.00484	91.3	81-115	0			
Nickel	0.05074	0.0050	0.05	0.006594	88.3	82-120	0			
Potassium	5.203	0.20	5	0.5493	93.1	80-120	0			
Selenium	0.04587	0.0050	0.05	0	91.7	79.2-118	0			
Silver	0.03777	0.0050	0.05	0	75.5	80-117	0			S
Sodium	40.61	0.20	5	34.32	126	80.6-119	0			SO
Vanadium	0.04854	0.0050	0.05	0.001477	94.1	82.1-119	0			
Zinc	0.07754	0.0050	0.05	0.02374	108	79-118	0			

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E - Value above quantitation range

CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 11292 InstrumentID: ICP4500

MSD Sample ID: 0411323-01CMSD Test Code: SW6020 Units: mg/L Analysis Date: 12/13/04 17:25
 Client ID: Run ID: ICP7500_041213A SeqNo: 587686 Prep Date: 12/3/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09847	0.010	0.05	0.5579	-919	79-126	0.1069	8.21	15	SO
Arsenic	0.05478	0.0050	0.05	0.006109	97.3	80-121	0.05512	0.619	15	
Barium	0.09357	0.0050	0.05	0.05106	85	79.8-119	0.09539	1.93	15	
Beryllium	0.04578	0.0020	0.05	0	91.6	78.9-120	0.04669	1.97	15	
Boron	0.7187	0.020	0.5	0.2504	93.7	80-120	0.7308	1.67	15	
Cadmium	0.04671	0.0020	0.05	0	93.4	79.1-119	0.04737	1.4	15	
Calcium	264.8	0.50	5	266.5	-34	80-121	264.3	0.189	15	SEO
Chromium	0.04649	0.0050	0.05	0.0007623	91.5	79.3-121	0.04732	1.77	15	
Cobalt	0.04571	0.0050	0.05	0.001722	88	82-121	0.04668	2.1	15	
Copper	0.04363	0.0050	0.05	0.0009763	85.3	81-120	0.04436	1.66	15	
Iron	6.331	0.20	5	2.249	81.6	80-120	6.504	2.7	15	
Lead	0.04463	0.0050	0.05	0.000464	88.3	80-118	0.04604	3.11	15	
Magnesium	111.1	0.20	5	106.8	86	80-120	114.1	2.66	15	EO
Manganese	0.1615	0.0050	0.05	0.1179	87.2	82-119	0.1654	2.39	15	
Molybdenum	0.0504	0.0050	0.05	0.00484	91.1	81-115	0.05048	0.159	15	
Nickel	0.04918	0.0050	0.05	0.006594	85.2	82-120	0.05074	3.12	15	
Potassium	5.187	0.20	5	0.5493	92.8	80-120	5.203	0.308	15	
Selenium	0.04899	0.0050	0.05	0	98	79.2-118	0.04587	6.58	15	
Silver	0.03712	0.0050	0.05	0	74.2	80-117	0.03777	1.74	15	S
Sodium	39.2	0.20	5	34.32	97.6	80.6-119	40.61	3.53	15	O
Vanadium	0.0472	0.0050	0.05	0.001477	91.4	82.1-119	0.04854	2.8	15	
Zinc	0.04375	0.0050	0.05	0.02374	40	79-118	0.07754	55.7	15	SR

DUP Sample ID: 0411323-01CDUP Test Code: SW6020 Units: mg/L Analysis Date: 12/08/04 15:26
 Client ID: Run ID: ICP4500_041208A SeqNo: 585428 Prep Date: 12/3/2004 DF: 50

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	242.3	25	0	0	0	0-0	237.6	1.96	25	

DUP Sample ID: 0411323-01CDUP Test Code: SW6020 Units: mg/L Analysis Date: 12/09/04 17:33
 Client ID: Run ID: ICP4500_041209A SeqNo: 586207 Prep Date: 12/3/2004 DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Magnesium	104	2.0	0	0	0	0-0	94.02	10.1	25	

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E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11292 InstrumentID: ICP4500

DUP Sample ID: 0411323-01CDUP Test Code: SW6020 Units: mg/L Analysis Date: 12/13/04 17:08
 Client ID: Run ID: ICP7500_041213A SeqNo: 587684 Prep Date: 12/3/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5114	0.010	0	0	0	0-0	0.5579	8.7	25	
Arsenic	0.007011	0.0050	0	0	0	0-0	0.006109	13.8	25	
Barium	0.04884	0.0050	0	0	0	0-0	0.05106	4.44	25	
Beryllium	ND	0.0020	0	0	0	0-0	0.00004484	0	25	
Boron	0.2336	0.020	0	0	0	0-0	0.2504	6.94	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.00002551	0	25	
Chromium	0.00112	0.0050	0	0	0	0-0	0.0007623	0	25	J
Cobalt	0.001584	0.0050	0	0	0	0-0	0.001722	0	25	J
Copper	0.0007835	0.0050	0	0	0	0-0	0.0009763	0	25	J
Iron	2.272	0.20	0	0	0	0-0	2.249	1.02	25	
Lead	0.0005578	0.0050	0	0	0	0-0	0.000464	0	25	J
Manganese	0.118	0.0050	0	0	0	0-0	0.1179	0.0848	25	
Molybdenum	0.004888	0.0050	0	0	0	0-0	0.00484	0	25	J
Nickel	0.006244	0.0050	0	0	0	0-0	0.006594	5.45	25	
Potassium	0.1045	0.20	0	0	0	0-0	0.5493	0	25	J
Selenium	ND	0.0050	0	0	0	0-0	0.00126	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.00001912	0	25	
Sodium	34.43	0.20	0	0	0	0-0	34.32	0.32	25	
Vanadium	0.001493	0.0050	0	0	0	0-0	0.001477	0	25	J
Zinc	0.02671	0.0050	0	0	0	0-0	0.02374	11.8	25	

The following samples were analyzed in this batch:

0412005-01B

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CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11333 InstrumentID: Mercury

MBLK Sample ID: GBLKW2-120704 Test Code: SW7470 Units: mg/L Analysis Date: 12/08/04 15:16

Client ID: Run ID: MERCURY_041208B SeqNo: 585330 Prep Date: 12/7/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW2-120704 Test Code: SW7470 Units: mg/L Analysis Date: 12/08/04 15:18

Client ID: Run ID: MERCURY_041208B SeqNo: 585331 Prep Date: 12/7/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00516	0.00020	0.005	0	103	83-115	0			

LCSD Sample ID: GLCSDW2-120704 Test Code: SW7470 Units: mg/L Analysis Date: 12/08/04 15:19

Client ID: Run ID: MERCURY_041208B SeqNo: 585332 Prep Date: 12/7/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00525	0.00020	0.005	0	105	83-115	0.00516	1.73	20	

MS Sample ID: 0411323-05CMS Test Code: SW7470 Units: mg/L Analysis Date: 12/08/04 15:24

Client ID: Run ID: MERCURY_041208B SeqNo: 585335 Prep Date: 12/7/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00521	0.00020	0.005	-0.00001	104	83-115	0			

MSD Sample ID: 0411323-05CMSD Test Code: SW7470 Units: mg/L Analysis Date: 12/08/04 15:25

Client ID: Run ID: MERCURY_041208B SeqNo: 585336 Prep Date: 12/7/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00537	0.00020	0.005	-0.00001	108	83-115	0.00521	3.02	20	

DUP Sample ID: 0411323-05CDUP Test Code: SW7470 Units: mg/L Analysis Date: 12/08/04 15:22

Client ID: Run ID: MERCURY_041208B SeqNo: 585334 Prep Date: 12/7/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.00001	0	20	

The following samples were analyzed in this batch:

0412005-01B

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

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E - Value above quantitation range



CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 11279 Instrument ID: SV-3

MBLK Sample ID: SBLKW1-041201 Test Code: SW8270 Units: µg/L Analysis Date: 12/06/04 19:16
 Client ID: Run ID: SV-3_041206A SeqNo: 584523 Prep Date: 12/1/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
2-Nitroaniline	ND	10								
2-Nitrophenol	ND	10								
3&4-Methylphenol	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
4-Nitrophenol	ND	10								
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Ben(a)anthracene	ND	10								
Benzidine	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
Nitrobenzene	ND	10								
Pentachlorophenol	ND	10								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
1,4-Dichlorobenzene-d4	40	0								
Acenaphthene-d10	40	0								
Chrysene-d12	40	0								
Naphthalene-d8	40	0								
Perylene-d12	40	0								
Phenanthrene-d10	40	0								
Surr: 2,4,6-Tribromophenol	111.4	10	100	0	111	39-153	0			
Surr: 2-Fluorobiphenyl	94.94	10	100	0	94.9	40-147	0			
Surr: 2-Fluorophenol	41.49	10	100	0	41.5	21-110	0			
Surr: 4-Terphenyl-d14	92.33	10	100	0	92.3	39-141	0			
Surr: Nitrobenzene-d5	92.12	10	100	0	92.1	37-140	0			
Surr: Phenol-d6	24.52	10	100	0	24.5	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells

QC BATCH REPORT

Batch ID: 11279 InstrumentID: SV-3

LCS Sample ID: SLCSW1-041201 Test Code: SW8270 Units: µg/L Analysis Date: 12/06/04 19:42

Client ID: Run ID: SV-3_041206A SeqNo: 584524 Prep Date: 12/1/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	46.41	10	50	0	92.8	50-115	0			
2,4,5-Trichlorophenol	85.9	10	100	0	85.9	68-128	0			
2,4,6-Trichlorophenol	80.73	10	100	0	80.7	66-125	0			
2-Methylnaphthalene	42.71	10	50	0	85.4	47-122	0			
2-Methylphenol	62.35	10	100	0	62.4	51-115	0			
2-Nitroaniline	40.81	10	50	0	81.6	64-128	0			
2-Nitrophenol	85.56	10	100	0	85.6	60-119	0			
3&4-Methylphenol	83.39	10	150	0	55.6	44-115	0			
3-Nitroaniline	31.82	10	50	0	63.6	61-118	0			
4-Nitroaniline	35.23	10	50	0	70.5	61-123	0			
4-Nitrophenol	38.6	10	100	0	38.6	17-100	0			
Acenaphthene	47.59	10	50	0	95.2	68-115	0			
Acenaphthylene	45.62	10	50	0	91.2	67-116	0			
Aniline	28.31	10	50	0	56.6	40-130	0			
Anthracene	51.46	10	50	0	103	70-129	0			
Benzo(a)anthracene	45.47	10	50	0	90.9	55-131	0			
Benidine	7.922	10	50	0	15.8	10-115	0			J
Hexachloroethane	44.02	10	50	0	88	46-115	0			
Indeno(1,2,3-cd)pyrene	45.47	10	50	0	90.9	42-123	0			
Isophorone	43.19	10	50	0	86.4	63-117	0			
N-Nitrosodi-n-propylamine	41.82	10	50	0	83.6	67-115	0			
N-Nitrosodimethylamine	18.78	10	50	0	37.6	28-115	0			
N-Nitrosodiphenylamine	52.16	10	50	0	104	72-144	0			
Naphthalene	47.05	10	50	0	94.1	52-115	0			
Nitrobenzene	42.92	10	50	0	85.8	65-115	0			
Pentachlorophenol	88.33	10	100	0	88.3	65-123	0			
Phenanthrene	49.68	10	50	0	99.4	69-119	0			
Phenol	28.84	10	100	0	28.8	16-115	0			
Pyrene	47.04	10	50	0	94.1	51-130	0			
Surr: 2,4,6-Tribromophenol	104.5	10	100	0	105	39-153	0			
Surr: 2-Fluorobiphenyl	88	10	100	0	88	40-147	0			
Surr: 2-Fluorophenol	42.87	10	100	0	42.9	21-110	0			
Surr: 4-Terphenyl-d14	92.9	10	100	0	92.9	39-141	0			
Surr: Nitrobenzene-d5	84.16	10	100	0	84.2	37-140	0			
Surr: Phenol-d6	26.45	10	100	0	26.5	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11279 InstrumentID: SV-3

MS Sample ID: 0411323-01DMS Test Code: SW8270 Units: µg/L Analysis Date: 12/06/04 20:34
 Client ID: Run ID: SV-3_041206A SeqNo: 584526 Prep Date: 12/1/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.38	10	50	0	86.8	50-115	0			
2,4,5-Trichlorophenol	90.42	10	100	0	90.4	68-128	0			
2,4,6-Trichlorophenol	85.7	10	100	0	85.7	66-125	0			
2-Methylnaphthalene	43.28	10	50	0	86.6	47-122	0			
2-Methylphenol	64.36	10	100	0	64.4	51-115	0			
2-Nitroaniline	43.16	10	50	0	86.3	64-128	0			
2-Nitrophenol	86.59	10	100	0	86.6	60-119	0			
3&4-Methylphenol	86.42	10	150	0	57.6	44-115	0			
3-Nitroaniline	33.78	10	50	0	67.6	61-118	0			
4-Nitroaniline	38.79	10	50	0	77.6	61-123	0			
4-Nitrophenol	36.47	10	100	0	36.5	17-100	0			
Acenaphthene	48.47	10	50	0	96.9	68-115	0			
Acenaphthylene	47.05	10	50	0	94.1	67-116	0			
Aniline	32.99	10	50	0	66	40-130	0			
Anthracene	51.79	10	50	0	104	70-129	0			
Benz(a)anthracene	49.25	10	50	0	98.5	55-131	0			
Benidine	6.74	10	50	0	13.5	10-115	0			J
Hexachloroethane	36.94	10	50	0	73.9	46-115	0			
Indeno(1,2,3-cd)pyrene	49.15	10	50	0	98.3	42-123	0			
Isophorone	45.12	10	50	0	90.2	63-117	0			
N-Nitrosodi-n-propylamine	43.97	10	50	0	87.9	67-115	0			
N-Nitrosodimethylamine	17.91	10	50	0	35.8	28-115	0			
N-Nitrosodiphenylamine	53.36	10	50	0	107	72-144	0			
Naphthalene	45.94	10	50	0	91.9	52-115	0			
Nitrobenzene	44.54	10	50	0	89.1	65-115	0			
Pentachlorophenol	94.58	10	100	0	94.6	65-123	0			
Phenanthrene	50.51	10	50	0	101	69-119	0			
Phenol	29.37	10	100	0	29.4	16-115	0			
Pyrene	48.25	10	50	0	96.5	51-130	0			
Surr: 2,4,6-Tribromophenol	101.5	10	100	0	102	39-153	0			
Surr: 2-Fluorobiphenyl	84.74	10	100	0	84.7	40-147	0			
Surr: 2-Fluorophenol	39.74	10	100	0	39.7	21-110	0			
Surr: 4-Terphenyl-d14	90.52	10	100	0	90.5	39-141	0			
Surr: Nitrobenzene-d5	82.8	10	100	0	82.8	37-140	0			
Surr: Phenol-d6	25.63	10	100	0	25.6	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11279 InstrumentID: SV-3

MS Sample ID: 0411323-05DMS Test Code: SW8270 Units: µg/L Analysis Date: 12/06/04 21:52
 Client ID: Run ID: SV-3_041206A SeqNo: 584529 Prep Date: 12/1/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	44.27	10	50	0	88.5	50-115	0			
2,4,5-Trichlorophenol	93.28	10	100	0	93.3	68-128	0			
2,4,6-Trichlorophenol	83.02	10	100	0	83	66-125	0			
2-Methylnaphthalene	45.01	10	50	0	90	47-122	0			
2-Methylphenol	64.66	10	100	0	64.7	51-115	0			
2-Nitroaniline	45.32	10	50	0	90.6	64-128	0			
2-Nitrophenol	89.99	10	100	0	90	60-119	0			
3&4-Methylphenol	85.58	10	150	0	57.1	44-115	0			
3-Nitroaniline	36.65	10	50	0	73.3	61-118	0			
4-Nitroaniline	39.1	10	50	0	78.2	61-123	0			
4-Nitrophenol	40.12	10	100	0	40.1	17-100	0			
Acenaphthene	48.32	10	50	0	96.6	68-115	0			
Acenaphthylene	47.27	10	50	0	94.5	67-116	0			
Aniline	30.49	10	50	0	61	40-130	0			
Anthracene	52.19	10	50	0	104	70-129	0			
Benzo(a)anthracene	49.77	10	50	0	99.5	55-131	0			
Benzidine	ND	10	50	0	0	10-115	0			S
Hexachloroethane	35.92	10	50	0	71.8	46-115	0			
Indeno(1,2,3-cd)pyrene	50.64	10	50	0	101	42-123	0			
Isophorone	47.44	10	50	0	94.9	63-117	0			
N-Nitrosodi-n-propylamine	43.49	10	50	0	87	67-115	0			
N-Nitrosodimethylamine	19.55	10	50	0	39.1	28-115	0			
N-Nitrosodiphenylamine	53.06	10	50	0	106	72-144	0			
Naphthalene	46.32	10	50	0	92.6	52-115	0			
Nitrobenzene	44.87	10	50	0	89.7	65-115	0			
Pentachlorophenol	95.19	10	100	0	95.2	65-123	0			
Phenanthrene	50.74	10	50	0	101	69-119	0			
Phenol	30.24	10	100	0	30.2	16-115	0			
Pyrene	48.75	10	50	0	97.5	51-130	0			
Surr: 2,4,6-Tribromophenol	109.7	10	100	0	110	39-153	0			
Surr: 2-Fluorobiphenyl	86.29	10	100	0	86.3	40-147	0			
Surr: 2-Fluorophenol	44.57	10	100	0	44.6	21-110	0			
Surr: 4-Terphenyl-d14	92.93	10	100	0	92.9	39-141	0			
Surr: Nitrobenzene-d5	87.65	10	100	0	87.7	37-140	0			
Surr: Phenol-d6	28.07	10	100	0	28.1	11-100	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11279 InstrumentID: SV-3

MSD Sample ID: 0411323-01DMS Test Code: SW8270 Units: µg/L Analysis Date: 12/06/04 21:00

Client ID: Run ID: SV-3_041206A SeqNo: 584527 Prep Date: 12/1/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.32	10	50	0	86.6	50-115	43.38	0.129	30	
2,4,5-Trichlorophenol	94.48	10	100	0	94.5	68-128	90.42	4.39	30	
2,4,6-Trichlorophenol	86.55	10	100	0	86.6	66-125	85.7	0.994	30	
2-Methylnaphthalene	44.24	10	50	0	88.5	47-122	43.28	2.19	30	
2-Methylphenol	68.14	10	100	0	68.1	51-115	64.36	5.71	30	
2-Nitroaniline	45.64	10	50	0	91.3	64-128	43.16	5.59	30	
2-Nitrophenol	90.48	10	100	0	90.5	60-119	86.59	4.4	30	
3&4-Methylphenol	91.48	10	150	0	61	44-115	86.42	5.69	30	
3-Nitroaniline	34.37	10	50	0	68.7	61-118	33.78	1.73	30	
4-Nitroaniline	41.5	10	50	0	83	61-123	38.79	6.75	30	
4-Nitrophenol	39.15	10	100	0	39.2	17-100	36.47	7.1	30	
Acenaphthene	50.19	10	50	0	100	68-115	48.47	3.49	30	
Acenaphthylene	48.71	10	50	0	97.4	67-116	47.05	3.46	30	
Aniline	32.02	10	50	0	64	40-130	32.99	3.01	30	
Anthracene	53.42	10	50	0	107	70-129	51.79	3.1	30	
Benzo(a)anthracene	48.44	10	50	0	96.9	55-131	49.25	1.68	30	
Benzenzidine	1.612	10	50	0	3.22	10-115	6.74	0	30	JS
Hexachloroethane	37.56	10	50	0	75.1	46-115	36.94	1.67	30	
Indeno(1,2,3-cd)pyrene	48.03	10	50	0	96.1	42-123	49.15	2.29	30	
Isophorone	46.72	10	50	0	93.4	63-117	45.12	3.49	30	
N-Nitrosodi-n-propylamine	46.57	10	50	0	93.1	67-115	43.97	5.74	30	
N-Nitrosodimethylamine	18.67	10	50	0	37.3	28-115	17.91	4.15	30	
N-Nitrosodiphenylamine	55.51	10	50	0	111	72-144	53.36	3.96	30	
Naphthalene	45.62	10	50	0	91.2	52-115	45.94	0.71	30	
Nitrobenzene	45.19	10	50	0	90.4	65-115	44.54	1.44	30	
Pentachlorophenol	98.42	10	100	0	98.4	65-123	94.58	3.98	30	
Phenanthrene	51.17	10	50	0	102	69-119	50.51	1.3	30	
Phenol	31.17	10	100	0	31.2	16-115	29.37	5.95	30	
Pyrene	50.05	10	50	0	100	51-130	48.25	3.67	30	
Surr: 2,4,6-Tribromophenol	107.9	10	100	0	108	39-153	101.5	6.09	30	
Surr: 2-Fluorobiphenyl	89.32	10	100	0	89.3	40-147	84.74	5.26	30	
Surr: 2-Fluorophenol	43.8	10	100	0	43.8	21-110	39.74	9.73	30	
Surr: 4-Terphenyl-d14	95.13	10	100	0	95.1	39-141	90.52	4.97	30	
Surr: Nitrobenzene-d5	85.54	10	100	0	85.5	37-140	82.8	3.26	30	
Surr: Phenol-d6	29.34	10	100	0	29.3	11-100	25.63	13.5	30	

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: 11279 InstrumentID: SV-3

MSD Sample ID: 0411323-05DMSD Test Code: SW8270 Units: µg/L Analysis Date: 12/06/04 22:18
 Client ID: Run ID: SV-3_041206A SeqNo: 584530 Prep Date: 12/1/2004 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	44.57	10	50	0	89.1	50-115	44.27	0.69	30	
2,4,5-Trichlorophenol	84.29	10	100	0	84.3	68-128	93.28	10.1	30	
2,4,6-Trichlorophenol	81.09	10	100	0	81.1	66-125	83.02	2.35	30	
2-Methylnaphthalene	42.69	10	50	0	85.4	47-122	45.01	5.28	30	
2-Methylphenol	62.41	10	100	0	62.4	51-115	64.66	3.54	30	
2-Nitroaniline	40.69	10	50	0	81.4	64-128	45.32	10.8	30	
2-Nitrophenol	84.59	10	100	0	84.6	60-119	89.99	6.18	30	
3&4-Methylphenol	84.1	10	150	0	56.1	44-115	85.58	1.74	30	
3-Nitroaniline	33.02	10	50	0	66	61-118	36.65	10.4	30	
4-Nitroaniline	36.04	10	50	0	72.1	61-123	39.1	8.15	30	
4-Nitrophenol	36.03	10	100	0	36	17-100	40.12	10.8	30	
Acenaphthene	47.19	10	50	0	94.4	68-115	48.32	2.36	30	
Acenaphthylene	45.79	10	50	0	91.6	67-116	47.27	3.19	30	
Aniline	29.07	10	50	0	58.1	40-130	30.49	4.79	30	
Anthracene	51.25	10	50	0	102	70-129	52.19	1.82	30	
Benzo(a)anthracene	45	10	50	0	90	55-131	49.77	10.1	30	
Benzydine	4.102	10	50	0	8.2	10-115	0	0	30	JS
Hexachloroethane	38.51	10	50	0	77	46-115	35.92	6.94	30	
Indeno(1,2,3-cd)pyrene	47.66	10	50	0	95.3	42-123	50.64	6.06	30	
Isophorone	43.85	10	50	0	87.7	63-117	47.44	7.86	30	
N-Nitrosodi-n-propylamine	42.41	10	50	0	84.8	67-115	43.49	2.52	30	
N-Nitrosodimethylamine	18.23	10	50	0	36.5	28-115	19.55	6.99	30	
N-Nitrosodiphenylamine	51.31	10	50	0	103	72-144	53.06	3.35	30	
Naphthalene	45.52	10	50	0	91	52-115	46.32	1.73	30	
Nitrobenzene	42.69	10	50	0	85.4	65-115	44.87	4.98	30	
Pentachlorophenol	88.25	10	100	0	88.3	65-123	95.19	7.56	30	
Phenanthrene	49.54	10	50	0	99.1	69-119	50.74	2.39	30	
Phenol	28.67	10	100	0	28.7	16-115	30.24	5.35	30	
Pyrene	45.83	10	50	0	91.7	51-130	48.75	6.17	30	
Surr: 2,4,6-Tribromophenol	103.5	10	100	0	104	39-153	109.7	5.77	30	
Surr: 2-Fluorobiphenyl	89.41	10	100	0	89.4	40-147	86.29	3.55	30	
Surr: 2-Fluorophenol	40.87	10	100	0	40.9	21-110	44.57	8.65	30	
Surr: 4-Terphenyl-d14	88.85	10	100	0	88.8	39-141	92.93	4.48	30	
Surr: Nitrobenzene-d5	84.44	10	100	0	84.4	37-140	87.65	3.74	30	
Surr: Phenol-d8	26.57	10	100	0	26.6	11-100	28.07	5.5	30	

The following samples were analyzed in this batch:

0412005-01D

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R25184 InstrumentID: VOA2

MBLK Sample ID: VBLKW-1210 Test Code: SW8260 Units: µg/L Analysis Date: 12/10/04 14:40

Client ID: Run ID: VOA2_041210A SeqNo: 586932 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	50.58	5.0	50	0	101	71-126	0			
Surr: 4-Bromofluorobenzene	38.87	5.0	50	0	77.7	74-125	0			
Surr: Dibromofluoromethane	46.88	5.0	50	0	93.8	73-126	0			
Surr: Toluene-d8	43.86	5.0	50	0	87.7	75-125	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R25184 InstrumentID: VOA2

LCS Sample ID: VLCSW-1210 Test Code: SW8260 Units: µg/L Analysis Date: 12/10/04 13:50

Client ID: Run ID: VOA2_041210A SeqNo: 586931 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.94	5.0	50	0	108	75.2-120	0			
1,1,2,2-Tetrachloroethane	53.63	5.0	50	0	107	72.4-121	0			
1,1,2-Trichloroethane	52.21	5.0	50	0	104	80-120	0			
1,1-Dichloroethane	51.53	5.0	50	0	103	76.9-120	0			
1,1-Dichloroethene	54.08	5.0	50	0	108	72.6-123	0			
1,2-Dichloroethane	51.67	5.0	50	0	103	80-120	0			
2-Butanone	119.9	10	100	0	120	69-131	0			
2-Chloroethyl vinyl ether	113.4	10	100	0	113	60-135	0			
2-Hexanone	121.4	10	100	0	121	55.6-126	0			
4-Methyl-2-pentanone	118.2	10	100	0	118	67.4-121	0			
Acetone	109.7	10	100	0	110	64.4-140	0			
Benzene	51.72	5.0	50	0	103	80-120	0			
Bromodichloromethane	51.04	5.0	50	0	102	80-120	0			
Bromoform	55.31	5.0	50	0	111	77.9-121	0			
Bromomethane	53.52	5.0	50	0	107	63.3-137	0			
Carbon disulfide	101.4	10	100	0	101	74.1-123	0			
Carbon tetrachloride	51.52	5.0	50	0	103	74.7-120	0			
Chlorobenzene	48.09	5.0	50	0	96.2	80-120	0			
Chloroethane	50.53	5.0	50	0	101	74.7-126	0			
Chloroform	50.64	5.0	50	0	101	80-120	0			
Chloromethane	49.38	5.0	50	0	98.8	64.5-132	0			
cis-1,3-Dichloropropene	50.36	5.0	50	0	101	80-120	0			
Dibromochloromethane	53.13	5.0	50	0	106	80-120	0			
Ethylbenzene	53.38	5.0	50	0	107	80-120	0			
m,p-Xylene	103.8	10	100	0	104	80-120	0			
Methylene chloride	48.39	10	50	0	96.8	76.2-120	0			
Styrene	53.58	5.0	50	0	107	80-120	0			
Tetrachloroethene	53.39	5.0	50	0	107	68.5-130	0			
Toluene	52.27	5.0	50	0	105	80-120	0			
trans-1,3-Dichloropropene	54.85	5.0	50	0	110	80-120	0			
Trichloroethene	54.11	5.0	50	0	108	78.9-120	0			
Vinyl acetate	115.6	10	100	0	116	62.4-133	0			
Vinyl chloride	52.09	2.0	50	0	104	72.7-128	0			
Xylenes, Total	152.9	15	150	0	102	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.28	5.0	50	0	90.6	71-126	0			
Surr: 4-Bromofluorobenzene	45.14	5.0	50	0	90.3	74-125	0			
Surr: Dibromofluoromethane	43.25	5.0	50	0	86.5	73-126	0			
Surr: Toluene-d8	46.04	5.0	50	0	92.1	75-125	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R25184 InstrumentID: VOA2

MS Sample ID: 0412122-01AMS Test Code: SW8260 Units: µg/L Analysis Date: 12/10/04 15:31
Client ID: Run ID: VOA2_041210A SeqNo: 586934 Prep Date: DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4798	500	5000	0	96	75.2-120	0			
1,1,2,2-Tetrachloroethane	3949	500	5000	0	79	72.4-121	0			
1,1,2-Trichloroethane	4942	500	5000	0	98.8	80-120	0			
1,1-Dichloroethane	4844	500	5000	0	96.9	76.9-120	0			
1,1-Dichloroethene	4755	500	5000	0	95.1	72.6-123	0			
1,2-Dichloroethane	4962	500	5000	0	99.2	80-120	0			
2-Butanone	11580	1,000	10000	0	116	69-131	0			
2-Chloroethyl vinyl ether	8304	1,000	10000	0	83	60-135	0			
2-Hexanone	11630	1,000	10000	0	116	55.6-126	0			
4-Methyl-2-pentanone	11200	1,000	10000	0	112	67.4-121	0			
Acetone	10640	1,000	10000	0	106	64.4-140	0			
Benzene	4919	500	5000	0	98.4	80-120	0			
Bromodichloromethane	4991	500	5000	0	99.8	80-120	0			
Bromoform	5184	500	5000	0	104	77.9-121	0			
Bromomethane	4562	500	5000	0	91.2	63.3-137	0			
Carbon disulfide	9132	1,000	10000	0	91.3	74.1-123	0			
Carbon tetrachloride	4713	500	5000	0	94.3	74.7-120	0			
Chlorobenzene	4596	500	5000	0	91.9	80-120	0			
Chloroethane	4625	500	5000	0	92.5	74.7-126	0			
Chloroform	8788	500	5000	4602	83.7	80-120	0			
Chloromethane	4632	500	5000	0	92.6	64.5-132	0			
cis-1,3-Dichloropropene	4838	500	5000	0	96.8	80-120	0			
Dibromochloromethane	4989	500	5000	0	99.8	80-120	0			
Ethylbenzene	5104	500	5000	0	102	80-120	0			
m,p-Xylene	9965	1,000	10000	0	99.6	80-120	0			
Methylene chloride	4625	1,000	5000	0	92.5	76.2-120	0			
Styrene	5121	500	5000	0	102	80-120	0			
Tetrachloroethene	5010	500	5000	0	100	68.5-130	0			
Toluene	4924	500	5000	0	98.5	80-120	0			
trans-1,3-Dichloropropene	5349	500	5000	0	107	80-120	0			
Trichloroethene	5895	500	5000	0	118	78.9-120	0			
Vinyl acetate	1690	1,000	10000	0	16.9	62.4-133	0			S
Vinyl chloride	4609	200	5000	0	92.2	72.7-128	0			
Xylenes, Total	14660	1,500	15000	0	97.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	4231	500	5000	0	84.6	71-126	0			
Surr: 4-Bromofluorobenzene	4306	500	5000	0	86.1	74-125	0			
Surr: Dibromofluoromethane	4042	500	5000	0	80.8	73-126	0			
Surr: Toluene-d8	4389	500	5000	0	87.8	75-125	0			

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R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

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U - Analyzed for but not detected

E - Value above quantitation range

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

03-Sep-08

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 746-5468
Fax: (505) 746-5421

Re: Injection Well Quarterly

Work Order : 0808447

Dear Aaron,

ALS Laboratory Group received 2 samples on 8/20/2008 08:55 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 36.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jaylynn F Thibault

Electronically approved by: Glenda H. Ramos

Jaylynn F Thibault



Certificate No: T104704231-08-TX

ALS Group USA, Corp.

Part of the **ALS Laboratory Group**

10450 Standcliff Rd, Suite 210 Houston, Texas 77099-4338

Phone: (281) 530-5656 Fax: (281) 530-5887

www.alsglobal.com www.elabi.com

A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 03-Sep-08

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0808447

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0808447-01	Injection Well	Water		8/19/2008 11:30	8/20/2008 08:55	☐

ALS Laboratory Group

Date: 03-Sep-08

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0808447

Case Narrative

pH sample (Injection Well) holding time had expired prior to request for analysis.

Batch 31577 Metals (sample 0808511-02MS/MSD) unrelated sample.

Batch R67271 Volatiles (sample 0808627-06MS/MSD) unrelated sample.

ALS Laboratory Group

Date: 03-Sep-08

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Injection Well

Collection Date: 8/19/2008 11:30 AM

Work Order: 0808447

Lab ID: 0808447-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP METALS, TOTAL - SW6020A						
			SW6020		Prep Date: 8/25/2008	Analyst: ALR
Aluminum	0.447		0.0100	mg/L	1	8/25/2008 09:21 PM
Arsenic	0.116		0.00500	mg/L	1	9/2/2008 03:31 PM
Barium	0.0187		0.00500	mg/L	1	8/25/2008 09:21 PM
Beryllium	ND		0.00200	mg/L	1	8/25/2008 09:21 PM
Boron	0.163		0.0200	mg/L	1	8/25/2008 09:21 PM
Cadmium	ND		0.00200	mg/L	1	8/25/2008 09:21 PM
Calcium	68.7		0.500	mg/L	1	8/25/2008 09:21 PM
Chromium	ND		0.00500	mg/L	1	9/2/2008 03:31 PM
Cobalt	ND		0.00500	mg/L	1	9/2/2008 03:31 PM
Copper	ND		0.00500	mg/L	1	8/25/2008 09:21 PM
Iron	0.240		0.200	mg/L	1	8/25/2008 09:21 PM
Lead	ND		0.00500	mg/L	1	8/25/2008 09:21 PM
Magnesium	27.1		0.200	mg/L	1	8/25/2008 09:21 PM
Manganese	0.0478		0.00500	mg/L	1	9/2/2008 03:31 PM
Molybdenum	0.0577		0.00500	mg/L	1	8/25/2008 09:21 PM
Nickel	0.00528		0.00500	mg/L	1	8/25/2008 09:21 PM
Potassium	13.0		0.200	mg/L	1	8/25/2008 09:21 PM
Selenium	0.339		0.00500	mg/L	1	9/2/2008 03:31 PM
Silver	ND		0.00500	mg/L	1	8/25/2008 09:21 PM
Sodium	985		20.0	mg/L	100	8/26/2008 04:20 PM
Vanadium	ND		0.00500	mg/L	1	9/2/2008 03:31 PM
Zinc	0.0369		0.00500	mg/L	1	8/25/2008 09:21 PM
SEMIVOLATILE ORGANICS BY GC/MS						
			SW8270		Prep Date: 8/22/2008	Analyst: ACN
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
2-Methylphenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
2-Nitroaniline	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
2-Nitrophenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
3-Nitroaniline	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
4-Nitroaniline	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
4-Nitrophenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Acenaphthene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Acenaphthylene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Aniline	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Anthracene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time
 n - Not offered for accreditation

ALS Laboratory Group

Date: 03-Sep-08

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Injection Well

Collection Date: 8/19/2008 11:30 AM

Work Order: 0808447

Lab ID: 0808447-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benz(a)anthracene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Benzidine	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Hexachloroethane	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Isophorone	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Naphthalene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Nitrobenzene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Pentachlorophenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Phenanthrene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Phenol	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Pyrene	ND		0.0050	mg/L	1	8/26/2008 09:58 PM
Surr: 2,4,6-Tribromophenol	80.5		42-124	%REC	1	8/26/2008 09:58 PM
Surr: 2-Fluorobiphenyl	56.9		48-120	%REC	1	8/26/2008 09:58 PM
Surr: 2-Fluorophenol	43.8		20-120	%REC	1	8/26/2008 09:58 PM
Surr: 4-Terphenyl-d14	75.2		51-135	%REC	1	8/26/2008 09:58 PM
Surr: Nitrobenzene-d5	50.8		41-120	%REC	1	8/26/2008 09:58 PM
Surr: Phenol-d6	50.8		20-120	%REC	1	8/26/2008 09:58 PM

VOLATILES BY GC/MS

SW8260

Analyst: PC

1,1,1-Trichloroethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
1,1,2,2-Tetrachloroethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
1,1,2-Trichloroethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
1,1-Dichloroethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
1,1-Dichloroethene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
1,2-Dichloroethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
2-Butanone	ND		0.10	mg/L	10	8/28/2008 03:56 PM
2-Chloroethyl vinyl ether	ND		0.10	mg/L	10	8/28/2008 03:56 PM
2-Hexanone	ND		0.10	mg/L	10	8/28/2008 03:56 PM
4-Methyl-2-pentanone	ND		0.10	mg/L	10	8/28/2008 03:56 PM
Acetone	ND		0.10	mg/L	10	8/28/2008 03:56 PM
Benzene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Bromodichloromethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Bromoform	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Bromomethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Carbon disulfide	ND		0.10	mg/L	10	8/28/2008 03:56 PM
Carbon tetrachloride	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Chlorobenzene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Chloroethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
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 a - Not accredited

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time
 n - Not offered for accreditation

ALS Laboratory Group

Date: 03-Sep-08

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Injection Well
Collection Date: 8/19/2008 11:30 AM

Work Order: 0808447
Lab ID: 0808447-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloroform	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Chloromethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
cis-1,3-Dichloropropene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Dibromochloromethane	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Ethylbenzene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
m,p-Xylene	ND		0.10	mg/L	10	8/28/2008 03:56 PM
Methylene chloride	ND		0.10	mg/L	10	8/28/2008 03:56 PM
Styrene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Tetrachloroethene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Toluene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
trans-1,3-Dichloropropene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Trichloroethene	ND		0.050	mg/L	10	8/28/2008 03:56 PM
Vinyl acetate	ND		0.10	mg/L	10	8/28/2008 03:56 PM
Vinyl chloride	ND		0.020	mg/L	10	8/28/2008 03:56 PM
Xylenes, Total	ND		0.15	mg/L	10	8/28/2008 03:56 PM
Surr: 1,2-Dichloroethane-d4	106		70-125	%REC	10	8/28/2008 03:56 PM
Surr: 4-Bromofluorobenzene	93.3		72-125	%REC	10	8/28/2008 03:56 PM
Surr: Dibromofluoromethane	105		71-125	%REC	10	8/28/2008 03:56 PM
Surr: Toluene-d8	102		75-125	%REC	10	8/28/2008 03:56 PM
CYANIDE, REACTIVE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	8/22/2008
SULFIDE, REACTIVE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	8/22/2008
ANIONS BY ION CHROMATOGRAPHY			E300			Analyst: PV
Chloride	492		10.0	mg/L	20	8/20/2008 06:07 PM
Sulfate	1,490		50.0	mg/L	100	8/20/2008 06:30 PM
Surr: Selenate (surr)	98.5		85-115	%REC	100	8/20/2008 06:30 PM
Surr: Selenate (surr)	100		85-115	%REC	20	8/20/2008 06:07 PM
ALKALINITY			SM2320B			Analyst: MAM
Alkalinity, Bicarbonate (As CaCO3)	179		5.00	mg/L	1	8/21/2008 05:30 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	8/21/2008 05:30 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	8/21/2008 05:30 PM
Alkalinity, Total (As CaCO3)	179		5.00	mg/L	1	8/21/2008 05:30 PM
CONDUCTIVITY			E120.1			Analyst: MAM
Specific Conductance	4,710		1.00	µmhos/cm	1	8/22/2008 04:00 PM
PH			SW9040			Analyst: RPM
pH	7.29	H	0.100	pH units	1	8/20/2008 04:00 PM

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ALS Laboratory Group

Date: 03-Sep-08

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Injection Well

Collection Date: 8/19/2008 11:30 AM

Work Order: 0808447

Lab ID: 0808447-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS			E160.1			Analyst: KKP
Total Dissolved Solids (Residue, Filterable)	3,620			10.0 mg/L	1	8/20/2008 04:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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ALS Laboratory Group

Client: Navajo Refining Company

Work Order: 0808447

Project: Injection Well Quarterly

Date: 03-Sep-08

QC BATCH REPORT

Batch ID: 31577 Instrument ID ICPMS02 Method: SW6020

MBLK Sample ID: MBLKW1-082508-31577 Units: mg/L Analysis Date: 8/25/2008 09:08 PM

Client ID: Run ID: ICPMS02_080825A SeqNo: 1476311 Prep Date: 8/25/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.009435	0.010								J
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Silver	ND	0.0050								
Sodium	ND	0.20								
Zinc	0.00199	0.0050								J

MBLK Sample ID: MBLKW1-082508-31577 Units: mg/L Analysis Date: 8/26/2008 06:06 PM

Client ID: Run ID: ICPMS02_080826A SeqNo: 1477419 Prep Date: 8/25/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Manganese	ND	0.0050								
Selenium	ND	0.0050								
Vanadium	ND	0.0050								

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

QC BATCH REPORT

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

Batch ID: 31577 Instrument ID ICPMS02 Method: SW6020

LCS Sample ID: MLCSW1-082508-31577 Units: mg/L Analysis Date: 8/25/2008 09:14 PM
 Client ID: Run ID: ICPMS02_080825A SeqNo: 1476312 Prep Date: 8/25/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05241	0.010	0.05	0	105	80-120	0			
Barium	0.04958	0.0050	0.05	0	99.2	80-120	0			
Beryllium	0.04832	0.0020	0.05	0	96.6	80-120	0			
Boron	0.9602	0.050	1	0	96	80-120	0			
Cadmium	0.05195	0.0020	0.05	0	104	80-120	0			
Calcium	4.85	0.50	5	0	97	80-120	0			
Copper	0.04442	0.0050	0.05	0	88.8	80-120	0			
Iron	4.997	0.20	5	0	99.9	80-120	0			
Lead	0.04998	0.0050	0.05	0	100	80-120	0			
Magnesium	4.729	0.20	5	0	94.6	80-120	0			
Molybdenum	0.05009	0.0050	0.05	0	100	80-120	0			
Nickel	0.04845	0.0050	0.05	0	96.9	80-120	0			
Potassium	4.876	0.20	5	0	97.5	80-120	0			
Silver	0.04927	0.0050	0.05	0	98.5	80-120	0			
Sodium	4.708	0.20	5	0	94.2	80-120	0			
Zinc	0.05174	0.0050	0.05	0	103	80-120	0			

LCS Sample ID: MLCSW1-082508-31577 Units: mg/L Analysis Date: 8/26/2008 06:12 PM
 Client ID: Run ID: ICPMS02_080826A SeqNo: 1477420 Prep Date: 8/25/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05269	0.0050	0.05	0	105	80-120	0			
Chromium	0.05122	0.0050	0.05	0	102	80-120	0			
Cobalt	0.05196	0.0050	0.05	0	104	80-120	0			
Manganese	0.0518	0.0050	0.05	0	104	80-120	0			
Selenium	0.05144	0.0050	0.05	0	103	80-120	0			
Vanadium	0.05104	0.0050	0.05	0	102	80-120	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31577 Instrument ID ICPMS02 Method: SW6020

MS Sample ID: 0808511-02BMS Units: mg/L Analysis Date: 8/27/2008 02:01 PM
 Client ID: Run ID: ICPMS02_080827A SeqNo: 1477992 Prep Date: 8/25/2008 DF: 2

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05404	0.020	0.05	0.007596	92.9	80-120	0			
Arsenic	0.05388	0.010	0.05	0.002166	103	80-120	0			
Barium	0.09094	0.010	0.05	0.03702	108	80-120	0			
Beryllium	0.04818	0.0040	0.05	0.0002298	95.9	80-120	0			
Boron	2.136	0.10	1	1.157	97.9	80-120	0			
Cadmium	0.05082	0.0040	0.05	0.0002848	101	80-120	0			
Calcium	287.2	1.0	5	278.8	168	80-120	0			SO
Chromium	0.05212	0.010	0.05	0.0006506	103	80-120	0			
Cobalt	0.05068	0.010	0.05	0.0002952	101	80-120	0			
Copper	0.05728	0.010	0.05	0.00864	97.3	80-120	0			
Iron	5.116	0.40	5	0.2318	97.7	80-120	0			
Lead	0.0531	0.010	0.05	0.001542	103	80-120	0			
Magnesium	133.9	0.40	5	126.4	152	80-120	0			SO
Manganese	0.05614	0.010	0.05	0.00613	100	80-120	0			
Molybdenum	0.06142	0.010	0.05	0.009076	105	80-120	0			
Nickel	0.0536	0.010	0.05	0.00507	97.1	80-120	0			
Potassium	12.93	0.40	5	8.01	98.4	80-120	0			
Selenium	0.0552	0.010	0.05	0.002548	105	80-120	0			
Silver	0.04754	0.010	0.05	-0.0003784	95.8	80-120	0			
Sodium	171.2	0.40	5	164.6	131	80-120	0			SO
Vanadium	0.05928	0.010	0.05	0.007996	103	80-120	0			
Zinc	0.1101	0.010	0.05	0.06128	97.7	80-120	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31577 Instrument ID ICPMS02 Method: SW6020

MSD Sample ID: 0808511-02BMSD Units: mg/L Analysis Date: 8/27/2008 02:27 PM
 Client ID: Run ID: ICPMS02_080827A SeqNo: 1478014 Prep Date: 8/25/2008 DF: 2

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05314	0.020	0.05	0.007596	91.1	80-120	0.05404	1.68	15	
Arsenic	0.05368	0.010	0.05	0.002166	103	80-120	0.05388	0.372	15	
Barium	0.08932	0.010	0.05	0.03702	105	80-120	0.09094	1.8	15	
Beryllium	0.04804	0.0040	0.05	0.0002298	95.6	80-120	0.04818	0.291	15	
Boron	2.114	0.10	1	1.157	95.7	80-120	2.136	1.04	15	
Cadmium	0.0507	0.0040	0.05	0.0002848	101	80-120	0.05082	0.236	15	
Calcium	284.4	1.0	5	278.8	112	80-120	287.2	0.98	15	O
Chromium	0.04898	0.010	0.05	0.0006506	96.7	80-120	0.05212	6.21	15	
Cobalt	0.04924	0.010	0.05	0.0002952	97.9	80-120	0.05068	2.88	15	
Copper	0.05714	0.010	0.05	0.00864	97	80-120	0.05728	0.245	15	
Iron	5.212	0.40	5	0.2318	99.6	80-120	5.116	1.86	15	
Lead	0.05296	0.010	0.05	0.001542	103	80-120	0.0531	0.264	15	
Magnesium	132.6	0.40	5	126.4	125	80-120	133.9	1.01	15	SO
Manganese	0.05514	0.010	0.05	0.00613	98	80-120	0.05614	1.8	15	
Molybdenum	0.06142	0.010	0.05	0.009076	105	80-120	0.06142	0	15	
Nickel	0.05416	0.010	0.05	0.00507	98.2	80-120	0.0536	1.04	15	
Potassium	13.05	0.40	5	8.01	101	80-120	12.93	0.924	15	
Selenium	0.04946	0.010	0.05	0.002548	93.8	80-120	0.0552	11	15	
Silver	0.04836	0.010	0.05	-0.0003784	97.5	80-120	0.04754	1.71	15	
Sodium	171.5	0.40	5	164.6	138	80-120	171.2	0.21	15	SO
Vanadium	0.05814	0.010	0.05	0.007996	100	80-120	0.05928	1.94	15	
Zinc	0.1117	0.010	0.05	0.06128	101	80-120	0.1101	1.44	15	

DUP Sample ID: 0808511-02BDUP Units: mg/L Analysis Date: 8/26/2008 03:38 PM
 Client ID: Run ID: ICP7500_080826A SeqNo: 1477167 Prep Date: 8/25/2008 DF: 50

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	312.2	25	0	0	0	0-0	289	7.7	25	
Magnesium	140.6	10	0	0	0	0-0	136.3	3.11	25	
Sodium	181	10	0	0	0	0-0	175.8	2.94	25	

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31577 Instrument ID ICPMS02 Method: SW6020

DUP Sample ID: 0808511-02BDUP Units: mg/L Analysis Date: 8/27/2008 01:48 PM
 Client ID: Run ID: ICPMS02_080827A SeqNo: 1477928 Prep Date: 8/25/2008 DF: 2

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.006054	0.020	0	0	0	0-0	0.007596	0	25	J
Arsenic	ND	0.010	0	0	0	0-0	0.002166	0	25	
Barium	0.03874	0.010	0	0	0	0-0	0.03702	4.54	25	
Beryllium	ND	0.0040	0	0	0	0-0	0.0002298	0	25	
Boron	1.2	0.10	0	0	0	0-0	1.157	3.68	25	
Cadmium	ND	0.0040	0	0	0	0-0	0.0002848	0	25	
Chromium	ND	0.010	0	0	0	0-0	0.0006506	0	25	
Cobalt	ND	0.010	0	0	0	0-0	0.0002952	0	25	
Copper	0.008378	0.010	0	0	0	0-0	0.00864	0	25	J
Iron	0.241	0.40	0	0	0	0-0	0.2318	0	25	J
Lead	ND	0.010	0	0	0	0-0	0.001542	0	25	
Manganese	0.00617	0.010	0	0	0	0-0	0.00613	0	25	J
Molybdenum	0.009256	0.010	0	0	0	0-0	0.009076	0	25	J
Nickel	0.005284	0.010	0	0	0	0-0	0.00507	0	25	J
Potassium	8.234	0.40	0	0	0	0-0	8.01	2.76	25	
Selenium	ND	0.010	0	0	0	0-0	0.002548	0	25	
Silver	ND	0.010	0	0	0	0-0	-0.0003784	0	25	
Vanadium	0.008804	0.010	0	0	0	0-0	0.007996	0	25	J
Zinc	0.06038	0.010	0	0	0	0-0	0.06128	1.48	25	

The following samples were analyzed in this batch:

0808447-01B

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

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R - RPD outside accepted recovery limits

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E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31556 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKW3-080822-31556 Units: µg/L Analysis Date: 8/26/2008 03:21 PM
 Client ID: Run ID: SV-5_080826B SeqNo: 1477746 Prep Date: 8/22/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	67.43	5.0	100	0	67.4	42-124		0		
Surr: 2-Fluorobiphenyl	72.06	5.0	100	0	72.1	48-120		0		
Surr: 2-Fluorophenol	60.11	5.0	100	0	60.1	20-120		0		
Surr: 4-Terphenyl-d14	81.01	5.0	100	0	81	51-135		0		
Surr: Nitrobenzene-d5	73.36	5.0	100	0	73.4	41-120		0		
Surr: Phenol-d6	64.98	5.0	100	0	65	20-120		0		

ND - Not Detected at the Reporting Limit

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R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31556 Instrument ID SV-5 Method: SW8270

LCS Sample ID: SLCSW3-080822-31556 Units: pg/L Analysis Date: 8/26/2008 03:49 PM
 Client ID: Run ID: SV-5_080826B SeqNo: 1477747 Prep Date: 8/22/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	34.72	5.0	50	0	69.4	50-120	0			
2,4,5-Trichlorophenol	77.01	5.0	100	0	77	50-120	0			
2,4,6-Trichlorophenol	75.15	5.0	100	0	75.1	50-120	0			
2-Methylnaphthalene	35.59	5.0	50	0	71.2	55-120	0			
2-Methylphenol	76.58	5.0	100	0	76.6	50-120	0			
2-Nitroaniline	38.37	5.0	50	0	76.7	55-120	0			
2-Nitrophenol	74.18	5.0	100	0	74.2	55-120	0			
3&4-Methylphenol	114.7	5.0	150	0	76.5	55-120	0			
3-Nitroaniline	34.11	5.0	50	0	68.2	40-120	0			
4-Nitroaniline	36.62	5.0	50	0	73.2	50-120	0			
4-Nitrophenol	79.01	5.0	100	0	79	45-120	0			
Acenaphthene	36.95	5.0	50	0	73.9	55-120	0			
Acenaphthylene	36.28	5.0	50	0	72.6	55-120	0			
Aniline	29.52	5.0	50	0	59	30-120	0			
Anthracene	38.39	5.0	50	0	76.8	55-120	0			
Benz(a)anthracene	36.89	5.0	50	0	73.8	55-120	0			
Benzidine	22.62	5.0	50	0	45.2	10-120	0			
Hexachloroethane	33.94	5.0	50	0	67.9	55-120	0			
Indeno(1,2,3-cd)pyrene	40.02	5.0	50	0	80	55-120	0			
Isophorone	41	5.0	50	0	82	55-120	0			
N-Nitrosodi-n-propylamine	36.91	5.0	50	0	73.8	50-120	0			
N-Nitrosodimethylamine	34.52	5.0	50	0	69	45-120	0			
N-Nitrosodiphenylamine	36.2	5.0	50	0	72.4	55-120	0			
Naphthalene	35.86	5.0	50	0	71.7	55-120	0			
Nitrobenzene	36.23	5.0	50	0	72.5	55-120	0			
Pentachlorophenol	82.21	5.0	100	0	82.2	55-120	0			
Phenanthrene	35.76	5.0	50	0	71.5	55-120	0			
Phenol	77.28	5.0	100	0	77.3	50-120	0			
Pyrene	38.67	5.0	50	0	77.3	55-120	0			
Surr: 2,4,6-Tribromophenol	75.53	5.0	100	0	75.5	42-124	0			
Surr: 2-Fluorobiphenyl	75.37	5.0	100	0	75.4	48-120	0			
Surr: 2-Fluorophenol	69.51	5.0	100	0	69.5	20-120	0			
Surr: 4-Terphenyl-d14	79.92	5.0	100	0	79.9	51-135	0			
Surr: Nitrobenzene-d5	74.24	5.0	100	0	74.2	41-120	0			
Surr: Phenol-d6	73.1	5.0	100	0	73.1	20-120	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31556 Instrument ID SV-5 Method: SW8270

MS Sample ID: 0808511-02CMS Units: µg/L Analysis Date: 8/26/2008 04:46 PM
 Client ID: Run ID: SV-5_080826B SeqNo: 1477749 Prep Date: 8/22/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	33.46	5.0	50	0	66.9	50-120	0			
2,4,5-Trichlorophenol	75.07	5.0	100	0	75.1	50-120	0			
2,4,6-Trichlorophenol	73.33	5.0	100	0	73.3	50-120	0			
2-Methylnaphthalene	35.68	5.0	50	0	71.4	55-120	0			
2-Methylphenol	77.57	5.0	100	0	77.6	50-120	0			
2-Nitroaniline	37.45	5.0	50	0	74.9	55-120	0			
2-Nitrophenol	75.45	5.0	100	0	75.4	55-120	0			
3&4-Methylphenol	115.5	5.0	150	0	77	55-120	0			
3-Nitroaniline	30.01	5.0	50	0	60	40-120	0			
4-Nitroaniline	37.96	5.0	50	0	75.9	50-120	0			
4-Nitrophenol	76.56	5.0	100	0	76.6	45-120	0			
Acenaphthene	35.71	5.0	50	0	71.4	55-120	0			
Acenaphthylene	35.78	5.0	50	0	71.6	55-120	0			
Aniline	26.28	5.0	50	0	52.6	30-120	0			
Anthracene	37.89	5.0	50	0	75.8	55-120	0			
Benz(a)anthracene	35.95	5.0	50	0	71.9	55-120	0			
Benzidine	26.85	5.0	50	0	53.7	10-120	0			
Hexachloroethane	33.96	5.0	50	0	67.9	55-120	0			
Indeno(1,2,3-cd)pyrene	38.84	5.0	50	0	77.7	55-120	0			
Isophorone	41.18	5.0	50	0	82.4	55-120	0			
N-Nitrosodi-n-propylamine	37.63	5.0	50	0	75.3	50-120	0			
N-Nitrosodimethylamine	34.99	5.0	50	0	70	45-120	0			
N-Nitrosodiphenylamine	36.46	5.0	50	0	72.9	55-120	0			
Naphthalene	35.13	5.0	50	0	70.3	55-120	0			
Nitrobenzene	35.47	5.0	50	0	70.9	55-120	0			
Pentachlorophenol	80.62	5.0	100	0	80.6	55-120	0			
Phenanthrene	36.14	5.0	50	0	72.3	55-120	0			
Phenol	76.73	5.0	100	0	76.7	50-120	0			
Pyrene	37.91	5.0	50	0	75.8	55-120	0			
Surr: 2,4,6-Tribromophenol	72.83	5.0	100	0	72.8	42-124	0			
Surr: 2-Fluorobiphenyl	68.96	5.0	100	0	69	48-120	0			
Surr: 2-Fluorophenol	66.08	5.0	100	0	66.1	20-120	0			
Surr: 4-Terphenyl-d14	75.78	5.0	100	0	75.8	51-135	0			
Surr: Nitrobenzene-d5	70.47	5.0	100	0	70.5	41-120	0			
Surr: Phenol-d6	70.07	5.0	100	0	70.1	20-120	0			

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 31556 Instrument ID SV-5 Method: SW8270

MSD Sample ID: 0808511-02CMSD Units: µg/L Analysis Date: 8/26/2008 05:15 PM
 Client ID: Run ID: SV-5_080826B SeqNo: 1477750 Prep Date: 8/22/2008 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	34.31	5.0	50	0	68.6	50-120	33.46	2.52	20	
2,4,5-Trichlorophenol	74.68	5.0	100	0	74.7	50-120	75.07	0.523	20	
2,4,6-Trichlorophenol	74.48	5.0	100	0	74.5	50-120	73.33	1.56	20	
2-Methylnaphthalene	35.49	5.0	50	0	71	55-120	35.68	0.532	20	
2-Methylphenol	75.01	5.0	100	0	75	50-120	77.57	3.35	20	
2-Nitroaniline	37.64	5.0	50	0	75.3	55-120	37.45	0.502	20	
2-Nitrophenol	74.39	5.0	100	0	74.4	55-120	75.45	1.41	20	
3&4-Methylphenol	110.4	5.0	150	0	73.6	55-120	115.5	4.5	20	
3-Nitroaniline	29.11	5.0	50	0	58.2	40-120	30.01	3.05	20	
4-Nitroaniline	36.67	5.0	50	0	73.3	50-120	37.96	3.43	20	
4-Nitrophenol	74.08	5.0	100	0	74.1	45-120	76.56	3.28	20	
Acenaphthene	36.41	5.0	50	0	72.8	55-120	35.71	1.94	20	
Acenaphthylene	36.19	5.0	50	0	72.4	55-120	35.78	1.14	20	
Aniline	26.16	5.0	50	0	52.3	30-120	26.28	0.454	20	
Anthracene	38.25	5.0	50	0	76.5	55-120	37.89	0.937	20	
Benz(a)anthracene	36.41	5.0	50	0	72.8	55-120	35.95	1.25	20	
Benzidine	23.27	5.0	50	0	46.5	10-120	26.85	14.3	20	
Hexachloroethane	33.42	5.0	50	0	66.8	55-120	33.96	1.6	20	
Indeno(1,2,3-cd)pyrene	39.46	5.0	50	0	78.9	55-120	38.84	1.6	20	
Isophorone	40.61	5.0	50	0	81.2	55-120	41.18	1.39	20	
N-Nitrosodi-n-propylamine	36.2	5.0	50	0	72.4	50-120	37.63	3.89	20	
N-Nitrosodimethylamine	34.97	5.0	50	0	69.9	45-120	34.99	0.0437	20	
N-Nitrosodiphenylamine	36.26	5.0	50	0	72.5	55-120	36.46	0.562	20	
Naphthalene	35.01	5.0	50	0	70	55-120	35.13	0.338	20	
Nitrobenzene	35.59	5.0	50	0	71.2	55-120	35.47	0.322	20	
Pentachlorophenol	82.71	5.0	100	0	82.7	55-120	80.62	2.57	20	
Phenanthrene	36.31	5.0	50	0	72.6	55-120	36.14	0.474	20	
Phenol	74.67	5.0	100	0	74.7	50-120	76.73	2.71	20	
Pyrene	38.78	5.0	50	0	77.6	55-120	37.91	2.28	20	
Surr: 2,4,6-Tribromophenol	75.82	5.0	100	0	75.8	42-124	72.83	4.02	20	
Surr: 2-Fluorobiphenyl	76.92	5.0	100	0	76.9	48-120	68.96	10.9	20	
Surr: 2-Fluorophenol	70.84	5.0	100	0	70.8	20-120	66.08	6.96	20	
Surr: 4-Terphenyl-d14	82.48	5.0	100	0	82.5	51-135	75.78	8.47	20	
Surr: Nitrobenzene-d5	74.59	5.0	100	0	74.6	41-120	70.47	5.68	20	
Surr: Phenol-d6	73.62	5.0	100	0	73.6	20-120	70.07	4.94	20	

The following samples were analyzed in this batch:

0808447-01D

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

QC BATCH REPORT

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

Batch ID: R67271 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-082808-R67271 Units: µg/L Analysis Date: 8/28/2008 11:58 AM

Client ID: Run ID: VOA1_080828A SeqNo: 1480001 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	53.86	5.0	50	0	108	70-125	0			
Surr: 4-Bromofluorobenzene	52.67	5.0	50	0	105	72-125	0			
Surr: Dibromofluoromethane	53.07	5.0	50	0	106	71-125	0			
Surr: Toluene-d8	52.33	5.0	50	0	105	75-125	0			

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E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R67271 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-082808-R67271 Units: µg/L Analysis Date: 8/28/2008 11:06 AM
 Client ID: Run ID: VOA1_080828A SeqNo: 1479999 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.42	5.0	50	0	96.8	80-120	0			
1,1,2,2-Tetrachloroethane	47.22	5.0	50	0	94.4	72-120	0			
1,1,2-Trichloroethane	48.36	5.0	50	0	96.7	80-120	0			
1,1-Dichloroethane	49.74	5.0	50	0	99.5	76-120	0			
1,1-Dichloroethene	49.09	5.0	50	0	98.2	73-124	0			
1,2-Dichloroethane	48.21	5.0	50	0	96.4	78-120	0			
2-Butanone	95.73	10	100	0	95.7	58-132	0			
2-Chloroethyl vinyl ether	96.27	10	100	0	96.3	74-120	0			
2-Hexanone	93.29	10	100	0	93.3	61-130	0			
4-Methyl-2-pentanone	92.5	10	100	0	92.5	65-127	0			
Acetone	85.83	10	100	0	85.8	59-137	0			
Benzene	46.72	5.0	50	0	93.4	73-121	0			
Bromodichloromethane	46.81	5.0	50	0	93.6	80-120	0			
Bromoform	47.28	5.0	50	0	94.6	79-120	0			
Bromomethane	58.96	5.0	50	0	118	66-137	0			
Carbon disulfide	90.45	10	100	0	90.4	68-141	0			
Carbon tetrachloride	47.05	5.0	50	0	94.1	75-124	0			
Chlorobenzene	48.28	5.0	50	0	96.6	80-120	0			
Chloroethane	49.6	5.0	50	0	99.2	76-121	0			
Chloroform	48.58	5.0	50	0	97.2	80-120	0			
Chloromethane	44.24	5.0	50	0	88.5	67-123	0			
cis-1,3-Dichloropropene	45.99	5.0	50	0	92	80-120	0			
Dibromochloromethane	48.32	5.0	50	0	96.6	80-120	0			
Ethylbenzene	48.09	5.0	50	0	96.2	80-120	0			
m,p-Xylene	97.7	10	100	0	97.7	78-121	0			
Methylene chloride	46.2	10	50	0	92.4	65-133	0			
Styrene	50.75	5.0	50	0	101	80-120	0			
Tetrachloroethene	47.81	5.0	50	0	95.6	79-120	0			
Toluene	47.84	5.0	50	0	95.7	80-120	0			
trans-1,3-Dichloropropene	46.15	5.0	50	0	92.3	80-120	0			
Trichloroethene	46.02	5.0	50	0	92	80-120	0			
Vinyl acetate	91.99	10	100	0	92	67-139	0			
Vinyl chloride	46.39	2.0	50	0	92.8	70-127	0			
Xylenes, Total	147.9	15	150	0	98.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	54.64	5.0	50	0	109	70-125	0			
Surr: 4-Bromofluorobenzene	54.98	5.0	50	0	110	72-125	0			
Surr: Dibromofluoromethane	52.57	5.0	50	0	105	71-125	0			
Surr: Toluene-d8	53.14	5.0	50	0	106	75-125	0			

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R - RPD outside accepted recovery limits

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U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R67271 Instrument ID VOA1 Method: SW8260

MS Sample ID: 0808627-06AMS Units: µg/L Analysis Date: 8/28/2008 03:03 PM
 Client ID: Run ID: VOA1_080828A SeqNo: 1480008 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.92	5.0	50	0	91.8	80-120	0			
1,1,2,2-Tetrachloroethane	49.08	5.0	50	0	98.2	72-120	0			
1,1,2-Trichloroethane	48.76	5.0	50	0	97.5	80-120	0			
1,1-Dichloroethane	48.06	5.0	50	0	96.1	76-120	0			
1,1-Dichloroethene	43.76	5.0	50	0	87.5	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	102.5	10	100	0	103	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	107.8	10	100	0	108	61-130	0			
4-Methyl-2-pentanone	105.3	10	100	0	105	65-127	0			
Acetone	100.7	10	100	3.737	97	59-137	0			
Benzene	46.44	5.0	50	0	92.9	73-121	0			
Bromodichloromethane	49.65	5.0	50	0	99.3	80-120	0			
Bromoform	49.32	5.0	50	0	98.6	79-120	0			
Bromomethane	52.71	5.0	50	0	105	66-137	0			
Carbon disulfide	86.56	10	100	0	86.6	68-141	0			
Carbon tetrachloride	45	5.0	50	0	90	75-124	0			
Chlorobenzene	46.09	5.0	50	0	92.2	80-120	0			
Chloroethane	43.6	5.0	50	0	87.2	76-121	0			
Chloroform	47.89	5.0	50	0	95.8	80-120	0			
Chloromethane	38.28	5.0	50	0	76.6	67-123	0			
cis-1,3-Dichloropropene	48.35	5.0	50	0	96.7	80-120	0			
Dibromochloromethane	50.05	5.0	50	0	100	80-120	0			
Ethylbenzene	46.95	5.0	50	0.1866	93.5	80-120	0			
m,p-Xylene	92.79	10	100	1.119	91.7	78-121	0			
Methylene chloride	46.72	10	50	0	93.4	65-133	0			
Styrene	44.75	5.0	50	0	89.5	80-120	0			
Tetrachloroethene	42.94	5.0	50	0	85.9	79-120	0			
Toluene	47.05	5.0	50	1.586	90.9	80-120	0			
trans-1,3-Dichloropropene	47.75	5.0	50	0	95.5	80-120	0			
Trichloroethene	46.39	5.0	50	0	92.8	80-120	0			
Vinyl acetate	102.3	10	100	0	102	67-139	0			
Vinyl chloride	41.12	2.0	50	0	82.2	70-127	0			
Xylenes, Total	138	15	150	1.119	91.3	80-120	0			
Surr: 1,2-Dichloroethane-d4	54.66	5.0	50	0	109	70-125	0			
Surr: 4-Bromofluorobenzene	55.17	5.0	50	0	110	72-125	0			
Surr: Dibromofluoromethane	55.4	5.0	50	0	111	71-125	0			
Surr: Toluene-d8	53.05	5.0	50	0	106	75-125	0			

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Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R67271 Instrument ID VOA1 Method: SW8260

MSD Sample ID: 0808627-06AMSD Units: µg/L Analysis Date: 8/28/2008 03:29 PM
 Client ID: Run ID: VOA1_080828A SeqNo: 1480009 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	41.94	5.0	50	0	83.9	80-120	45.92	9.07	20	
1,1,2,2-Tetrachloroethane	53.17	5.0	50	0	106	72-120	49.08	8.01	20	
1,1,2-Trichloroethane	50.71	5.0	50	0	101	80-120	48.76	3.92	20	
1,1-Dichloroethane	46.4	5.0	50	0	92.8	76-120	48.06	3.51	20	
1,1-Dichloroethene	41.39	5.0	50	0	82.8	73-124	43.76	5.59	20	
1,2-Dichloroethane	48.13	5.0	50	0	96.3	78-120	49.42	2.64	20	
2-Butanone	112.5	10	100	0	113	58-132	102.5	9.3	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	111.1	10	100	0	111	61-130	107.8	2.99	20	
4-Methyl-2-pentanone	112.2	10	100	0	112	65-127	105.3	6.35	20	
Acetone	108.2	10	100	3.737	104	59-137	100.7	7.13	20	
Benzene	45.28	5.0	50	0	90.6	73-121	46.44	2.53	20	
Bromodichloromethane	46.83	5.0	50	0	93.7	80-120	49.65	5.84	20	
Bromoform	50.69	5.0	50	0	101	79-120	49.32	2.75	20	
Bromomethane	52.06	5.0	50	0	104	66-137	52.71	1.24	20	
Carbon disulfide	85.97	10	100	0	86	68-141	86.56	0.686	20	
Carbon tetrachloride	39.27	5.0	50	0	78.5	75-124	45	13.6	20	
Chlorobenzene	45.26	5.0	50	0	90.5	80-120	46.09	1.8	20	
Chloroethane	44.84	5.0	50	0	89.7	76-121	43.6	2.79	20	
Chloroform	46.93	5.0	50	0	93.9	80-120	47.89	2.04	20	
Chloromethane	36.88	5.0	50	0	73.8	67-123	38.28	3.71	20	
cis-1,3-Dichloropropene	47.49	5.0	50	0	95	80-120	48.35	1.8	20	
Dibromochloromethane	50.22	5.0	50	0	100	80-120	50.05	0.344	20	
Ethylbenzene	46.01	5.0	50	0.1866	91.7	80-120	46.95	2.02	20	
m,p-Xylene	91.92	10	100	1.119	90.8	78-121	92.79	0.938	20	
Methylene chloride	46.42	10	50	0	92.8	65-133	46.72	0.647	20	
Styrene	47.71	5.0	50	0	95.4	80-120	44.75	6.41	20	
Tetrachloroethene	40.18	5.0	50	0	80.4	79-120	42.94	6.65	20	
Toluene	47.34	5.0	50	1.586	91.5	80-120	47.05	0.612	20	
trans-1,3-Dichloropropene	47.04	5.0	50	0	94.1	80-120	47.75	1.5	20	
Trichloroethene	43.51	5.0	50	0	87	80-120	46.39	6.39	20	
Vinyl acetate	101.4	10	100	0	101	67-139	102.3	0.936	20	
Vinyl chloride	38.99	2.0	50	0	78	70-127	41.12	5.32	20	
Xylenes, Total	139.1	15	150	1.119	92	80-120	138	0.743	20	
Surr: 1,2-Dichloroethane-d4	51.43	5.0	50	0	103	70-125	54.66	6.1	20	
Surr: 4-Bromofluorobenzene	53.63	5.0	50	0	107	72-125	55.17	2.83	20	
Surr: Dibromofluoromethane	53.49	5.0	50	0	107	71-125	55.4	3.51	20	
Surr: Toluene-d8	54.15	5.0	50	0	108	75-125	53.05	2.05	20	

The following samples were analyzed in this batch:

0808447-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

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B - Analyte detected in assoc. Method Blank

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E - Value above quantitation range

QC BATCH REPORT

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

Batch ID: R66876 Instrument ID WetChem Method: SW9040

LCS Sample ID: WLCSW1-082008-R66876 Units: pH units Analysis Date: 8/20/2008 04:00 PM
 Client ID: Run ID: WETCHEM_080820G SeqNo: 1472036 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	90-110	0			

DUP Sample ID: 0808447-01CDUP Units: pH units Analysis Date: 8/20/2008 04:00 PM
 Client ID: Injection Well Run ID: WETCHEM_080820G SeqNo: 1472039 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.32	0.10	0	0	0	0-0	7.29	0.411	20	H

The following samples were analyzed in this batch:

0808447-01C

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R - RPD outside accepted recovery limits

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B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R66965 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-082108-R66965 Units: mg/L Analysis Date: 8/21/2008 05:30 PM
 Client ID: Run ID: WETCHEM_080821I SeqNo: 1473296 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-082108-R66965 Units: mg/L Analysis Date: 8/21/2008 05:30 PM
 Client ID: Run ID: WETCHEM_080821I SeqNo: 1473297 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1011	5.0	1000	0	101	80-120	0			
Alkalinity, Total (As CaCO3)	1011	5.0	1000	0	101	80-120	0			

DUP Sample ID: 0808436-02DDUP Units: mg/L Analysis Date: 8/21/2008 05:30 PM
 Client ID: Run ID: WETCHEM_080821I SeqNo: 1473318 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	357	5.0	0	0	0	0-0	359	0.559	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	357	5.0	0	0	0	0-0	359	0.559	20	

The following samples were analyzed in this batch:

0808447-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R67012 Instrument ID ICS3000 Method: E300

MBLK Sample ID: WBLKW1-082008-R67012 Units: mg/L Analysis Date: 8/20/2008 11:47 AM
 Client ID: Run ID: ICS3000_080820A SeqNo: 1474281 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.084	0.10	5	0	102	85-115	0			

LCS Sample ID: WLCSW1-082008-R67012 Units: mg/L Analysis Date: 8/20/2008 12:10 PM
 Client ID: Run ID: ICS3000_080820A SeqNo: 1474282 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.88	0.50	20	0	99.4	90-110	0			
Sulfate	19.89	0.50	20	0	99.5	90-110	0			
Surr: Selenate (surr)	4.925	0.10	5	0	98.5	85-115	0			

MS Sample ID: 0808436-03DMS Units: mg/L Analysis Date: 8/20/2008 01:46 PM
 Client ID: Run ID: ICS3000_080820A SeqNo: 1474286 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	79.05	0.50	10	71.12	79.3	80-120	0			SEO
Sulfate	68.28	0.50	10	60.14	81.4	80-120	0			EO
Surr: Selenate (surr)	4.676	0.10	5	0	93.5	85-115	0			

DUP Sample ID: 0808436-03DDUP Units: mg/L Analysis Date: 8/20/2008 01:22 PM
 Client ID: Run ID: ICS3000_080820A SeqNo: 1474285 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	69.26	0.50	0	0	0	0-0	71.12	2.65	20	E
Sulfate	59.16	0.50	0	0	0	0-0	60.14	1.64	20	E
Surr: Selenate (surr)	4.502	0.10	5	0	90	85-115	4.576	1.63	20	

The following samples were analyzed in this batch:

0808447-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
Work Order: 0808447
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R67013 Instrument ID Balance1 Method: E160.1 (Dissolve)

MBLK Sample ID: BLANK-R67013 Units: mg/L Analysis Date: 8/20/2008 04:00 PM

Client ID: Run ID: BALANCE1_080820E SeqNo: 1474298 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: LCS-R67013 Units: mg/L Analysis Date: 8/20/2008 04:00 PM

Client ID: Run ID: BALANCE1_080820E SeqNo: 1474300 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1038	10	1000	0	104	85-115	0			

DUP Sample ID: 0808424-02ADUP Units: mg/L Analysis Date: 8/20/2008 04:00 PM

Client ID: Run ID: BALANCE1_080820E SeqNo: 1474292 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1508	10	0	0	0	0-0	1488	1.34	20	

The following samples were analyzed in this batch:

0808447-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: Navajo Refining Company
 Work Order: 0808447
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R67035 Instrument ID WetChem Method: E120.1

MBLK Sample ID: WBLKW1-082208-R67035 Units: $\mu\text{mhos/cm}$ Analysis Date: 8/22/2008 04:00 PM
 Client ID: Run ID: WETCHEM_080822C SeqNo: 1474821 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: WLCSW1-082208-R67035 Units: $\mu\text{mhos/cm}$ Analysis Date: 8/22/2008 04:00 PM
 Client ID: Run ID: WETCHEM_080822C SeqNo: 1474822 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: 0808333-01CDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 8/22/2008 04:00 PM
 Client ID: Run ID: WETCHEM_080822C SeqNo: 1474836 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	711	1.0	0	0	0	0-0	716	0.701	20	

DUP Sample ID: 0808447-01CDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 8/22/2008 04:00 PM
 Client ID: Injection Well Run ID: WETCHEM_080822C SeqNo: 1474837 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	4690	1.0	0	0	0	0-0	4710	0.426	20	

The following samples were analyzed in this batch:

0808447-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

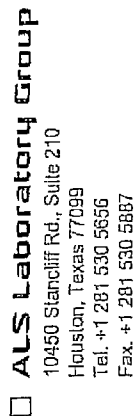
R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



Chain of Custody Form

ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Page 1 of 1

Customer Information				Project Information				ALS Project Manager												ALS Work Order # 082417											
Purchase Order				Injection Well Only				Parameter/Method Request for Analysis																							
Company Name				Navajo Refining Company				VOC (8260) Select																							
Sand Report To				Aaron Strange				SVOC (8270) Select																							
Address				P.O. Box 159				Total Metals (9020/7000) Select																							
City/State/Zip				Artesia, NM 88211				RCI Profile																							
Phone				(505) 748-3311				Anions (300) Cl, SO4																							
Fax				(505) 746-5421				Alkalinity																							
e-Mail/Address								pH																							
Sample Description				Injection Well				Conductivity																							
Date				8/19/08				TDS																							
Time				11:30																											
No.				1																											
				2																											
				3																											
				4																											
				5																											
				6																											
				7																											
				8																											
				9																											
				10																											
Sample(s) Please Print & Sign				A. Aaron Strange				Required Turnaround Time (Check Box)																							
Date				8/20/08				9 Wks Payg ☐ 2 Wks Days ☐ 1 Day TAT ☐																							
Time				8:55				Notes: 10 Day TAT																							
Requisitioned by				A. Aaron Strange				OC Package: ☐ Check One Box Below																							
Requisitioned by				A. Aaron Strange				☒ Level II Std QC ☐ TRRP Check List																							
Logged by (Laboratory)				A. Aaron Strange				☐ Level III Std QC ☐ TRRP Level IV																							
Preservative: Kev-11-HCl				2-PbO, 3-HCl				☐ Level IV SW046/CLP ☐ Other																							

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

4. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group. Unless otherwise agreed to in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

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ALS Group USA, Corp.

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 8/20/2008 08:55

Work Order Number 0898447

Received by: RSZ

Checklist completed by

Signature

Date

Reviewed by

Initials

Date

Matrix: water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>0.6c</u>	<u>002</u>	
Cooler(s)/Kit(s):	<u>0394</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐

Adjusted?

Checked by

Login Notes: Trip blank not on CQC-logged in without analysis.

Client contacted:

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

PURCHASE ORDER

The following number must appear on all related correspondence, shipping papers, and invoices:

P.O. NUMBER: 10-2114565

To: ALS Laboratory Group
3352 128th Ave.
Holland, MI 494249263
Ph: (616) 399-6070 Fax: (616) 399-6185

Bill To: **ALS Group USA, Corp.**
10450 Stancliff Rd, Suite 210
Houston, TX 77099
TEL 281-530-5656 FAX 281-530-5887

Ship To: ALS Laboratory Group
10450 Stancliff Rd, Suite 210
Houston, Texas 77099-4338
TEL (281) 530-5656 FAX (281) 530-5887

Acct #:

P.O. DATE
8/20/2008

REQUISITIONER
rsanchez

Ship VIA
UPS

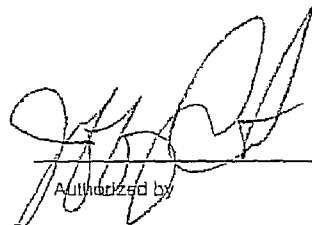
Department

TERMS
NET 30

Item	Catalog No.	QTY	Unit Price	Total Price
Reactive Cyanide		2	\$24.50	\$49.00
Reactive Sulfide		2	\$24.50	\$49.00

Comments: 0508447

Sales Tax: \$0.00
Shipping/Handling: \$0.00
Other: \$0.00
OrderAmount: \$98.00

 8/20/08

Authorized by Date

ALS Group USA, Corp.
Part of the ALS Laboratory Group
A Campbell Brothers Limited Company

Subcontractor:
ALS Laboratory Group
3352 120th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6105
Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 20-Aug-08
COC ID: 6639
Due Date: 01-Sep-08

Page 1 of 1

Parameter/Method Request for Analysis

Project Information

Purchase Order	Project Name	Project Information
Work Order	0808447	
Company Name	Project Number	
Send Report To	ALS Group USA, Corp.	
Address	Bill To Company	
	Jeffrey L. Croston	
	Address	
	10450 Stoncliff Rd, Suite 210	
	City/State/Zip	
	Houston, Texas 77099-4338	
	Phone	
	(281) 530-5656	
	Fax	
	(281) 530-5887	
	eMail Address	
	jeff.croston@alsenviro.com	
	eMail GC	
	glenda.ramos@alsenviro.com	
	Collection Date	
	8/19/2008 11:30	
	Bottle	
	(1) 1LPNEAT	

Sample ID	Matrix	Collection Date	24hr	Bottle	A	B	C	D	E	F	G	H	I	J
0808447-01E (Injection Well)	Water	8/19/2008 11:30		(1) 1LPNEAT	X									

Comments:

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Relinquished by: *[Signature]* Date/Time: 8/20/08

Report/QC Level
Std

ALS Laboratory Group

Date: 22-Aug-08

Client: ALS Laboratory Group
Project: 0808447
Work Order: 0808386

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0808386-01	0808447-01E	Water		8/19/2008 11:30	8/21/2008 14:10	☐

ALS Laboratory Group

Date: 22-Aug-08

Client: ALS Laboratory Group

Project: 0808447

Work Order: 0808386

Sample ID: 0808447-01E

Lab ID: 0808386-01

Collection Date: 8/19/2008 11:30 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			EPA 7.3.3.2			Analyst: DB
Cyanide, Reactive	ND		40.0	mg/Kg	1	8/22/2008
SULFIDE, REACTIVE			EPA 7.3.4.2			Analyst: DB
Sulfide, Reactive	ND		40.0	mg/Kg	1	8/22/2008

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Laboratory Group

Client: ALS Laboratory Group
 Work Order: 0808386
 Project: 0808447

Date: 22-Aug-08

QC BATCH REPORT

Batch ID: R61249 Instrument ID WETCHEM Method: EPA 7.3.4.2

MBLK Sample ID: WBLKS1-082208 Units: mg/Kg Analysis Date: 8/22/2008
 Client ID: Run ID: WETCHEM_080822C SeqNo: 1018085 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

0808386-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

Client: ALS Laboratory Group
Work Order: 0808386
Project: 0808447

QC BATCH REPORT

Batch ID: R61250 Instrument ID WETCHEM Method: EPA 7.3.3.2

MBLK	Sample ID: WBLKS1-082208				Units: mg/Kg		Analysis Date: 8/22/2008			
Client ID:	Run ID: WETCHEM_080822D				SeqNo: 1018091		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS	Sample ID: WLCSS1-082208				Units: mg/Kg		Analysis Date: 8/22/2008			
Client ID:	Run ID: WETCHEM_080822D				SeqNo: 1018092		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	278.9	40	250	0	112	75-125	0			

LCSD	Sample ID: WLCSDS1-082208				Units: mg/Kg		Analysis Date: 8/22/2008			
Client ID:	Run ID: WETCHEM_080822D				SeqNo: 1018100		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	278.9	40	250	0	112	75-125	278.9	0	35	

MS	Sample ID: 0808386-01A MS				Units: mg/Kg		Analysis Date: 8/22/2008				
Client ID: 0808447-01E			Run ID: WETCHEM_080822D			SeqNo: 1018096		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	0				

MSD				Sample ID: 0808386-01A MSD		Units: mg/Kg		Analysis Date: 8/22/2008		
Client ID: 0808447-01E				Run ID: WETCHEM_080822D		SeqNo: 1018097		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	249.6	0	35	

The following samples were analyzed in this batch:

0808386-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

080838
Date: 20-Aug-08
COC ID: 6639
Due Date 01-Sep-08

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

Parameter/Method Request for Analysis

Customer Information		Project Information	
Purchase Order	Project Name	0808447	A Cyanide, Reactive (SW-846)
Work Order	Project Number		B Sulfide, Reactive (SW-846)
Company Name	Bill To Company	ALS Group USA, Corp.	C
Send Report To	Inv Altn	Accounts Payable	D
Address	Address	10450 Stanchiff Rd, Suite 210	E
			F
City/State/Zip	City/State/Zip	Houston, Texas 77099-4338	G
Phone	Phone	(281) 530-5656	H
Fax	Fax	(281) 530-5887	I
eMail Address	eMail CC	jeff.croston@alsenviro.com	J
		glenda.ramos@alsenviro.com	
Sample ID	Matrix	Collection Date	A B C D E F G H I J
0808447-01E (Injection Well)	Water	8/19/2008 11:30	X X
		(1) 1LPNEAT	

Comments:

Relinquished by: Date/Time Received by: Date/Time Cooler IDs Report/QC Level

Relinquished by: *[Signature]* Date/Time: 8/21/08 2:10p
Received by: *[Signature]* Date/Time: 8/21/08 2:10p
Cooler IDs: *[Signature]*
Report/QC Level: *[Signature]*

ALS Laboratory Group

Sample Receipt Checklist

Client Name ELAB-HOU

Date/Time Received: 8/21/2008 14:10

Work Order Number 0808386

Received by: ARB

Checklist completed by

Signature

Date

Reviewed by

Initials

Date

Matrix: Water

Carrier name: UPS

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

3.1 C

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

Adjusted? N

Checked by [Signature]

Login Notes:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

3.5
XS

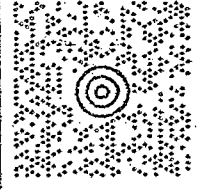
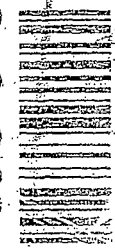
CUSTODY SEAL	
Date: 9-10-78	Name: R. SANCHEZ
Time: 1:00	Company: ALS
Signed Broken By: AB	
Date: 8-2-10-8	

ALS Laboratory Group
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. 41 281 530 5656

Weight	3.5
DIMENSIONAL WEIGHT	
Large Volume	

Saver

MI 495 693



UPS Next Day Air



SHIPMENT ID NUMBER	6981 7478 897
--------------------	---------------

UPS
UPS Next Day Air
Saver
Shipping Line Discount

SHIPMENT FROM
ACCOUNT NO. 698174

SUB CONTRACT

TELEPHONE
281-530-5656

RICHARD SANCHEZ

ALS LABORATORY GROUP

1450 STANCLIFF RD STE #210

HOUSTON TX 77099

DELIVERED TO
RECEIVING
615-399-6070

ALS LABORATORY GROUP

3352 128TH AVE

HOLLAND MI 49424

(URC 472.5A 11/2007)
0201992592009 1107 S
United Parcel Service, Louisville, KY

02778

011108 P1

18259730

9 500

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R25184 InstrumentID: VOA2

MSD Sample ID: 0412122-01AMSD Test Code: SW8260 Units: µg/L Analysis Date: 12/10/04 15:56
 Client ID: Run ID: VOA2_041210A SeqNo: 586935 Prep Date: DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4901	500	5000	0	98	75.2-120	4798	2.14	20	
1,1,2,2-Tetrachloroethane	3673	500	5000	0	73.5	72.4-121	3949	7.23	20	
1,1,2-Trichloroethane	5074	500	5000	0	101	80-120	4942	2.63	20	
1,1-Dichloroethane	4943	500	5000	0	98.9	76.9-120	4844	2.02	20	
1,1-Dichloroethene	4860	500	5000	0	97.2	72.6-123	4755	2.18	20	
1,2-Dichloroethane	5155	500	5000	0	103	80-120	4962	3.81	20	
2-Butanone	11480	1,000	10000	0	115	69-131	11580	0.868	20	
2-Chloroethyl vinyl ether	8419	1,000	10000	0	84.2	60-135	8304	1.37	20	
2-Hexanone	11740	1,000	10000	0	117	55.6-126	11630	0.973	20	
4-Methyl-2-pentanone	11100	1,000	10000	0	111	67.4-121	11200	0.93	20	
Acetone	11240	1,000	10000	0	112	64.4-140	10640	5.48	20	
Benzene	5163	500	5000	0	103	80-120	4919	4.82	20	
Bromodichloromethane	5176	500	5000	0	104	80-120	4991	3.63	20	
Bromoform	5440	500	5000	0	109	77.9-121	5184	4.82	20	
Bromomethane	4925	500	5000	0	98.5	63.3-137	4562	7.66	20	
Carbon disulfide	9210	1,000	10000	0	92.1	74.1-123	9132	0.851	20	
Carbon tetrachloride	4749	500	5000	0	95	74.7-120	4713	0.763	20	
Chlorobenzene	4736	500	5000	0	94.7	80-120	4596	3.01	20	
Chloroethane	4762	500	5000	0	95.2	74.7-126	4625	2.92	20	
Chloroform	9470	500	5000	4602	97.4	80-120	8788	7.47	20	
Chloromethane	4892	500	5000	0	97.8	64.5-132	4632	5.45	20	
cis-1,3-Dichloropropene	5058	500	5000	0	101	80-120	4838	4.44	20	
Dibromochloromethane	5191	500	5000	0	104	80-120	4989	3.97	20	
Ethylbenzene	5207	500	5000	0	104	80-120	5104	1.99	20	
m,p-Xylene	10210	1,000	10000	0	102	80-120	9965	2.46	20	
Methylene chloride	4799	1,000	5000	0	96	76.2-120	4625	3.7	20	
Styrene	5332	500	5000	0	107	80-120	5121	4.03	20	
Tetrachloroethene	5155	500	5000	0	103	68.5-130	5010	2.85	20	
Toluene	5106	500	5000	0	102	80-120	4924	3.63	20	
trans-1,3-Dichloropropene	5390	500	5000	0	108	80-120	5349	0.761	20	
Trichloroethene	6591	500	5000	0	132	78.9-120	5895	11.2	20	S
Vinyl acetate	613	1,000	10000	0	6.13	62.4-133	1690	0	20	JS
Vinyl chloride	4832	200	5000	0	96.6	72.7-128	4609	4.73	20	
Xylenes, Total	15030	1,500	15000	0	100	80-120	14660	2.5	20	
Surr: 1,2-Dichloroethane-d4	4254	500	5000	0	85.1	71-126	4231	0.551	20	
Surr: 4-Bromofluorobenzene	4444	500	5000	0	88.9	74-125	4306	3.16	20	
Surr: Dibromofluoromethane	4082	500	5000	0	81.6	73-126	4042	0.978	20	
Surr: Toluene-d8	4509	500	5000	0	90.2	75-125	4389	2.69	20	

The following samples were analyzed in this batch:

0412005-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R24953 InstrumentID: WetChem

LCS Sample ID: WLCSW1-120104 Test Code: E150.1 Units: pH units Analysis Date: 12/01/04 0:00

Client ID: Run ID: WETCHEM_041201B SeqNo: 581999 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.06	0.10	6	0	101	85-115		0		

DUP Sample ID: 0412005-01CDUP Test Code: E150.1 Units: pH units Analysis Date: 12/01/04 0:00

Client ID: Inj Wells Run ID: WETCHEM_041201B SeqNo: 582003 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.17	0.10	0	0	0	0-0	7.19	0.279	20	

The following samples were analyzed in this batch:

0412005-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R25032 InstrumentID: WetChem

MBLK Sample ID: WBLKW1-120304 Test Code: E120.1 Units: μ mhos/cm Analysis Date: 12/03/04 0:00

Client ID: Run ID: WETCHEM_041203B SeqNo: 583600 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: WLCSW1-120304 Test Code: E120.1 Units: μ mhos/cm Analysis Date: 12/03/04 0:00

Client ID: Run ID: WETCHEM_041203B SeqNo: 583601 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	142	1.0	141.2	0	101	80-120	0			

DUP Sample ID: 0412005-01CDUP Test Code: E120.1 Units: μ mhos/cm Analysis Date: 12/03/04 0:00

Client ID: Inj Wells Run ID: WETCHEM_041203B SeqNo: 583639 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	6390	1.0	0	0	0	0-0	6350	0.628	20	

The following samples were analyzed in this batch:

0412005-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R25042 InstrumentID: WetChem

MBLK Sample ID: WBLKW1-120304 Test Code: E160.1 Units: mg/L Analysis Date: 12/03/04 0:00
Client ID: Run ID: WETCHEM_041203D SeqNo: 583929 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: WLCSW1-120304 Test Code: E160.1 Units: mg/L Analysis Date: 12/03/04 0:00
Client ID: Run ID: WETCHEM_041203D SeqNo: 583930 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	992	10	1000	0	99.2	80-120	0			

DUP Sample ID: 0412038-01EDUP Test Code: E160.1 Units: mg/L Analysis Date: 12/03/04 0:00
Client ID: Run ID: WETCHEM_041203D SeqNo: 583942 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	21880	10	0	0	0	0-0	21420	2.12	20	

The following samples were analyzed in this batch:

0412005-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

QC BATCH REPORT

Batch ID: R25082 InstrumentID: WetChem

MBLK Sample ID: WBLKW1-120604 Test Code: E310.1 Units: mg/L Analysis Date: 12/06/04 0:00
Client ID: Run ID: WETCHEM_041206F SeqNo: 584614 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLC5W1-120604 Test Code: E310.1 Units: mg/L Analysis Date: 12/06/04 0:00
Client ID: Run ID: WETCHEM_041206F SeqNo: 584615 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1000	5.0	0	0.9809	0	0-0	0			
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0			
Alkalinity, Total (As CaCO3)	1000	5.0	1000	0	100	80-120	0			

LCS Sample ID: WLCSDW1-12060 Test Code: E310.1 Units: mg/L Analysis Date: 12/06/04 0:00
Client ID: Run ID: WETCHEM_041206F SeqNo: 584638 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	961	5.0	0	0.9809	0	0-0	1000	3.98	0	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	0	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	0	
Alkalinity, Total (As CaCO3)	961	5.0	1000	0	96.1	80-120	1000	3.98	20	

DUP Sample ID: 0411319-04CDUP Test Code: E310.1 Units: mg/L Analysis Date: 12/06/04 0:00
Client ID: Run ID: WETCHEM_041206F SeqNo: 584625 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	284	5.0	0	0	0	0-0	275	3.22	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	284	5.0	0	0	0	0-0	275	3.22	20	

The following samples were analyzed in this batch:

0412005-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: Navajo Refining Company
 Work Order: 0412005
 Project: Injection Wells

QC BATCH REPORT

Batch ID: R25133 InstrumentID: IC201

MBLK	Sample ID: WBLKW1-120804			Test Code: E300		Units: mg/L		Analysis Date: 12/09/04 0:01		
Client ID:	Run ID: IC201_041208A			SeqNo: 585675		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	1.0								
Surr: Dichloroacetic acid (surr)	4.97	0.10	5	0	99.4	80-120		0		

LCS	Sample ID: WLCSW1-120804			Test Code: E300		Units: mg/L		Analysis Date: 12/09/04 0:29		
Client ID:	Run ID: IC201_041208A			SeqNo: 585676		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	8.79	0.50	10	0	87.9	80-120	0			
Sulfate	9.07	1.0	10	0	90.7	80-120	0			
Surr: Dichloroacetic acid (surr)	5.03	0.10	5	0	101	80-120	0			

LCSD	Sample ID: WLCSDW1-12080			Test Code: E300		Units: mg/L		Analysis Date: 12/09/04 0:58		
Client ID:	Run ID: IC201_041208A			SeqNo: 585677		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	8.72	0.50	10	0	87.2	80-120	8.79	0.8	20	
Sulfate	9.25	1.0	10	0	92.5	80-120	9.07	1.97	20	
Surr: Dichloroacetic acid (surr)	5.07	0.10	5	0	101	80-120	5.03	0.792	20	

MS	Sample ID: 0412109-01EMS			Test Code: E300		Units: mg/L		Analysis Date: 12/08/04 21:38		
Client ID:	Run ID: IC201_041208A			SeqNo: 585655		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	45.15	0.50	10	34.02	111	75-125		0		
Sulfate	25.12	1.0	10	14.39	107	75-125		0		
Surr: Dichloroacetic acid (surr)	5.04	0.10	5	0	101	80-120		0		

MSD	Sample ID: 0412109-01EMSD			Test Code: E300		Units: mg/L		Analysis Date: 12/08/04 22:07		
Client ID:	Run ID: IC201_041208A			SeqNo: 585696		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	45.28	0.50	10	34.02	113	75-125	45.15	0.288	20	
Sulfate	25.1	1.0	10	14.39	107	75-125	25.12	0.0796	20	
Surr: Dichloroacetic acid (surr)	4.93	0.10	5	0	98.6	80-120	5.04	2.21	20	

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

QC BATCH REPORT

CLIENT: Navajo Refining Company
Work Order: 0412005
Project: Injection Wells

Batch ID: R25133 InstrumentID: IC201

DUP Sample ID: 0412109-01EDUP Test Code: E300 Units: mg/L Analysis Date: 12/08/04 17:50

Client ID: Run ID: IC201_041208A SeqNo: 585641 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	33.91	0.50	0	0	0	0-0	34.02	0.324	20	
Sulfate	14.43	1.0	0	0	0	0-0	14.39	0.278	20	
Surr: Dichloroacetic acid (surr)	5.04	0.10	5	0	101	80-120	5.04	0	20	

The following samples were analyzed in this batch:

0412005-01C

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



☐ e-Lab Analytical, Inc.
10450 Stancil Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

☐ e-Lab Analytical, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Page of

Customer Information				Project Information				e-Lab Project Manager				e-Lab Work Order					
Project Name				Injection Wells				Parameter/Method Request for Analysis				04/12/05					
Project Number				Navajo Refining Company				VOC B260									
Bill To Company				Jeff Byrd				SVOC B270									
Invoice Attn				PO Box 159				Total Metals 6020									
Address				Artesia, NM 88211				RCI Profile									
City/State/Zip				(505) 748-3311				Anions: (Cl, SO4)									
Phone				(505) 746-5421				Alkalinity									
Fax								pH									
e-Mail Address								Conductivity									
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection well	11/30	0730	L		10	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
<i>Byrd</i>		<i>FedEx</i>		☐ STD: 10 Wk Days	☐ 2 Wk Days	☐ 24 Hour	
Relinquished by:	Date: 11/30	Received by:	Time: 0730	Notes:			
Relinquished by:	Date: 11/30	Received by (Laboratory):	Time: 09:05	e-Lab Cooler ID			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	Cooler Temp			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	OC Package: (Check One Box Below)			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☒ Level II Std QC			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ Level III Std QC			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ Level IV BWR46/CLP			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ Other			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Checklist			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level IV			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level V			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level VI			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level VII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level VIII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level IX			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level X			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XI			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XIII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XIV			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XV			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XVI			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XVII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XVIII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XIX			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XX			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXI			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXIII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXIV			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXV			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXVI			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXVII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXVIII			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXIX			
Relinquished by:	Date: 12/1/04	Received by (Laboratory):	Time: 09:05	☐ TRRP Level XXX			

Sample Receipt Checklist

Client Name NAVAJO REFINING

Date/Time Received: 12/1/2004 9:05:00 AM

Work Order Number 0412005

Received by: FSM

Checklist completed by

[Signature]
Signature

12/1/04
Date

Reviewed by

[Signature]
Initials

12/2/04
Date

Matrix: W

Carrier name FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☒

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

3.2c

002

Water - VOA vials have zero headspace?

Yes ☒

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

Adjusted? _____

Checked by

[Signature]

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____

Date contacted: _____

Person contacted _____

Contacted by: _____

Regarding: _____

Comments: _____

Corrective Action _____

W.O.# 04200E

100 E. MAIN STREET
ARTESIA NM 88210
5057483311

SHIP DATE: 30NOV2004
ACCOUNT #: 113584186
ACTUAL WGT: 58.00 LBS

Part # 156149-434 NRIT 504



TO:

1092
E-LAB
SAMPLE RECEIVING
10450 STANCLIFF ROAD STE 210
HOUSTON TX 77099

2815305656
BILL RECIPIENT



Delivery Address Barcode

FedEx **PRIORITY OVERNIGHT**

WED

System # 2223500 30NOV2004

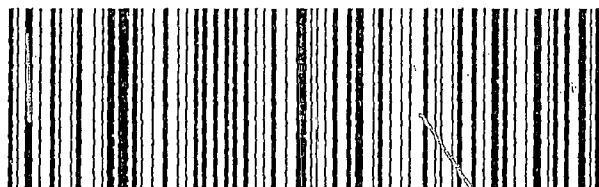
TRK# 7903 5210 7434 Form 0201

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05US.V5.2.00 2223500 2844 04/02

e-Lab Analytical, Inc

Date: *December 10, 2004*

CLIENT: e-Lab Analytical, Inc
Project: 0412005
Work Order: 0412024

Work Order Sample Summary

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0412024-01	0412005-01E	Water		11/30/2004 07:30	12/2/2004 10:00	☐

e-Lab Analytical, Inc

Date: December 10, 2004

CLIENT: e-Lab Analytical, Inc
Project: 0412005**Work Order:** 0412024**Lab ID:** 0412024-01A**Collection Date:** 11/30/2004 7:30:00 AM**Client Sample ID:** 0412005-01E**Matrix:** WATER

Analyses	Result	Report Limit	Qual Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE Cyanide, Reactive	ND	0.0300	EPA 7.3.3.2 mg/Kg	1	Analyst: BAT 12/2/2004
FLASHPOINT, P-M CLOSED-CUP Flashpoint, P-M Closed-cup	>196		ASTM D93 °F	1	Analyst: KAE 12/6/2004
SULFIDE, REACTIVE Sulfide, Reactive	ND	40.0	EPA 7.3.4.2 mg/Kg	1	Analyst: BAT 12/2/2004

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: Dec 10 2004

CLIENT: e-Lab Analytical, Inc

Work Order: 0412024

Project: 0412005

QC BATCH REPORT

Batch ID: R25689 InstrumentID: WETCHEM

MBLK	Sample ID: WBLKW1-041202	Test Code: EPA 7.3.4.2	Units: mg/Kg	Analysis Date: 12/02/04 0:00						
Client ID:	Run ID: WETCHEM_041202H	SeqNo: 381679	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch: 0412024-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range

CLIENT: e-Lab Analytical, Inc
Work Order: 0412024
Project: 0412005

QC BATCH REPORT

Batch ID: R25698 InstrumentID: WETCHEM

MBLK Sample ID: WBLKW1-041202 Test Code: EPA 7.3.3.2 Units: mg/Kg Analysis Date 12/02/04 0:00

Client ID: Run ID: WETCHEM_041202I SeqNo: 381814 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	0.030								

LCS Sample ID: WLCSW1-041202 Test Code: EPA 7.3.3.2 Units: mg/Kg Analysis Date 12/02/04 0:00

Client ID: Run ID: WETCHEM_041202I SeqNo: 381815 Prep Date: DF: 2500

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	449.2	75	922	0	48.7	5-100	0			

The following samples were analyzed in this batch: 0412024-01A

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



CLIENT: e-Lab Analytical, Inc
Work Order: 0412024
Project: 0412005

QC BATCH REPORT

Batch ID: R25752 InstrumentID: WETCHEM

LCS Sample ID: WLCSW1-120304 Test Code: ASTM D93 Units: °F Analysis Date 12/06/04 0:00
Client ID: Run ID: WETCHEM_041206G SeqNo: 382883 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	83	0	81	0	102	97-103	0	0	0	

The following samples were analyzed in this batch:

0412024-01A



ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

O - Referenced analyte value is > 4 times amount spiked

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

P - Dual Column results percent difference > 40%

B - Analyte detected in assoc. Method Blank

U - Analyzed for but not detected

E - Value above quantitation range



Subcontractor:
e-Lab Analytical, Inc.
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-0185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: Dec 01, 2004
COC ID: 2225
Due Date: 12/13/2004

Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order	2107246	Project Name	0412005	A	B	C	D	E	F	G	H	I	J		
Work Order		Project Number													
Company Name	e-Lab Analytical, Inc.	Bill To Company	e-Lab Analytical, Inc.												
Send Report To	Jeffrey L. Croston	Inv Attn	Accounts Payable												
Address	10450 Stanchitt Rd, Suite 210	Address	10450 Stanchitt Rd, Suite 210												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338												
Phone	(281) 530-5656	Phone	(281) 530-5656												
Fax	(281) 530-5887	Fax	(281) 530-5887												
eMail Address															
Sample ID	0412005-01E (In Wells)	Matrix	Water	A	B	C	D	E	F	G	H	I	J		
				X	X	X									
		Collection Date	11/30/2004 7:30												
		Bottle	(1) LPNEAT												

Comments:

Requisitioned by <i>[Signature]</i>	Date/Time 12/1/04 08:55	Received by <i>[Signature]</i>	Date/Time 12-2-04 10:00	Coater LBS	Requisitioned Level Std
Requisitioned by	Date/Time	Received by	Date/Time		

Signature _____ Date _____ Initials _____

Name _____ Cater name: JPS

Shipping containers/covers in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping containers/covers?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when refrigerated and rewarmed?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for final cooled test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp B cool temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s)?	2.0C		
Water - VOA wells have seen reassessment?	Yes ☐	No ☐	No VOA wells submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐

Adjusted by _____

Checked by _____

Begin Notes

Any No or poor pH (not appropriate) responses must be noted in the comments section below.

Client contacted:	Date contacted:	Person contacted:
Contacted by:	Regarding:	
Comment:		
Corrective Action:		

U.S. MAIL PERMIT NO. 1000 HOUSTON, TEXAS 77002		e-Lab, Inc. 10450 E. Grand Ave., Suite 210 Houston, Texas 77036 Tel. 281.530.5555 Fax. 281.530.5557
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TABLE VII TABULATION OF WELLS WITHIN 1 MILE OF THE INJECTION WELLS

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
1	30-015-00693	GEORGE A CHASE & C SERVICE DELHI #001	36 17S 27E A 330N 330E	528	T/A O	8/30/1941
2	30-015-00694	DELHI OIL CORP. STATE #013	36 17S 27E A 990N 990E	1993	P&A O	6/24/1948 6/24/1948
3	30-015-00646	GEORGE A CHASE & C SERVICE DELHI #007	36 17S 27E A 990N 330E	540	T/A O	4/21/1950
4	30-015-00668	FAIRWAY RESOURCES OPERATING INC SOUTH RED LAKE GRAYBURG UNIT #010	36 17S 27E G 1650N 2310E	1736	SHUT IN O	12/6/1947
5	30-015-00690	GEORGE A CHASE & C SERVICE CONKLIN #002	36 17S 27E G 1830N 2205E	532	ACTIVE O	3/6/1949
6	30-015-00667	FAIRWAY RESOURCES OPERATING INC SOUTH RED LAKE GRAYBURG UNIT #011	36 17S 27E G 2310N 2310E	1733	ACTIVE I	3/23/1949
7	30-015-00666	GEORGE A CHASE & C SERVICE CONKLIN #001	36 17S 27E G 2310N 2310E	533	P&A O	1/10/1942 9/10/2007
8	30-015-00689	GEORGE A CHASE JR & C SERVICE GATES STATE #001	36 17S 27E H 1650N 330E	557	ACTIVE O	8/4/1950
9	30-015-00647	ASPEN OIL INC GATES STATE #002	36 17S 27E H 1650N 990E	551	ACTIVE O	10/21/2003 10/21/2003
10	30-015-00669	GEORGE A CHASE JR & C SERVICE HOMAN #001	36 17S 27E H 2310N 330E	1804	P&A O	5/6/2008 5/6/2008
11	30-015-00688	KERSEY & CO RAMAPO #001	36 17S 27E I 2310S 330E	590	P&A O	10/28/1941 10/28/1941
12	30-015-00670	KERSEY & CO RAMAPO #003	36 17S 27E I 2970N 330E	1857	P&A O	1/3/1950 1/3/1950
13	30-015-00687	KERSEY & CO RAMAPO #002	36 17S 27E I 2310S 990E	1900	P&A G	5/7/1948 5/7/1948

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, R&E, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
14	30-015-00685	ARCO OIL & GAS EMPIRE ABO UNIT G #020	36 17S 27E I 1650S 330E	5980	P&A O	7/10/1989 7/10/1989
15	30-015-00671	ROJO GRANDE COMPANY LLC RAMAPO #003	36 17S 27E J 2310S 2310E	591	ZONE ABAN O	2/13/1942 1/24/2000
16	30-015-01221	MCQUADRANGLE, LC SOUTH RED LAKE GRAYBURG UNIT #023	36 17S 27E J 2300S 2300E	1790	ZONE ABAN O	2/27/1948 8/13/2002
17		MARTIN YATES III DOOLEY STATE #3	36 17S 27E J	5865		4/22/1961
18	30-015-05934	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #019A	36 17S 27E J 1650S 1650E	5970	ACTIVE O	2/26/1961
19	30-015-01220	MCQUADRANGLE, LC SOUTH RED LAKE GRAYBURG UNIT #022	36 17S 27E K 2310S 2330W	1747	ZONE ABAN O	2/3/1949 7/17/2002
20	30-015-00674	ROJO GRANDE COMPANY LLC RAMAPO #002	36 17S 27E K 2310S 2310W	514	ACTIVE O	5/15/1947
21	30-015-01219	MCQUADRANGLE, LC SOUTH RED LAKE GRAYBURG UNIT #021	36 17S 27E K 2310S 1650W	1710	ACTIVE I	1/20/1948
22	30-015-23913	MCQUADRANGLE, LC SOUTH RED LAKE GRAYBURG UNIT #043	36 17S 27E K 1650S 1650W	1785	ACTIVE O	12/11/1981
23		MARTIN YATES III DOOLEY STATE ABO #3	36 17S 27E K	5865	ACTIVE O	4/19/1961
24	30-015-00673	ROJO GRANDE COMPANY LLC RAMAPO #001	36 17S 27E K 1650S 2310W	510	ZONE ABAN O	1/24/2000 1/24/2000
25	30-015-00682	ROJO GRANDE COMPANY LLC RAMAPO #004	36 17S 27E N 990S 1650W	541	ZONE ABAN O	1/24/2000 1/24/2000
26	30-015-00683	FAIRWAY RESOURCES OPERATING INC SOUTH RED LAKE GRAYBURG UNIT #028	36 17S 27E N 965S 1650W	1812	ACTIVE I	4/16/1948
27	30-015-01218	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #018	36 17S 27E N 330S 2310W	5925	P&A O	3/11/2009

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
28	30-015-00684	BURNHAM OIL COMPANY STATE B-6961 NO. 1-A	36 17S 27E O 990S 2310E	1500	P&A O	5/13/1947 5/13/1947
29	30-015-01251	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #019	36 17S 27E O 660S 1980E	6200	P&A O	9/8/1959 4/27/2009
30			36 17S 27E I		MISPLUG OF 14	
31	30-015-00677	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #020	36 17S 27E P 330S 990E	6013	P&A O	4/13/2009
32	30-015-01616	C F M OIL CO BLAKE STATE #001	30 17S 28E P 330S 990E	615	ACTIVE O	3/7/1953
33	30-015-01638	BEDINGFIELD, MALCO, RESLER STATE NO. 1	31 17S 28E A 330N 990E	2004	P&A O	7/15/1952 7/15/1952
34	30-015-21594	FINNEY OIL COMPANY POWCO STATE #001	31 17S 28E B 330N 1650E	652	ACTIVE O	11/15/1975
35	30-015-01636	BEDINGFIELD, J E DELHI-STATE NO. 1	31 17S 28E C 330N 2310E	637	P&A O	12/23/1952 12/23/1952
36	30-015-25621	FINNEY OIL COMPANY POWCO STATE #002	31 17S 28E B 980N 1620E	747	ACTIVE O	7/15/1986
37	30-015-01633	ASPEN OIL INC ASTON & FAIR A #001	31 17S 28E D 330N 330W	531	ACTIVE O	6/23/1942
38	30-015-01634	ASTON & FAIR STATE 31 NO. 1X	31 17S 28E D 350N 345W	525	NO COMPL O	1/5/1946
39	30-015-01645	MCLAUGHLIN, C T BEDINGFIELD STATE 1 NO. 1	31 17S 28E F 990N 990W	2307	P&A O	2/16/1950 2/16/1950
40	30-015-02666	HANSON ENERGY HUDSON SAIKIN STATE #001	31 17S 28E E 2310N 330W	1816	ACTIVE O	5/29/1948
41	30-015-24887	HANSON ENERGY HUDSON SAIKIN STATE #002	31 17S 28E E 2310N 990W	1950	ACTIVE O	7/7/1984

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
42	30-015-01643	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022	31 17S 28E F 2310N 2260W	5971	T/A O	6/7/1960
43	30-015-01635	ASPEN OIL INC ASTON & FAIR #001Y	31 17S 28E F 2310N 2310W	1926	ACTIVE O	5/8/1948
44	30-015-01637	ASPEN OIL INC MALCO STATE #001	31 17S 28E G 2310N 2310E	1852	ACTIVE O	10/12/1953
45	30-015-01652	KERSEY & CO BOLING #001	31 17S 28E G 2288N 1625E	6025	ACTIVE O	8/10/1960
46	30-015-10537	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #004	31 17S 28E H 2277N 330E	6180	ACTIVE O	9/23/1965
47	30-015-10833	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #010	31 17S 28E I 1980S 660E	1945	ACTIVE O	6/17/1966
48	30-015-01644	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #024A	31 17S 28E I 1650S 330E	6106	T/A O	4/29/1960
49	30-015-01642	HANSON ENERGY STATE FW #001	31 17S 28E J 1650S 2310E	1937	ACTIVE O	12/23/1962
50	30-015-01650	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #023A	31 17S 28E J 1650S 1958E	6094	P&A O	9/17/2003 9/17/2003
51	30-015-01651	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022B	31 17S 28E K 1650S 2387W	6046	ACTIVE O	4/10/1960
52	30-015-01640	HANSON ENERGY RAMPO #002	31 17S 28E L 2310S 330W	1996	ACTIVE O	7/16/1955
53	30-015-01648	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #021A	31 17S 28E L 1651S 1089E	5971	ZONE ABAN O	8/24/2002 8/24/2002
54	30-015-01639	HANSON ENERGY RAMPO #001	31 17S 28E M 990S 330W	1975	ACTIVE O	5/1/1948
55	30-015-01647	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #021	31 17S 28E M 660S 660W	6006	P&A O	1/31/1960 7/23/2005

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
56	30-015-01646	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022A	31 17S 28E N 660S 2082W	6050	ACTIVE O	1/22/1960
57	30-015-10118	HANSON ENERGY STATE FV #001	31 17S 28E N 766S 2188W	1938	ACTIVE O	3/1/1963
58	30-015-01653	OTIS A ROBERTS PARKER-STATE NO. 1	31 17S 28E O 990S 1650E	742	P&A O	1/18/1942 1/18/1942
59	30-015-27592	NAVAJO REFINING CO. PIPELINE DIVISION WDW #001	31 17S 28E 660S 2310E	10200	ACTIVE I	8/4/1998
60	30-015-01649	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #023	31 17S 28E O 660S 1939E	6094	ACTIVE O	2/24/1960
61	30-015-20042	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #011	31 17S 28E P 990S 660E	2012	ACTIVE O	5/8/1967
62	30-015-01641	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #024	31 17S 28E P 660S 660E	6122	ACTIVE O	3/12/1960
63	30-015-01654	BEDINGFIELD, J E ASTON-STATE NO. 1	32 17S 28E D 330N 330W	651	P&A O	5/12/1953 5/12/1953
64	30-015-01671	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #025B	32 17S 28E E 2280N 978W	6013	T/A O	9/13/1960
65	30-015-01657	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #026	32 17S 28E F 2280N 1980W	6171	T/A O	8/24/1960
66	30-015-10818	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #008	32 17S 28E K 2310S 2105W	2003	P&A O	11/6/2006 11/6/2006
67	30-015-01661	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #026B	32 17S 28E K 1650S 2310W	6083	ACTIVE O	3/27/1960
68	30-015-10795	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #009	32 17S 28E L 2310S 660W	1930	ACTIVE O	5/15/1966
69	30-015-01662	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #025A	32 17S 28E L 1650S 990W	6075	ACTIVE O	4/13/1960

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
70	30-015-20043	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #012	32 17S 28E M 990S 760W	1998	T/A O	5/9/1967
71	30-015-01660	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #025	32 17S 28E M 660S 660W	6132	SHUT IN O	3/5/1960
72	30-015-10834	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #013	32 17S 28E N 990S 2030W	1954	P&A O	9/15/2006 9/15/2006
73	30-015-01659	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #026A	32 17S 28E N 660S 1980W	6172	ACTIVE O	2/14/1960
74	30-015-21539	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #261	32 17S 28E N 150S 1400W	6220	ACTIVE O	7/25/1975
75	30-015-22009	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #272	32 17S 28E O 330S 2481E	6370	ACTIVE O	7/18/1977
76	30-015-02606	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #026E	5 18S 28E C 330N 1941W	6254	ACTIVE O	7/18/1960
77	30-015-22697	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #261A	5 18S 28E C 1080N 1914W	6350	ACTIVE O	1/4/1979
78	30-015-02607	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #025C	5 18S 28E D 660N 660W	6273	ACTIVE O	3/27/1960
79	30-015-22750	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #251	5 18S 28E D 660N 150W	6250	SHUT IN O	1/12/1979
80	30-015-02608	CONOCOPHILLIPS COMPANY STATE E AI #001	5 18S 28E E 1660N 330W	6265	P&A O	1/13/2006 1/13/2006
81	30-015-24485	CONOCOPHILLIPS COMPANY ILLINOIS CAMP A COM #001	5 18S 28E E 1980N 990W	10450	ACTIVE G	8/10/1983
82	30-015-02602	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #026D	5 18S 28E F 1650N 1650W	6265	ACTIVE O	12/30/1959
83	30-015-25522	I & W INC WALTER SOLT STATE #001	5 18S 28E L 2240S 400W	8500	ACTIVE S	8/12/1983

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
84	30-015-10244	MACK ENERGY CORP STATE AG #001	5 18S 28E L 2310S 330W	6365	ZONE ABAN O	3/27/2001 3/27/2001
87	30-015-20019	SDX RESOURCES INC NORTHWEST ARTESIA UNIT #016	6 18S 28E A 330N 330E	3280	ACTIVE O	3/14/1967
88	30-015-02615	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #024B	6 18S 28E A 660N 660E	6241	ACTIVE O	2/29/1960
89	30-015-02625	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #023C	6 18S 28E B 470N 2170E	6194	T/A O	12/21/1959
90	30-015-21542	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #231	6 18S 28E B 1260N 1580E	6250	ACTIVE O	11/1/1975
91	30-015-02621	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022E	6 18S 28E C 660N 1980W	6033	ACTIVE O	12/29/1959
92	30-015-21626	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #231A	6 18S 28E G 1361N 2531E	6380	SHUT IN O	10/22/1975
93	30-015-02613	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #021B	6 18S 28E D 990N 660W	6119	ACTIVE O	12/30/1959
94	30-015-23116	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #213	6 18S 28E E 2050N 100W	6225	ACTIVE O	6/2/1980
95	30-015-02619	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #021C	6 18S 28E E 1990N 660W	6202	ACTIVE O	10/30/1959
96	30-015-22637	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #212	6 18S 28E E 2450N 400W	6267	ACTIVE O	12/28/1978
97	30-015-21395	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #211	6 18S 28E E 2630N 1300W	6200	ACTIVE O	2/11/1975
98	30-015-22012	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #222	6 18S 28E F 1350N 1572W	6303	ACTIVE O	3/13/1977
99	30-015-02626	SARKIN, DAVID C & OLIVER, HENRY F STATE NO. 1	6 18S 28E F 1650N 1650W	705	P&A O	2/21/1942 2/21/1942

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC. TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
100	30-015-10107	HANSON ENERGY STATE FX #001	6 18S 28E F 1874N 1874W	1985	ACTIVE O	8/8/1963
101	30-015-02620	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022D	6 18S 28E F 1990N 2082W	6206	ACTIVE O	11/26/1959
102	30-015-22527	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #223	6 18S 28E F 2630N 1930W	6250	ACTIVE O	5/19/1978
103	30-015-21746	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #221	6 18S 28E F 2610N 2713W	6305	ACTIVE O	4/23/1976
104	30-015-22913	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #235	6 18S 28E G 1750N 1600E	6300	ACTIVE O	7/8/1979
105	30-015-22593	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #234	6 18S 28E G 1900N 2441E	6260	SHUT IN O	8/27/1978
106	30-015-02614	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #023B	6 18S 28E G 1980N 1980E	6242	ACTIVE O	1/26/1960
107	30-015-21737	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #232	6 18S 28E G 2253N 1576E	6345	SHUT IN O	4/13/1976
108			6 18S 28E H	MISPLUG OF 107		
109	30-015-22490	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #233	6 18S 28E G 2550N 2050E	6300	T/A O	6/5/1978
110	30-015-02616	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #024C	6 18S 28E H 1650N 990E	6253	ACTIVE O	3/24/1960
111	30-015-23547	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #241	6 18S 28E H 1950N 660E	6386	ACTIVE O	4/12/1981
112	30-015-02617	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #024K	6 18S 28E I 2310S 990E	6350	P&A O	12/12/2002 12/12/2002
113	30-015-22528	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #232A	6 18S 28E J 2300S 1570E	6350	T/A O	2/5/1979

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
114	30-015-02611	BARNEY COCKBURN STATE NO. 1	6 18S 28E J 2310S 2310E	2095	P&A O	8/15/1949 8/15/1949
115	30-015-02628	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #023D	6 18S 28E J 2260S 2270E	6310	ACTIVE O	5/23/1979
116	30-015-22491	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #231B	6 18S 28E J 1700S 2350E	6350	T/A O	8/13/1978
117	30-015-02618	MILLER BROS OIL CO CAPITOL STATE NO. 1	6 18S 28E J 1647S 2076E	2396	P&A G	3/21/1955 3/21/1955
118	30-015-02623	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022F	6 18S 28E K 2248S 2075W	6210	ACTIVE O	2/22/1960
119			6 18S 28E K		MISLOT	
120		NAVAJO REFINING COMPANY WDW-2 (ORIGINAL LOCATION)	6 18S 28E L			
121	30-015-02622	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #021D	6 18S 28E L 2219S 660W	6194	ACTIVE O	1/23/1960
122	30-015-23548	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #211A	6 18S 28E L 1950S 1000W	6312	ACTIVE O	7/17/1980
123	30-015-02627	PENROC OIL CORP STATE M-AI #002	6 18S 28E M 949S 990W	6225	ACTIVE O	10/21/1960
124	30-015-26943	MEWBOURNE OIL CO CHALK BLUFF 6 STATE #001	6 18S 28E M 990S 730W	10200	ACTIVE G	4/16/1992
125	30-015-02610	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #022C	6 18S 28E N 955S 1750W	6243	ACTIVE O	8/5/1960
126	30-015-02624	PAN AMERICAN PETROLEUM CO STATE CD NO. 1	6 18S 28E O 968S 2270E	6412	P&A O	5/1/1961 5/1/1961
127	30-015-25503	DICKSON PETROLEUM CO KIMBERLY STATE NO. 1	6 18S 28E P 660S 330E	1750	P&A O	12/30/1985 12/30/1985

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
128	30-015-02612	D & H OIL CO STATE NO. 1	6 18S 28E P 330S 330E	2246	P&A O	5/13/1952 5/13/1952
129	30-015-01215	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #020D	1 18S 27E A 667N 666E	6118	ACTIVE O	11/5/1959
130	30-015-00708	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #019B	1 18S 27E B 660N 1980E	6078	ACTIVE O	7/7/1959
131		MALCO REFINERIES HILL #4	1 18S 27E C 1840	P&A		5/10/1948 5/10/1948
132			1 18S 27E C	MISLOT		
133	30-015-00710	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #018C	1 18S 27E C 660N 1980W	6173	P&A O	7/21/2004 7/21/2004
134	30-015-26741	MEWBOURNE OIL CO CHALK BLUFF FEDERAL COM #002	1 18S 27E F 1650N 1350W	10140	ACTIVE G	8/24/1991
135	30-015-00706	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #018A	1 18S 27E F 2310N 1980W	6087	ACTIVE O	5/31/1959
136	30-015-00709	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #019C	1 18S 27E G 1980N 1980E	6205	ACTIVE O	8/2/1959
137			1 18S 27E G	MISLOT		
138	30-015-21552	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #191	1 18S 27E G 2500N 2500E	6259	ACTIVE O	9/7/1975
139	30-015-00711	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #020C	1 18S 27E H 1980N 660E	6218	ACTIVE O	10/13/1959
140	30-015-21783	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #202	1 18S 27E H 2490N 1299E	6296	ACTIVE O	5/13/1976
141	30-015-22656	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #203	1 18S 27E H 2400N 700E	6225	ACTIVE O	10/10/1978

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC. TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
142		MANHATTAN OIL CRONIN #1	1 18S 27E H	2900	P&A	7/1/1927 7/1/2027
143	30-015-21553	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #201	1 18S 27E H 2501N 20E	6225	ACTIVE O	7/19/1975
144	30-015-27163	MEWBOURNE OIL CO CHALK BLUFF FEDERAL COM #003	1 18S 27E I 1980S 990E	10150	ACTIVE G	1/16/1993
145	30-015-00697	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #020K	1 18S 27E I 1980S 660E	6185	P&A O	1/5/2003 1/5/2003
146	30-015-22657	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #193	1 18S 27E J 2490S 2200E	6225	ACTIVE O	10/26/1978
147	30-015-00696	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #019Q	1 18S 27E J 1980S 1980E	6180	ACTIVE O	8/20/1959
148	30-015-22560	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #192	1 18S 27E J 220S 1390E	6250	ACTIVE O	6/25/1978
149	30-015-21873	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #191A	1 18S 27E J 1526S 1470E	6350	ACTIVE O	9/23/1976
150	30-015-22658	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #194	1 18S 27E J 1500S 2130E	6325	ACTIVE O	11/14/1978
151	30-015-22559	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #184	1 18S 27E K 2290S 2445W	6200	SHUT IN O	7/25/1978
152	30-015-22096	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #183	1 18S 27E K 2370S 1510W	6210	ACTIVE O	7/24/1977
153	30-015-21554	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #181	1 18S 27E K 1367S 1440W	6203	P&A O	4/17/2003 4/17/2003
154	30-015-00707	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #018B	1 18S 27E K 1980S 1980W	6163	ACTIVE O	5/22/1959
155	30-015-21792	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #182	1 18S 27E K 1533S 2370W	6369	ACTIVE O	6/1/1976

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
156	30-015-00713	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #018D	1 18S 27E N 995S 1644W	6174	P&A O	9/27/2003 9/27/2003
157	30-015-26575	NAVAJO REFINING COMPANY WDW-3 (PROPOSED)	1 18S 27E N 790S 2250W	10120	T/A G	3/7/1991
158	30-015-20394	HUMBLE OIL & REFINING CO EMPIRE ABO FEDERAL NO. 5	1 18S 27E O 953S 2197E	6300	P&A O	4/9/1971 4/9/1971
159	30-015-00698	ARCO PERMIAN EMPIRE ABO UNIT #191	1 18S 27E O 660S 1980E	6365	P&A S	11/8/1959 11/8/1959
160	30-015-00699	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #020B	1 18S 27E P 940S 330E	6250	ACTIVE O	12/2/1961
161	30-015-26404	DEVON ENERGY PRODUCTION COMPANY L FEDERAL T #001	12 18S 27E A 660N 990E	10141	T/A G	9/13/1990
162	30-015-25099	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #006	12 18S 27E H 1809N 990E	1652	ACTIVE O	9/11/1985
165	30-015-25997	EASTLAND OIL CO LAUREL STATE #001	7 18S 28E C 940N 1757W	1690	ACTIVE O	2/23/1987
166	30-015-25675	EASTLAND OIL CO LAUREL STATE #002	7 18S 28E E 940N 1757W	1690	ACTIVE O	11/10/1988
167	30-015-25236	MOREXCO INC STATE BY #001	7 18S 28E F 1980N 1980W	10400	ACTIVE O	6/10/1985
168	30-015-22636	DYAD PE PRE-ONGUARD WELL #213	7 18S 28E J 1950N 1300W		ABAN LOCATION O	
169	30-015-22635	DYAD PE PRE-ONGUARD WELL #212	8 18S 28E J 1900N 100W		ABAN LOCATION O	
170	30-015-24372	DYAD PE PRE-ONGUARD WELL #001	8 18S 28E J 1980S 990E		ABAN LOCATION O	
171	30-015-27636	PHILLIPS PETROLEUM CHALK BLUFF 6 STATE #002	7 18S 28E H 2310N 810E		ABAN LOCATION O	

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
353	30-015-27286	MEWBORNE OIL CO CHALK BLUFF 36 STATE #001	36 17S 27E M 660S 990W	10060	ACTIVE O	3/30/1993
354	30-015-24612	PRONGHORN MANAGEMENT CORP STATE M #001	36 17S 27E M 790S 990W	1451	P&A O	10/11/1983 4/21/2009
355	30-015-00676	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #017	36 17S 27E M 330N 990W	5797	ACTIVE O	
356	30-015-10184	ASPEN OIL INC STATE #006	36 17S 27E M 330S 920W	1343	ACTIVE O	
358	30-015-21623	GEORGE A CHASE JR & C SERVICE STATE #007	36 17S 27E M 360S 455W	1366	ACTIVE O	
359	30-015-00662	ACREY, B L & F D STATE NO. 2	36 17S 27E M 330S 330W	592	P&A O	10/15/1942 10/15/1942
595	30-015-02605	BP AMERICA PRODUCTION UNIT EMPIRE ABO UNIT NO. 27 E	5 18S 28E B 930N 2271E	6261	ACTIVE O	3/30/1960
748	30-015-00715	MCQUADRANGLE, LC SOUTH RED LAKE GRAYBURG UNIT #037	1 18S 27E D 330N 330W	1835	ACTIVE I	
748	30-015-00701	FAIRWAY RESOURCES OPERATING LLC SOUTH RED LAKE GRAYBURG UNIT 37 WW	1 18S 27E D 330N 330W	1835	ACTIVE O	
749	30-015-00712	ARCO OIL & GAS EMPIRE ABO UNIT I NO. 17	1 18S 27E D 647N 667W	5900	P&A O	1/24/1987 1/24/1987
750		JONES BRINARD	1 18S 27E E 1650N 330W	481	P&A O	5/10/1939 5/10/1939
751	30-015-00704	ARCO OIL & GAS EMPIRE ABO UNIT J NO. 17	1 18S 27E E 1980N 660W	5960	P&A O	3/26/1959 3/26/1959
752	30-015-00703	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #017A	1 18S 27E L 1980S 660W	6091	ACTIVE O	5/22/1995
753	30-015-22815	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #171	1 18S 27E M 670S 330W	6300	ACTIVE O	5/22/1979

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754			1 18S 27E M		MISPLUG OF 756	
755	30-015-00714	VALLEY REFINING CO HILL #1	1 18S 27E N	2404	P&A	12/20/1943 12/20/1943
756	30-015-00705	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #017B	1 18S 27E M 990S 660W	6150	P&A O	6/25/1959 7/21/2004
757		BRAINARD & GUY STATE 2	2 18S 27E A 330N 610E	530	NO COMPL	1/31/1942 1/31/1942
758	30-015-00721	FAIRWAY RESOURCES OPERATING LLC SOUTH RED LAKE GRAYBURG UNIT #036	2 18S 27E A 330N 990E	1705	SHUT IN O	11/6/1947
765	30-015-00724	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #016B	2 18S 27E A 990N 330E	5920	ACTIVE O	
766	30-015-00737	FAIRWAY RESOURCES OPERATING LLC SOUTH RED LAKE GRAYBURG UNIT #038	2 18S 27E B 905N 1601E	1722	ACTIVE O	5/23/1948
772	30-015-00745	MACK ENERGY CORPORATION STATE H #001	2 18S 27E H 1980N 660E	6140	P&A O	3/7/2008 3/7/2008
773	30-015-00742	S&J OPERATING COMPANY SOUTH RED LAKE GRAYBURG UNIT 39 WW	2 18S 27E H 1650N 990E	1742	P&A O	2/8/1991 2/8/1991
774	30-015-00740	MCQUADRANGLE, LC SOUTH RED LAKE GRAYBURG UNIT #040	2 18S 27E G 1650N 2197E	1707	P&A I	7/10/2002 7/10/2002
778		RUTTER & WILBANKS HUDSON #2	2 18S 27E G 2310N 1650E		O	1/1/1957
779	30-015-00741	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #015B	2 18S 27E G 2310N 1980E	5880	ACTIVE O	6/6/1959
781		MALCO REFINING CO STATE B-2	2 18S 27E J 2310S 2310E	4164	P&A O	1/1/1947 1/1/1947
785	30-015-00717	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #016	2 18S 27E I 1980S 660E	6114	ACTIVE O	2/6/1995

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786	30-015-00716	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #015	2 18S 27E J 1980S 1830E	6100	ACTIVE O	3/23/1959
789	30-015-22896	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #143A	2 18S 27E K 1820S 2550W	6108	ACTIVE O	5/13/1979
791	30-015-22914	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #161	2 18S 27E I 1310S 590E	6225	ACTIVE O	9/13/1979
792			2 18S 27E O		MISPLLOT OF 814	
793	30-015-22609	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #143	2 18S 27E N 1200S 1900W	6093	ACTIVE O	12/20/1978
795			2 18S 27E P		MISPLLOT OF 765	
796	30-015-21544	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #151	2 18S 27E O 1110S 1322E	6285	T/A O	11/4/1975
797	30-015-22885	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #155	2 18S 27E O 1040S 2025E	6202	T/A O	5/1/1979
799	30-015-00722	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #016A	2 18S 27E P 660S 660E	6115	T/A O	1/20/1959
800	30-015-22808	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #156	2 18S 27E O 600S 1330E	6225	T/A O	4/12/1979
801	30-015-00731	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #015A	2 18S 27E O 660S 1980E	6220	ACTIVE O	11/19/1958
802	30-015-22669	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #154	2 18S 27E O 800S 2500E	6200	T/A O	12/4/1978
805	30-015-22013	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #153	2 18S 27E O 90S 1456E	6303	T/A O	4/20/1977
806	30-015-21825	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #152	2 18S 27E O 320S 2602E	6335	T/A O	6/17/1976

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807	30-015-22608	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #142	2 18S 27E N 100S 1950W	6200	ACTIVE O	1/12/1979
808	30-015-21807	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #132	2 18S 27E M 275S 1243W	6200	ACTIVE O	7/1/1976
812	30-015-00730	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #014	2 18S 27E N 660S 1980W	6112	ACTIVE O	10/21/1958
813	30-015-00720	BP AMERICA PRODUCTION COMPANY RIVERWOLF UNIT #004	2 18S 27E A 990N 1650E	5881	ACTIVE O	10/21/1959
814	30-015-22051	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #141A	2 18S 27E K 1370S 2445W	6203	ACTIVE O	5/17/1977
836	30-015-00869	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #016C	11 18S 27E A 330N 653E	6211	P&A O	10/25/2004 10/25/2004
837	30-015-22568	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #151B	11 18S 27E B 400N 1450E	6310	P&A O	8/16/2006 8/16/2006
838	30-015-22838	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #153B	11 18S 27E B 200N 1925E	6252	ACTIVE O	5/6/1979
839	30-015-00868	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #015C	11 18S 27E B 660N 1980E	6260	P&A O	7/16/2004 7/16/2004
840	30-015-22569	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #152B	11 18S 27E B 560N 2588E	6300	T/A O	8/23/1978
841	30-015-22834	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #141B	11 18S 27E C 225N 2280W	6225	ACTIVE O	5/21/1979
842	30-015-00864	ARCO OIL & GAS EMPIRE ABO UNIT M NO. 14	11 18S 27E C 660N 1980W	6315	P&A O	9/5/1957 9/5/1957
843	30-015-22833	BP AMERICA PRODUCTION COMPANY EMPIRE ABO UNIT #133B	11 18S 27E D 450N 1175W	6225	ACTIVE O	5/23/1979
844	30-015-00867	ARCO OIL & GAS EMPIRE ABO UNIT M NO. 13	11 18S 27E D 660N 660W	6114	P&A O	4/26/1958 4/26/1958

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846	30-015-22556	ARCO OIL & GAS EMPIRE ABO UNIT M NO. 131	11 18S 27E D 1100N 1200W	6325	P&A O	7/10/1978 7/10/1978
848	30-015-20510	AMOCO PRODUCTION CO MALCO S NO. 1	11 18S 27E F 1650N 1653W	10168	P&A O	10/16/1971 10/16/1971
849	30-015-00865	ARCO OIL & GAS EMPIRE ABO UNIT N NO. 14	11 18S 27E F 1650N 1980W	6208	P&A O	2/3/1961 2/3/1961
850	30-015-00866	ARCO OIL & GAS EMPIRE ABO UNIT N NO. 131	11 18S 27E E 1980N 660W	6120	P&A O	3/27/1958 3/27/1958
851	30-015-00870	AMOCO PRODUCTION CO SMITH-MCPHERSON NO. 1	11 18S 27E J 1980S 1980E	7270	P&A O	9/1/1956 9/1/1956
852	30-015-01201	OSCAR HOWARD AN ETZ #3	11 18S 27E N	1828	P&A	4/15/2027
853	30-015-01202	OSCAR HOWARD AN ETZ #2	11 18S 27E O	1827	P&A	2/4/2027
854	30-015-00863	B.R. POLK, JR. VICKERS #1	11 18S 27E N	1794	P&A	10/14/1949 10/14/1949
855	30-015-24857	CHESAPEAKE OPERATING INC FEDERAL DH GAS COM #001	11 18S 27E M 700S 990W	11915	ACTIVE G	5/18/1984
856	30-015-20535	ROBERT G COX FEDERAL EA 2	12 18S 27E D 330N 455W	6248	P&A O	8/7/1973 8/7/1973
857	30-015-00871	RHONDA OPERATING CO FEDERAL EA #001	12 18S 27E D 330N 330W	6253	P&A O	4/12/1994 4/12/1994
858	30-015-23115	RHONDA OPERATING CO FEDERAL EA NO. 3	12 18S 27E D 330N 380W	6295	D&A O	3/16/1980 3/16/1980
859	30-015-25738	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #009	12 18S 27E G 2310N 2310E	1586	ACTIVE O	4/25/1987
860	30-015-25270	BILL MILLER CHUKKA FEDERAL #001	12 18S 27E F 2310N 2310W	1600	ACTIVE O	4/23/1985

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
861	30-015-20894	NAVAJO REFINING COMPANY WDW #002	12 18S 27E E 1980N 660W	10372	ACTIVE I	7/18/1973
862	30-015-00874	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #007	12 18S 27E J 2310S 2355E	3664	ACTIVE O	6/29/1948
863	30-015-00872	MCKEE-JONES MAGRUDER NO. 1	12 18S 27E L 310S 990W	594	D&A O	2/18/1943
864	30-015-25201	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #002	12 18S 27E K 1650S 1770W	1600	ACTIVE O	3/16/1985
865	30-015-25649	FRED POOL DRILLING CO COMSTOCK FEDERAL NO. 8	12 18S 27E L 1650S 990W	2000	D&A O	10/10/1986
866	30-015-25545	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #003	12 18S 27E M 990S 990W	1530	ACTIVE O	5/19/1986
867	30-015-00873	R.E. MCKEE ET AL MAGRUDER #2	12 18S 27E M	2510	P&A	2/27/1945 2/27/1945
868	30-015-26017	EASTLAND OIL CO COMSTOCK FEDERAL #010	12 18S 27E N 990S 1650W	2040	P&A O	1/23/2003 1/23/2003
869	30-015-25100	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #001	12 18S 27E N 330S 1650W	2400	ACTIVE O	12/10/1984
870	30-015-25202	HARLOW ENTERPRISES LLC COMSTOCK FEDERAL #005	12 18S 27E O 330S 2310E	1625	ACTIVE O	4/19/1985
871	30-015-06171	PILCHER OIL & GAS MICHAEL CRONIN NO. 3	12 18S 27E I 1069S 251E	2200	P&A O	5/20/2026
872		PILCHER OIL & GAS MICHAEL CRONIN #1	12 18S 27E P	2002	P&A	2/15/1932 2/15/1932
873	30-015-00875	CITIES SERVICE OIL CO MAGRUDER NO. B-4	12 18S 27E P 330S 330E	2000	P&A O	7/30/1952 7/30/1952
874	30-015-00876	ROBERT E MCKEE MAGRUDER NO. 5	12 18S 27E P 100S 500E	1994	P&A O	2/8/1954 2/8/1954

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC. TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
875	30-015-06170	PILCHER OIL & GAS MICHAEL CRONIN NO. 2	12 18S 27E P 200S 200E	2004	P&A O	2/22/2026
876	30-015-01200	HASSENFUSH-DONNELLY STATE NO. 1	13 18S 27E A 0 0	2030	P&A O	1/1/2026
877	30-015-06137	EASTLAND OIL CO STATE NO. 2	13 18S 27E A 250N 990E	2696	D&A O	1/1/2026
878	30-015-25394	BILL MILLER ARTESIA STATE #002	13 18S 27E C 330N 2310W	1613	ACTIVE O	9/28/1985
879	30-015-25241	BILL MILLER ARTESIA STATE #001	13 18S 27E C 330N 1650W	1575	ACTIVE O	4/13/1985
880	30-015-00884	DALE RESLER STATE NO. 3	13 18S 27E C 990N 1650W	2047	P&A O	1/29/1945 1/29/1945
881	30-015-25370	CBS OPERATING CORP ARTESIA STATE UNIT #002A	13 18S 27E D 480N 940W	1608	ACTIVE O	8/27/1985
882	30-015-00883	CBS OPERATING CORP ARTESIA STATE UNIT #001	13 18S 27E D 990N 990W	1950	ACTIVE O	12/11/1944
883	30-015-00880	DALE RESLER - JONES STATE NO. 1	13 18S 27E E 1650N 990W	2353	P&A O	1/26/1945 1/26/1945
884	30-015-24881	DAVID G HAMMOND ANADARKO 13 FEDERAL #001	13 18S 27E F 1880N 1830W	3020	ACTIVE O	6/18/1984
885	30-015-00888	RALPH NIX & JERRY CURTIS PAGE NO. 1	13 18S 27E F 1980N 1650W	2000	P&A O	11/28/1954 11/28/1954
886	30-015-00879	DALE RESLER JONES-GOVT NO. 1	13 18S 27E F 2310N 1650W	2000	D&A O	3/14/1945 3/14/1945
888	30-015-25078	DICKSON PETROLEUM, INC ANADARKO 13 FEDERAL NO. 1	13 18S 27E G 1724N 2279E	2150	D&A O	12/30/1984 12/30/1984
895	30-015-00891	ANADARKO PETROLEUM CORP ARTESIA STATE UNIT TRACT 4 NO. 1	14 18S 27E A 990N 330E	2060	P&A O	6/30/1944 6/30/1944

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC. TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
896	30-015-00893	RESLER STATE NO. 1	14 18S 27E G 1650N 1650E	2375	D&A O	1/1/1900 1/1/1900
897	30-015-00895	CBS OPERATING CORP ARTESIA STATE UNIT #001B	14 18S 27E H 1650N 330E	1888	ACTIVE O	2/8/1945
901	30-015-00695	WILLIAM & EDWARD HUDSON HILL NO. 1	1 18S 27E L 1650S 330W	1763	D&A O	6/18/1948 6/18/1948
910	30-015-00744	COMPTON-SMITH STATE 1	2 18S 27E J 2310S 1640E	1080	P&A O	
911	30-015-31123	LIME ROCK RESOURCES A, LP NO BLUFF 36 STATE COM #002	36 17S 27E H 1980N 760E	10050	ACTIVE G	
912	30-015-31036	GEORGE A CHASE JR & C SERVICE GATES STATE #003	36 17S 27E H 2310N 990E	614	ACTIVE O	
916	30-015-31592	ROJO GRANDE COMPANY LLC RAMAPO #007	36 17S 27E N 330S 2310E	612	P&A O	12/21/2001 12/21/2001
917	30-015-30784	SDX RESOURCES INC NW STATE #012	31 17S 28E A 330N 480E	3300	ACTIVE O	
918	30-015-30893	SDX RESOURCES INC NW STATE #028	31 17S 28E A 973N 959E	2808	ACTIVE O	
919	30-015-32162	SDX RESOURCES INC ENRON STATE #004	31 17S 28E D 460N 990W	3460	ACTIVE O	4/3/2003
920	30-015-30783	SDX RESOURCES INC NW STATE #011	31 17S 28E H 1650N 330E	3205	ACTIVE O	
921	30-015-30849	SDX RESOURCES INC NW STATE #009	31 17S 28E I 2310S 270E	3195	ACTIVE O	
922	30-015-30760	SDX RESOURCES INC NW STATE #010	31 17S 28E P 735S 330E	3210	ACTIVE O	
923	30-015-31920	SDX RESOURCES INC ENRON STATE #002	32 17S 28E D 990N 990W	4030	ACTIVE O	

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC. TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
924	30-015-30781	SDX RESOURCES INC NW STATE #005	32 17S 28E K 1900S 2146W	3190	ACTIVE I	
925	30-015-30777	SDX RESOURCES INC NW STATE #006	32 17S 28E L 2310S 990W	3204	ACTIVE O	
926	30-015-30685	SDX RESOURCES INC NW STATE #007	32 17S 28E M 990S 990W	3220	ACTIVE O	
927	30-015-30815	SDX RESOURCES INC NW STATE #008	32 17S 28E N 1090S 2126W	3310	ACTIVE I	
928	30-015-32310	MARBOB ENERGY CORP AAO FEDERAL #004	1 18S 27E A 990N 990E	4000	ACTIVE O	5/4/2004
929	30-015-32309	MARBOB ENERGY CORP AAO FEDERAL #003	1 18S 27E B 330N 1690E	4125	ACTIVE O	4/10/2003
930	30-015-32308	MARBOB ENERGY CORP AAO FEDERAL #002	1 18S 27E C 430N 2310W	4150	ACTIVE O	9/19/2002
931	30-015-32307	MARBOB ENERGY CORP AAO FEDERAL #001	1 18S 27E D 330N 990W	3851	ACTIVE O	12/10/2002
932	30-015-22816	ARCO OIL & GAS EMPIRE ABO UNIT L #192	1 18S 27E O 1120S 1440E	6350	ABAN LOCATION O	6/28/1980 6/23/1980
933	30-015-20388	ARCO OIL & GAS EMPIRE ABO #5	1 18S 27E N 990S 2297E	6300	SAME AS 158 O	12/31/9999
934	30-015-27719	MEWBOURNE OIL CO CHALK BLUFF 12 FED #001	12 18S 27E 1650S 990E		ABAN LOCATION G	
935	30-015-27437	YATES PETROLEUM CORPORATION BEAUREGARD ANP STATE COM #001	14 18S 27E B 660N 1980E	0	ABAN LOCATION G	
936	30-015-31086	MARBOB ENERGY CORP LP STATE #001	5 18S 28E E 1650N 990W	4503	P&A O	3/11/2008 3/11/2008
937	30-015-31109	MARBOB ENERGY CORP LP STATE #002	5 18S 28E E 2301N 230W	0	PROPOSED O	

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC. TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
938	30-015-30785	SDX RESOURCES INC NW STATE #015	6 18S 28E A 430N 330E	3225	ACTIVE O	
939	30-015-00264	BARNEY COCKBURN CAPITAL STATE NO. 1	6 18S 28E J 2310S 2310E	2095	SAME AS 114 O	5/23/1979
940	30-015-31087	MARBOB ENERGY CORP LP STATE #003	6 18S 28E M 990S 330W	4466	P&A O	7/15/2000 3/17/2008
941	30-015-31088	MARBOB ENERGY CORP LP STATE #004	6 18S 28E M 330S 990W	0	PROPOSED O	
942	30-015-06250	BP AMERICA PRODUCTION COMPANY	6 18S 28E O 470S 2170E	0	SAME AS 89 O	
943	30-015-31319	EASTLAND OIL CO LAUREL STATE #003	7 18S 28E E 2310N 330W	1630	ACTIVE O	1/31/2001
944	30-015-26575	NAVAJO REFINING COMPANY WDW-3 (ORIGINAL LOC.)	6 18S 28E D 778N 995W		ACTIVE I	
945	30-015-32959	MARBOB ENERGY CORP AAO FEDERAL #005	1 18S 27E E 1650N 875W	3900	ACTIVE O	10/12/2004
946	30-015-33473	MARBOB ENERGY CORP AAO FEDERAL #007	1 18S 27E G 1750N 1650S	4100	ACTIVE O	4/4/2005
947	30-015-33784	MARBOB ENERGY CORP AAO FEDERAL #008	1 18S 27E H 1650N 330W	4310	ACTIVE O	2/25/2005
948	30-015-34071	MARBOB ENERGY CORP AAO FEDERAL #006	1 18S 27E F 2169N 1963W	4000	ACTIVE O	8/5/2005
949	30-015-34387	MARBOB ENERGY CORP AAO FEDERAL #009	1 18S 27E L 1980S 630W	3950	ACTIVE O	1/17/2006
950	30-015-34555	MARBOB ENERGY CORP AAO FEDERAL #011	1 18S 27E M 890S 660W	4100	ACTIVE O	3/9/2006
951	30-015-34576	MARBOB ENERGY CORP AAO FEDERAL #010	1 18S 27E K 2060S 2160W	4000	ACTIVE O	10/26/2006

ID NO	API	OPERATOR, WELL NAME, NUMBER	SEC, TWP, RGE, UL	DEPTH	STATUS TYPE	COMP. DATE PLUG DATE
952	30-015-34998	MARBOB ENERGY CORP AAO FEDERAL #012	1 18S 27E N 890S 1650W	4075	ACTIVE O	9/21/2006
953	30-015-34028	BP AMERICA PRODUCTION COMPANY SLIDER 6 STATE NO. 001	6 18S 28E G 2285N 1366E	10433	P&A O	12/17/2006 12/17/2006
954	30-015-35050	SDX RESOURCES INC ENRON STATE NO 012	32 17S 28E D 330N 500W	3810	ACTIVE O	12/21/2006
955	30-015-34632	YATES PETROLEUM CORP VIOLET BIV STATE COM #1	14 18S 27E A 660N 990E	10500	EXT PERMIT TO DRILL O	2/20/2009
956	30-015-33994	EDGE PETROLEUM OPERATING COMPANY, RED LAKE 36 A STATE #2	36 17S 27E A 915N 420E	3650	ACTIVE O	4/20/2005
957	30-015-36116	FAIRWAY RESOURCES OPERATING LLC SOUTH RED LAKE UNIT II #57	36 17S 27E G 2305N 1650E	2100	ACTIVE O	6/6/2008
958	30-015-32946	MARBOB ENERGY CORPORATION SCBP STATE #1	2 18S 27E J 2210S 1650E	3880	ACTIVE O	4/26/2005
959	30-015-35814	MACK ENERGY CORPORATION STATE H NO 2	2 18S 27E H 2063N 441E	7545	ACTIVE O	1/11/2008

TABLE IX

Well Changes in the Combined One Mile Area of Review for Navajo's WDW-1, WDW-2, and WDW-3

ID	API No.	Unit	Sect	Town	Range	Footages	Well Name	Operator	Changes
1	30 015 00693	A	36	17S	27E	330 FNL & 330 FEL	Delhi No 001	George A Chase JR DBA and C Service	Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
3	30 015 00646	A	36	17S	27E	990 FNL & 330 FEL	Delhi No 007	George A Chase JR DBA and C Service	Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
4	30 015 00668	G	36	17S	27E	1650 FNL & 2310 FEL	South Red Lake II Unit #10	Fairway Resources Operating LLC	Recomp Well: Change of Owner: McQuadrangle LC to Fairway Resources Operating LLC
5	30 015 00690	G	36	17S	27E	1830 FNL & 2205 FEL	Conklin No. 2	George A Chase JR DBA and C Service	Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
6	30 015 00667	G	36	17S	27E	2310 FNL & 2310 FEL	South Red Lake II Unit #11	Fairway Resources Operating LLC	Change of Owner: McQuadrangle LC to Fairway Resources Operating LLC
7	30 015 00666	G	36	17S	27E	2310 FNL & 2310 FEL	Conklin State #1	George A Chase JR DBA and C Service	Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
8	30 015 00689	H	36	17S	27E	1650 FNL & 330 FEL	Gates State #1	George A Chase JR DBA and C Service	P&A Well: Fill hole to surf with concrete Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
9	30 015 00647	H	36	17S	27E	1650 FNL & 990 FEL	Gates State #2	Aspen Oil Inc	P&A Well: 7" Casing pulled from 120' The hole was filled from 380' to surf with 29 cu yd of concrete
10	30 015 00669	H	36	17S	27E	2310 FNL & 330 FEL	Homan #1	George A Chase JR DBA and C Service	Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
26	30 015 00683	N	36	17S	27E	965 FSL & 1650 FWL	South Red Lake II Unit #28	Fairway Resources Operating LLC	Recomp Well: Drill out cmt plugs, tagg at 1805', run 4-1/2" liner to 1350' to surf and cmt 316 sks, prod 1450' to 1800'
27	30 015 01218	N	36	17S	27E	330 FSL & 2310 FWL	Empire Abo Unit No. 18	BP America Production Company	Change of Owner: McQuadrangle LC to Fairway Resources Operating LLC
29	30 015 01251	O	36	17S	27E	660 FSL & 1980 FEL	Empire ABO Unit No. 19	BP America Production Company	T&A Well: Tested Casing to 500 psi w/CIBP 5846'+35' cmt, bad casing 5552'-5560'
31	30 015 00677	P	36	17S	27E	330 FSL & 990 FEL	Empire Abo Unit No. 20	BP America Production Company	P&A Well: Set CIBP 5600' with 25 sks cmt on top (TOC at 5360'), spot 9.5 ppg mud from 5360' to 3359', spot 50 sk cmt plug from 3359' to 2849', spot 9.5 mud from 2849' to 1172', circulated cmt from 1172' to surface..
34	30 015 21594	B	31	17S	28E	330 FNL & 1650 FEL	Powco State No 001	Finney Oil Company	P&A Well: CIBP 5457'. Spot 25 sk cmt plug 5474' to 5100', spot 9 ppg mud from 5100' to 3350', perf at 3350' inj 100 sk cmt and spot plug at 2980', perf at 1150' and circulate to surface 400 sks cmt
36	30 015 25621	B	31	17S	28E	980 FNL & 1620 FEL	Powco State No 002	Finney Oil Company	Change of Owner Rodney B. Webb dba-Webb Oil Co to Darrel Finney dba Finney Oil Company
37	30 015 01633	D	31	17S	28E	330 FNL & 330 FWL	Aston & Fair A No 001	Aspen Oil Inc	Change of Owner Rodney B. Webb dba-Webb Oil Co to Darrel Finney dba Finney Oil Company
43	30 015 01635	F	31	17S	28E	2310 FNL & 2310 FWL	Aston & Fair No 001Y	Aspen Oil Inc	Pul back into Prod.
44	30 015 01637	G	31	17S	28E	2310 FNL & 2310 FEL	Malco State No 001	Aspen Oil Inc	Recomp Well: New Perf at 590'-600'
50	30 015 01650	J	31	17S	28E	1650 FSL & 1958 FWL	Empire ABO Unit No. 023A	BP America Production Company	P&A Well: CIBP 5563'+8 sks cmt+ mud 9.5 ppg, 25 sks cmt plug 2997'-3230'. 25 sks cmt plug 1060' to 1290'. 25 sks cmt 370' to surf
55	30 015 01647	M	31	17S	28E	660 FSL & 660 FWL	Empire ABO Unit No. 021	BP America Production Company	P&A Well: CIBP 5726'+35 sks cmt+ mud 9.5 ppg, 25 sks cmt plug 3608'-3708'. 25 sks cmt plug 946' to 1046'. 25 sks cmt plug 400' to 500', 10 sks cmt plug+sqz 60' to surf
56	30 015 01646	N	31	17S	28E	660 FSL & 2082 FEL	Empire ABO Unit No. 22A	BP America Production Company	Pul back into Prod.
66	30 015 10918	K	32	17S	28E	2310 FSL & 2105 FWL	Northwest Artesia Unit No. 008	SDX Resources Inc.	P&A Well: CIBP 1800'+25 sks cmt+ mud 9 ppg, 35 sks cmt plug+sqz Well put back into Prod.: Producing from Same Zone
68	30 015 10795	L	32	17S	28E	2310 FSL & 660 FWL	Northwest Artesia Unit No. 009	SDX Resources Inc.	P&A Well: CIBP 1856'+25 sks cmt+ mud 9 ppg, 35 sks cmt plug+sqz
72	30 015 10834	N	32	17S	28E	990 FSL & 2030 FWL	Northwest Artesia Unit No. 013	SDX Resources Inc.	1300'-998', 40 sks cmt plug+sqz 543' to 160', 10 sks cmt plug+sqz 60' to surf
73	30 015 01659	N	32	17S	28E	660 FNL & 1980 FWL	Empire ABO Unit No. 026A	BP America Production Company	Recomp Well: New Perf in ABO 5651'-6118'
74	30 015 21539	O	32	17S	28E	150 FSL & 1400 FWL	Empire ABO Unit No. 261	BP America Production Company	Recomp Well: New Perf in ABO 5690'-5954'
75	30 015 22009	O	32	17S	28E	330 FSL & 2481 FWL	Empire ABO Unit No. 272	BP America Production Company	Recomp Well: New Perf in ABO 5714'-6120'
76	30 015 02506	C	05	18S	28E	330 FNL & 1941 FWL	Empire ABO Unit No. 026E	BP America Production Company	Recomp Well: New Perf in ABO 5662'-5907'
78	30 015 02607	D	05	18S	28E	660 FNL & 660 FWL	Empire ABO Unit No. 025C	BP America Production Company	Recomp Well: New Perf in ABO 5760''

TABLE IX

Well Changes in the Combined One Mile Area of Review for Navajo's WDW-1, WDW-2, and WDW-3

ID	API No.	Unit	Sect	Town	Range	Footages	Well Name	Operator	Changes
80	30 015 02608	E	05	18S	28E	1660 FNL & 330 FWL	State E Al No. 001	Conoco Phillips Company	P&A Well: CIBP 6000'+20 sks cmt+ mud, 25 sks cmt plug 3642'-3542', 45 sks cmt plug+sqz 3380'-3249', 45 sks cmt plug+sqz 1199'-1065', 25 sks cmt plug+sqz 900', 175 sks cmt cir 500' to surf, 85 sks cmt sqz 100' to surf
88	30 015 02615	A	06	18S	28E	660 FNL & 660 FEL	Empire ABO Unit No. 24B	BP America Production Company	Recomp Well: PBTD 6205' CIBP 6091', New Perf in ABO 5794'-5924'
90	30 015 21542	B	06	18S	28E	1260 FNL & 1580 FEL	Empire ABO Unit No. 231	BP America Production Company	Recomp Well: PBTD 6222' New Perf in ABO 5850'-6018'
94	30 015 23116	E	06	18S	28E	2050 FNL & 100 FWL	Empire ABO Unit No. 213	BP America Production Company	Recomp Well: New Perf in ABO 5608'-5796'
96	30 015 22637	E	06	18S	28E	2450 FNL & 400 FWL	Empire ABO Unit No. 212	BP America Production Company	Recomp Well: PBTD 6203' New Perf in ABO 5588'-6080'
106	30 015 02614	G	06	18S	28E	1980 FNL & 1980 FEL	Empire ABO Unit No. 23B	BP America Production Company	Recomp Well: PBTD 6240', New Perf in ABO 5842'-6142'
109	30 015 22490	G	06	18S	28E	2550 FNL & 2050 FEL	Empire ABO Unit No. 233	BP America Production Company	Test Well Casing and TA
112	30 015 02617	I	06	18S	28E	2310 FSL & 990 FEL	Empire ABO Unit No. 24K	BP America Production Company	P&A Well: CIBP 6220'+25 sks cmt, 25sks cmt plug+sqz 3642'-3395', 160sks cmt plug+sqz 771'-220', cir 35sks cmt fom 60' to surf
113	30 015 22528	J	06	18S	28E	2300 FSL & 1570 FEL	Empire ABO Unit No. 232A	BP America Production Company	Test Well Casing and TA
115	30 015 02628	J	06	18S	28E	2260 FSL & 2270 FEL	Empire ABO Unit No. 23D	BP America Production Company	Recomp Well: PBTD 6300' CIBP 6074', New Perf in ABO 5918'-6030'
116	30 015 22491	J	06	18S	28E	1700 FSL & 2350 FEL	Empire ABO Unit No. 231B	BP America Production Company	Test Well Casing and TA
122	30 015 23548	L	06	18S	28E	1950 FSL & 1000 FWL	Empire ABO Unit No. 211A	BP America Production Company	Resumed Production
133	30 015 00710	C	01	18S	27E	991 FSL & 660 FWL	Empire ABO Unit No. 018C	BP America Production Company	P&A Well: CIBP 5360'+25 sks cmt+9.5 ppg mud, 25sks cmt plug 3350'-2990', 25sks cmt plug 1615'-1255', 25sks cir cmt plug 360'-surf
145	30 015 00697	I	01	18S	27E	1980 FSL & 660 FWL	Empire ABO Unit No. 020K	BP America Production Company	P&A Well: CIBP 5840'+25 sks cmt, 35sks cmt plug+sqz 3039'-2737', 50sks cmt plug+sqz 2300'-1425', cir 95sks cmt to surf
153	30 015 21554	K	01	18S	27E	1367 FSL & 1440 FWL	Empire ABO Unit No. 181	BP America Production Company	P&A Well: CIBP 5940'+25 sks cmt+9.5 ppg mud, 25sks cmt plug 3000'-2900', 25sks cmt plug 1050'-950', 10sks cir cmt plug 60'-surf
156	30 015 00713	N	01	18S	27E	995 FSL & 1644 FWL	Empire ABO Unit No. 018D	BP America Production Company	P&A Well: CIBP 5934'+25 sks cmt+9.5 ppg mud, 25sks cmt plug 3788'-3688', 25sks cmt plug 1520'-1420', 25sks sqz cmt plug 635'-535', cir cmt 60'-surf
161	30 015 26404	A	12	18S	27E	660 FNL & 990 FEL	Federal T #1	Devon Energy Production Company LP	Change of Owner Mewbourne Oil Co to Devon Energy Production Company LP
162	30 015 25099	H	12	18S	27E	1809 FNL & 990 FEL	Comstock Federal No 6	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
355	30 015 00676	M	36	17S	27E	330 FSL & 990 FWL	Empire Abo Unit No. 17	BP America Production Company	Prod. Return well to production
356	30 015 10184	M	36	17S	27E	330 FSL & 920 FWL	State No 6	Aspen Oil Inc	Change of Owner: Pronghorn Management Corp to Aspen Oil Company Inc.
358	30 015 21623	M	36	17S	27E	360 FSL & 455 FWL	State No 7	Aspen Oil Inc	Change of Owner: Pronghorn Management Corp to Aspen Oil Company Inc.
748	30 015 00715	D	01	18S	27E	330 FNL & 330 FWL	S Red Lake II Unit No. 037	Fairway Resources Operating LLC	Change of Owner McQuadrangle LC to Fairway Resources LLC
752	30 015 00703	L	01	18S	27E	1980 FSL & 660 FWL	Empire ABO Unit No. 017A	BP America Production Company	Recomp Well: PBD 6101', CIBP 5823', New Vert Perf in Abo 5472'-5736'
756	30 015 00705	M	01	18S	27E	660 FNL & 1980 FWL	Empire ABO Unit No. 017B	BP America Production Company	P&A Well: CIBP 6000'+25 sks cmt+9.5 ppg mud, 25sks cmt plug 3707'-3807', 25sks cmt plug 1446'-1546', 35sks cir cmt plug surf-654'
758	30 015 00721	A	02	18S	27E	330 FNL & 990 FEL	Red Lake Unit II No 36	Fairway Resources Operating LLC	Change of Owner: McQuadrangle LC to Fairway Resources Operating LLC
765	30 015 00724	A	02	18S	27E	990 FNL & 330 FEL	Empire Abo Unit No. 16B	BP America Production Company	Recomp Well: New Perf in ABO 5444'-5786'
766	30 015 00737	B	02	18S	27E	905 FNL & 1610 FEL	South Red Lake II Unit #38	Fairway Resources Operating LLC	Change of Owner: McQuadrangle LC to Fairway Resources Operating LLC
772	30 015 00745	H	02	18S	27E	1980 FNL & 660 FEL	State H No 1	Mack Energy Corporation	Recomp Well: Plugback 75 sks cmt 1430'-1530' & complete in Grayburg
786	30 015 00716	J	02	18S	27E	1980 FSL & 1980 FEL	Empire Abo Unit No. 15	BP America Production Company	Change of Owner:H&S Oil LLC to Mack Energy Corporation
800	30 015 22808	O	02	18S	27E	600 FSL & 1330 FEL	Empire Abo Unit No. 156	BP America Production Company	P&A Well: CIBP 5300'+35 sks cmt+ mud 9.5 ppg, 25 sks cmt plug 2872'-2504', 25 sks cmt plug 1267' to 899', 15 sks cmt plug 164' to surf
812	30 015 00730	N	02	18S	27E	660 FSL & 1980 FWL	Empire Abo Unit No. 14	BP America Production Company	Recomp Well: New Perf in ABO 5815'-6040'
836	30 015 00869	A	11	18S	27E	330 FNL & 653 FEL	Empire Abo Unit No. 16C	BP America Production Company	T&A Well: Tested Casing to 580 psi w/Packer @ 5864'
837	30 015 22568	B	11	18S	27E	400 FNL & 1450 FEL	Empire Abo Unit No. 151B	BP America Production Company	Recomp Well: CIBP 6130'+35 sks cmt+ mud 9.5 ppg, 25 sks cmt plug+sqz 3186'-3586', 140 sks cmt plug+sqz 595' to 1585', 35 sks cmt plug+sqz surf to 435'
									P&A Well: CIBP 6050'+25 sks cmt+ mud 9.5 ppg, 25 sks cmt plug 4054'-3810', 25 sks cmt plug 3470' to 3243', 25 sks cmt plug 1060' to 810', 50 sks cmt plug+sqz 460' to surf

TABLE IX

Well Changes in the Combined One Mile Area of Review for Navajo's WDW-1, WDW-2, and WDW-3

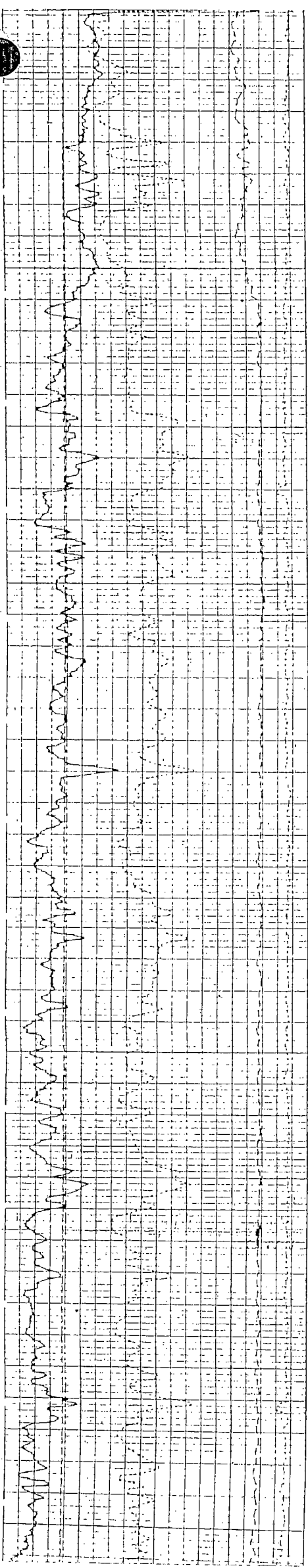
ID	API No.	Unit	Sec	Town	Range	Footages	Well Name	Operator	Changes
838	30 015 22838	B	11	18S	27E	200 FNL & 1925 FEL	Empire Abo Unit No. 153B	BP America Production Company	Return to Prod: Lower Abo 6124'-6142'
839	30 015 00868	B	11	18S	27E	660 FNL & 1980 FEL	Empire Abo Unit No. 15C	BP America Production Company	P&A Well: CIBP 6050'+10 sks cmt+ mud 9.5 ppg, 35 sks cmt plug+sqz 5300'-5100'; 35 sks cmt plug+sqz 3770' to 3516', 170 sks cmt plug+sqz 1000' to 750', 140 sks cmt plug+sqz 645' to 500', 10 sks cmt plug+sqz 60' to surf
841	30 015 22834	C	11	18S	27E	225 FNL & 2280 FWL	Empire Abo Unit No. 141B	BP America Production Company	Recomp Well: New Perf in ABO 5961'-6030'
843	30 015 22833	D	11	18S	27E	450 FNL & 1175 FWL	Empire Abo Unit No. 133B	BP America Production Company	Recomp Well: New Perf in ABO 5966'-6064'
855	30 015 24857	M	11	18S	27E	700 FSL & 990 FWL	Federal DH Gas Com No 1	Chesapeake Operating Inc	Change of Owner: Ricks Exploration Inc to Concho Exploration Inc. to Chesapeake Operating Inc
859	30 015 25738	G	12	18S	27E	2310 FNL & 2310 FEL	Comstock Federal No 9	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
860	30 015 25270	F	12	18S	27E	2310 FNL & 2310 FWL	Chukka Federal No 1	Bill Miller	Change of Owner Eastland Oil Co to Bill Miller
862	30 015 00874	J	12	18S	27E	2310 FSL & 2355 FEL	Comstock Federal No 7	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
864	30 015 25201	K	12	18S	27E	1650 FSL & 1770 FWL	Comstock Federal No 2	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
866	30 015 25545	M	12	18S	27E	990 FSL & 990 FWL	Comstock Federal No 3	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
868	30 015 26017	N	12	18S	27E	990 FSL & 1650 FWL	Comstock Federal No 10	Eastland Oil Company	P&A Well: CIBP 1434'+25 sks cmt 1150' + mud 9.3 ppg, 40 sks cmt plug 592'-surf
869	30 015 25100	O	12	18S	27E	330 FSL & 1650 FWL	Comstock Federal No 1	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
870	30 015 25202	N	12	18S	27E	330 FSL & 2310 FEL	Comstock Federal No 5	Harlow Enterprises LLC	Change of Owner Eastland Oil Co to Harlow Enterprises LLC
878	30 015 25394	C	13	18S	27E	330 FNL & 2310 FWL	Artesia State 002	Bill Miller	Change of Owner Eastland Oil Co to Bill Miller
879	30 015 25241	C	13	18S	27E	330 FNL & 1650 FWL	Artesia State 001	Bill Miller	Change of Owner Eastland Oil Co to Bill Miller
912	30 015 31036	H	36	17S	27E	231 FNL & 990 FEL	Gates State No 3	George A Chase JR DBA and C Service	Change of Owner: Aspen Oil Company Inc. to George A Chase JR DBA and C Service
919	30 015 32162	D	31	17S	28E	460 FNL & 990 FWL	Enron State No 004	SDX Resources Inc.	Recomp Well: New Perf at 2080'-2298'
924	30 015 30781	K	32	17S	28E	1900 FSL & 2146 FWL	NW State No. 005	SDX Resources Inc.	Conv to SWD: New Perf at 2464'-2674'
927	30 015 30815	N	32	17S	28E	1090 FSL & 2126 FWL	NW State No. 008	SDX Resources Inc.	Conv to SWD:
928	30 015 32310	1	01	18S	27E	990 FNL & 990 FEL	AAO Federal No 004	Marbob Energy Corp.	Recomp Well: New Perf San Andres 2134'-2849'
929	30 015 32309	2	01	18S	27E	330 FNL & 1690 FEL	AAO Federal No 003	Marbob Energy Corp.	Recomp Well: New Perf San Andres 2092'-2807'
930	015 32308	3	01	18S	27E	430 FNL & 2310 FWL	AAO Federal No 002	Marbob Energy Corp.	Recomp Well: New Perf San Andres 1967'-3115', Old Perf Glorieta 3373'-3699'
931	015 32307	4	01	18S	27E	330 FNL & 990 FWL	AAO Federal No 001	Marbob Energy Corp.	Recomp Well: CIBP 3250', New Perf in San Andres 2355'-2900'; 2974'-3071'
936	015 31086	E	05	18S	28E	1650 FNL & 990 FWL	LP State No. 001	Marbob Energy Corp.	P&A Well: CIBP 3685'+25 sks cmt+ mud 9 ppg, 25 sks cmt plug 2167'-1831'; 25 sks cmt plug 619' to 60'; 15 sks cmt plug 60' to surf
940	015 31087	M	06	18S	28E	990 FSL & 330 FWL	LP State No. 003	Marbob Energy Corp.	P&A Well: CIBP 3750'+25 sks cmt 3043'; CIBP 3200' & 1700'; CIBP 1460'+25 sks cmt, CIBP 620'+65sks cmt plug to surf
944	30 015 26575	N	01	18S	27E	790 FSL & 2250 FWL	Chalk Bluff Fed Com 1/ WDW-3	Navajo Refining Co. Pipeline Division	Well Completed in the Wolfcamp 7660'-8620' Injecting
945	30 015 32959	E	01	18S	27E	1650 FNL & 875 FWL	AAO Federal No 005	Marbob Energy Corp.	NEW ~4000'
946	30 015 33473	G	01	18S	27E	1750 FNL & 1650 FEL	AAO Federal No 007	Marbob Energy Corp.	NEW ~4000'
947	30 015 33784	H	01	18S	27E	1650 FNL & 330 FEL	AAO Federal No 008	Marbob Energy Corp.	NEW ~4000'
948	30 015 34071	F	01	18S	27E	2169 FNL & 1963 FWL	AAO Federal No 006	Marbob Energy Corp.	NEW ~4000'
949	30 015 34387	L	01	18S	27E	1980 FSL & 630 FWL	AAO Federal No 009	Marbob Energy Corp.	NEW ~4000'
950	30 015 34555	M	01	18S	27E	890 FSL & 660 FWL	AAO Federal No 011	Marbob Energy Corp.	NEW ~4000'
951	30 015 34576	K	01	18S	27E	2060 FSL & 2160 FWL	AAO Federal No 010	Marbob Energy Corp.	NEW ~4000'
952	30 015 34998	N	01	18S	27E	890 FSL & 1650 FWL	AAO Federal No 012	Marbob Energy Corp.	NEW ~4000'
953	015 34028	G	06	18S	28E	2285 FNL & 1366 FEL	Slider 6 State No. 001	BP America Production Company	P&A Well: CIBP 10050'+25 sks cmt 9899', CIBP 7364'+25 sks cmt, 25 sks cmt plug 7364'-7081', 75 sks cmt plug 6909'-6185', 25 sks cmt plug 5361'-5101', 75 sks cmt plug 3640'-2828', 30 sks cmt plug 2600'-2437', 30 sk cmt plug 1596'-1475', 155 sks cmt cir 521' to surf
954	30 015 35050	D	32	17S	28E	330 FNL & 500 FWL	Enron State No 012	SDX Resources Inc.	NEW ~4000'
955	30 015 34632	A	14	18S	27E	660 FNL & 990 FEL	Violet BIV State Com 001	Yates Petroleum Corp	NEW: Permit to Drill by 2/20/09
956	30 015 33994	A	36	17S	27E	915 FNL & 420 FEL	Red Lake 36 State No 2	Edge Petroleum Operating Company Inc	NEW ~3650'
957	30 015 36116	G	36	17S	27E	2305 FNL & 1650 FEL	South Red Lake II Unit No 57	Fairway Resources Operating LLC	NEW ~2081' Well completed in the Queen, Grayburg, San Andres from 1535' to 1805', 32 perforations
958	30 015 32946	J	02	18S	27E	2210 FSL & 1650 FEL	SCBP State No 1	Marbob Energy Corp.	NEW ~3880' Perf: 1975'-2664', 3342'-3638'
959	015 35814	H	02	18S	27E	2063 FNL & 441 FEL	State H No 2	Mack Energy Corporation	NEW: ~7545' PBTD: 5265' Perf: 6134.5'-6434' w/CIBP 6020' Perf: 5391'-5957.5' w/ CIBP 5300' Perf: 4118.5'-4197'

TABLE IX

Well Changes in the Combined One Mile Area of Review for Navajo's WDW-1, WDW-2, and WDW-3

ID	API No.	Unit	Sect	Town	Range	Footages	Well Name	Operator	Changes
354	30 015 24512	M	36	17S	27E	790 FSL & 990 FWL	State M No. 1	Pronghorn Management Corp	P&A Well: Spot 35 sks cmt from 1216' to 830', spot 30 sks cmt from 350' to surface.
911	30 015 31123	H	36	17S	27E	1980 FNL & 760 FEL	No Bluff 36 State Com No 02	Lime Rock Resources A, LP	Change of Owner Southwestern Energy Production Co to Lime Rock Resources A, LP

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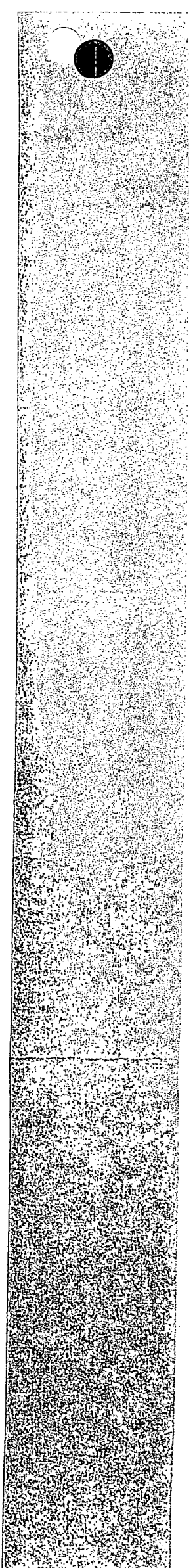
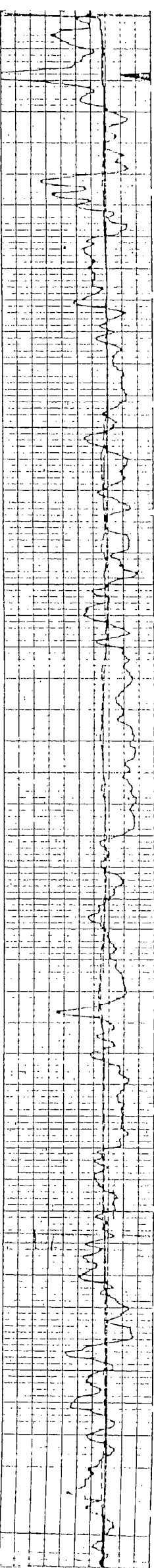
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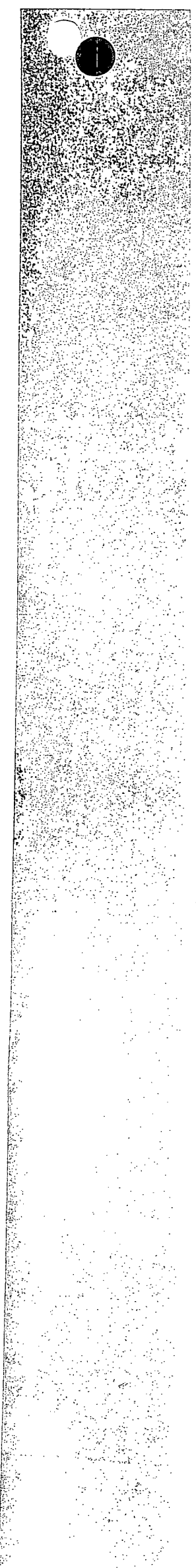
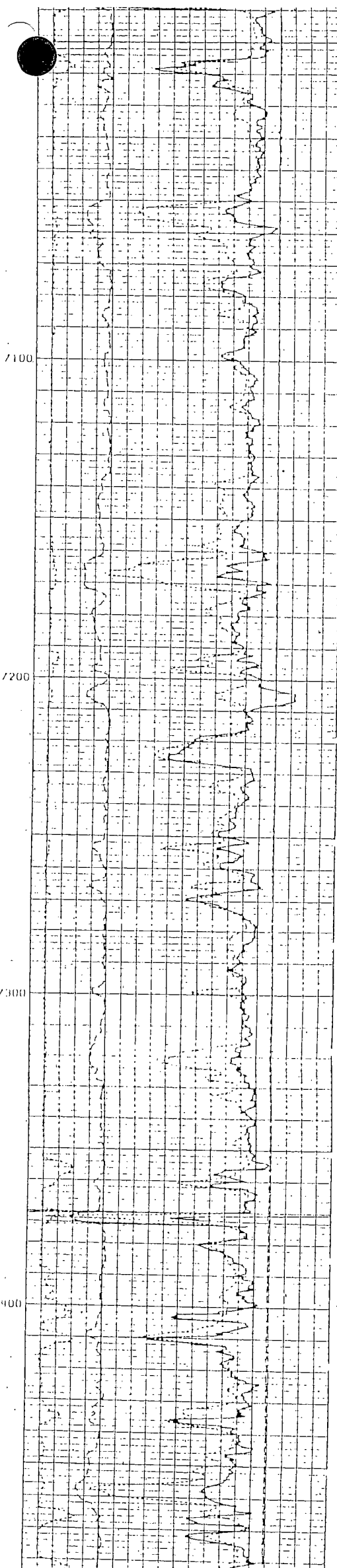
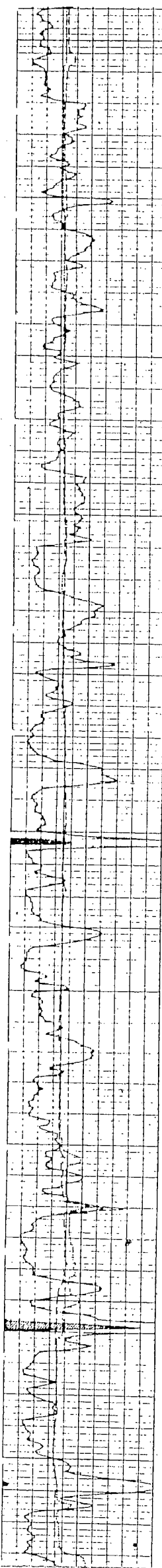
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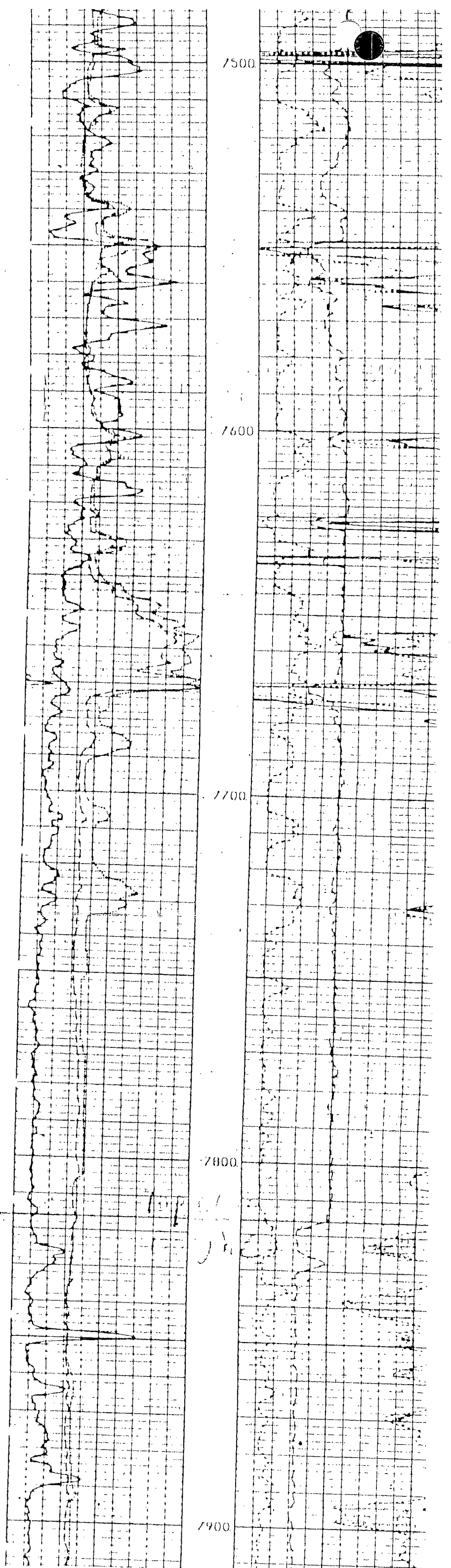
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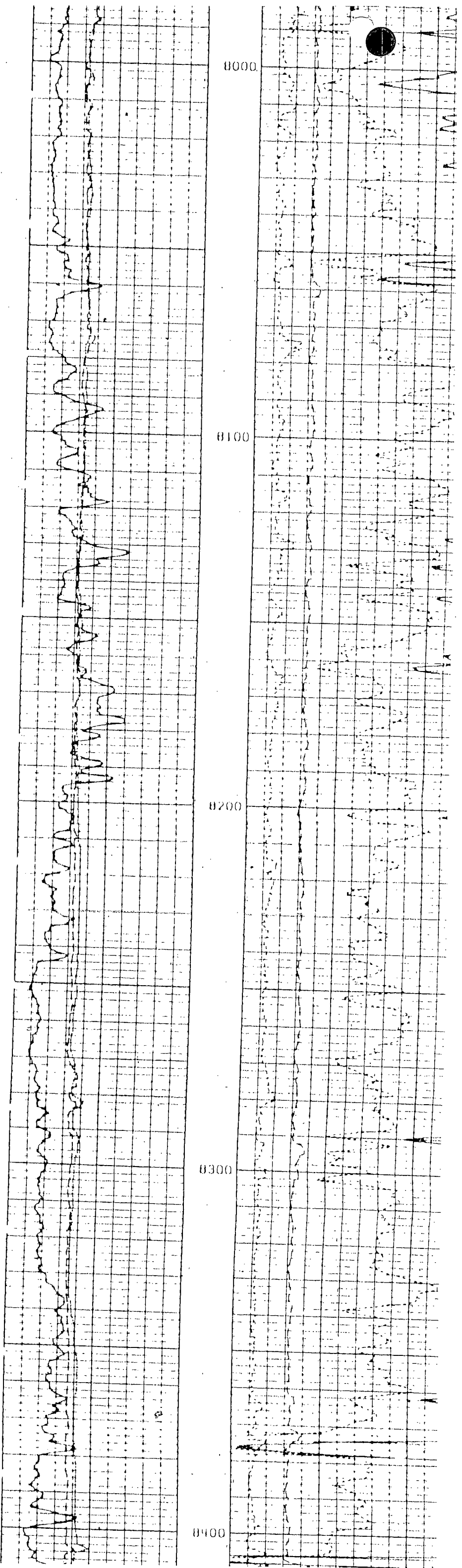
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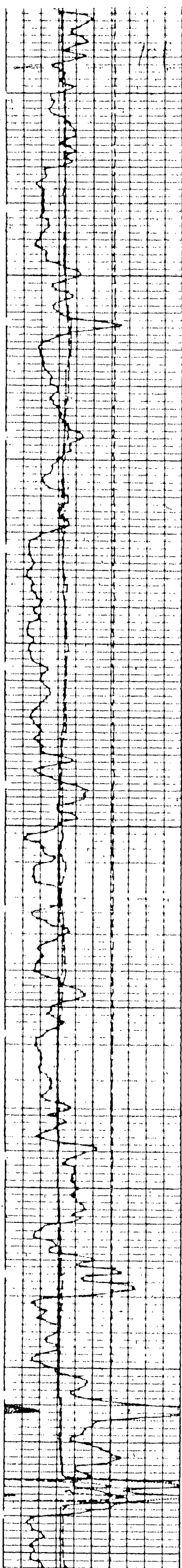


31-17S-28E

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APPENDIX J

SDC CALIPER		DEEP LL	
6	INCHES 16	2	OHM-M 2000
GAMMA		SHALLOW LL	
8	API 100	2	OHM-M 2000
TENSION			
10000	POUNDS 8		
MSFL CALIPER			



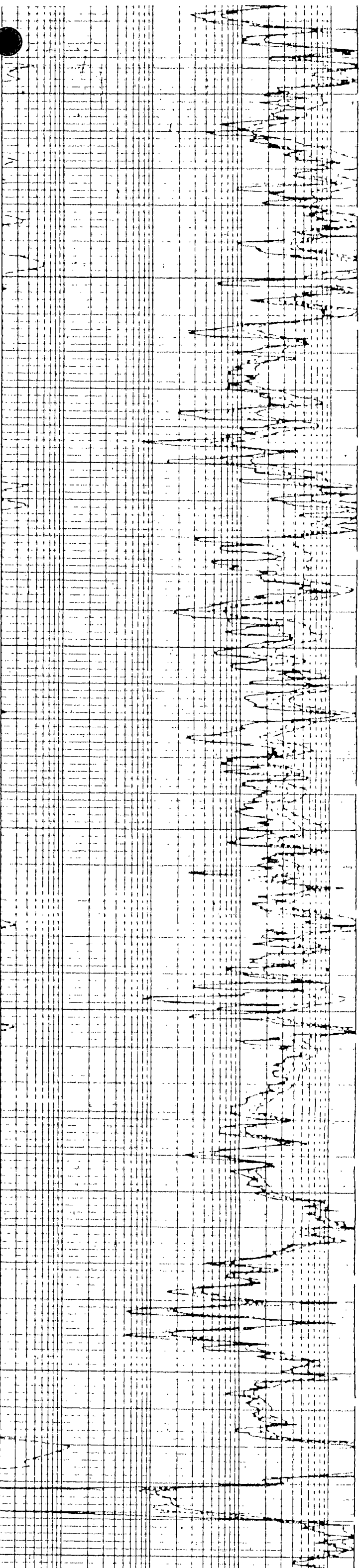
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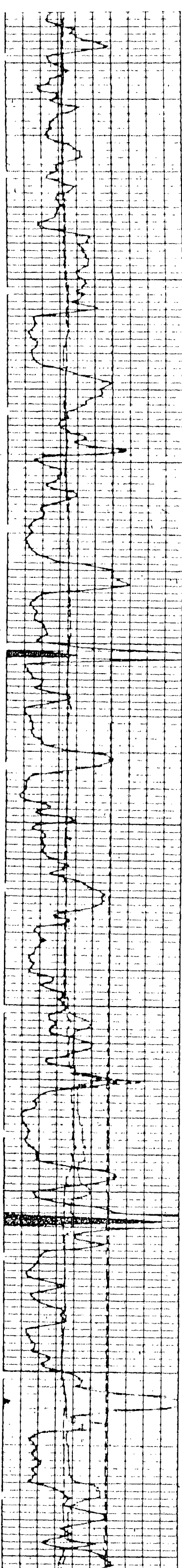
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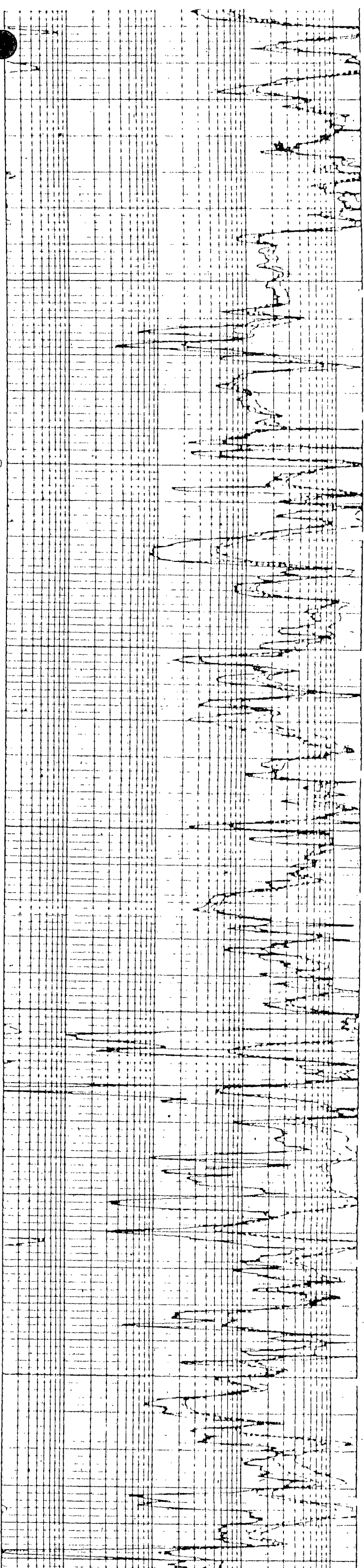
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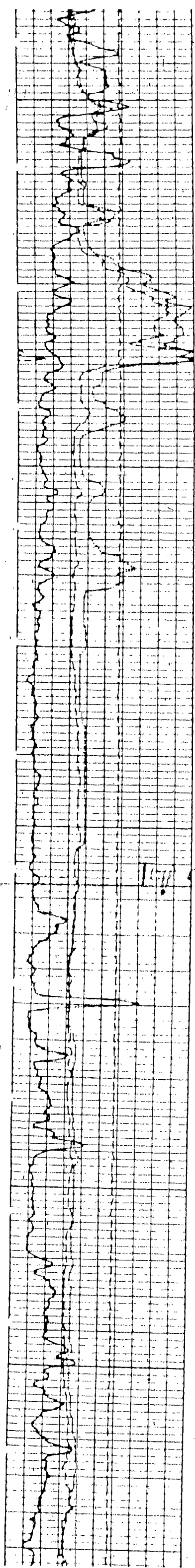
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7500





7600

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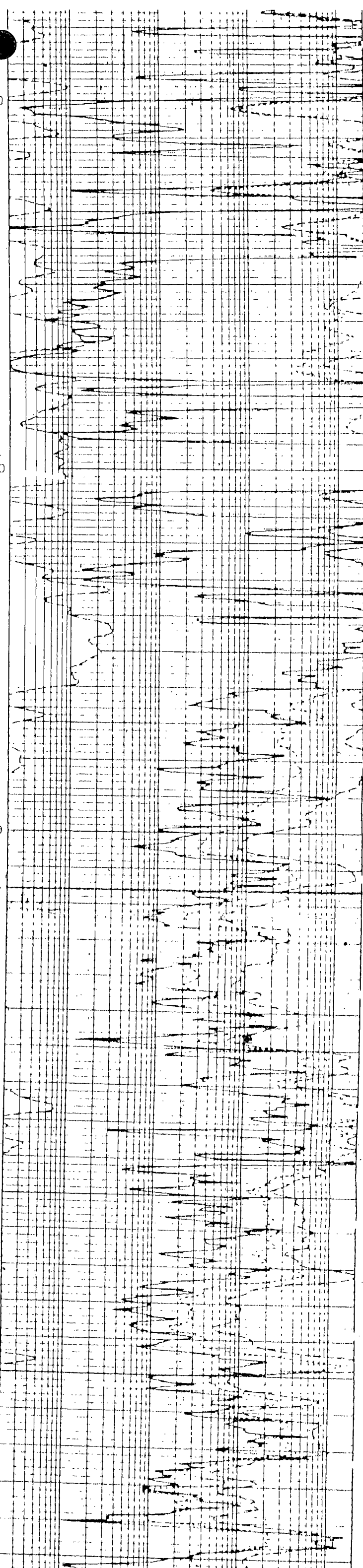
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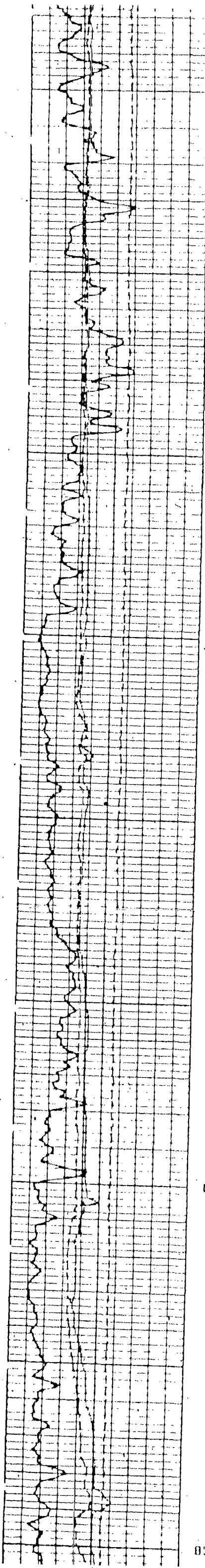
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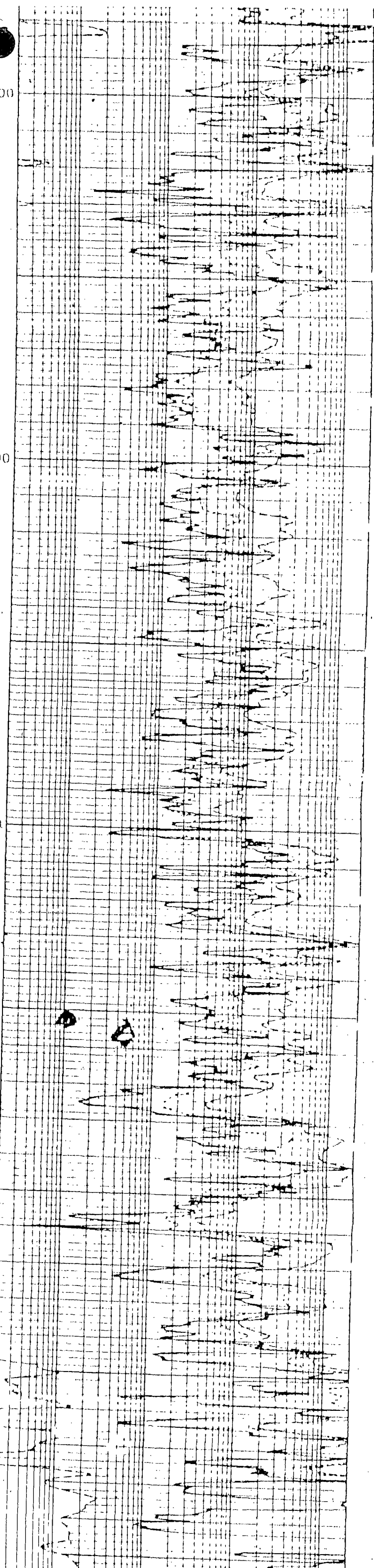
0100

0200

0300

0400

0500



861

Schlumberger		DUAL INDUCTION LOG	
COMPANY AMOCO PRODUCTION COMPANY			
WELL DIAMOND FEDERAL GAS COM #1			
FIELD SCOGGINS URAW MORROW			
COUNTY EDDY		STATE NEW MEXICO	
Location 1980' FNL & 660' FWL		Other Services	
Sec. 12 Twp. 18-S Rge. 27-E		CNL-FDC	
Permanent Datum G.L.		Elev. 3610	
Log Measured From B.S.D.		13 Ft. Above Perm. Datum	
Drilling Measured From B.S.D.		Elev. K.R. 3623	
		D.F. 3622	
		G.I. 3610	
Date	8-27-73		
Run No.	ONE		
Depth-Driller	10373		
Depth-Logger	10370		
Ben. Log Interval	10366		
Top Log Interval	1997		
Casing-Driller	8 5/8 @ 1995	@	@
Casing-Logger	1997		
Bit Size	7 7/8		
Type Fluid in Hole	FRESH MUD		
Fluid Level	FULL		
Dens. Visc.	9 139		
pH Fluid Loss	11 8 ml	ml	ml
Source of Sample	ELONG LINE		
Rm @ Meas. Temp.	1.6 @ 90 °F	@ °F	@ °F
Rmf @ Meas. Temp.	.70 @ 75 °F	@ °F	@ °F
Rmc @ Meas. Temp.	3.2 @ 90 °F	@ °F	@ °F
Source: Rmf Rmc	M C		
Rm @ BHT	1.05 @ 152°F	@ °F	@ °F
Rmf @ BHT		@ °F	@ °F
Rmc @ BHT		@ °F	@ °F
Time Since Circ.	14 HOURS		
Max. Rec. Temp.	152		
Equip. Location	7646 HOBBS		
Recorded By	CREEK		
Reviewed By	KLAAR		

Reproduced By
Electrical Log Services
Memphis, Texas 78701

24

REFERENCE W 8664H

21 COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

API NO 30-015-20894

CASING RECORD

PERFORATING RECORD

ACID FRAC SHOT

IP

GOR GR

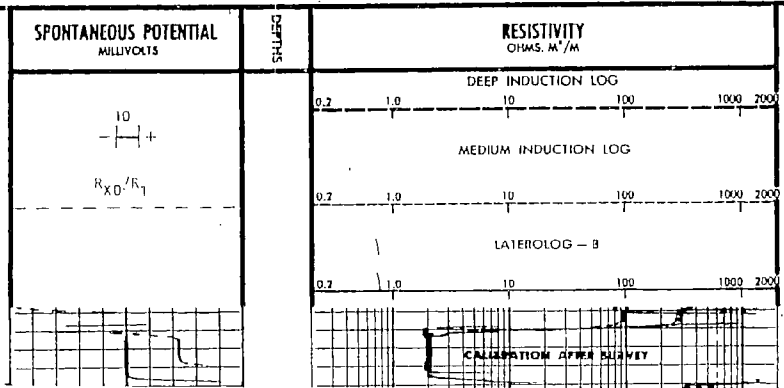
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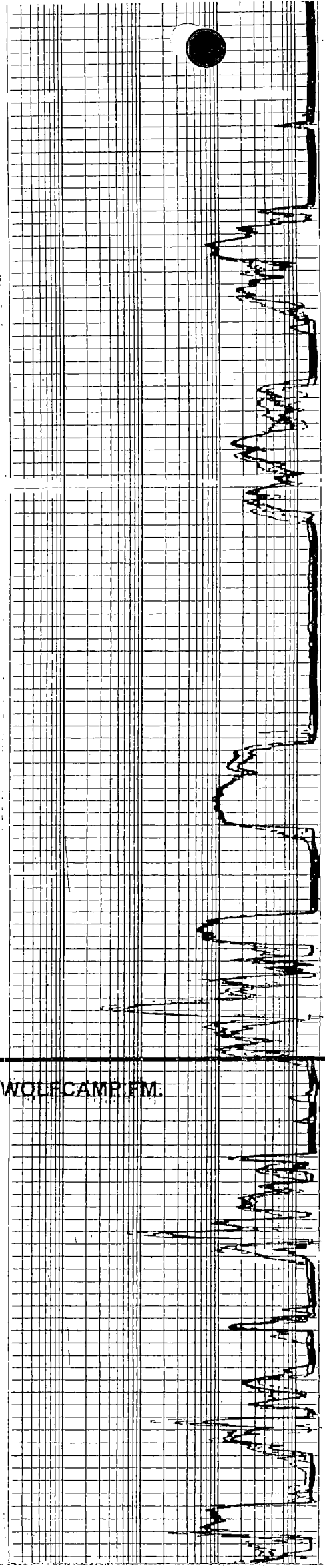
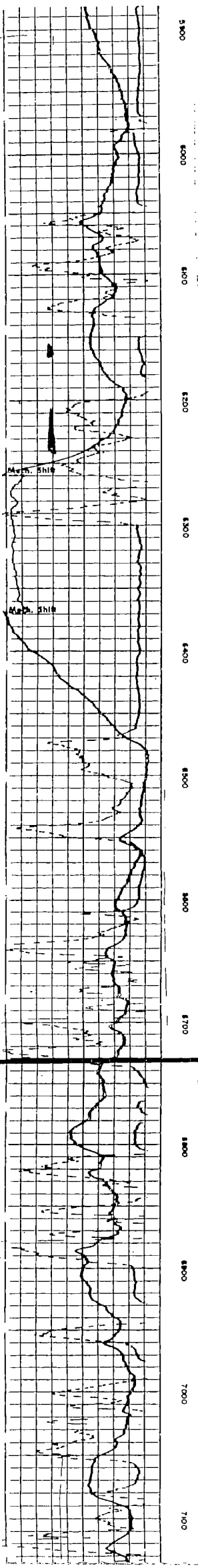
REMARKS:

REPRODUCTION FOR RESALE PROHIBITED

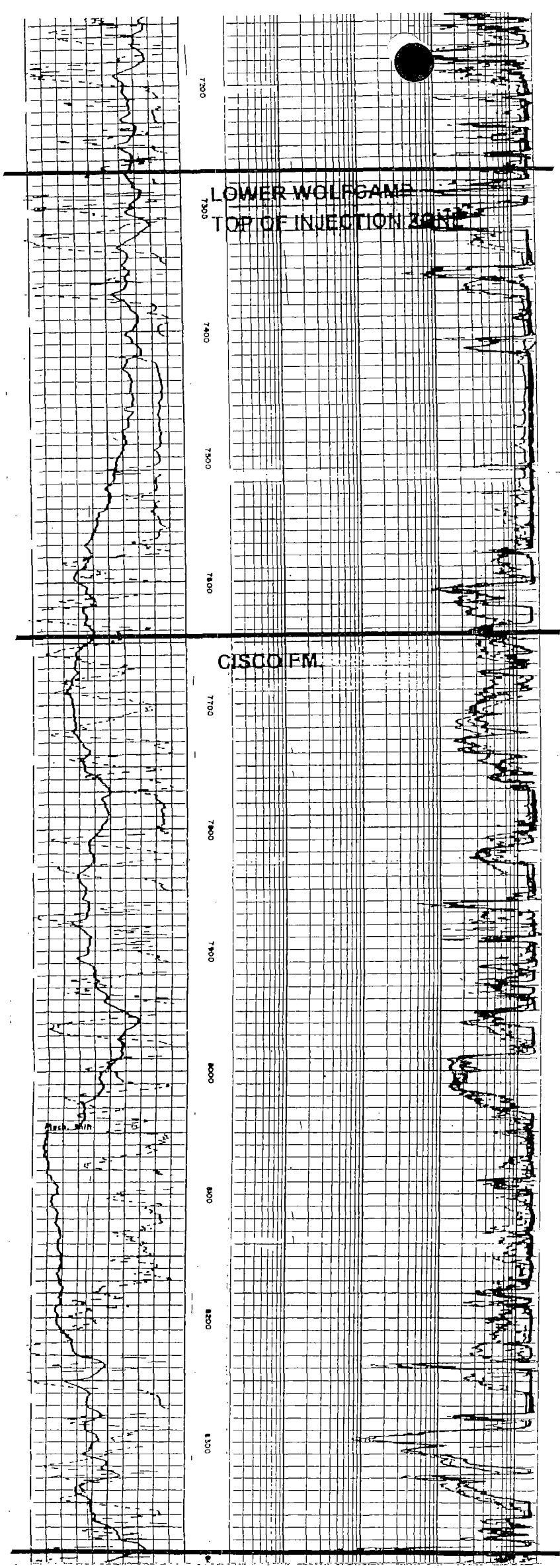
CHANGES IN MUD TYPE OR ADDITIONAL SAMPLES		SCALE CHANGES	
Date	Sample No.	Type Log	Depth
Depth - Driller			
Type Fluid in Hole			
Dens.	Visc.		
pH	Fluid Loss		
Source of Sample			
Rm @ Meas. Temp.	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	@ °F	@ °F	@ °F
Source: Rmf Rmc			
Rm @ BHT	@ °F	@ °F	@ °F
Rmf @ BHT	@ °F	@ °F	@ °F
Rmc @ BHT	@ °F	@ °F	@ °F
EQUIPMENT DATA		REMARKS	
Run No.	ONE	Service Order No.	90316
Panel No.	C-133	API Serial No.	
Cert. No.	B.A.		
Sonde No.	G-241		
Mem. Panel No.			
G.R. Cert. No.			
G.R. Panel No.			
TRR No.			
Cert. Device	YES		
Stand off - Inches	1.5		
Time Const. - Sec.			
Speed - F.P.M.	60/80		
CALIBRATION DATA		REMARKS	
CALIBRATION	BACKGND.	SOURCE	GALV. INCH.
	CPS.	CPS.	DIVISION
GAMMA RAY		SENS. TAP	SENS. TAP
		(FOR CAL)	(RECORD)
		TIME	CONST.

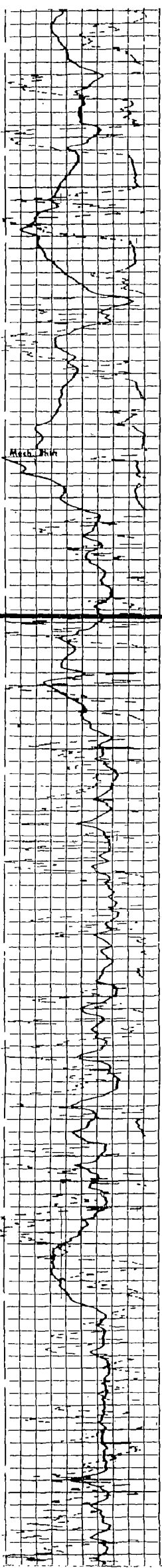
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to Clause 7 of our General Terms and Conditions as set out in our current Price Schedule.





WOLF CAMP FM.



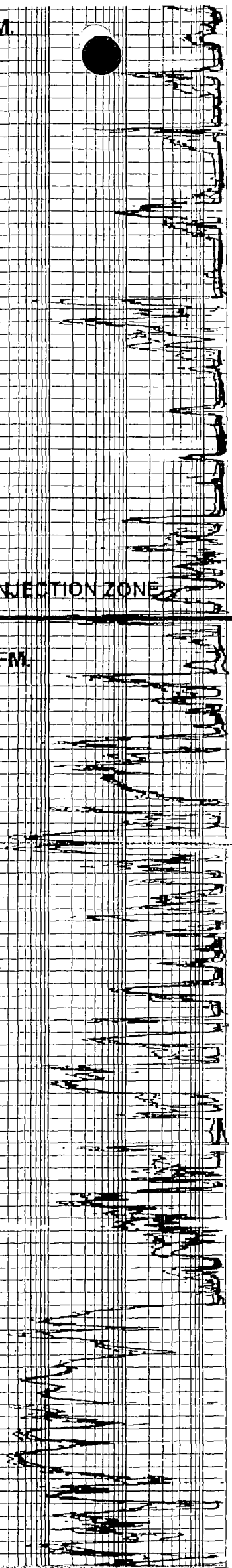


CANYON FM.

BASE OF INJECTION ZONE

STRAWN FM.

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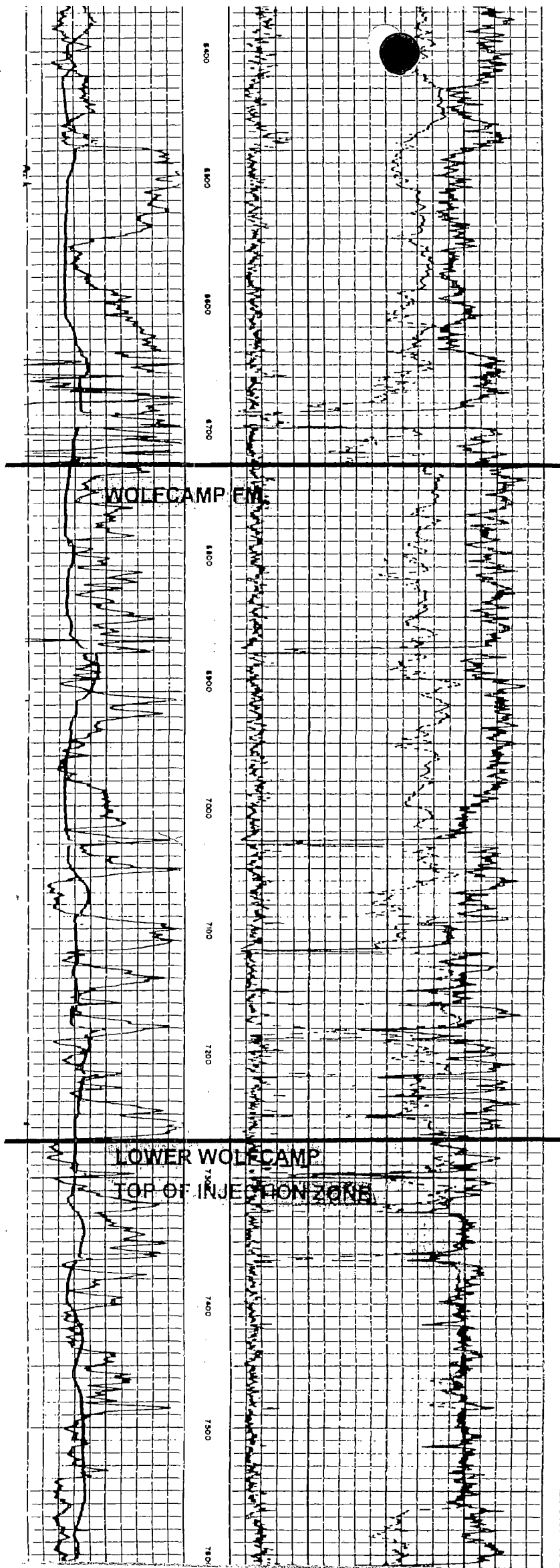


AQ
861

REFERENCE W 86645

REPRODUCTION FOR RESALE PROHIBITED

APPENDIX J



CISCO FM.

7700

7800

7900

8000

8100

8200

8300

CANYON FM.

8400

8500

8700

8800

BASE OF INJECTION ZONE

Petroleum Information

DENVER, COLORADO 80201

REFERENCE Y 4949N

API NO. 30.015.26575

REPRODUCTION FOR RESALE IN WHOLE OR PART PROHIBITED

HALLIBURTON LOGGING SERVICES, INC.		SPECTRAL DENSITY DUAL SPACED NEUTRON LOG	
COMPANY: _____ WELL: _____ FIELD: _____ COUNTY: _____ ST: _____		COMPANY: _____ WELL: _____ FIELD: _____ COUNTY: _____ ST: _____	
LOG NO. _____ DATE: _____ TIME: _____ LOCATION: _____ DEPTH: _____ LOG TYPE: _____ LOG NO. _____ DATE: _____ TIME: _____ LOCATION: _____ DEPTH: _____ LOG TYPE: _____		LOG NO. _____ DATE: _____ TIME: _____ LOCATION: _____ DEPTH: _____ LOG TYPE: _____ LOG NO. _____ DATE: _____ TIME: _____ LOCATION: _____ DEPTH: _____ LOG TYPE: _____	

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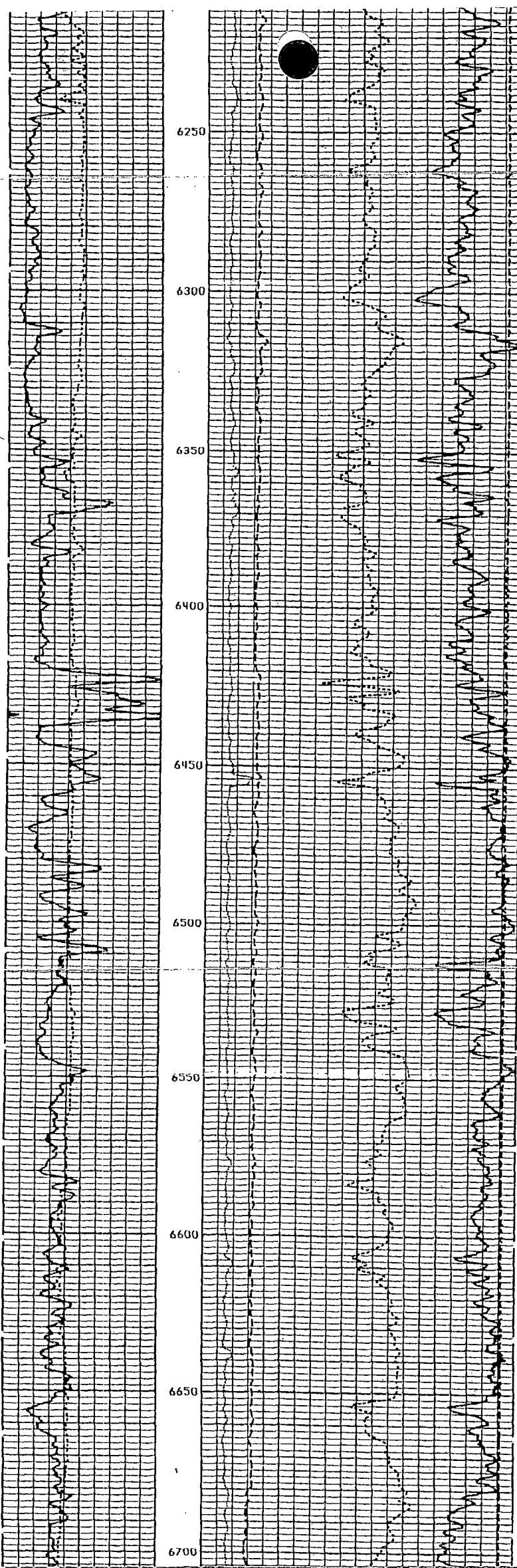
Service Ticket No.: 63052		API Serial No.: NA		PGM Version: 2.51	
Change in Mud Type or Additional Samples		RESISTIVITY SCALE CHANGES			
Date/Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole	
Depth-Driller	NA				
Type Fluid					
Dens. : Visc.					
pH. : Fluid Loss					
Source of Sample					
Ref # Press. Temp.					
Ref # Heat. Temp.					
Ref # Heat. Temp.					
Source: Ref: Rec					
Ref # BHT	541 0122				
Ref # BHT	NA 0122				
Ref # BHT	NA 0122				
Ref # BHT	NA 0122				

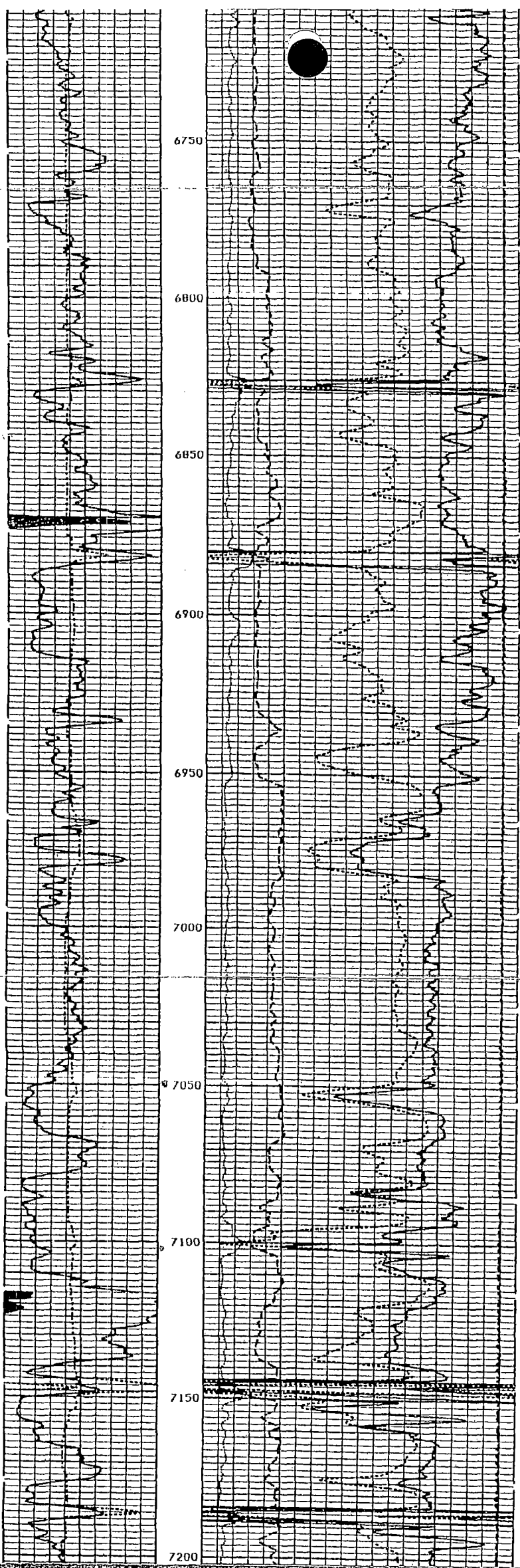
EQUIPMENT DATA	
Run No.	ONE
Serial No.	100615
Model No.	432
Diameter	3.625
Detector Model No.	102T
Type	SCINT
Length	4"
Distance to Source	10"

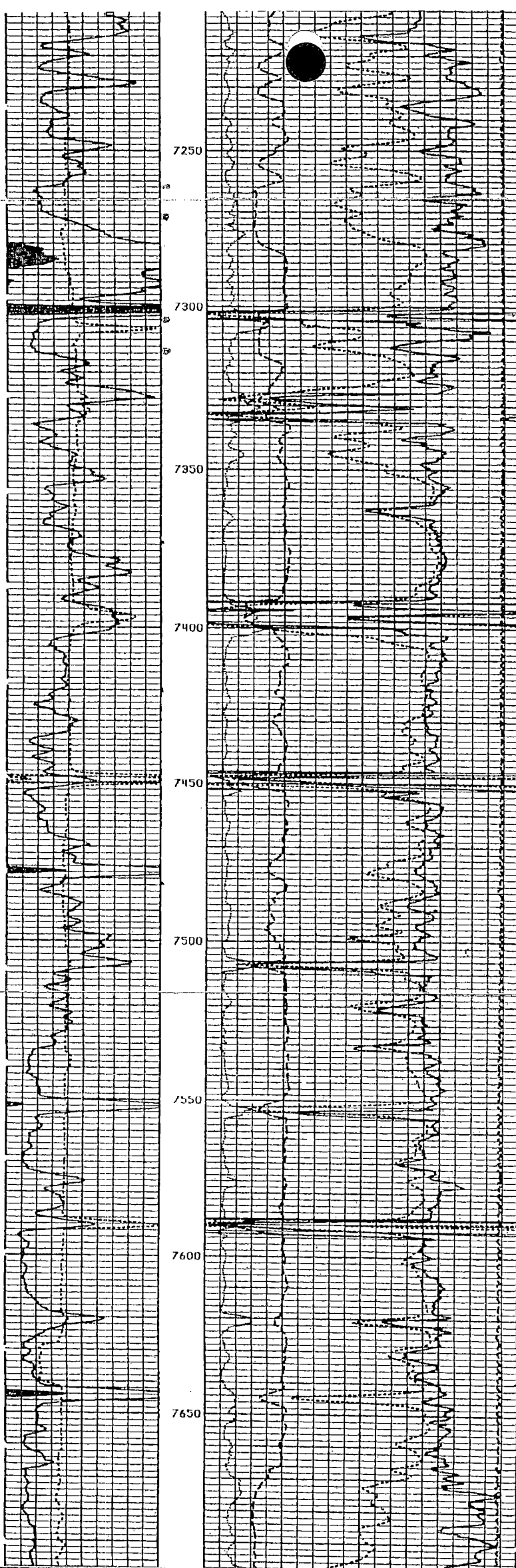
LOGGING DATA	
Run No.	ONE
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Model No.	455
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Log Type	G-5
Source Type	CS-137
Serial No.	30
Strength	1.5 CI

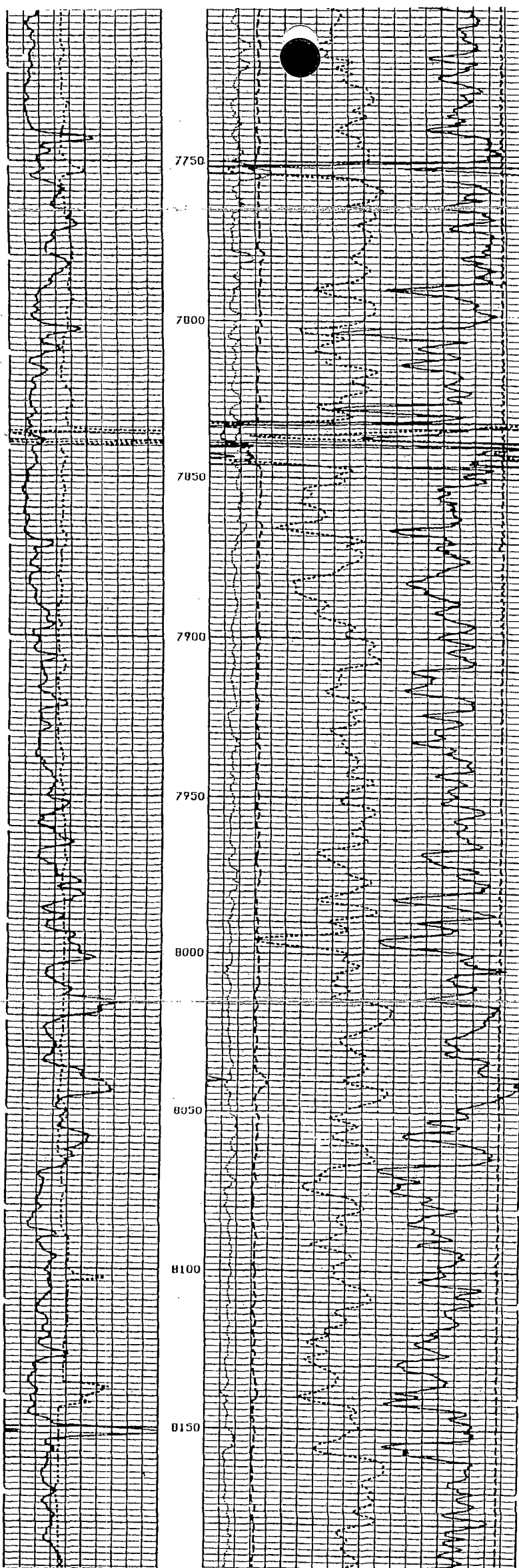
GENERAL		GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	100615	Serial No.	112611	Serial No.	112611	Serial No.	112611	Serial No.	112611
Model No.	432	Model No.	455	Model No.	455	Model No.	455	Model No.	455
Diameter	3.625	Diameter	4.5"	Diameter	4.5"	Diameter	4.5"	Diameter	4.5"
Detector Model No.	102T	Detector Model No.	102T	Detector Model No.	102T	Detector Model No.	102T	Detector Model No.	102T
Type	SCINT	Type	SCINT	Type	SCINT	Type	SCINT	Type	SCINT
Length	4"	Length	4"	Length	4"	Length	4"	Length	4"
Distance to Source	10"	Distance to Source	10"	Distance to Source	10"	Distance to Source	10"	Distance to Source	10"

P.E.		PE CORR	
QUALITY	-2	B/E	5
Q SHORT	-4.5	DEN CORR	-0.2
Q LONG	-4.5	GRVCC	0.0 10000
GRVCC	0	DENSITY	2
API	100	GRVCC	1
GAUGE	10	NEU POROS	1
INCHES	10		
MINOR MARKER			









DENVER, COLORADO 80201

25 APINO. 30 015 26575

REPRODUCTION FOR RESALE IN WHOLE OR PART PROHIBITED

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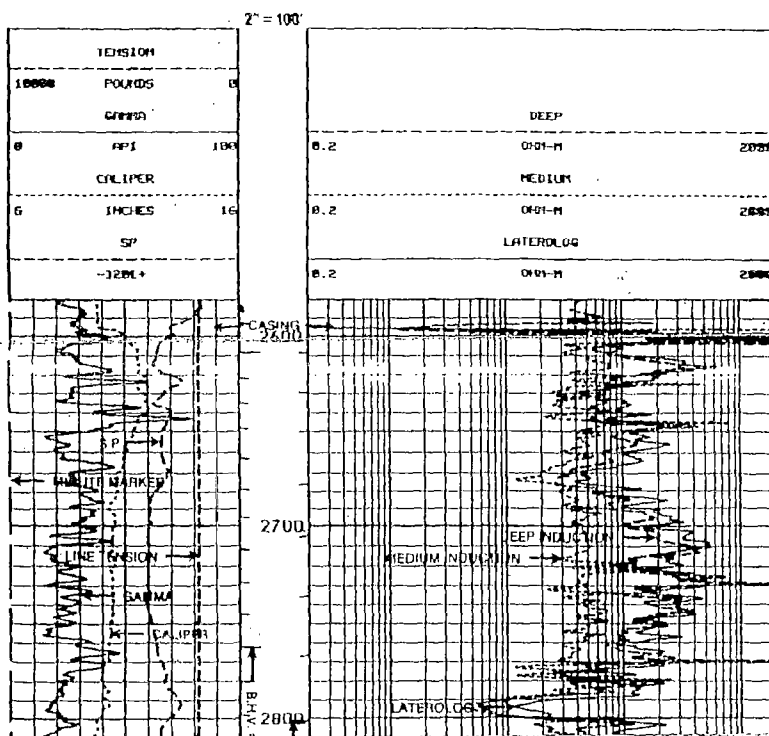
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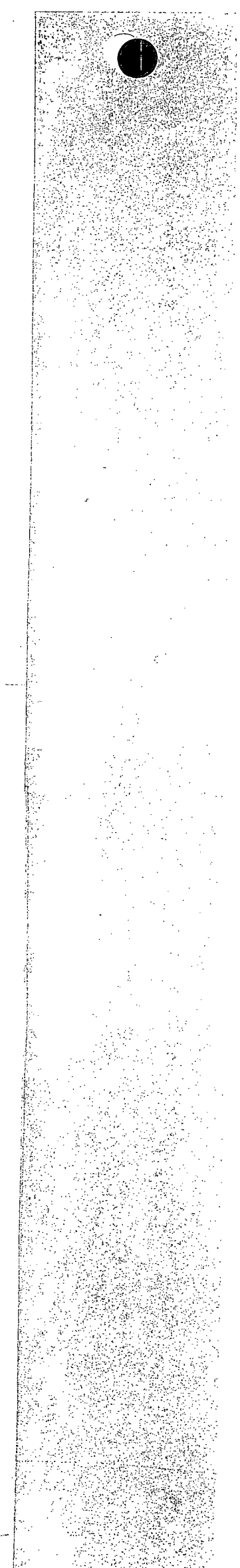
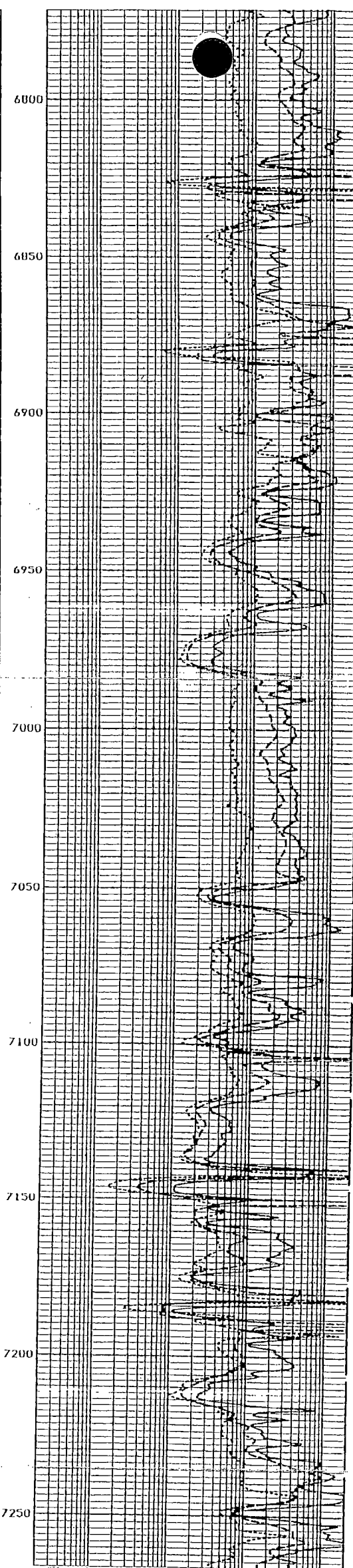
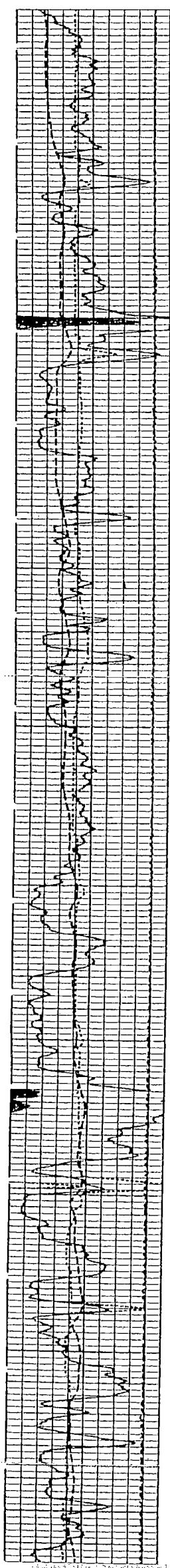
Service Ticket No.: 63052				API Serial No.: NA				PCM Version: 2.30 E											
Change in Mud Type or Additional Samples								RESISTIVITY SCALE CHANGES											
Date/Sample No.	/ /	:		Type Log	Depth	Scale Up Hole	Scale Down Hole												
Depth-Driller	/ /	:		NA															
Type Fluid	in Hole																		
Dens. : Visc.	:	:																	
pH. : Fluid Loss	:	:																	
Source of Sample				RESISTIVITY EQUIPMENT DATA															
Rm @ Meas.Temp.	@	@		Run No	Tool Type & No	Ped Type	Tool Pos.	Other											
Raf @ Meas.Temp.	@	@		OKE	DILT-1B9439	NA	NA												
Rac @ Meas.Temp.	@	@			SERT-1B9439	NA	CENT												
Source: Raf/Rac	:	:																	
Rm @ DHT	:54I	:RIZZ	@																
Raf @ DHT	NA	EBOA	@																
Rac @ DHT	NA	EBOA	@																
EQUIPMENT DATA																			
GAMMA				ACOUSTIC				DENSITY				NEUTRON							
Run No.	OKE			Run No.	NA			Run No.	ONE			Run No.	ONE						
Serial No.	18N615			Serial No.				Serial No.	112611			Serial No.	18N763						
Model No.	432			Model No.				Model No.	4E5			Model No.	434						
Diameter	3.625			No. of Cent.				Diameter	4.5"			Diameter	3 5/8						
Detector Model No.	1QAT			Spacing				Log Type	C-C			Log Type	M-N						
Type	SCINT			LSA				Source Type	CS-137			Source Type	PM-241						
Length	4"			FWD				Serial No.	39			Serial No.	DSH-27						
Distance To Source	1B'			FWD				Strength	1.5 C.			Strength	10.5 CI						
LOGGING DATA																			
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.	Depth	Speed	Scale	L		R		L		R Matrix		L		R Matrix		L		R Matrix	
Hd.	From To	Ft/Mir	REC																
ONE	9445	Z595		@		1BR						30		-10	2.71	30		-10	LIME

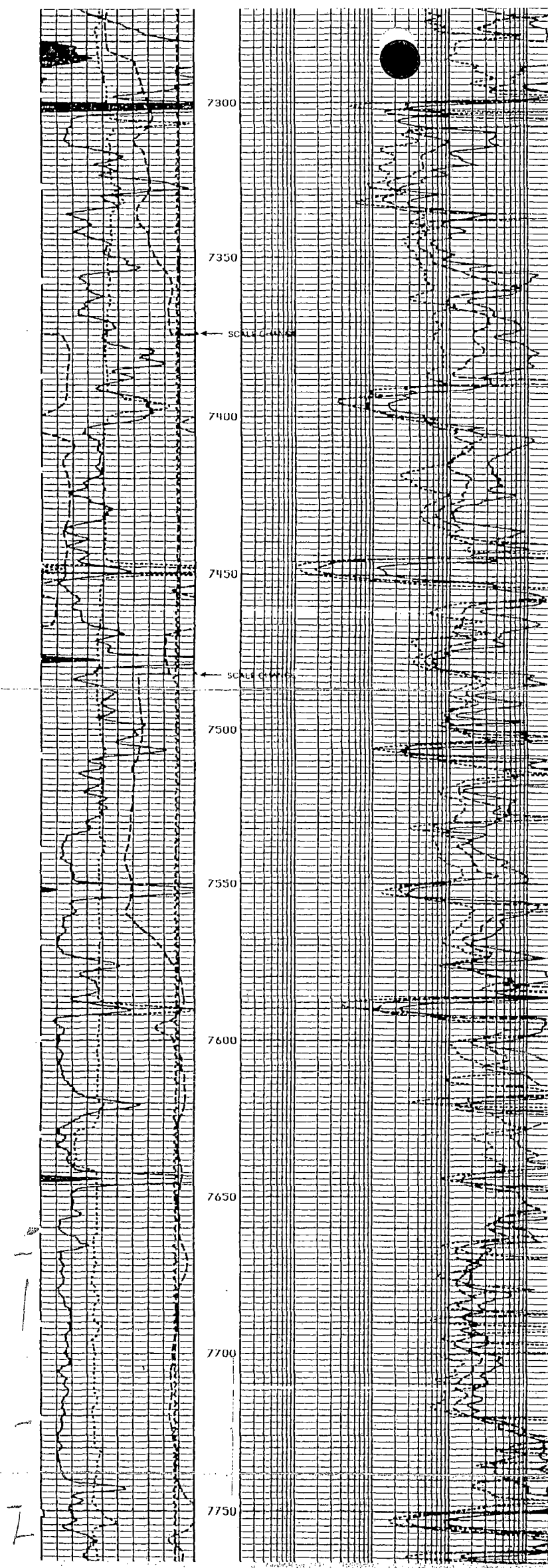
Remarks: REGULAR HOLE VOLUME CALCULATED FOR 7" CASING
DUAL INDUCTION RUN IN COMBO WITH SCL-DSH.
DRILLING RIG HD NO RETURNS BEFORE COMING OUT OF THE HOLE.

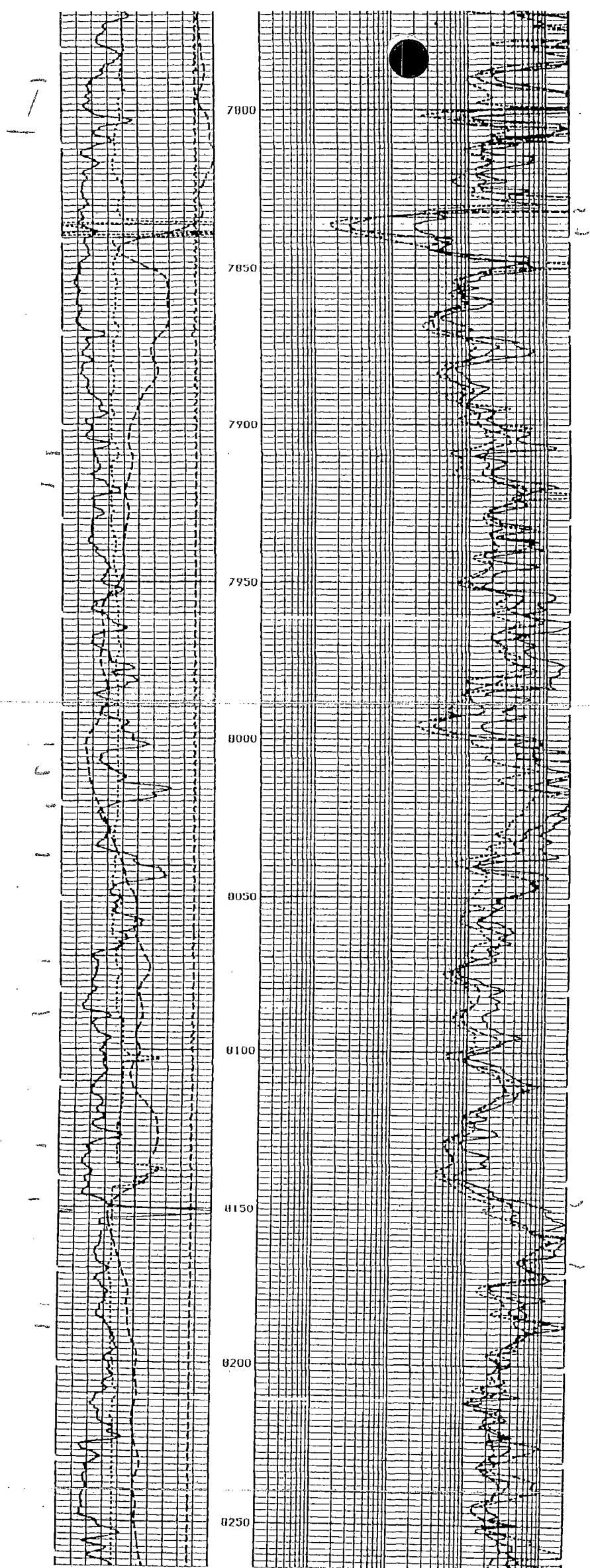
CREW: SIGEFRIED, HOUSTON, MORRIS, D'SOUZA

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1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

BELOW GROUND DETAILS

All depths are referenced to the Kelly bushing elevation of 12.5' above ground level. Ground level elevation is 3,678' above mean sea level.

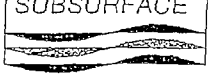
1. Surface Casing: 13 3/8", 48 lb/ft, J-55, ST&C set at 390' in a 17 1/2" hole. Cemented with 150 sx Class C with 3 % calcium chloride, 375 sx Class C Litewater w/3 % calcium chloride and 1/2 lb/sx flocele. Circulated 86 sx to surface.
2. Intermediate Casing: 9 5/8", 36 lb/ft, J-55, ST&C set at 2,555' in a 12 1/4" hole. Cemented w/800 sx of Class C Lite w/ 1/2 lb/sx flocele and 2 lb/sx Gilsonite and 12 % salt. Followed by 200 sx of Class C w/2 % calcium chloride. Circulated 133 sx to surface.
3. Base of the USDW at 493'.
4. Injection Tubing: 4 1/2", 11.6 lb/ft, N-80, SMLS, R3, LT&C set at 7,879'.
5. DV Tool: at 5,498'.
6. Annulus Fluid: 8.7 lb/gal brine water mixed w/UniChem Techni-Hib 370 corrosion inhibitor.
7. Protection Casing: 7", 29 lb/ft, N-80, LT&C: 9094' to 7031'. 7", 29 lb/ft, P-110, LT&C: 7031' to 5845'. 7", 26 lb/ft, P-110, LT&C: 5845' to surface. Casing cemented in two stages as follows:

First Stage - 600 sx modified Class H w/0.4 % CFR-3, 5 lb/sx Gilsonite, 0.5 % Halad-344, and 1 lb/sx salt mixed at 13.0 ppg. Opened DV tool at 5498' and circulated 142 sx to surface.

Second Stage - Lead Slurry: 220 sx Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sx modified Class H w/0.4 % CFR-3, 5 lb/sx, Gilsonite, 0.5 % Halad-344, 0.1 % HR-7, and 1 lb/sx mixed at 13.0 ppg. Circulated 75 sx to surface. Top out w/20 sx permium plus 3 % calcium chloride.
8. Packer: 7" x 3.5" EVI Oil Tools (Arrow), Model X-1 retrievable packer set at 7879'. Minimum I.D. is 3.0". Wireline re-entry guide on bottom. To release: turn 1/4 turn to the right and pick up.
9. Perforations (2 SPF):

Upper Zone - 7924-7942', 7974-8030', 8050-8056', 8066-8080', 8118-8127', 8132-8140', 8160-8164', 8170-8188'.

Lower Zone - 8220-8254', 8260-8270', 8280-8302', 8360-8366', 8370-8378', 8400-8410', 8419-8423', 8430-8446', 8460-8464', 8470-8476'.
10. PBTD: 9004'.
11. Cement Plug: 45 sx Class H from 9624' to 9734'.

		HOUSTON, TX. SOUTH BEND, IN. BATON ROUGE, LA.
FIGURE 1		
NAVAJO REFINING COMPANY ARTESIA, NEW MEXICO		
BELOW GROUND DETAILS WASTE DISPOSAL WELL NO. 1		
DATE: 07/13/01	CHECKED BY:	JOB NO: 70DS256
DRAWN BY: WDL	APPROVED BY:	DWG. NO:

Confining Zone

Injection Interval

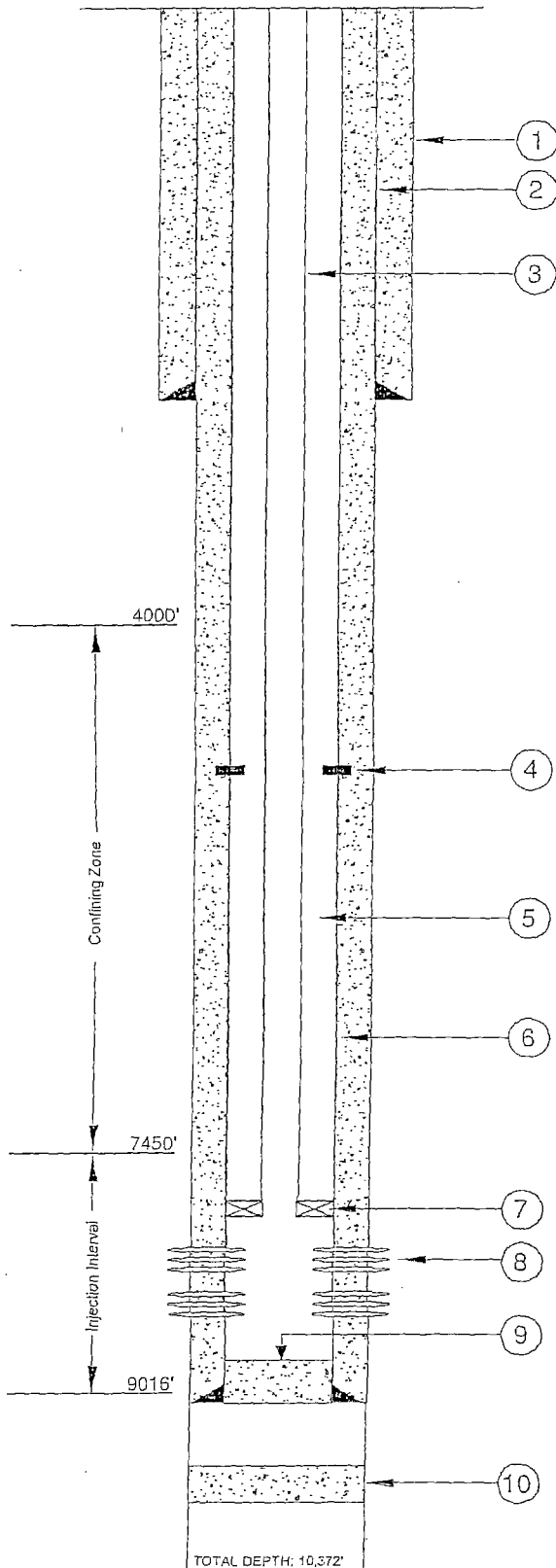
4000'

7450'

9016'

TOTAL DEPTH: 10,200'

BELOW GROUND DETAILS



All depths are referenced to the Kelly bushing elevation of 13' above ground level. Ground level elevation is 3610' above mean sea level.

1. Base of the USDW at 473'.
2. Surface Casing: 8 $\frac{5}{8}$ ", 32 lb/ft, set at 1995' in an 11" hole. Cemented to surface with 800 sacks of cement.
3. Injection Tubing: 3 $\frac{1}{2}$ ", 9.2 lb/ft, J-55, smls, NUE 10 rd. set at 7528'.
4. DV Tool: at 5,785'.
5. Annulus Fluid: 8.7 lb/gal brine water mixed w/UniChem Techni-Hib 370 corrosion inhibitor.
6. Protection Casing: 5 $\frac{1}{2}$ ", 17 lb/ft, L-80, LT&C: 8869' to the surface and set in a 7 $\frac{7}{8}$ " hole. Casing cemented in two stages as follows:

First Stage - 575 sacks of modified Class "H" with 0.4 % CFR-3, 5 lb/sk Gilsonite, 0.5 % Halad-344, and 3 lb/sk salt. Mixed at 13.0 ppg. Opened DV tool at 5785 and circulated 20 sacks to surface.

Second Stage - Lead Slurry: 300 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail slurry: 695 sacks modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5 % Halad-344 and 3 lb/sk salt mixed at 13.0 ppg. Circulated 150 sacks to surface. Topped out with 10 yards of Redi-mix.
7. Packer: 5 $\frac{1}{2}$ " x 2 $\frac{7}{8}$ " Weatherford Completion Tools (Arrow) Model X-1 retrievable packer set at 7528'. Minimum ID is 2.4375". Wireline re-entry guide is on bottom. To release: turn $\frac{1}{4}$ turn to the right and pick up.
8. Perforations (2 SPF):

Zone 1: 7570-7620', 7676-7736'

Zone 2: 7826-7834', 7858-7880', 7886-7904', 7916-7936', 7944-7964', 7990-8042', 8096-8116', 8191-8201', 8304-8319', 8395-8399'.
9. PBTD: 8770'
10. Cement Plug: 45 sacks from 9675' to 9775'.

SUBSURFACE

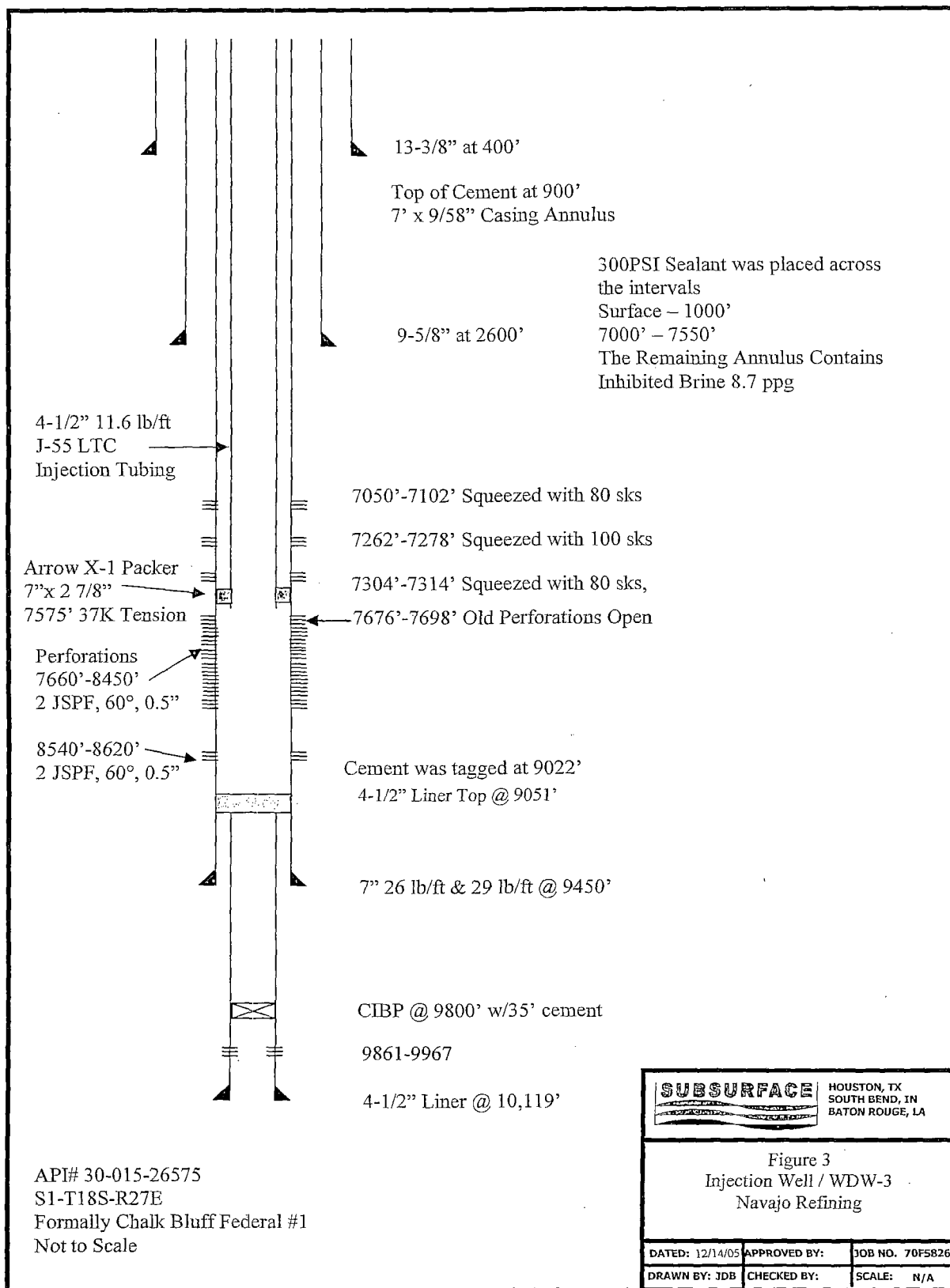
HOUSTON, TX.
SOUTH BEND, IN.
BATON ROUGE, LA.

FIGURE 2

NAVAJO REFINING COMPANY
ARTESIA, NEW MEXICO

BELOW GROUND DETAILS WASTE DISPOSAL WELL NO. 2

DATE: 07/13/01	CHECKED BY:	JOB NO: 70D5256
DRAWN BY: WDL	APPROVED BY:	DWG. NO:



Well Test Analysis Report

Company	Navajo Refining Company
Location	Artesia, New Mexico
Well	WDW-1
Date	April 3 - 4, 2008
Test	Falloff
Gauge Depth	7924 feet
Injection Interval	7924 feet - 8476 feet
Completion Type	Perforated
Top of Fill	8856 feet
Last Stabilization	January 2008
Analyst	TWW
Subsurface Project No.	70G6142

Reservoir Description

Fluid type : Water

Well orientation : Vertical

Number of wells : 3

Number of layers : 1

Layer Parameters Data

	Layer 1
Formation thickness	175.0000 ft
Average formation porosity	0.1000
Water saturation	0.0000
Gas saturation	0.0000
Formation compressibility	0.000000 psi-1
Total system compressibility	8.4000e-6 psi-1
Layer pressure	3527.366128 psia
Temperature	0.000000 deg F

Well Parameters Data

	WDW-1	WDW-2	WDW-3
Well radius	0.3646 ft	0.3281 ft	0.3281 ft
Distance from observation to active well	0.000000 ft	1.0970e4 ft	7907.000000 ft
Wellbore storage coefficient	0.0900 bbl/psi	1.0000e-3 bbl/psi	1.0000e-3 bbl/psi
Storage Amplitude	0.000000 psi	0.000000 psi	0.000000 psi
Storage Time Constant	0.000000 hr	0.000000 hr	0.000000 hr
Second Wellbore Storage	0.170000 bbl/psi	2.7000e-3 bbl/psi	1.7500e-4 bbl/psi
Time Change for Second Storage	0.050000 hr	0.017500 hr	7.5000e-3 hr
Well offset - x direction	0.0000 ft	-7590.0000 ft	-6000.0000 ft
Well offset - y direction	0.0000 ft	-7920.0000 ft	-5150.0000 ft

Fluid Parameters Data

	Layer 1
Oil gravity	0.000000 API
Gas gravity	0.000000 sp grav
Gas-oil ratio (produced)	0.000000 scf/STB
Water cut	0.000000
Water salinity	0.000000 ppm
Check Pressure	3420.440000 psia
Check Temperature	0.000000 deg F
Gas-oil ratio (solution)	0.000000 scf/STB
Bubble-point pressure	0.000000 psia
Oil density	0.000 lb/ft3
Oil viscosity	0.000 cp
Oil formation volume factor	0.000 RB/STB
Gas density	0.000 lb/ft3
Gas viscosity	0.0 cp
Gas formation volume factor	0.000 ft3/scf
Water density	0.000 lb/ft3
Water viscosity	0.720 cp
Water formation volume factor	1.000 RB/STB
Oil compressibility	0.000000 psi-1
Initial Gas compressibility	0.000000 psi-1
Water compressibility	0.000000 psi-1

Layer 1 Correlations

Not Used

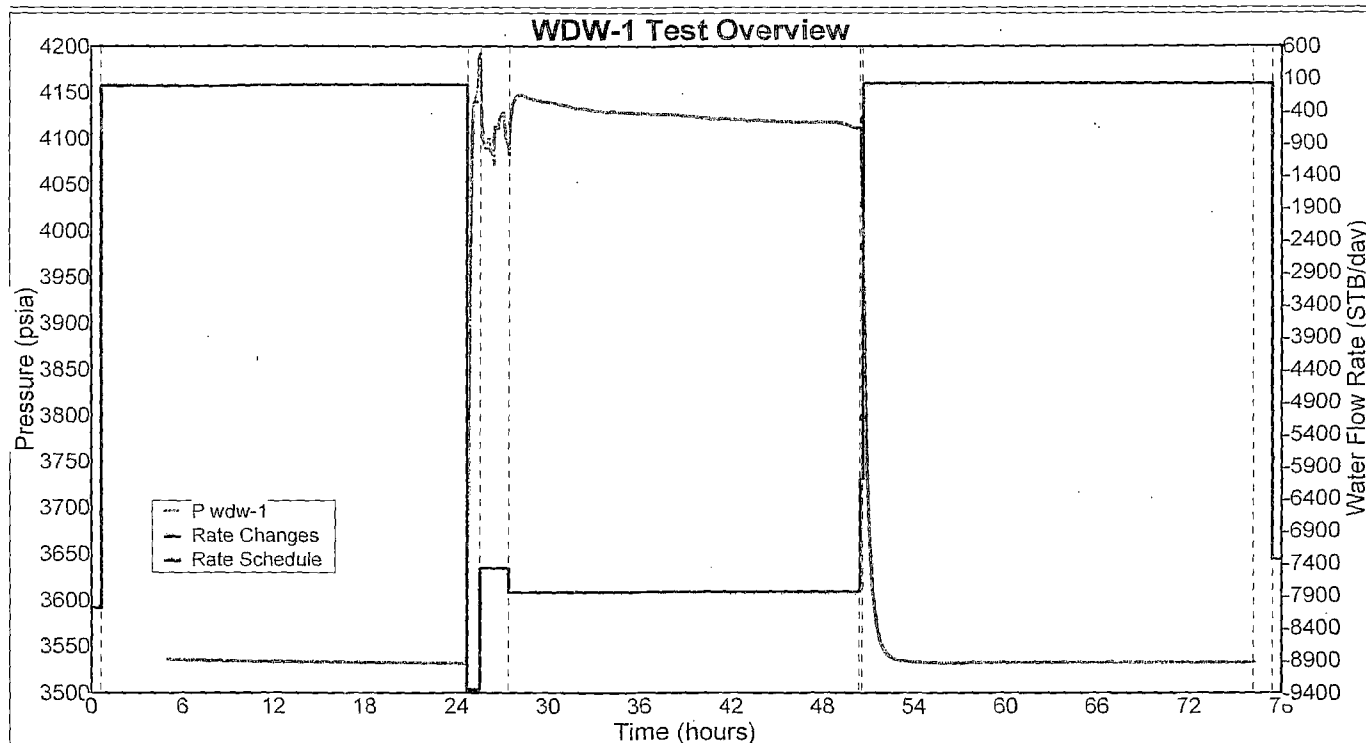
Layer 1 Model Data

Layer 1 Model Type : Radial homogeneous

	Layer 1
Permeability	2010.0000 md
Skin factor (Well 1)	262.3980
Skin factor (Well 2)	0.0000
Skin factor (Well 3)	0.0000

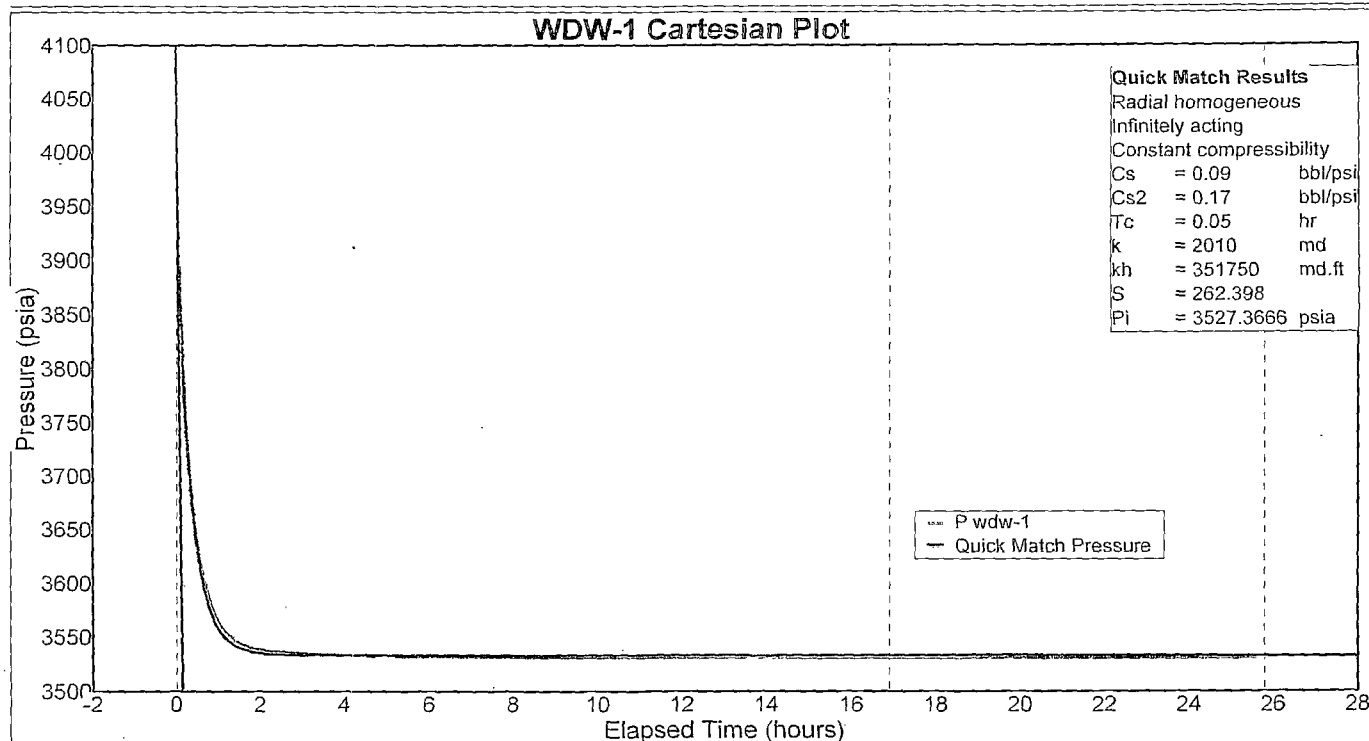
Rate Change Data

Time Hours	Pressure psia	Rate STB/day
-1763.241389	3530.933000	0.000000
-1595.241389	3742.850000	-3439.885715
-1259.241389	3742.850000	-5424.685715
-1115.241389	3742.850000	-6529.028572
-851.241389	3742.850000	-6134.057144
-755.241389	3742.850000	-5884.114286
-659.241389	3742.850000	-5420.571429
-227.241389	3742.850000	-5796.342858
-179.241389	3742.850000	-5624.228572
-83.241389	3742.850000	-5940.685715
-25.624723	4067.800000	-6229.371429
-1.191389	4142.320000	-7045.714287
0.625277	4100.720000	-8088.000001
24.642373	3534.546000	0.000000
25.507253	4186.389750	-9358.628573
27.362985	4082.968739	-7498.285715
50.380409	4108.528193	-7872.685715
50.567202	4014.491440	-6134.742858
76.145279	3530.921000	0.000000
77.391944	3530.933000	0.000000
78.241944	4034.450000	-7370.742858
80.308611	4035.810000	-6503.314287
94.775277	4031.990000	-6392.571429
96.525277	4034.450000	-6566.057144
101.641944	4034.450000	-6640.800001
103.091944	4039.380000	-6556.800001
108.758611	4024.680000	-6465.942858





Well Test Analysis Report

**WDW-1 Cartesian Plot Model Results**

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.070713 bbl/psi
Dimensionless wellbore storage	3235.095983

Quick Match Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.0900 bbl/psi
Second Wellbore Storage	0.170000 bbl/psi
Time Change for Second Storage	0.050000 hr
Permeability	2010.0000 md
Permeability-thickness	3.5175e5 md.ft
Skin factor	262.3980
Computed initial pressure	3527.366588 psia

WDW-1 Cartesian Plot Line Details

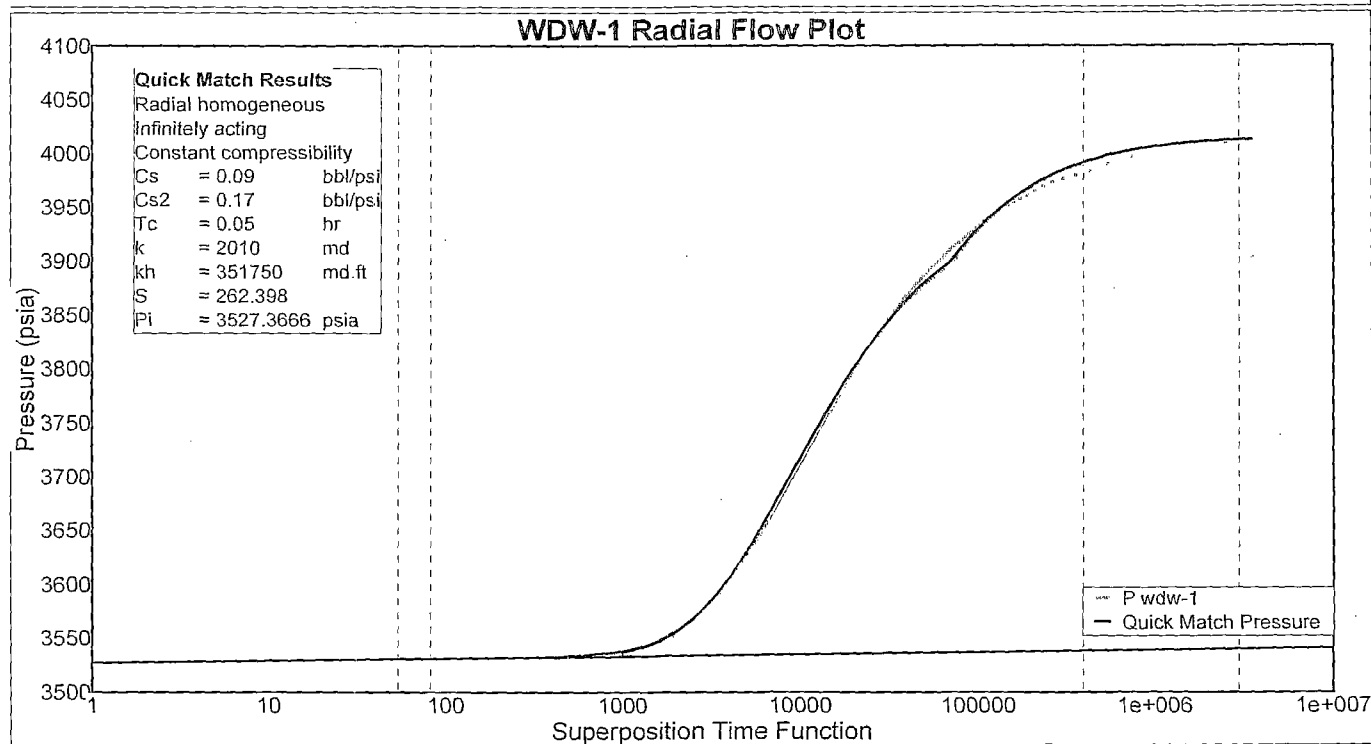
Line type : Wellbore storage

Slope : -3614.8

Intercept : 4014.82

Coefficient of Determination : 0.930827

Number of Intersections = 0


WDW-1 Radial Flow Plot Model Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Permeability	2010.003805 md
Permeability-thickness	3.5175e5 md.ft
Radius of investigation	8455.211837 ft
Flow efficiency	0.044899
dP skin (constant rate)	465.253678 psi
Skin factor	262.398403
Extrapolated pressure	3527.366128 psia

Quick Match Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.0900 bbl/psi
Second Wellbore Storage	0.170000 bbl/psi
Time Change for Second Storage	0.050000 hr
Permeability	2010.0000 md
Permeability-thickness	3.5175e5 md.ft
Skin factor	262.3980
Computed initial pressure	3527.366588 psia

WDW-1 Radial Flow Plot Line Details

Line type : Radial flow

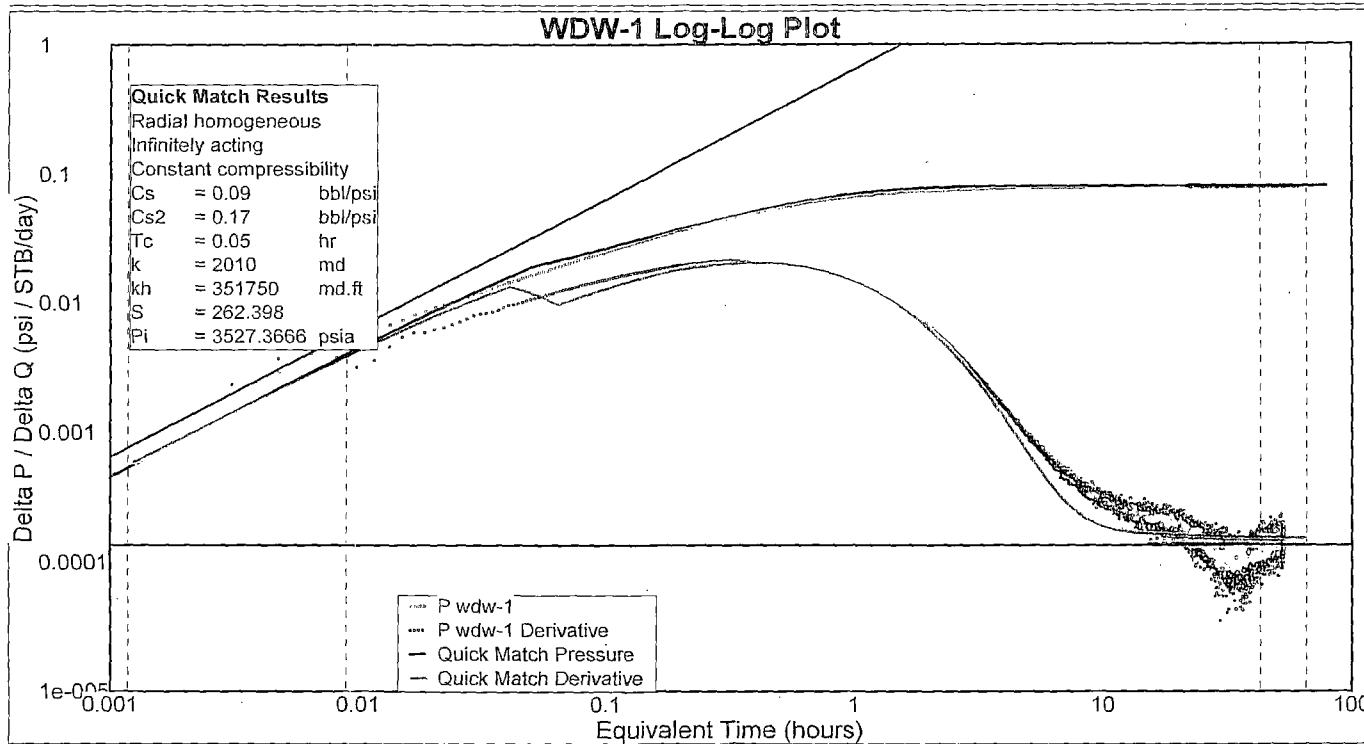
Slope : 2.04134

Intercept : 3527.37

Coefficient of Determination : 0.894916

	Radial flow
Extrapolated pressure	3527.366128 psia
Pressure at dt = 1 hour	3534.600851 psia

Number of Intersections = 0



WDW-1 Log-Log Plot Model Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.064111 bbl/psi
Dimensionless wellbore storage	2933.037703
Permeability	2150.010209 md
Permeability-thickness	3.7625e5 md.ft

Quick Match Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.0900 bbl/psi
Second Wellbore Storage	0.170000 bbl/psi
Time Change for Second Storage	0.050000 hr
Permeability	2010.0000 md
Permeability-thickness	3.5175e5 md.ft
Skin factor	262.3980
Computed initial pressure	3527.366588 psia

WDW-1 Log-Log Plot Line Details

Line type : Radial flow

Slope : 0

Intercept : 0.000135101

Coefficient of Determination : Not Used

SUBSURFACE

HOUSTON, TX • BAYTUN, ALABAMA • NEW YORK, NY

Subsurface Technology, Inc

Report File:

2008_WDW-1.pan

PanSystem Version 3.2

Well Test Analysis Report

Line type : Wellbore storage

Slope : 1

Intercept : 0.649917

Coefficient of Determination : Not Used

Number of Intersections = 0

Well Test Analysis Report

Company	Navajo Refining Company
Location	Artesia, New Mexico
Well	WDW-2
Date	April 2 - 3, 2008
Test	Falloff
Gauge Depth	7570 feet
Injection Interval	7570 feet - 8399 feet
Completion Type	Perforated
Top of Fill	7928 feet
Last Stabilization	February 2008
Analyst	TWW
Subsurface Project No.	70G6142

Reservoir Description

Fluid type : Water

Well orientation : Vertical

Number of wells : 1

Number of layers : 1

Layer Parameters Data

	Layer 1
Formation thickness	175.0000 ft
Average formation porosity	0.1000
Water saturation	0.0000
Gas saturation	0.0000
Formation compressibility	0.000000 psi-1
Total system compressibility	8.4000e-6 psi-1
Layer pressure	3393.473989 psia
Temperature	0.000000 deg F

Well Parameters Data

	WDW-2
Well radius	0.3281 ft
Distance from observation to active well	0.000000 ft
Wellbore storage coefficient	0.0200 bbl/psi
Storage Amplitude	0.000000 psi
Storage Time Constant	0.000000 hr
Second Wellbore Storage	0.090000 bbl/psi
Time Change for Second Storage	0.010000 hr
Well offset - x direction	0.0000 ft
Well offset - y direction	0.0000 ft

Fluid Parameters Data

	Layer 1
Oil gravity	0.000000 API
Gas gravity	0.000000 sp grav
Gas-oil ratio (produced)	0.000000 scf/STB
Water cut	0.000000
Water salinity	0.000000 ppm
Check Pressure	0.000000 psia
Check Temperature	0.000000 deg F
Gas-oil ratio (solution)	0.000000 scf/STB
Bubble-point pressure	0.000000 psia
Oil density	0.000 lb/ft3
Oil viscosity	0.000 cp
Oil formation volume factor	0.000 RB/STB
Gas density	0.000 lb/ft3
Gas viscosity	0.0 cp
Gas formation volume factor	0.000 ft3/scf
Water density	0.000 lb/ft3
Water viscosity	0.720 cp
Water formation volume factor	1.000 RB/STB
Oil compressibility	0.000000 psi-1
Initial Gas compressibility	0.000000 psi-1
Water compressibility	0.000000 psi-1

Layer 1 Correlations

Not Used

Layer 1 Model Data

Layer 1 Model Type : Radial homogeneous

	Layer 1
Permeability	1091.2700 md
Skin factor (Well 1)	155.4730

Rate Change Data

Time Hours	Pressure psia	Rate STB/day
-1281.744722	3308.951000	0.000000
-1257.744722	3308.951000	-1009.371429
-921.744722	3308.951000	-3436.114286
-849.744722	3308.951000	-3216.000000
-753.744722	3308.951000	-3075.428572
-657.744722	3308.951000	-2098.628572
-537.744722	3308.951000	-2907.085715
-441.744722	3308.951000	-2146.628572
-369.744722	3308.951000	-2880.342858
-321.744722	3308.951000	-2167.200000
-225.744722	3308.951000	-2618.057143
-153.744722	3308.951000	-2184.342857
-81.744722	3308.951000	-2675.657143
-78.644722	3585.981000	-3308.571429
-78.211389	3419.241000	0.000000
-66.878056	3644.511000	-3332.571429
-65.494722	3626.071000	-2360.228572
-24.094722	3602.201000	-3407.657143
2.039445	3397.140503	0.000000
19.855333	3787.956314	-5774.742858
26.240907	3775.819996	-5504.571429
26.439073	3717.310533	-3627.771429
51.947374	3396.690000	0.000000
52.597356	3735.005862	-4935.428572
53.001464	3441.443305	0.000000
72.737657	3759.507221	-5255.657144
73.579609	3759.678076	-5337.257144
75.405640	3793.956000	-5979.771429
75.505634	3759.120370	-4458.171429
75.602349	3584.133640	-2338.971429



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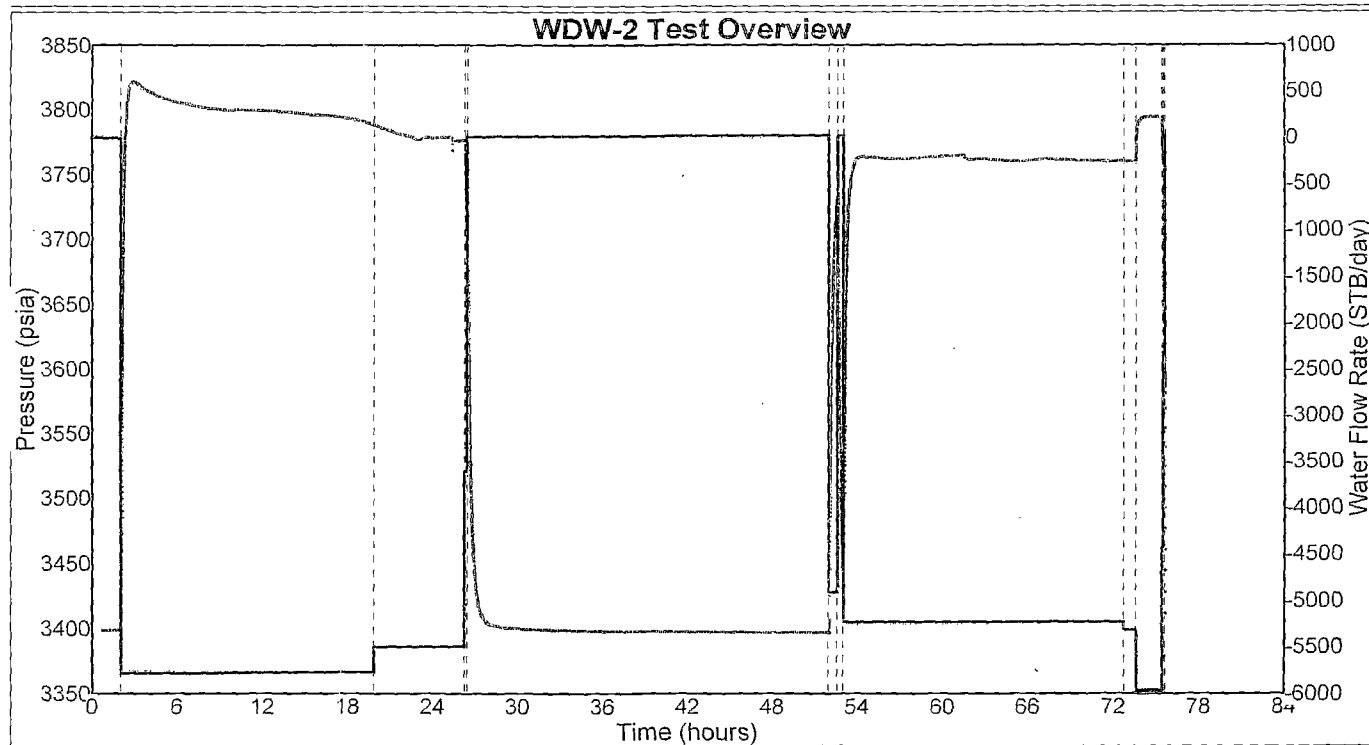
Subsurface Technology, Inc

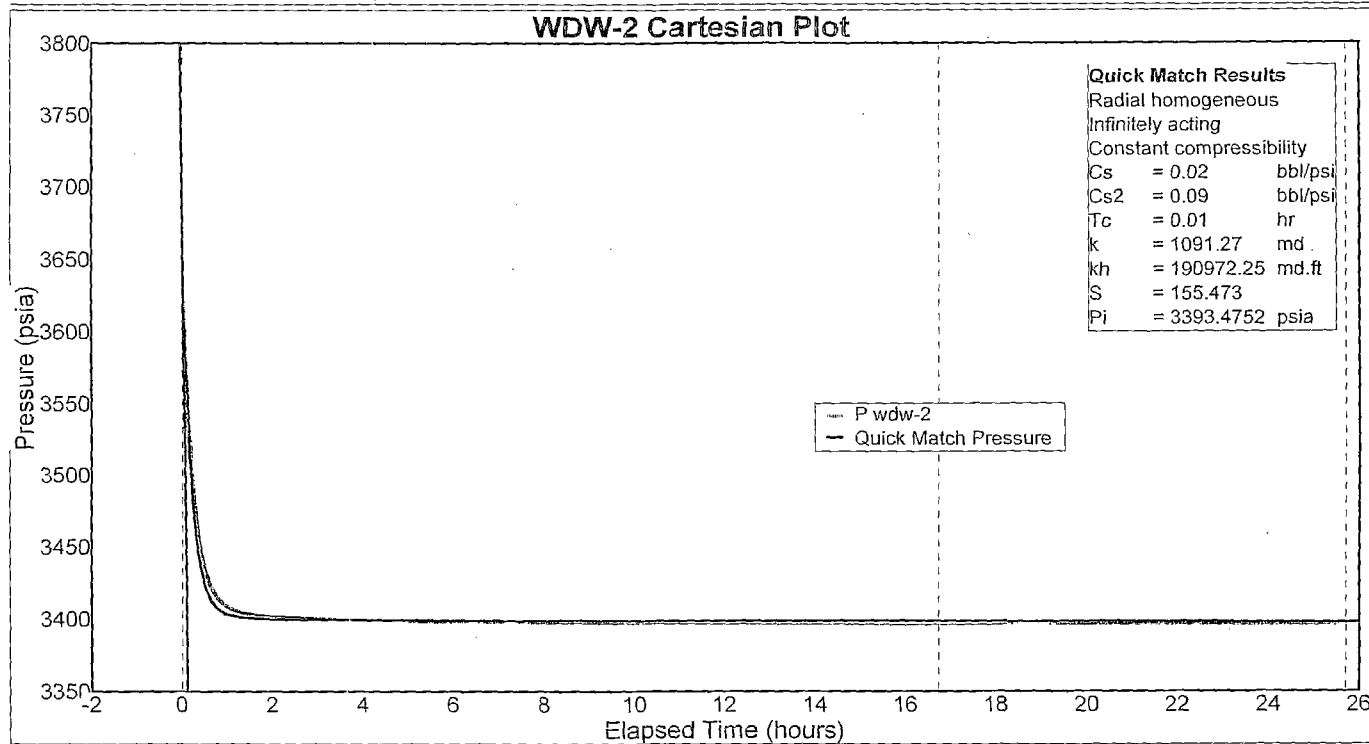
Report File:

2008_WDW-2.pan

PanSystem

Well Test Analysis Report




WDW-2 Cartesian Plot Model Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.05561 bbl/psi
Dimensionless wellbore storage	3141.673428

Quick Match Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.0200 bbl/psi
Second Wellbore Storage	0.090000 bbl/psi
Time Change for Second Storage	0.010000 hr
Permeability	1091.2700 md
Permeability-thickness	1.9097e5 md.ft
Skin factor	155.4730
Computed initial pressure	3393.475193 psia

WDW-2 Cartesian Plot Line Details

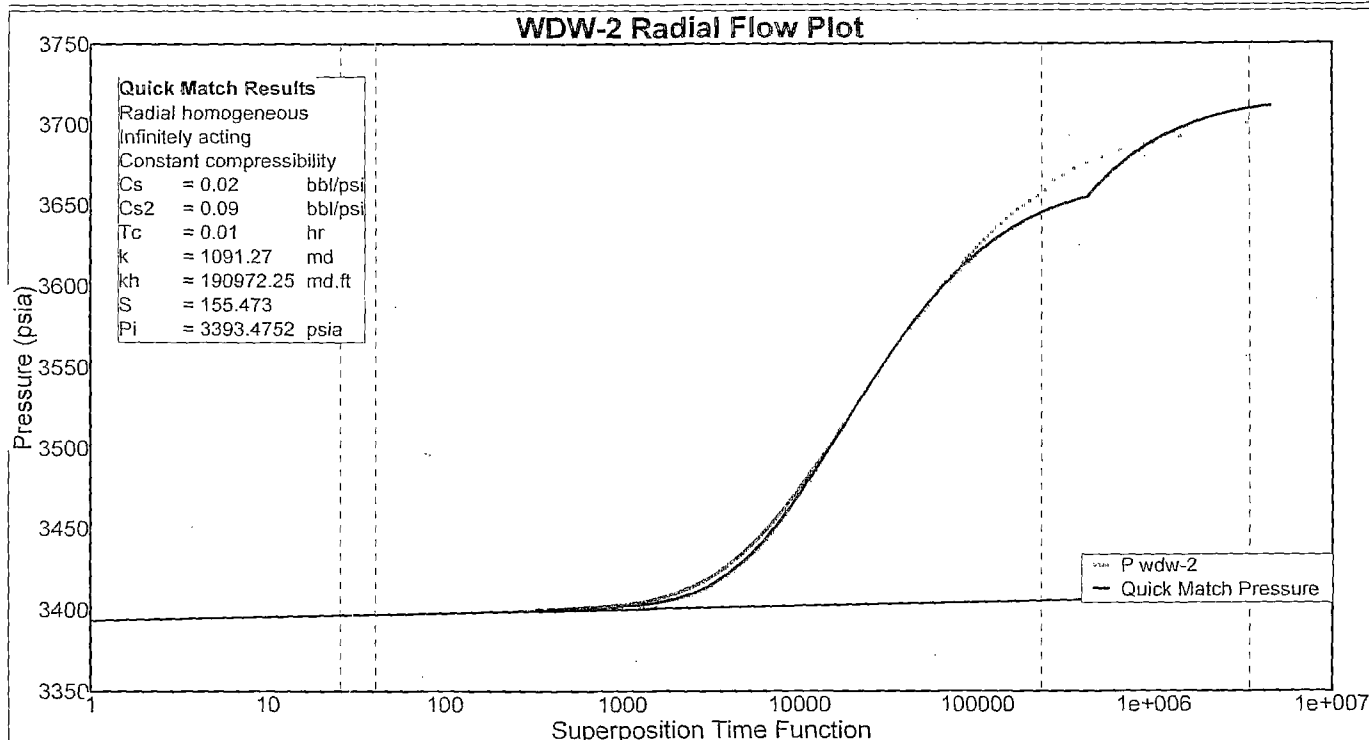
Line type : Wellbore storage

Slope : -2718.16

Intercept : 3700.66

Coefficient of Determination : 0.970598

Number of Intersections = 0


WDW-2 Radial Flow Plot Model Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Permeability	1091.26691 md
Permeability-thickness	1.9097e5 md.ft
Radius of investigation	6221.494338 ft
Flow efficiency	0.072814
dP skin (constant rate)	300.256629 psi
Skin factor	155.472839
Extrapolated pressure	3393.473989 psia

Quick Match Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.0200 bbl/psi
Second Wellbore Storage	0.090000 bbl/psi
Time Change for Second Storage	0.010000 hr
Permeability	1091.2700 md
Permeability-thickness	1.9097e5 md.ft
Skin factor	155.4730
Computed initial pressure	3393.475193 psia

WDW-2 Radial Flow Plot Line Details

PanSystem

Well Test Analysis Report

Line type : Radial flow

Slope : 2.22343

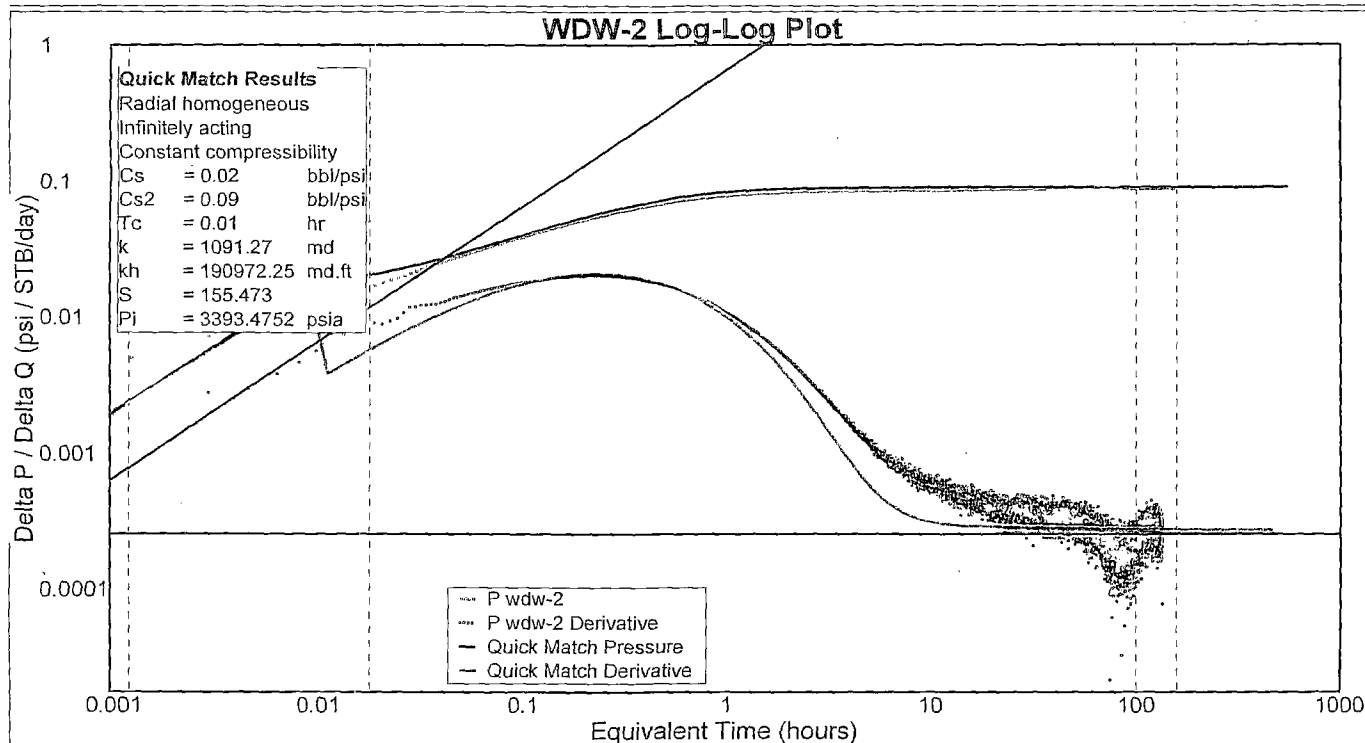
Intercept : 3393.47

Coefficient of Determination : 0.934369

	Radial flow
Extrapolated pressure	3393.473989 psia
Pressure at dt = 1 hour	3401.497360 psia

Number of Intersections = 0

Well Test Analysis Report



WDW-2 Log-Log Plot Model Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.062582 bbl/psi
Dimensionless wellbore storage	3535.531263
Permeability	1136.569494 md
Permeability-thickness	1.9890e5 md.ft

Quick Match Results

Radial homogeneous - Infinitely acting

Time Stepped Wellbore Storage

	Value
Wellbore storage coefficient	0.0200 bbl/psi
Second Wellbore Storage	0.090000 bbl/psi
Time Change for Second Storage	0.010000 hr
Permeability	1091.2700 md
Permeability-thickness	1.9097e5 md.ft
Skin factor	155.4730
Computed initial pressure	3393.475193 psia

WDW-2 Log-Log Plot Line Details

Line type : Wellbore storage

Slope : 1

Intercept : 0.665797

Coefficient of Determination : Not Used

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Subsurface Technology, Inc

Report File:

2008_WDW-2.pan

PanSystem

Well Test Analysis Report

Line type : Radial flow

Slope : 0

Intercept : 0.000255566

Coefficient of Determination : Not Used

Number of Intersections = 0

WDW-1 Test Overview

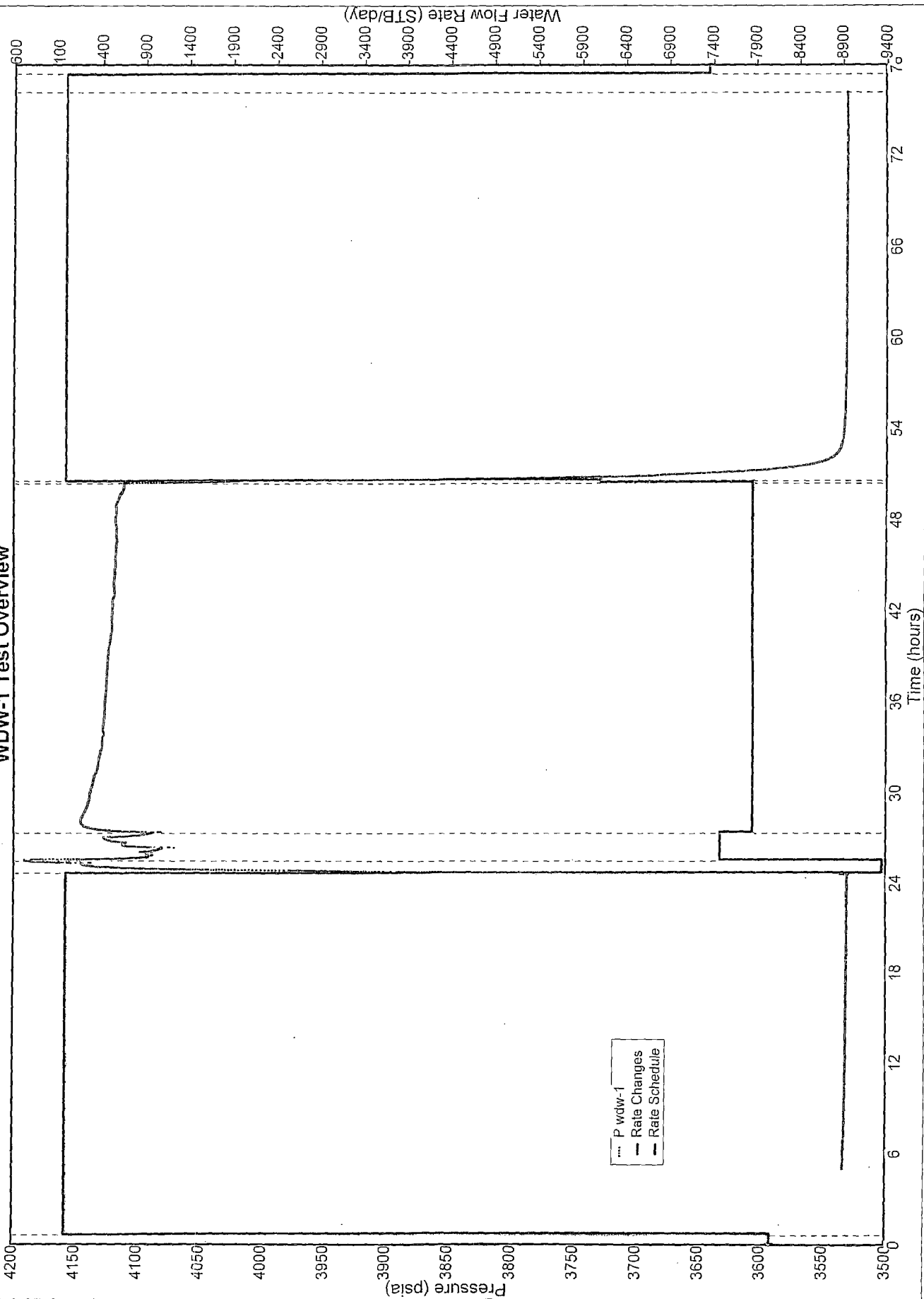


FIGURE 9

WDW-1 Cartesian Plot

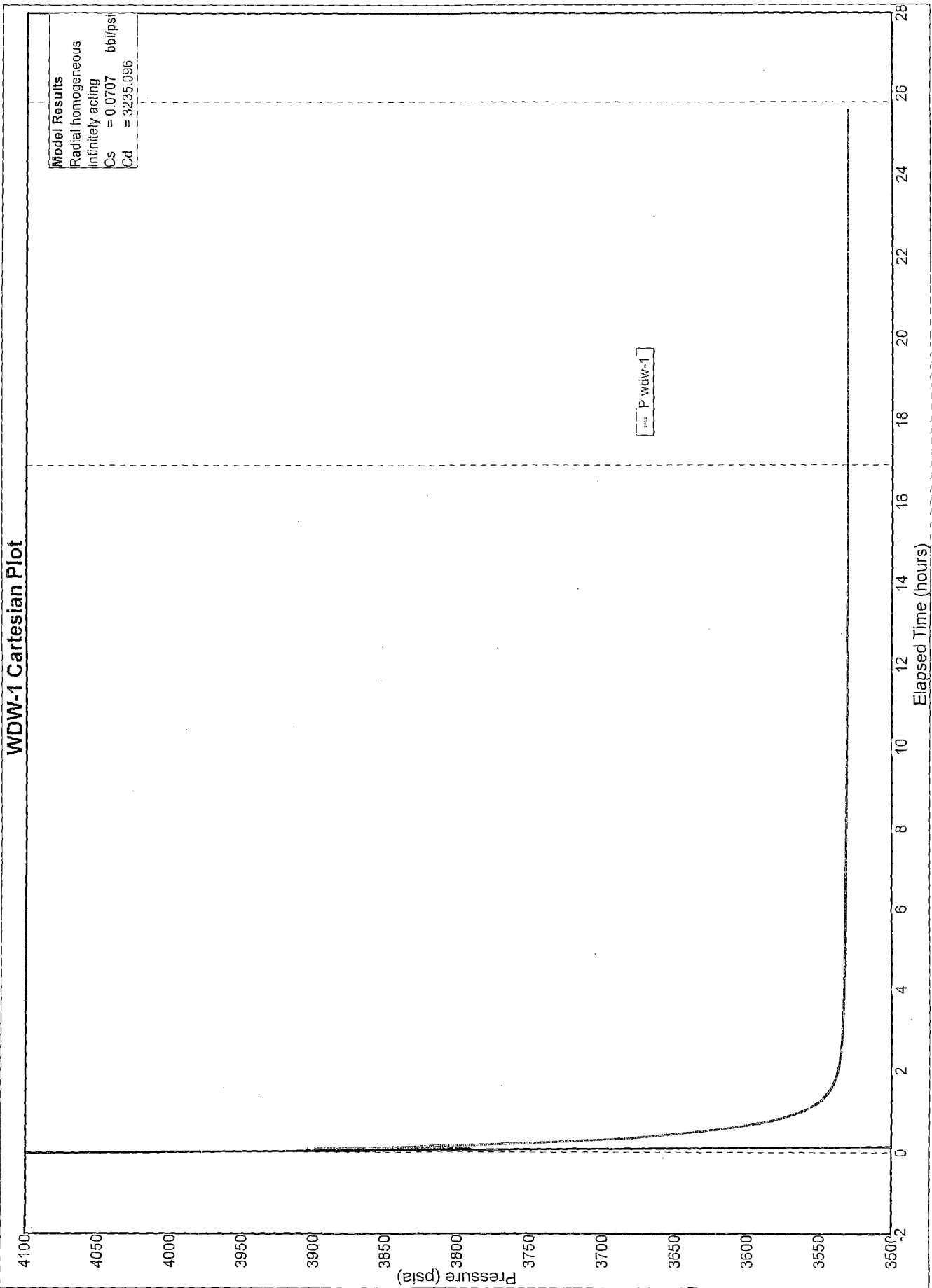


FIGURE 10

WDW-1 Log-Log Plot

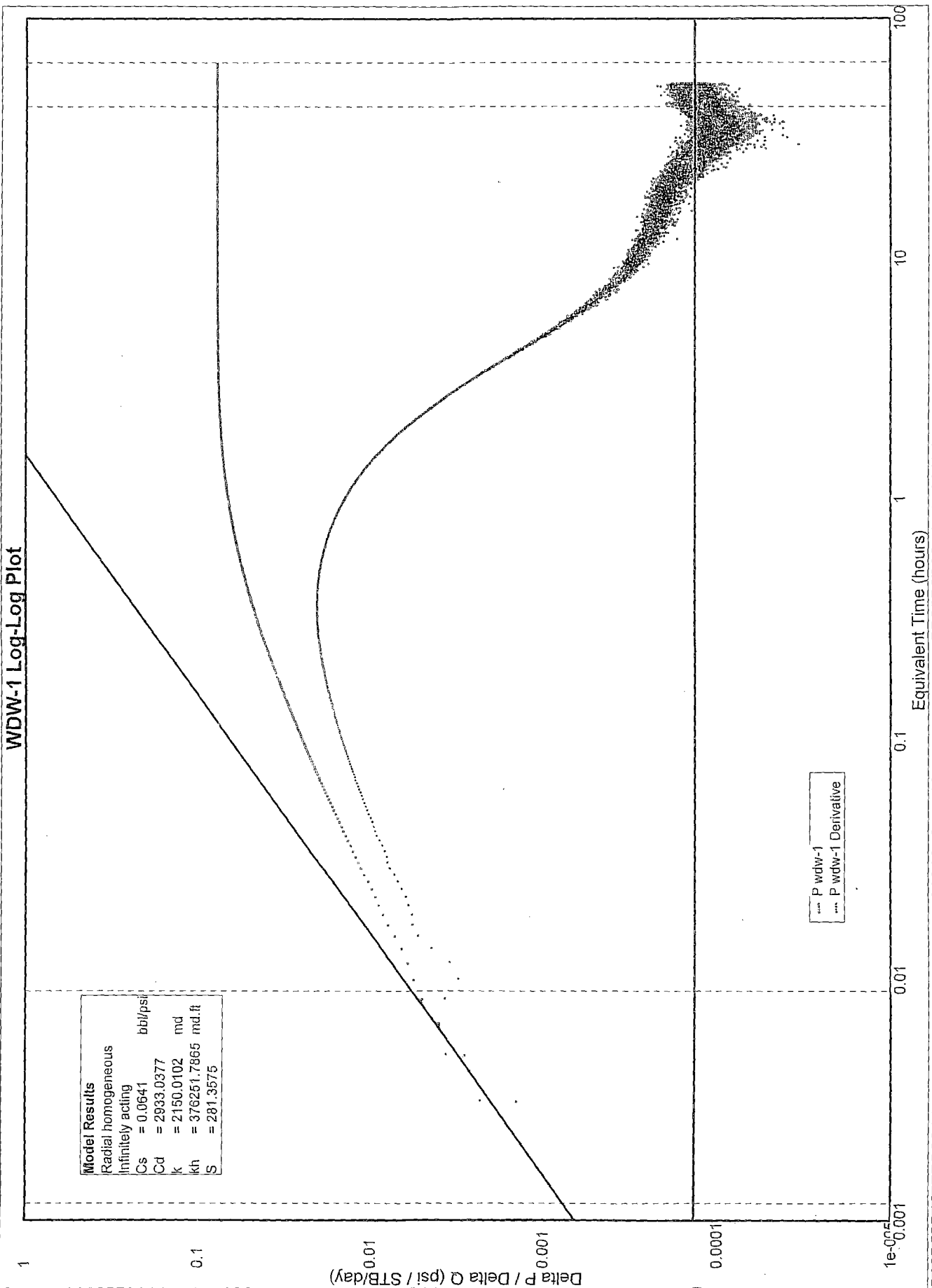
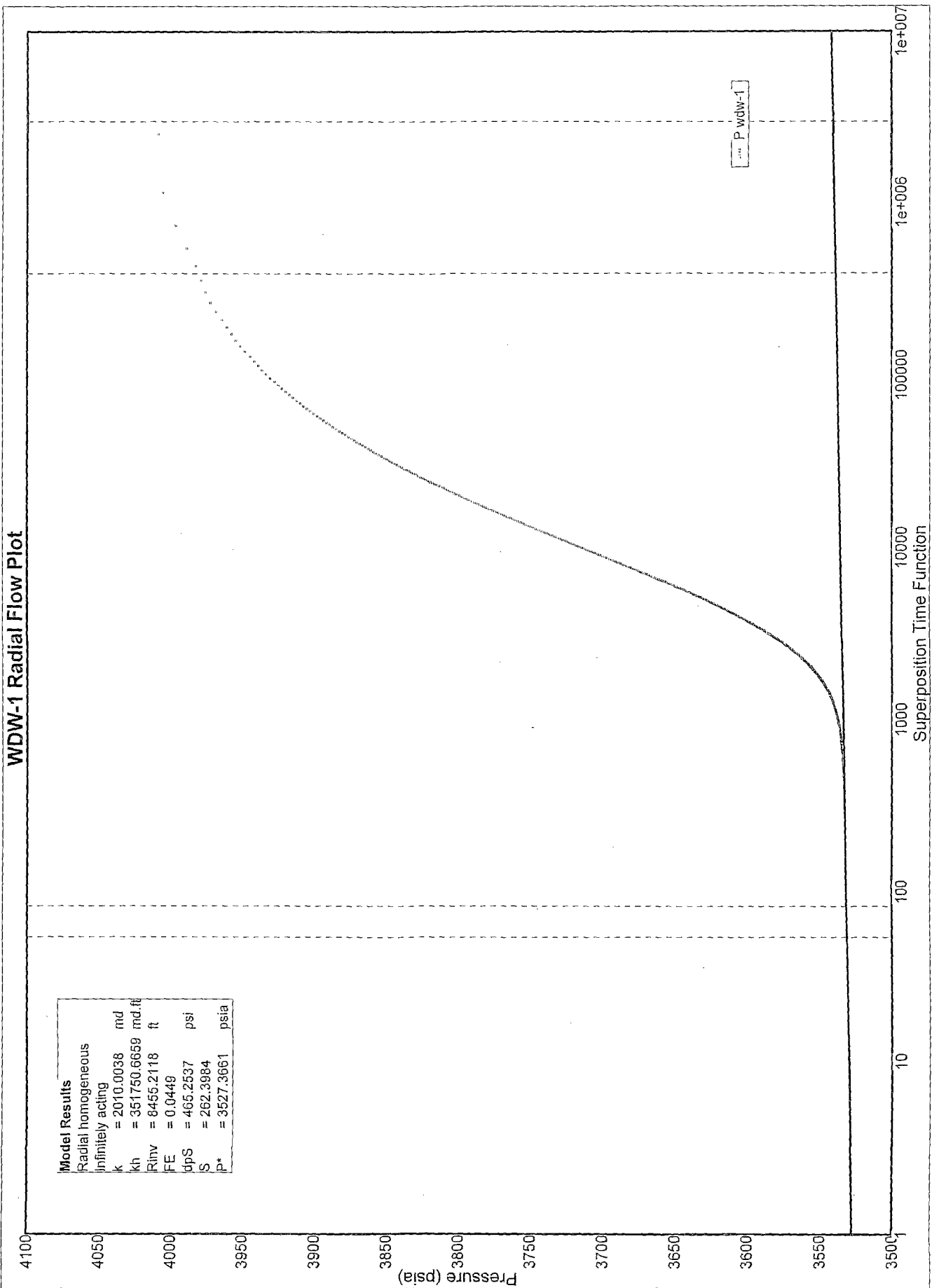


FIGURE 11

WDW-1 Radial Flow Plot



Model Results		
Radial homogeneous		
Infinitely acting		
k	= 2010.0038	md
kh	= 351750.6659	md.ft
Rinv	= 8455.2118	ft
FE	= 0.0449	
dpS	= 465.2537	psi
S	= 262.3984	
P*	= 3527.3661	psia

FIGURE 12

WDW-1 Radial Flow Plot

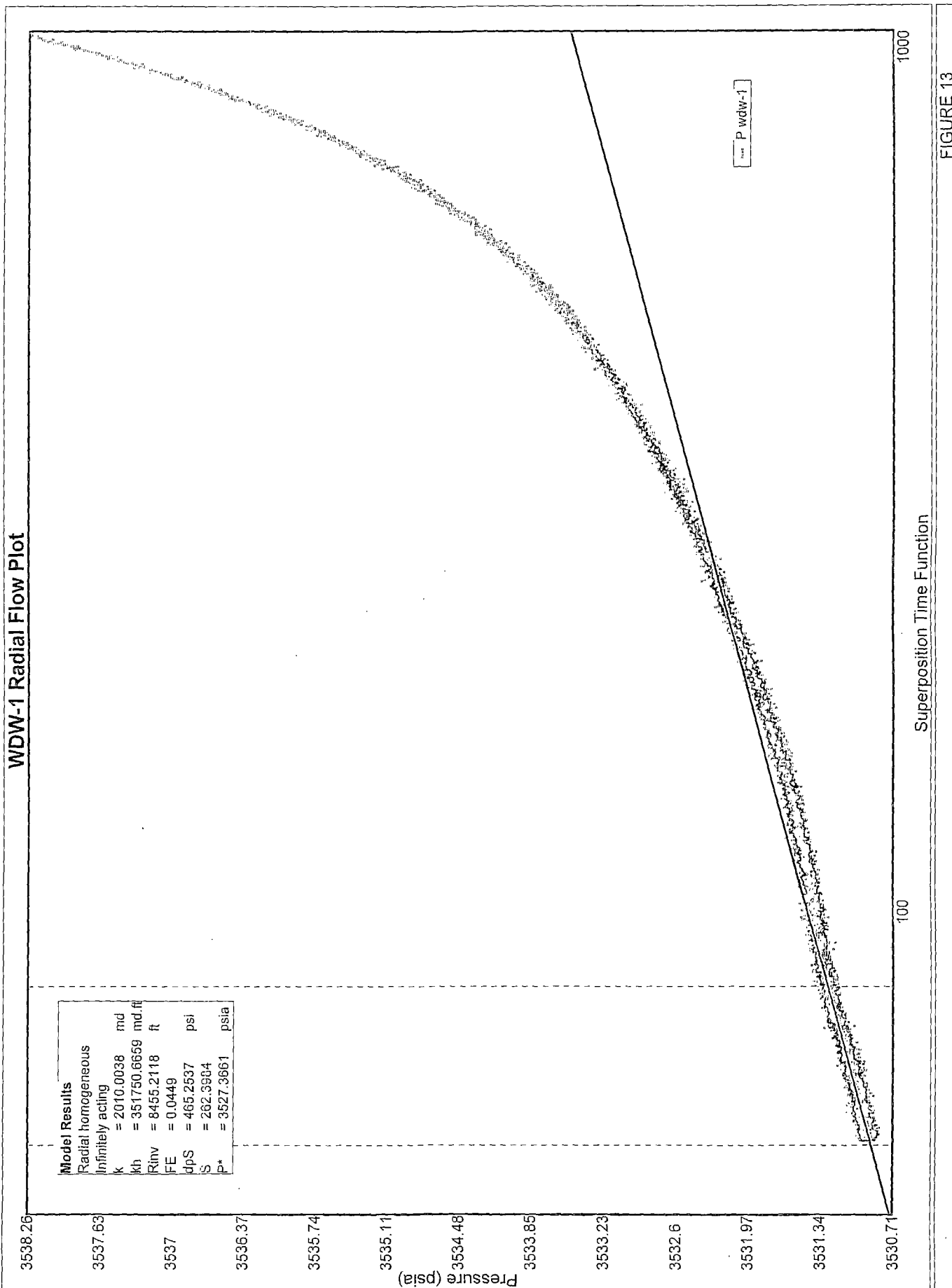


FIGURE 13

WDW-1 Cartesian Plot

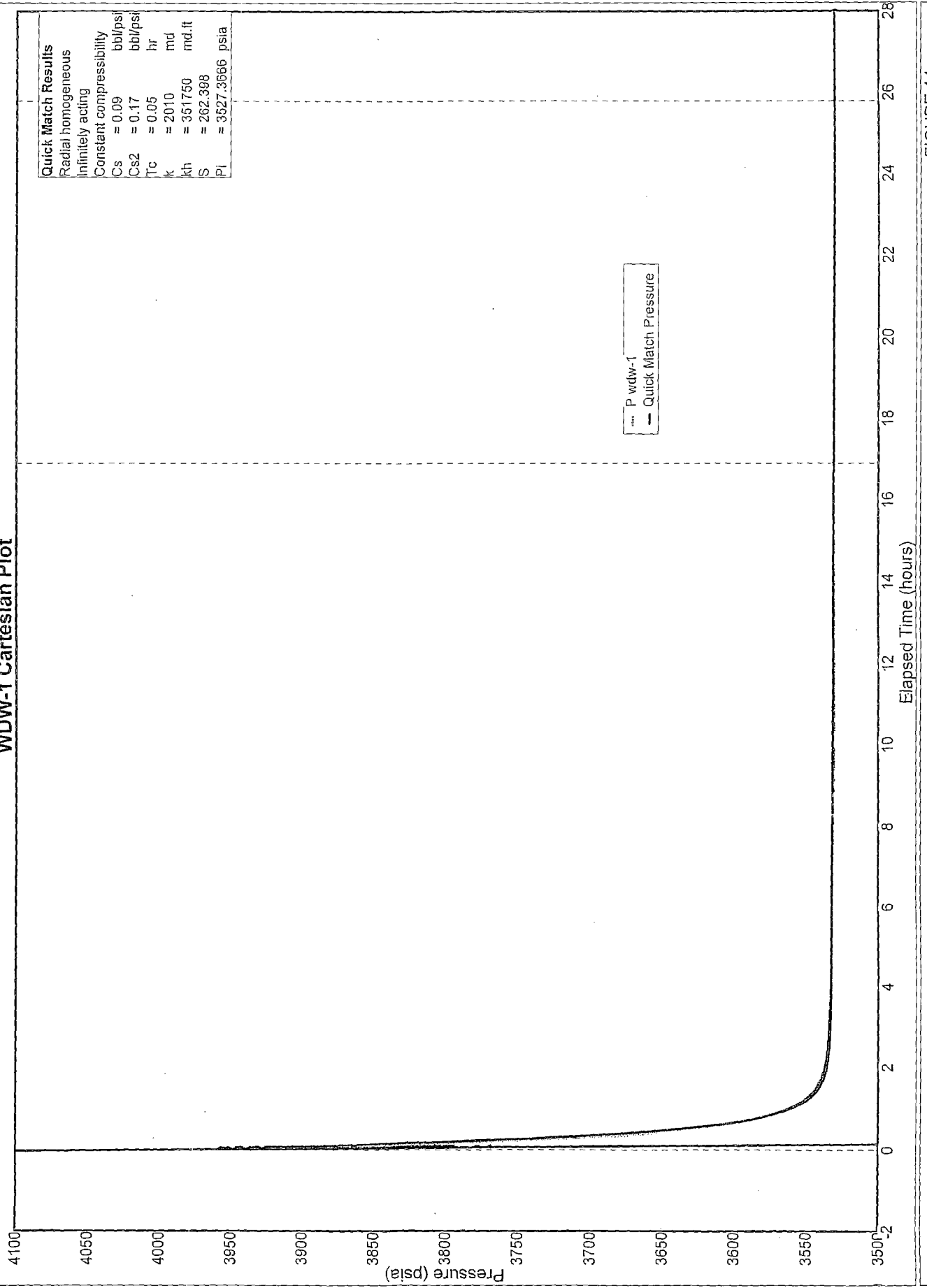


FIGURE 14

WDW-1 Radial Flow Plot

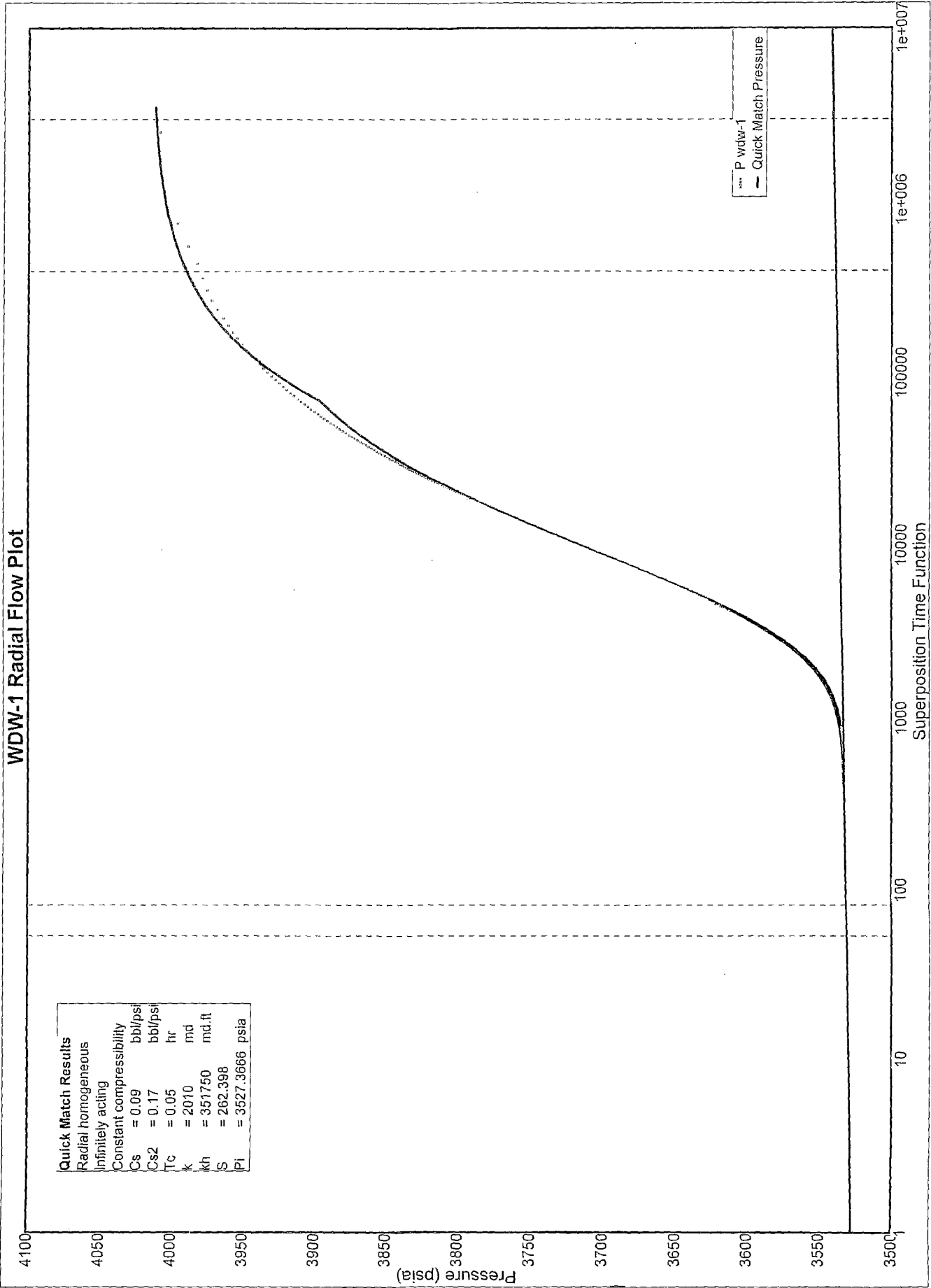


FIGURE 15

WDW-1 Log-Log Plot

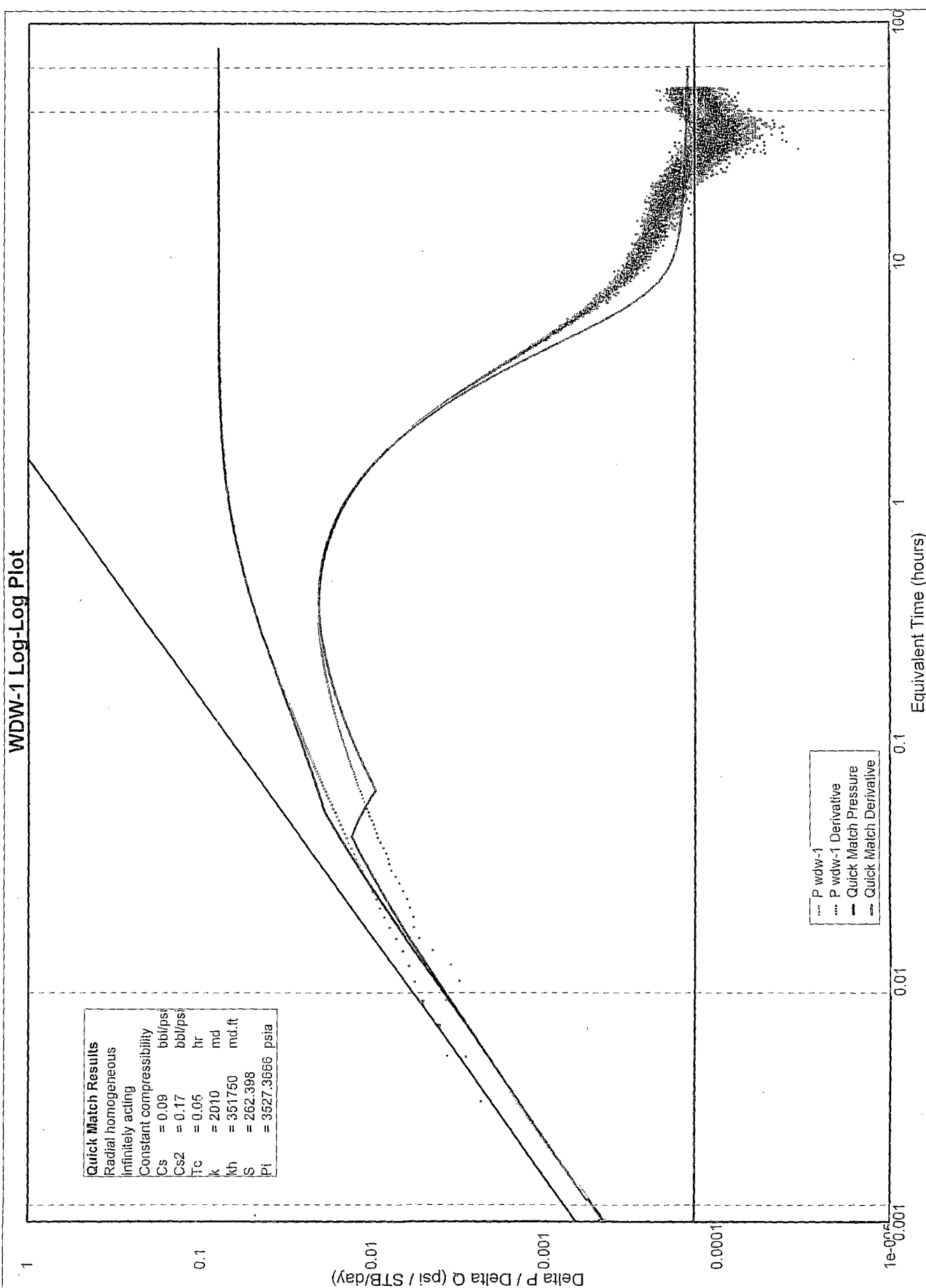


FIGURE 16

WDW-2 Test Overview

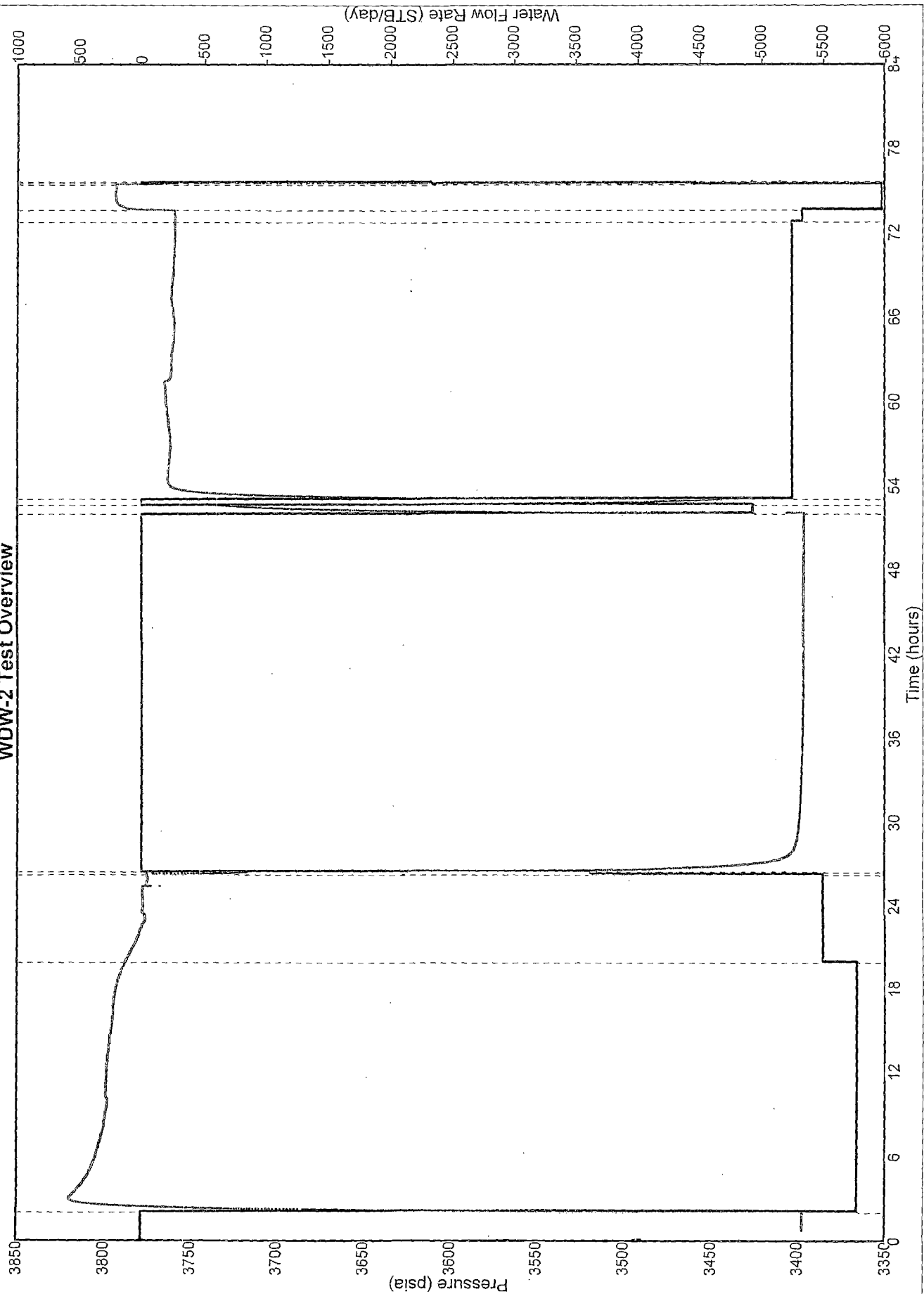


FIGURE 17

WDW-2 Cartesian Plot

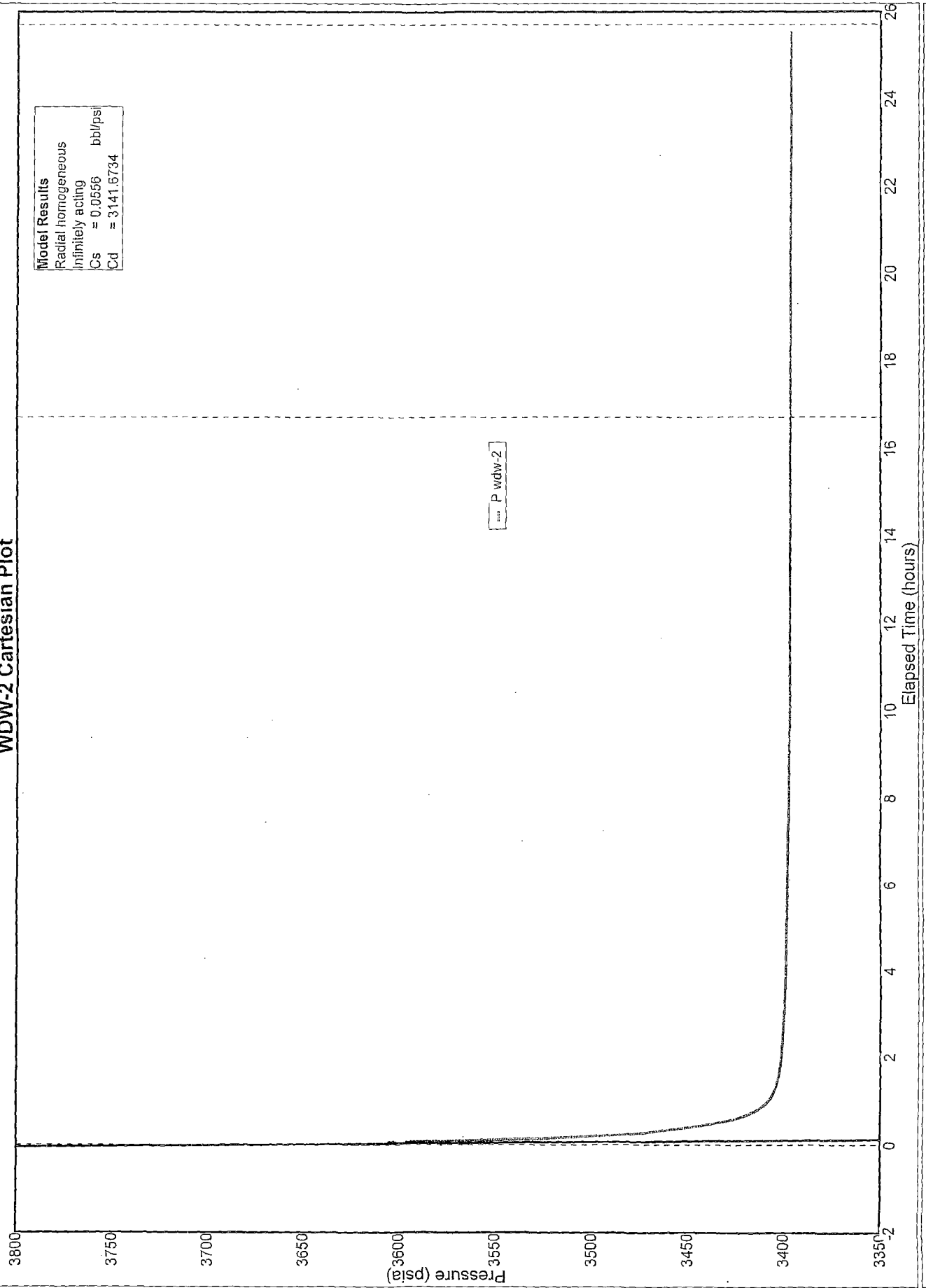


FIGURE 18

WDW-2 Log-Log Plot

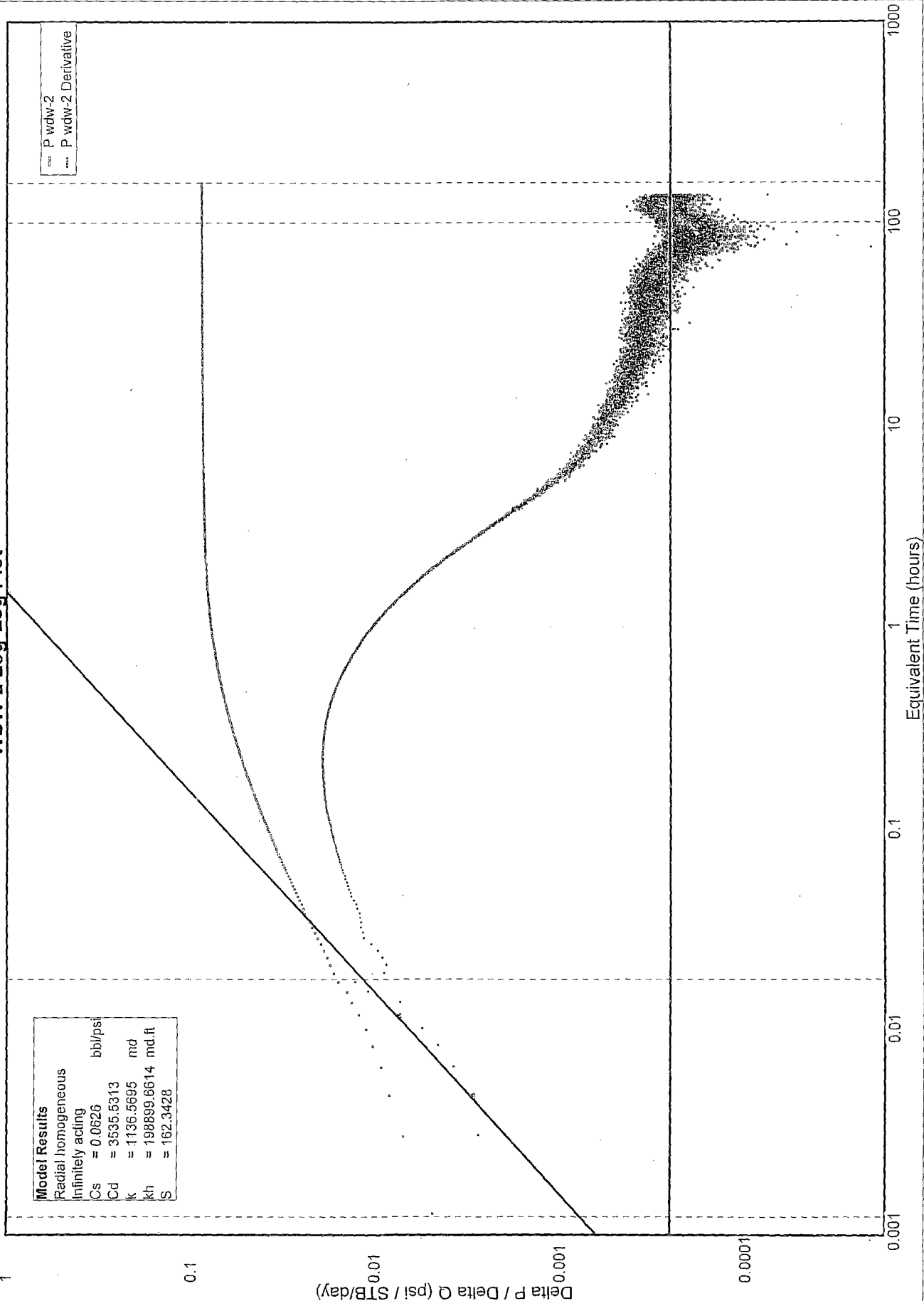


FIGURE 19

WDW-2 Radial Flow Plot

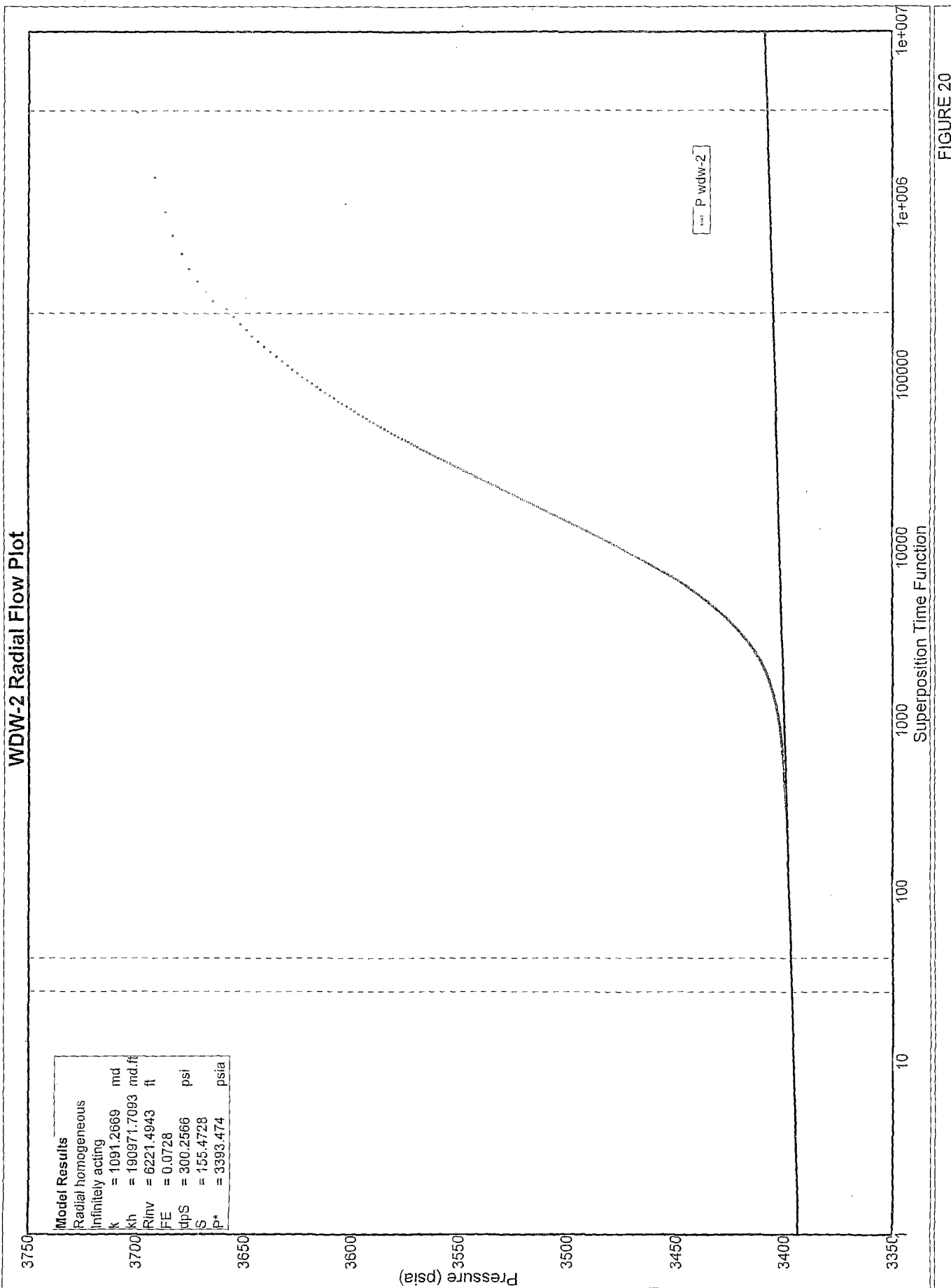
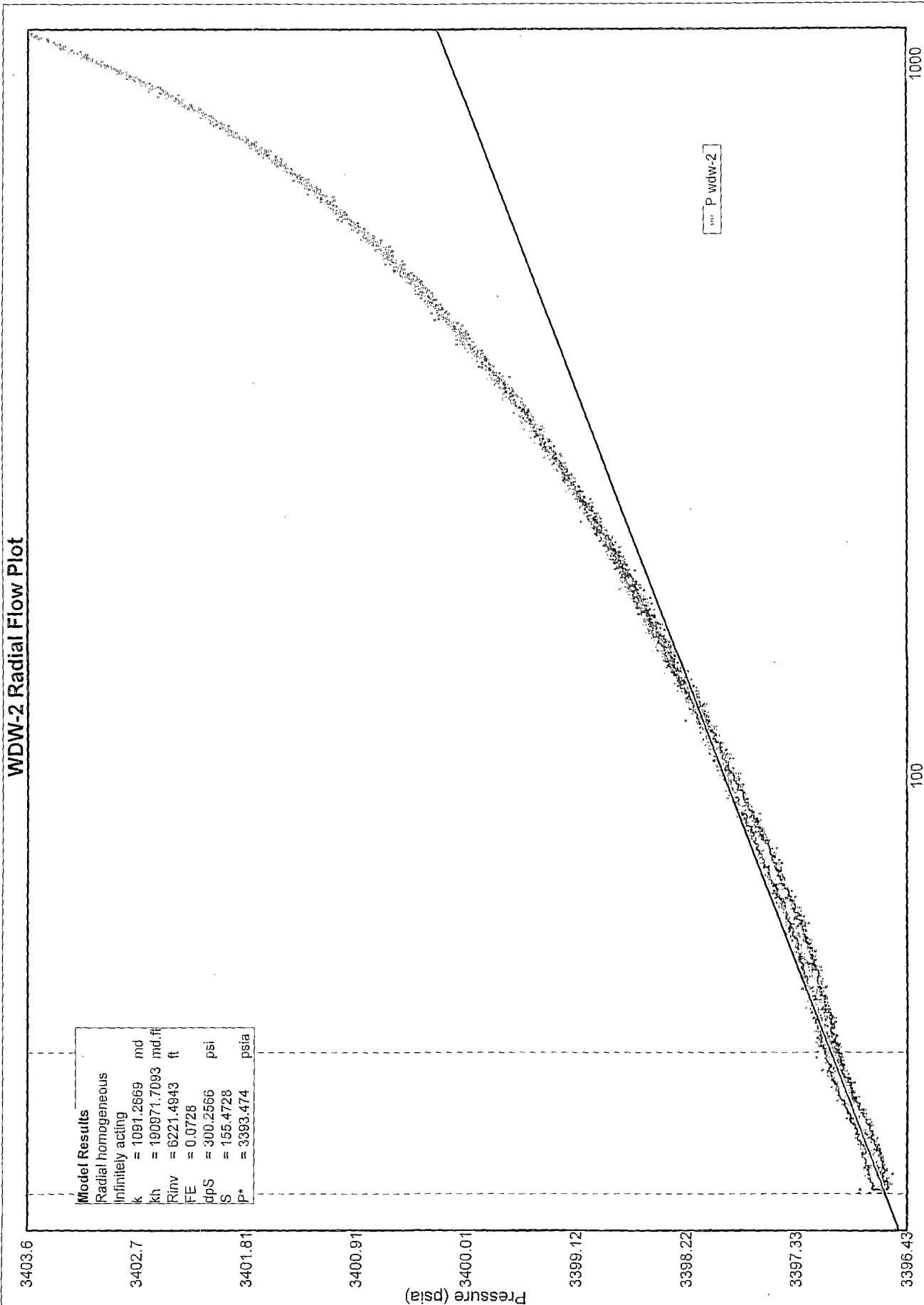


FIGURE 20

WDW-2 Radial Flow Plot



Superposition Time Function

FIGURE 21

WDW-2 Cartesian Plot

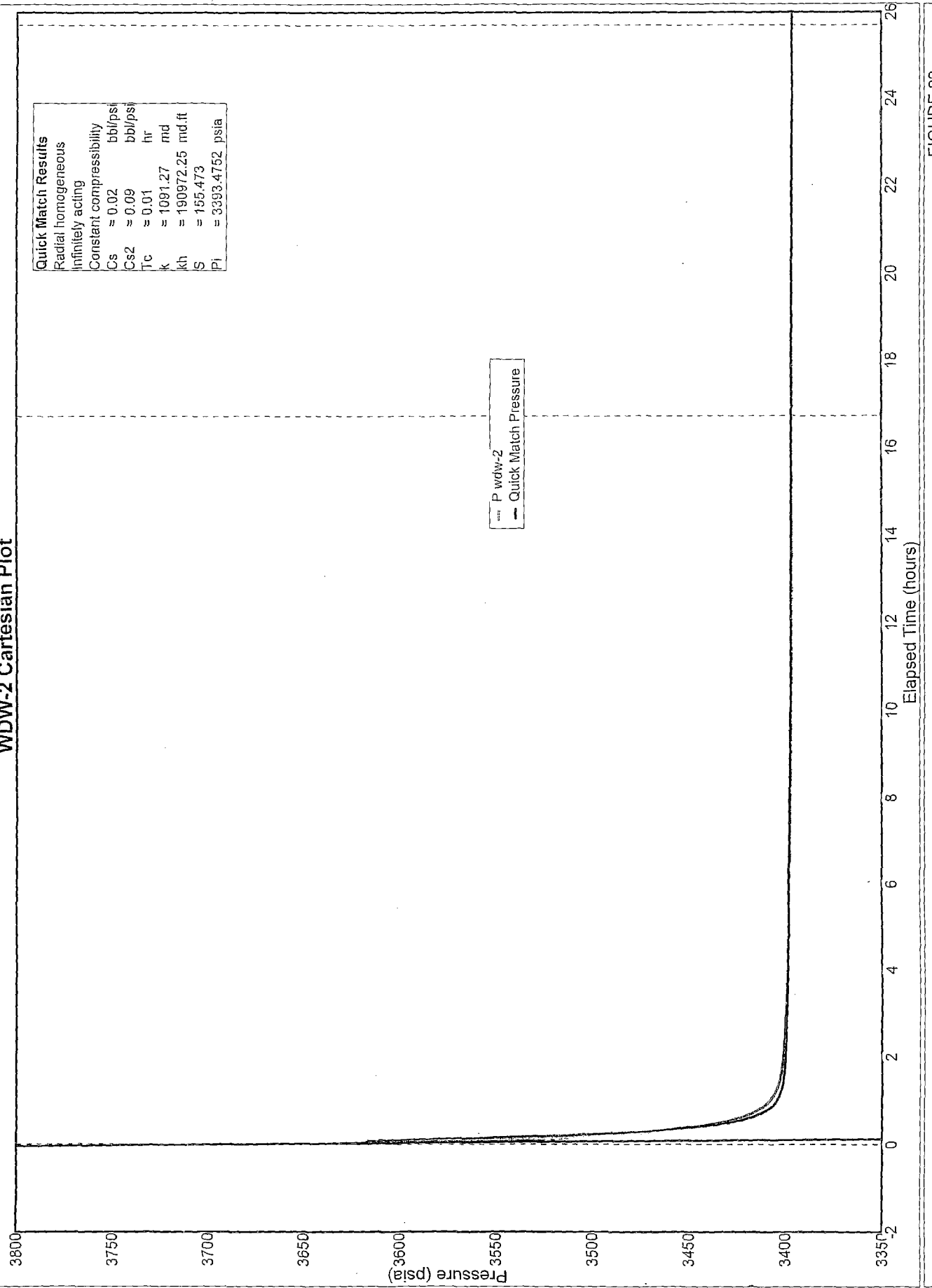


FIGURE 22

WDW-2 Radial Flow Plot

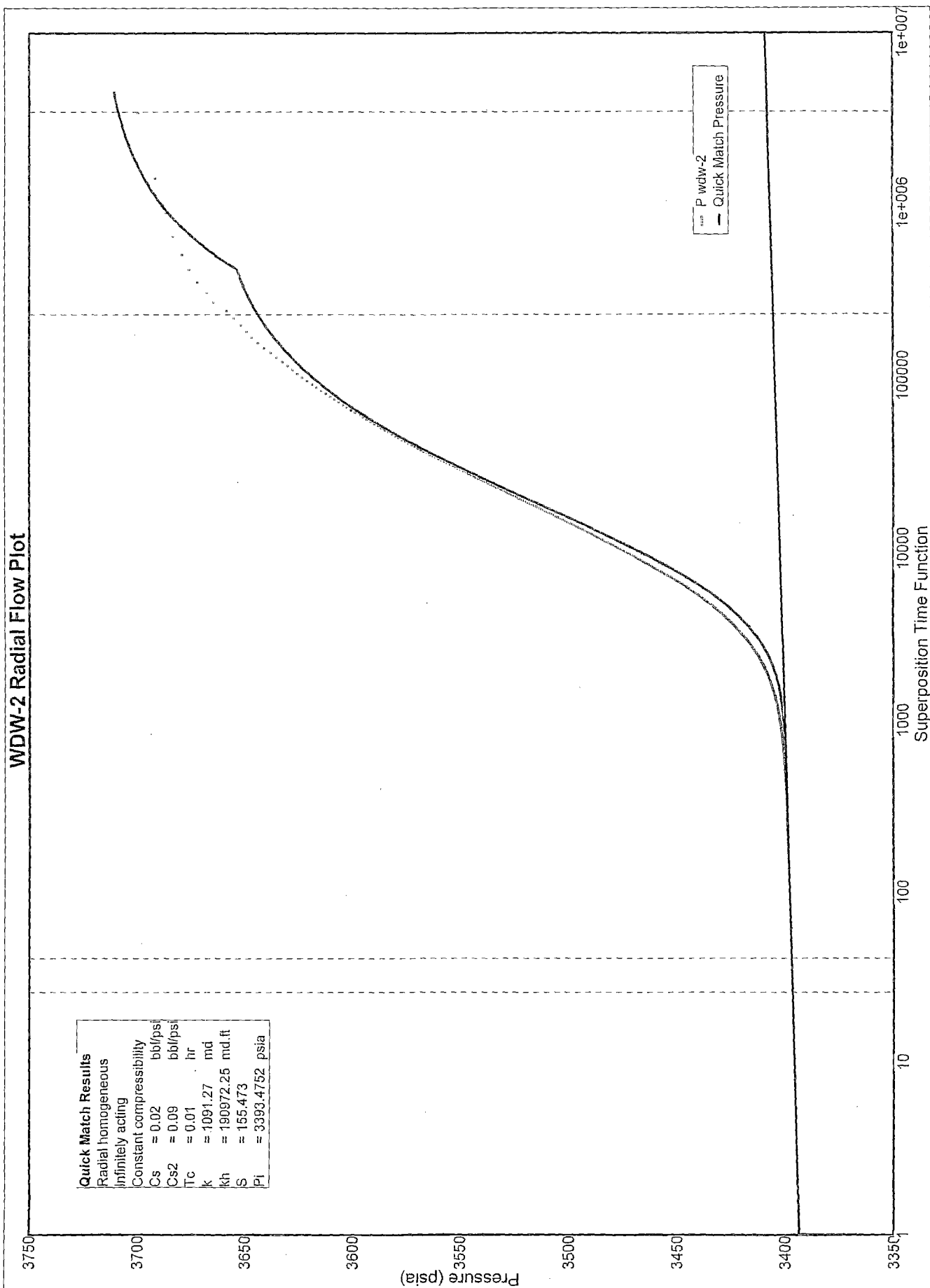


FIGURE 23

WDW-2 Log-Log Plot

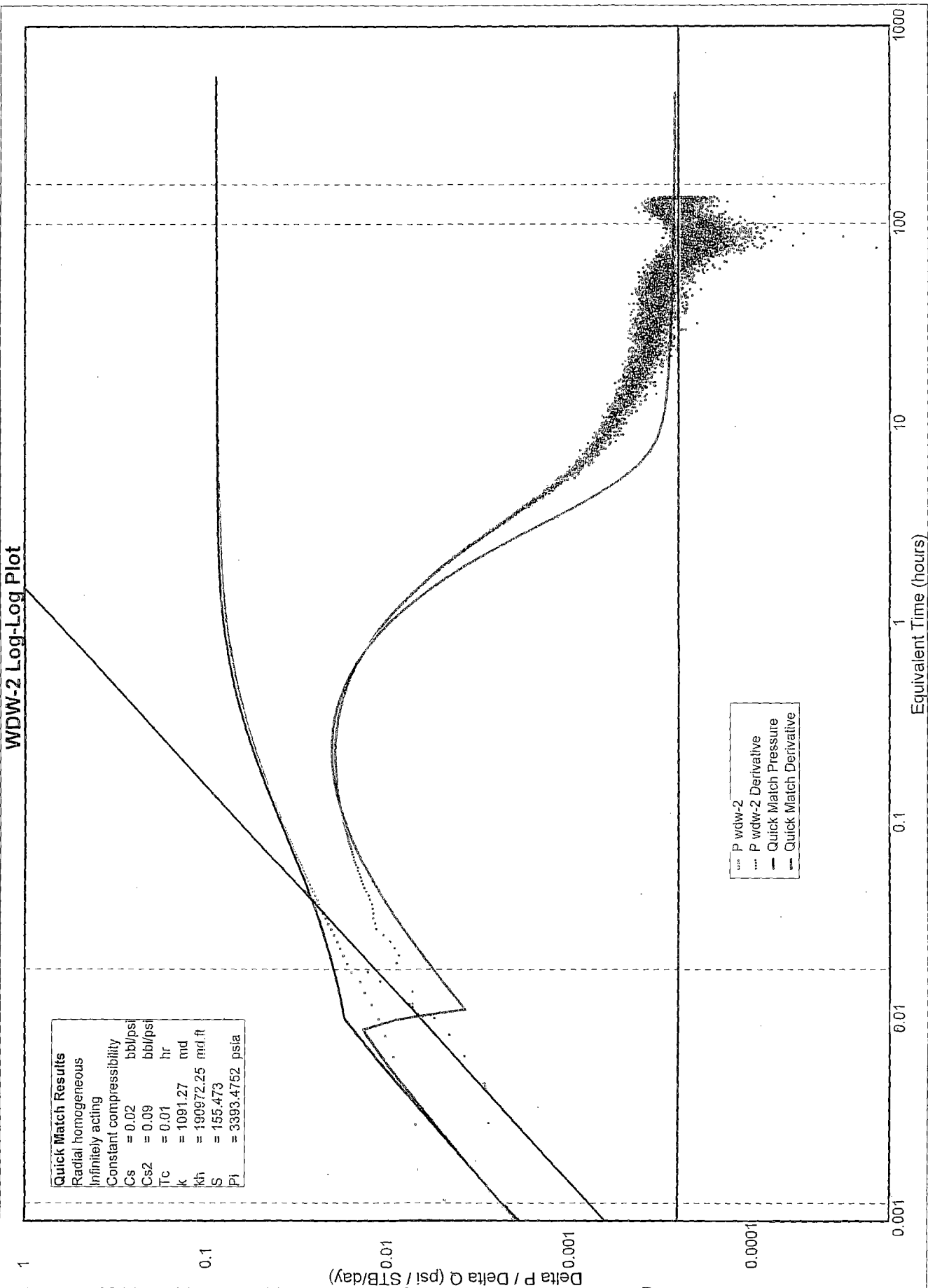


FIGURE 24

WDW-3 Test Overview

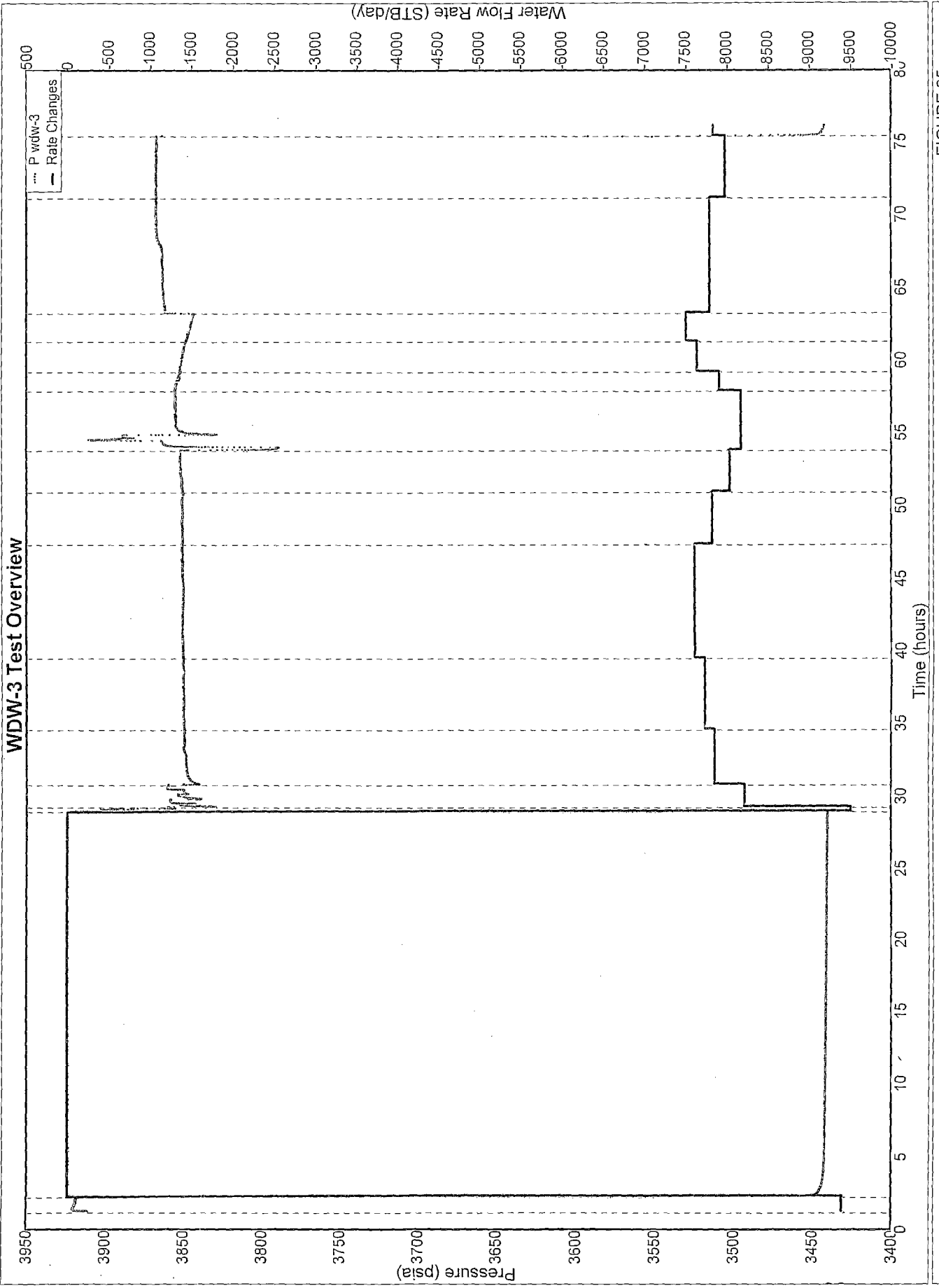


FIGURE 25

WDW-3 Cartesian Plot

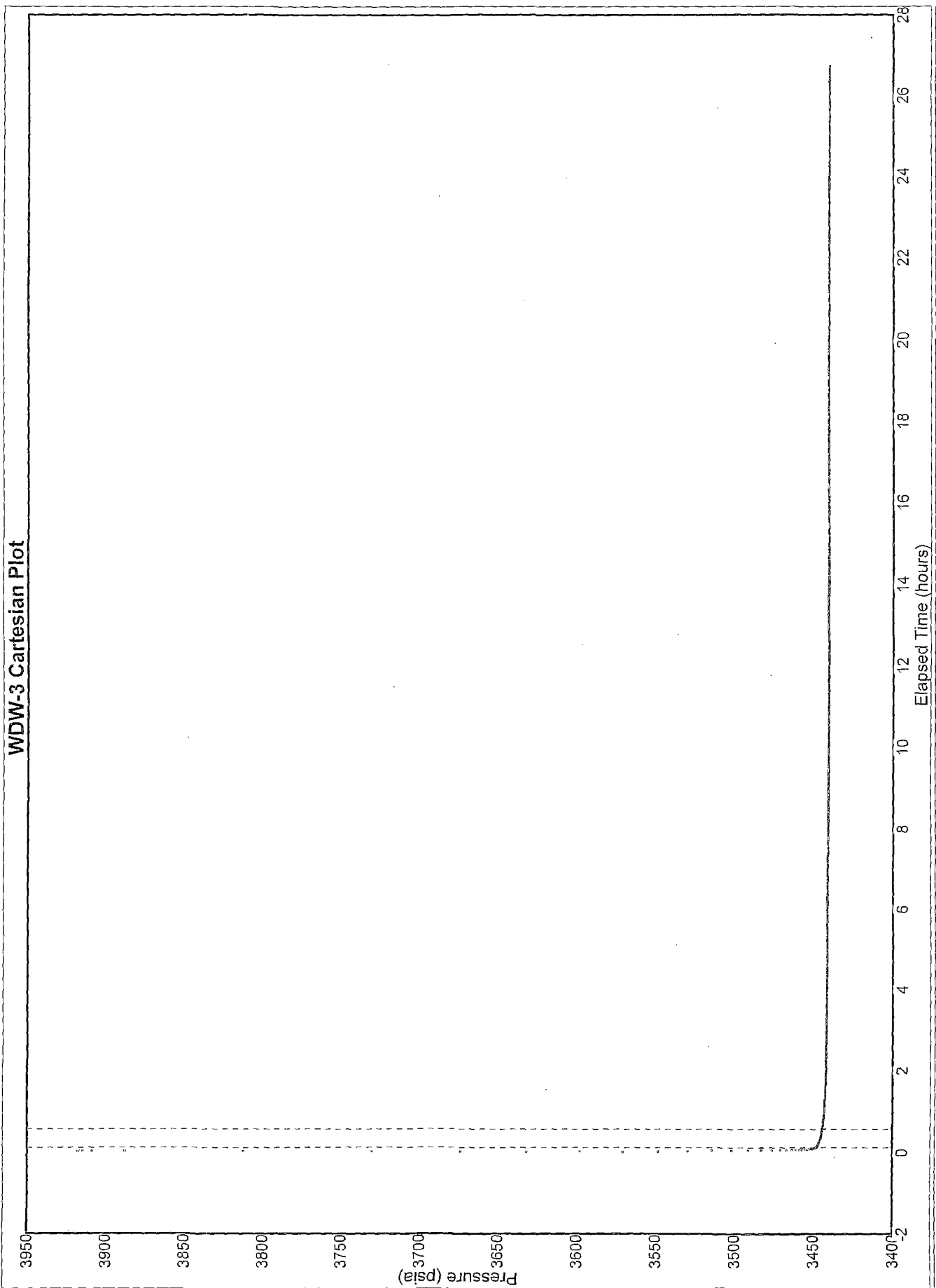


FIGURE 26

WDW-3 Log-Log Plot

P wdw-3
 P wdw-3 Derivative

Model Results	
Radial homogeneous	
Infinitely acting	
Cs	= 0.0085 bbl/psi
Cd	= 479.6343
k	= 1326.6256 md
kh	= 232159.4843 md.ft

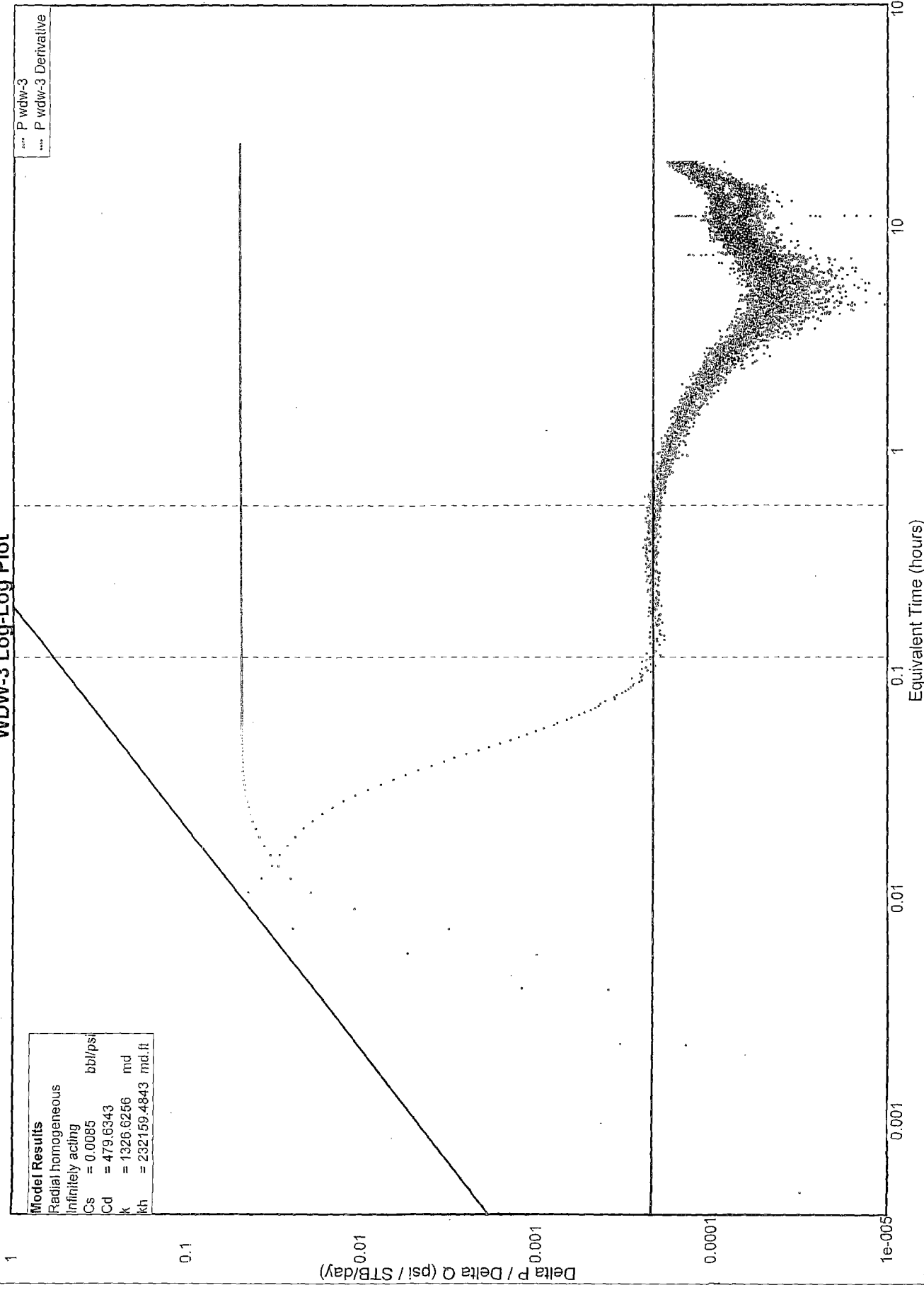
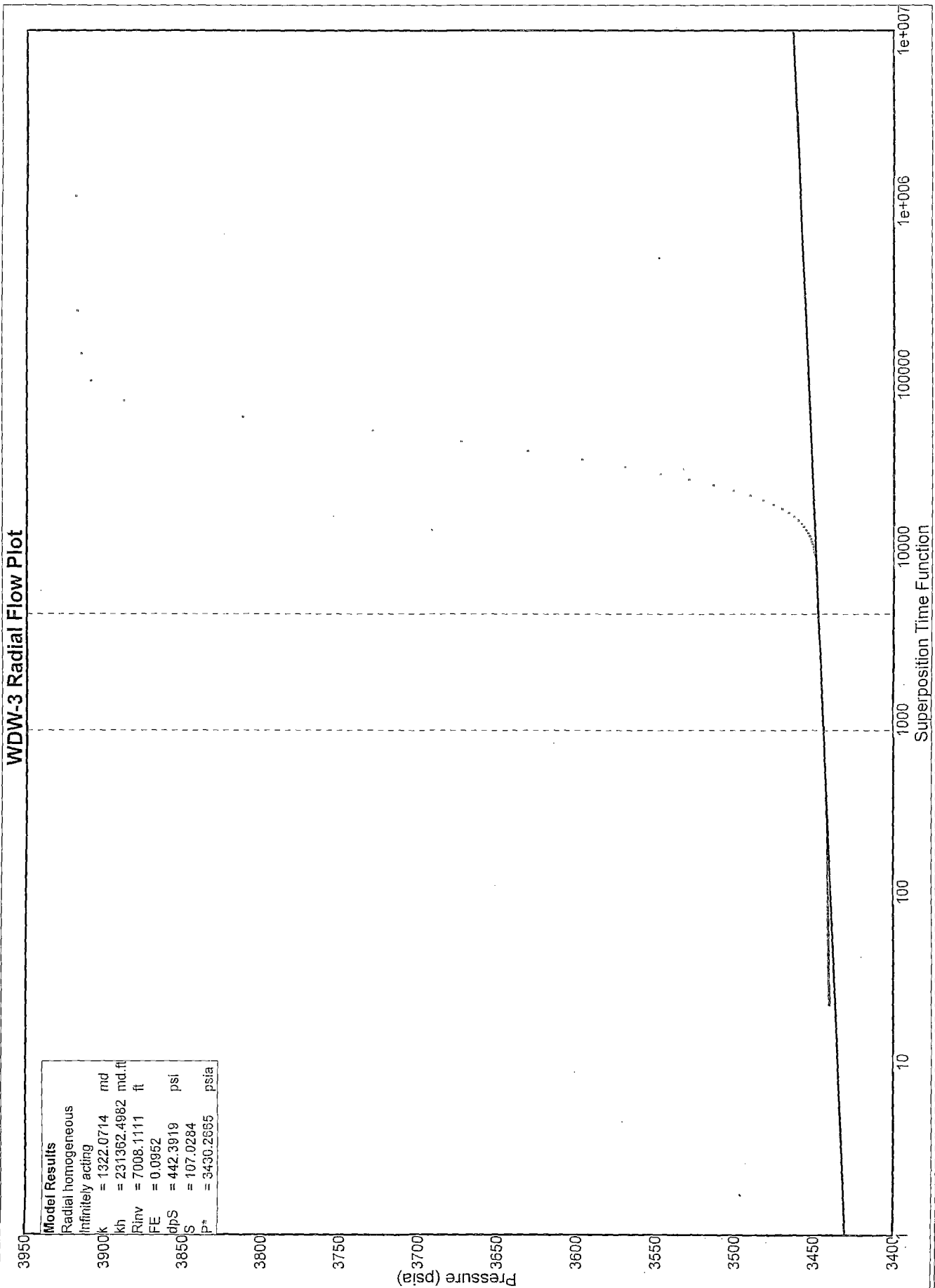


FIGURE 27

WDW-3 Radial Flow Plot



Model Results	
Radial homogeneous	
Infinitely acting	
3900k	= 1322.0714 md
kh	= 231362.4982 md.ft
Rinv	= 7008.1111 ft
FE	= 0.0952
dpS	= 442.3919 psi
S	= 107.0284
P*	= 3430.2655 psia

FIGURE 28

WDW-3 Radial Flow Plot

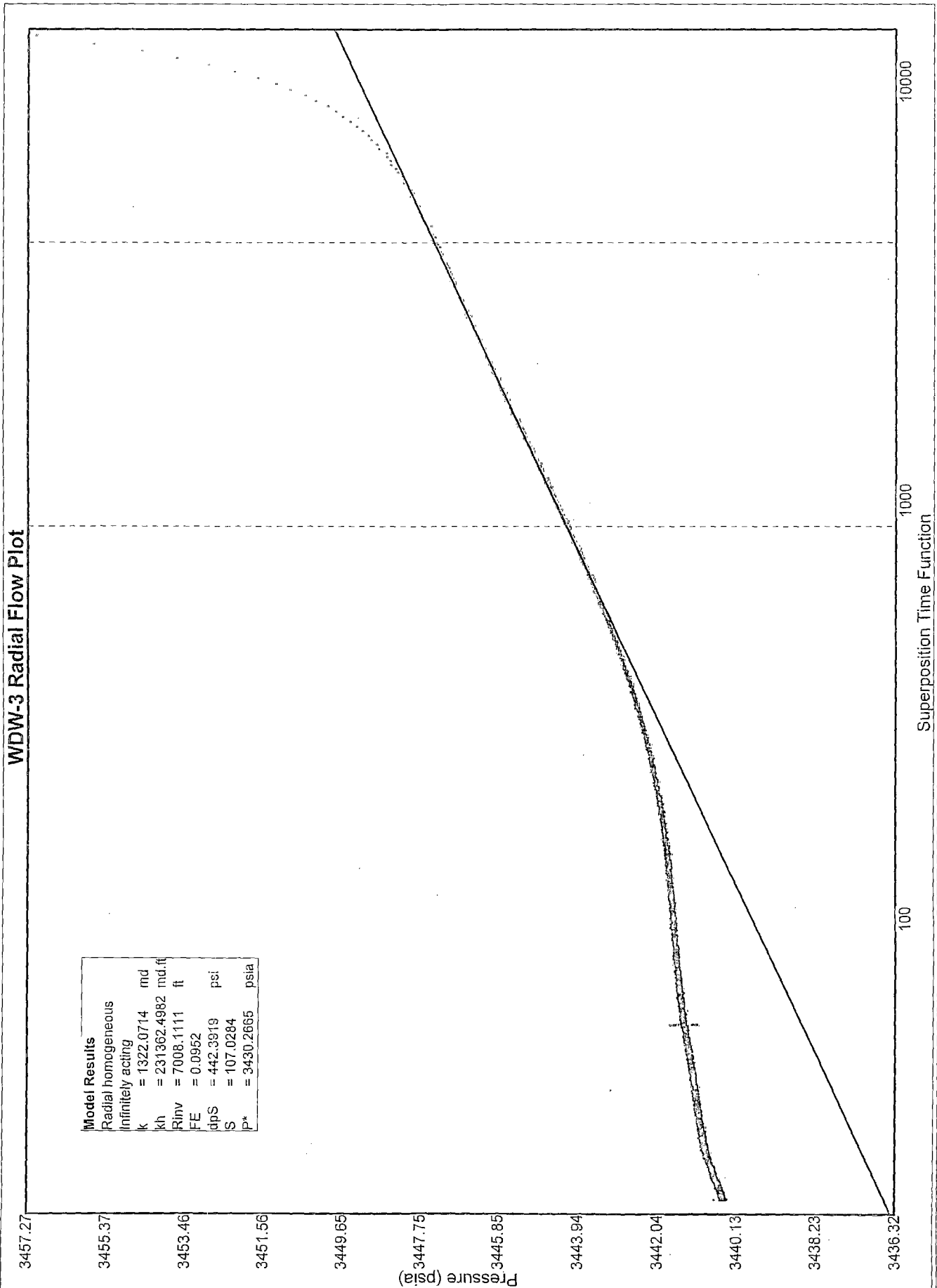


FIGURE 29

WDW-3 Cartesian Plot

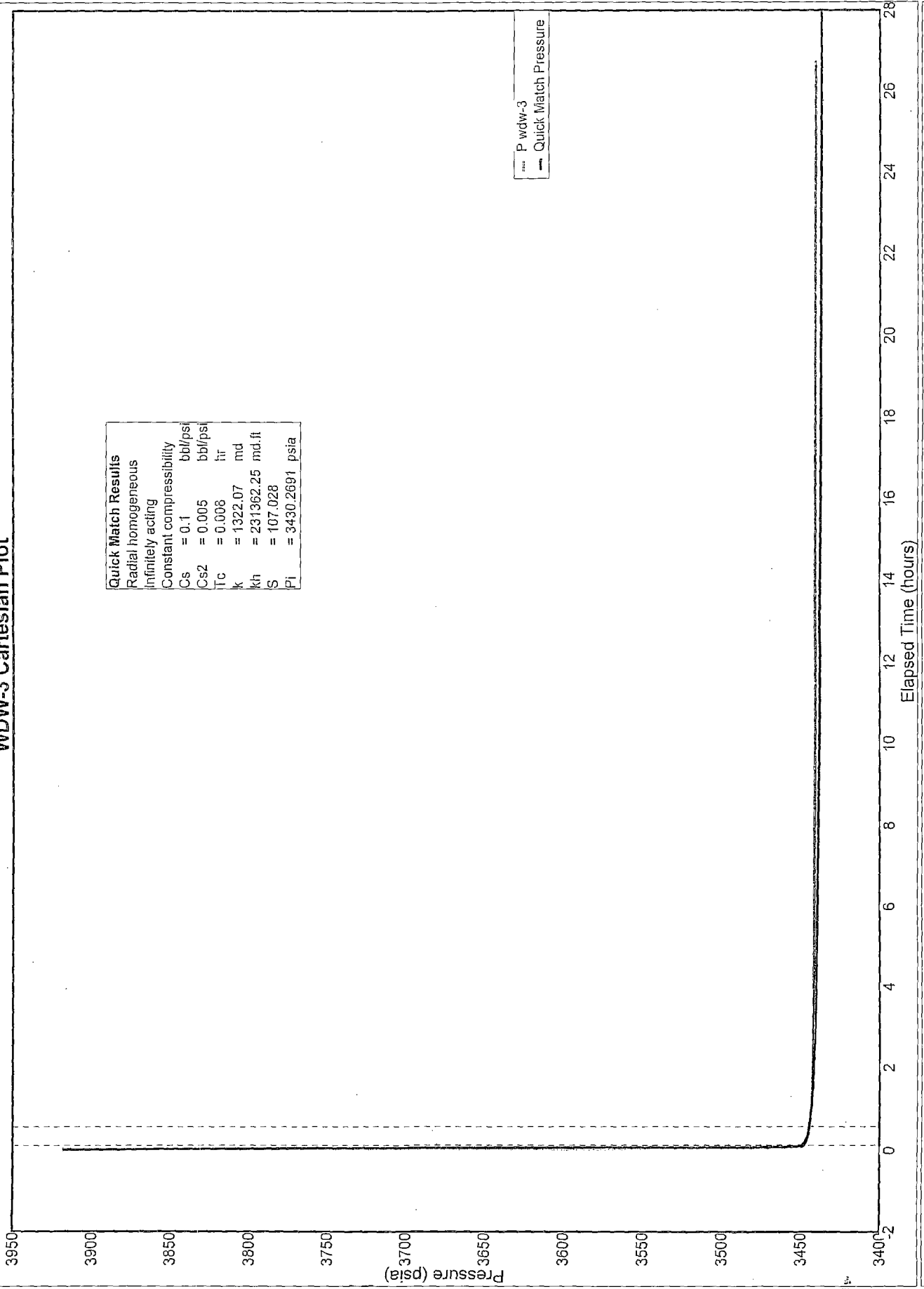


FIGURE 30

WDW-3 Radial Flow Plot

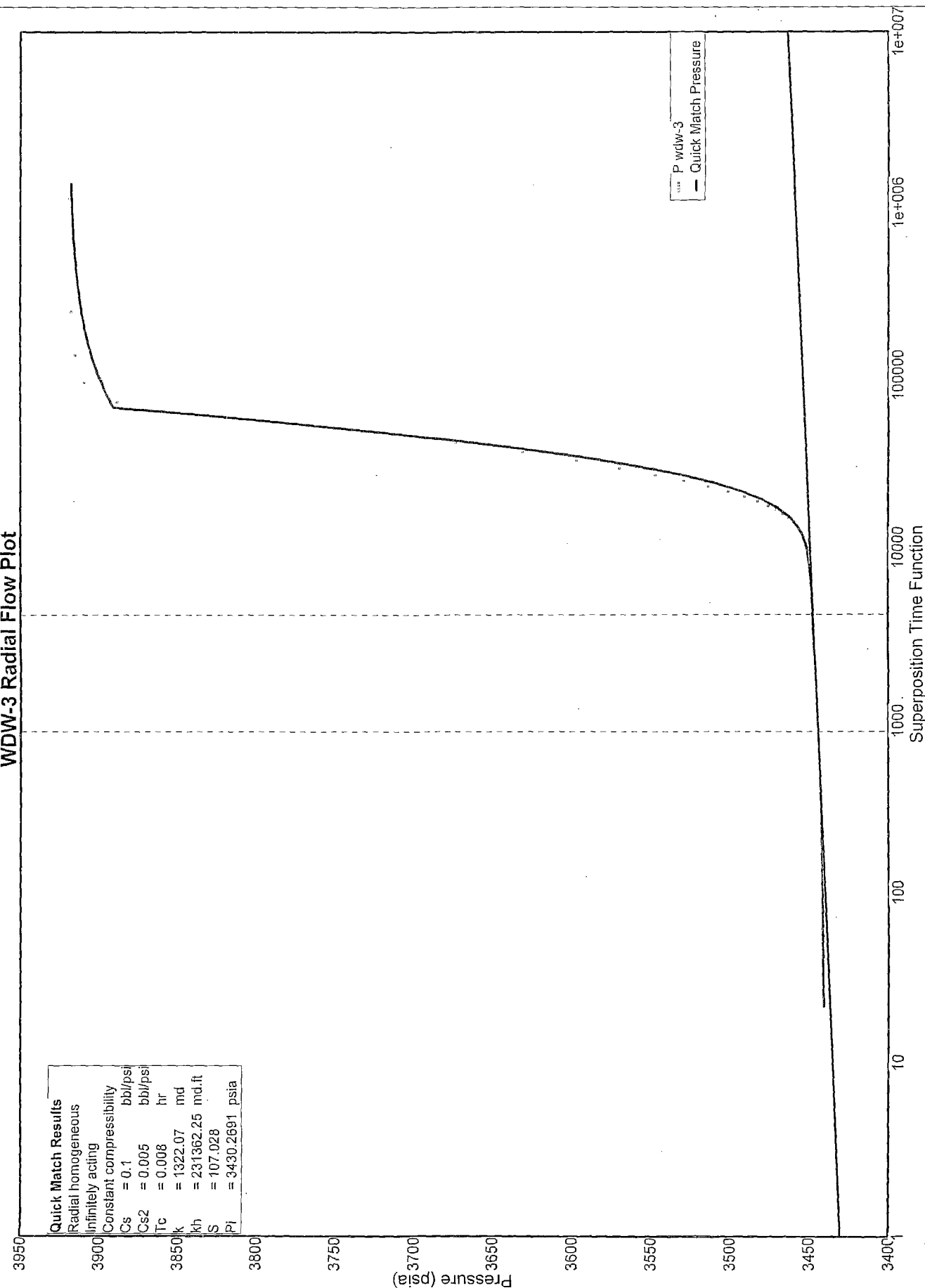


FIGURE 31

WDW-3 Log-Log Plot

Quick Match Results	
Radial homogeneous	
Infinitely acting	
Constant compressibility	
Cs	= 0.1 bbl/psi
Cs2	= 0.005 bbl/psi
Tc	= 0.008 hr
k	= 1322.07 md
kh	= 231362.25 md.ft
S	= 107.028
Pi	= 3430.2691 psia

WDW-3	
P wdw-3	
P wdw-3 Derivative	
Quick Match Pressure	
Quick Match Derivative	

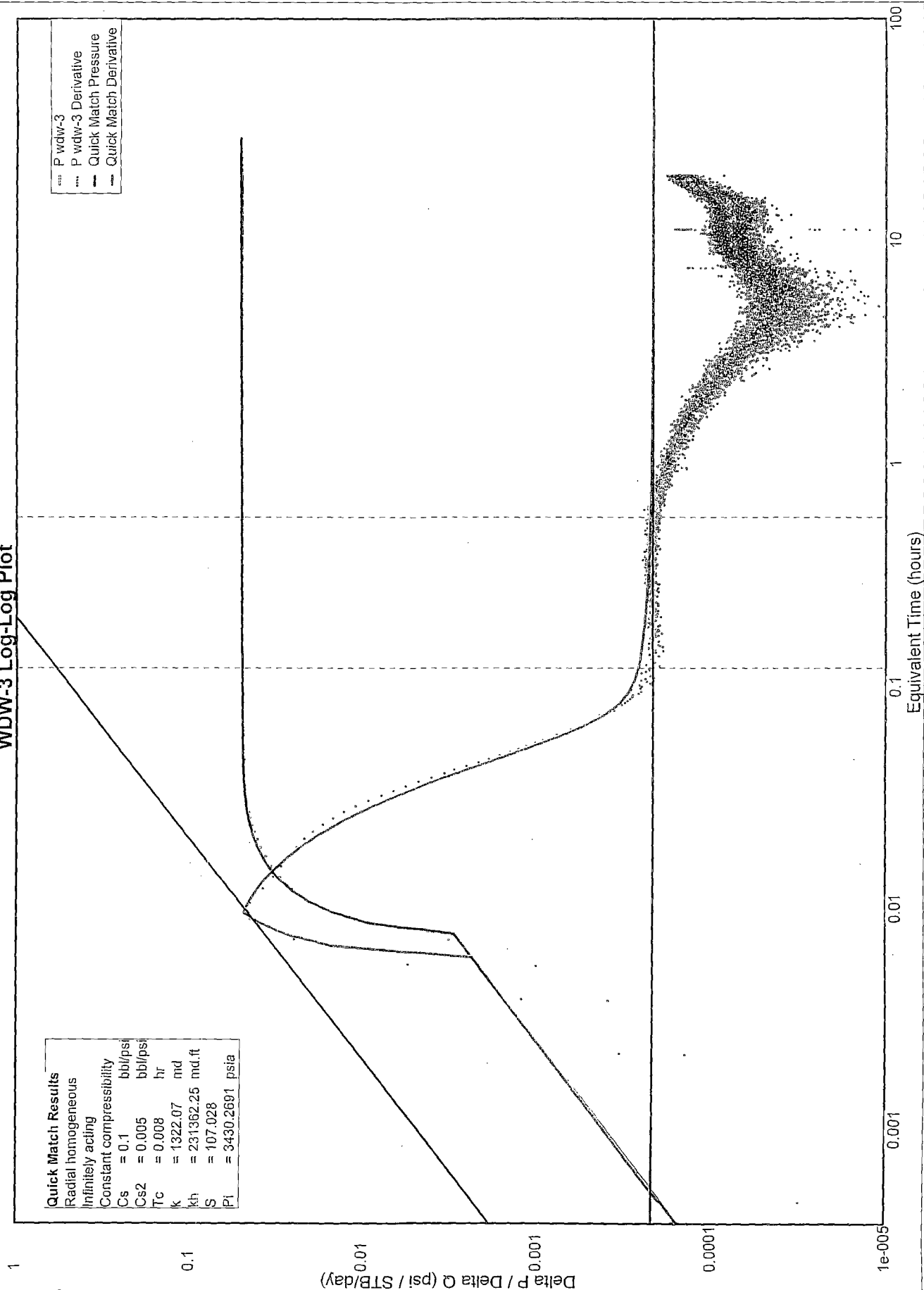


FIGURE 32

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 13, 2010 11:22 AM
To: 'Moore, Darrell'
Subject: UICI-Class I WDW-1 and WDW-2 MITs w/ Bradenheads to be completed by 9/30/2010 + Annual Fall-Off Test Scheduling

Darrell:

Good morning. FYI, OCD records indicate that MITs are needed for WDW-1 and WDW-²~~3~~ by 9/30/2010.

Also, I have not heard when Navajo Refining Company is scheduling the Annual Fall-Off Test, which also needs to be completed by 9/30/2010. I presume the above wells could be MIT'd before at the time of and before the FOT.

Please advise or clarify.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, April 23, 2010 7:25 AM
To: 'Patterson, Bob'; 'Dan Gibson'; 'Moore, Darrell'; 'Lackey, Johnny'; 'Schmaltz, Randy'
Cc: Dade, Randy, EMNRD; Perrin, Charlie, EMNRD
Subject: New Mexico UIC Class I (non-hazardous) Well MIT & Annual Fall-Off Test Scheduling with Completion by September 30, 2010

Gentlemen:

Re:

Key Energy Services: UICI-005
Navajo Refining Company: UICI-008; UICI-008-0 & UICI-008-1
Western Refining Southwest: BW-028

Good morning. It is that time of year again to remind operators that their annual MITs and Fall-Off Tests (FOT) for this season must be completed by 9/30/2010. The list of operator names w/ associated UIC Class I (non-hazardous) Wells are provided above.

Operators are aware of the MIT (30 min @ 300 psig or more w/ Bradenhead) requirement(s) and more frequent where required.

The FOTs span several days with a couple of important notes to operators from past testing, please install your bottom hole gauge(s) with recorder(s) at least 48-hours in advance of the pump shut-off during the steady-state injection period. Also, you are accountable for your OCD approved FOT Test Plan and the requirements in the UIC Test Guidance at <http://www.emnrd.state.nm.us/oed/documents/UICGuidance.pdf>.

You may access your well information on OCD Online either by API# and/or Permit Number at <http://oedimage.emnrd.state.nm.us/imaging/AEOrderCriteria.aspx> and <http://www.emnrd.state.nm.us/OCD/OCDPermitting/Data/Wells.aspx>. For information on New Mexico's UIC Program and training information, please go to: <http://www.emnrd.state.nm.us/oed/Publications.htm>.

Please contact me at (505) 476-3490 on or before May 7, 2010 to schedule your preferred MIT and FOT date and time. I will work to finalize the witness schedule with each of you. Thank you in advance for your cooperation.

Copy: Class I (non-hazardous) Well Files UICI- 5, 8, 8-0, 8-1 & 9

Carl J. Chavez, CHMM
UIC Quality Assurance and Quality Control Officer
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, July 28, 2009 5:06 PM
To: 'Moore, Darrell'
Cc: 'Ken Davis'; 'Rusty Smith'; 'Lackey, Johnny'; Sanchez, Daniel J., EMNRD
Subject: Fall-Off Test Plan 2009 (UICI-008 WDW-1; UICI-008-1 WDW-2 & UICI-008-0 WDW-3)
Resubmittal w/ Schedule for Each Class I Well (August, September & October) Approved by the OCD

Darrell:

The Fall-Off Test Plan is hereby approved. The Fall-Off Test Plan for the three UIC Class I Disposal Wells is available at OCD Online at "UICI-008" under the thumbnail entitled, "EPA Fall-Off Test Plan" at <http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pLWP0425236022>.

If possible, the OCD recommends that the operator monitor bottom hole pressures in the other UIC Class I Disposal Wells that are not being tested in order to determine if there is a physical connection with the other disposal wells that inject into the same formation.

Please provide the OCD with notification of the Fall-Off Test dates and time that injection will be shut-off for at least 72 hour monitoring for each of your UIC Class I Disposal Wells scheduled for the third week of August, September and October of 2009 in order for the OCD to be present to witness the point at which injection is shut-off for each well.

Please be advised that OCD approval of this Fall-Off Test Plan does not relieve the Navajo Refining Company of responsibility should their operations fail to meet OCD "Fail-Off Test Guidelines." In addition, OCD approval does not relieve the Navajo Refining Company of responsibility for compliance with any other federal, state, or local laws and/or regulations throughout the Fall-Off Test.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 21, 2009 2:52 PM
To: 'Moore, Darrell'
Cc: 'Ken Davis'; Rusty Smith; Lackey, Johnny
Subject: RE: Fall-Off Test Plan Submittal

Darrell, et al.:

Your request for an extension from June 1, 2009 to July 20, 2009 is hereby approved.

In response to your questions in the attached letter dated May 19, 2009, the OCD responses are in red text below.

Section II of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states that, "shut down of the well for time sufficient to conduct a valid observation of the pressure fall-off".

What does the OCD consider sufficient when there are different radial flow periods, such as you find in naturally fractured or induced fractured formations?

A minimum of at least 72 hours or until you see a boundary.

What exactly does the OCD need for confirmation? Would rate data submitted with the report be confirmation?

A plot or graph.

Section V item 4 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Calculating the total volume of injection fluid needed for the injectivity portion of the test".

Does the OCD have any specific equation that they require?

Calculate a daily rate based on the last 14 days of production, i.e., cumulative production/days to obtain an average daily rate of injection. Remember that at least 100 psi differential in pressure from injection to the end of the fall-off test is needed for a good fall-off test.

Section V item 5 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document implies that the OCD request a 3 day injection period and fall-off.

Is this what the OCD wants or can a shorter fall-off period be used?

Minimum day fall-off period needed for test.

Section V item 4 and item 6 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document appear to say the same thing.

Is this what OCD intended or are they different, if so how?

Item 6 deals with the handling of waste at the well during the test. You could divert the waste from the test well to the furthest way class I well owned by Navajo. Item 4 is talking about an adequate volume of injected fluid being available for the 3 day injection period.

Section V item 11 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Using a surface readout downhole pressure gauge. Utilizing tandem down-hole memory electronic pressure gauges, one of which is surface readout capable, with a pressure resolution level of 0.0002% of the gauge full pressure range".

What type of gauge does the OCD require? There are surface readout gauges (SRO) that record data on a computer at the surface, there are memory read out (MRO) gauges that record data on volatile memory in the tool, and there are surface attached gauges that record wellhead pressure on volatile memory (data logger). There is only one pressure media Quartz that will have a pressure resolution of 0.0002% FS. The next best down-hole gauge pressure medium is Sapphire which has a pressure resolution of 0.0003% FS.

If cost is a factor, you could hang in hole 2 memory gauges without surface readout and sapphire gauges should be good enough.

Section VI item 4 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for PVT data.

The data may or may not be available as this data will not exist for older wells where the OCD has not required it. Can the data be estimated where it does exist?

Yes.

Section VI item 9 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for AOR data.

Is the OCD requesting this data before the testing to be included in the test plan?

No. Include the data in the final report.

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How would the does the OCD want conformation in the test plan stated?

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A change in slope on the plot shows limits of reservoir or changes in injectivity rates and pressures. By estimating the average injection pressure based on cumulative volume injected with record of injection pressure.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Tuesday, May 19, 2009 8:03 AM
To: Chavez, Carl J, EMNRD
Cc: 'Ken Davis'; Rusty Smith; Lackey, Johnny
Subject:

Carl

Attached is a letter with an extension request and some questions about the fall off test on our injection wells. Hard copy will follow.

Thanks

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

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ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311
May 19, 2009

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(575) 746-5421 ENGINEERING

Carl J. Chavez, CHMM
New Mexico Energy Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

**Re: Navajo Refining APT, PFO & MIT Test Plan (UICI-8) and Request for
Extension on WDWs 1, 2 & 3**

Dear Carl:

Navajo has received your May 1, 2009 e-mail concerning the subject 2009 Pressure Fall-Off (PFO) Test Plan. Generally, based on your comments, it appears that the Oil Conservation Division (OCD) wants a stand alone test plan for each of the Navajo WDW 1, 2 & 3 facilities at Artesia. We agree that most, if not all, of the required information is available but it is scattered between the original permit application files and numerous maintenance and other reports. These files are generally located in the state files with drilling records and other files our contractor, Subsurface Technology Inc. (Subsurface), has developed. Additionally, we will need to evaluate any new activity in the Area of Review. Since it will be virtually impossible to locate, evaluate, copy and assemble this information by June 1, 2009, we are requesting an extension to July 20, 2009. At or before that time, we will deliver the test plan to the OCD for approval. Upon receipt of approval, we will implement the test procedure and schedule the field work. Probably in the July-August time frame.

Subsurface has also reviewed the referenced e-mail and has asked the following questions:

Section II of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states that, "shut down of the well for time sufficient to conduct a valid observation of the pressure fall-off".

What does the OCD consider sufficient when there are different radial flow periods, such as you find in naturally fractured or induced fractured formations?

Section V item 1 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Confirmation that a constant injection rate can be maintained into the test well during the injectivity portion of the test".

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What exactly does the OCD need for confirmation? Would rate data submitted with the report be confirmation?

Section V item 4 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Calculating the total volume of injection fluid needed for the injectivity portion of the test".

Does the OCD have any specific equation that they require? In order to analyze the transit pressures in late time the maximum amount of volume injected into the well needs to be considered, this would encompass the injected volumes since the last major shut down. The injectivity will need to remain constant at least for the period of time that fall-off portion of the testing is conducted (3 days of injection for 3 days of fall-off). The rate into the well will be limited by the pump and the permitted wellhead pressure. In most cases the plant generally has more volume than they can dispose of down the well(s) due to economics (the well(s) cost a lot of money) and are constantly trying to keep up with production. In most cases they cannot shut down a well for more than 2 days.

Section V item 5 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document implies that the OCD request a 3 day injection period and fall-off.

Is this what the OCD wants or can a shorter fall-off period be used?

Section V item 4 and item 6 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document appear to say the same thing.

Is this what OCD intended or are they different, if so how?

Section V item 11 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Using a surface readout downhole pressure gauge. Utilizing tandem down-hole memory electronic pressure gauges, one of which is surface readout capable, with a pressure resolution level of 0.0002% of the gauge full pressure range".

What type of gauge does the OCD require? There are surface readout gauges (SRO) that record data on a computer at the surface, there are memory read out (MRO) gauges that record data on volatile memory in the tool, and there are surface attached gauges that record wellhead pressure on volatile memory (data logger). There is only one pressure media Quartz that will have a pressure resolution of 0.0002% FS. The next best down-hole gauge pressure medium is Sapphire which has a pressure resolution of 0.0003% FS.

Section V item 13 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "If available, monitoring test progress with appropriate plots at the well site to insure a valid test data is obtained and problematic test can be identified and aborted".

In order to do this we would have to have all the rate data available before starting the falloff testing to construct a real-time Horner plot or Log-Log plot and analyze the data as we collect it. In most cases the rate data can only be obtained at some point toward the end of the testing.

Section VI item 4 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for PVT data.

The data may or may not be available as this data will not exist for older wells where the OCD has not required it. Can the data be estimated where it does exist?

Section VI item 9 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for AOR data.

Is the OCD requesting this data before the testing to be included in the test plan?

Section VII items 2 & 3 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for conformation.

How would the does the OCD want conformation in the test plan stated?

Section IX item 18 sub-item (h) of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for a Hall plot.

What is the Hall plot to be used for? In generally this plot is used for injection wells in water floods for Enhanced Oil Recovery (EOR) and is a cheap qualitative approach to determine near wellbore damage and has very little usefulness in determining pressure build in a reservoir.

For convenience, we have sent Subsurface a copy of this letter. Please send them a copy of your response. If it would be more convenient to call them, you can contact Ken Davis with Subsurface at 713-880-4640. Or you can contact me at 575-748-3311.

Very truly yours,
NAVAJO REFINING COMPANY,LLC



Darrell Moore
Environmental Manager for Water and Waste

Cc: Subsurface Technology Inc.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 21, 2009 2:52 PM
To: 'Moore, Darrell'
Cc: 'Ken Davis'; Rusty Smith; Lackey, Johnny
Subject: RE:

Darrell, et al.:

Your request for an extension from June 1, 2009 to July 20, 2009 is hereby approved.

In response to your questions in the attached letter dated May 19, 2009, the OCD responses are in red text below.

Section II of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states that, "shut down of the well for time sufficient to conduct a valid observation of the pressure fall-off".

What does the OCD consider sufficient when there are different radial flow periods, such as you find in naturally fractured or induced fractured formations?

A minimum of at least 72 hours or until you see a boundary.

What exactly does the OCD need for confirmation? Would rate data submitted with the report be confirmation?

A plot or graph.

Section V item 4 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Calculating the total volume of injection fluid needed for the injectivity portion of the test".

Does the OCD have any specific equation that they require?

Calculate a daily rate based on the last 14 days of production, i.e., cumulative production/days to obtain an average daily rate of injection. Remember that at least 100 psi differential in pressure from injection to the end of the fall-off test is needed for a good fall-off test.

Section V item 5 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document implies that the OCD request a 3 day injection period and fall-off.

Is this what the OCD wants or can a shorter fall-off period be used?

Minimum day fall-off period needed for test.

Section V item 4 and item 6 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document appear to say the same thing.

Is this what OCD intended or are they different, if so how?

Item 6 deals with the handling of waste at the well during the test. You could divert the waste from the test well to the furthest way class I well owned by Navajo. Item 4 is talking about an adequate volume of injected fluid being available for the 3 day injection period.

Section V item 11 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document states, "Using a surface readout downhole pressure gauge. Utilizing tandem down-hole memory electronic pressure gauges, one of which is surface readout capable, with a pressure resolution level of 0.0002% of the gauge full pressure range".

What type of gauge does the OCD require? There are surface readout gauges (SRO) that record data on a computer at the surface, there are memory read out (MRO) gauges that record data on volatile memory in the tool, and there are surface attached gauges that record wellhead pressure on volatile memory (data logger). There is only one pressure media Quartz that will have a pressure resolution of 0.0002% FS. The next best down-hole gauge pressure medium is Sapphire which has a pressure resolution of 0.0003% FS.

If cost is a factor, you could hang in hole 2 memory gauges without surface readout and sapphire gauges should be good enough.

Section VI item 4 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for PVT data.

The data may or may not be available as this data will not exist for older wells where the OCD has not required it. Can the data be estimated where it does exist?

Yes.

Section VI item 9 of the UIC Well Fall-Off Test Guidance (December 3, 2007) document asks for AOR data.

Is the OCD requesting this data before the testing to be included in the test plan?

No. Include the data in the final report.

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How would the does the OCD want conformation in the test plan stated?

Present recorded information in the final report. Chart recorder?

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A change in slope on the plot shows limits of reservoir or changes in injectivity rates and pressures. By estimating the average injection pressure based on cumulative volume injected with record of injection pressure.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
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Sent: Tuesday, May 19, 2009 8:03 AM
To: Chavez, Carl J, EMNRD
Cc: 'Ken Davis'; Rusty Smith; Lackey, Johnny
Subject:

Carl

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Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
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May 19, 2009

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Carl J. Chavez, CHMM
New Mexico Energy Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Re: Navajo Refining APT, PFO & MIT Test Plan (UICI-8) and Request for Extension on WDWs 1, 2 & 3

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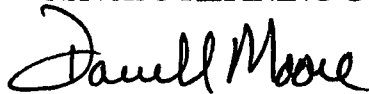
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Very truly yours,

NAVAJO REFINING COMPANY,LLC



Darrell Moore
Environmental Manager for Water and Waste

Cc: Subsurface Technology Inc.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, May 01, 2009 2:23 PM
To: 'Moore, Darrell'; Griswold, Jim, EMNRD
Cc: 'Ken Davis'; 'Rusty Smith'; Jones, William V., EMNRD
Subject: Navajo Refining Company's Fall-Off Test Plan (UICI-8) (WDW-1, WDW-2 & WDW-3)

Darrell:

The Fall-Off Test Plan cannot be approved in its present form as it does not fully address Section III (Developing a Test Plan) and the items listed in Sections: V (General Test Operational Considerations), VI (Background Information), VII (Conducting the Fall-Off Test), VIII (Evaluation of the Test Results), and IX (Report Components) of the OCD UIC Class I Well Fall-Off Guidance (guidance). The OCD notices that the test plan does follow the itemized elements provided in each section of the guidance. The test plan did not have a proposed schedule to be approved by the OCD for fall-off testing.

In general, the test plan proposes one fall-off test from one well and each well alternating every year thereafter, which does not meet the Federal UIC Regulations requirement. Annual falloff testing for a non-hazardous Class I well is a federal requirement under 40 CFR §146.13(d)(1). A Class I UIO permit requires that an annual falloff test be conducted to satisfy this requirement. The test plan fails to include the supporting documentation that is required in each of the sections for an approvable test plan.

OCD review comments:

Section V: Only 4 items appear to have been addressed in the test plan.

Section VI: Zero items appear to have been addressed and Information is supposed to be submitted up front with the test plan, and not as proposed in your test plan submittal. The operator needs to reference applicable items in the "Tables" section of the report if any tables 3 & 4 or figures satisfy each item in the applicable section. Some water quality tables are provided, but neither are referenced in the applicable section nor do they satisfy completely water quality data for the injected fluids in this section.

Section VII

Test plan is not consistent with guidance.

Section VIII

Test plan is not completely consistent with guidance.

Section IX

The test plan was missing this section. Simply cutting and pasting the report components into the test plan to report or referencing all of this section in the test plan to ensure when reports are received they contain the basic elements of the guidance would have sufficed.

The majority of this information is to be submitted within 30 days of completion of the fall-off test. Some of the tables and figures at the back of the test plan may assist the operator with the submittal of the final report components. The operator may copy and paste this section into Section IX of the test plan in order for the OCD to confirm that the operator will submit what is specified in the test plan guidance to the OCD in the final report. The OCD observes that some tables and figures at the back of the report may help the operator to address this section for the final report to the OCD.

The OCD requires that you look over the guidance and submit a test plan that follows the basic guidance for the test plan within 30 days or by June 1, 2009. The OCD realizes that there are some sections that you could simply refer to a well diagram to address each item, but you need to correctly reference the applicable table or figure to enter a value or pertinent information, and you need to ensure that it addresses each test plan item. Statements stating that logs exist somewhere in the file are not acceptable for an approvable test plan. Alternative procedures that will produce valid test

results and satisfy the requirements of OCD and the regulations will be considered by the OCD, but you need to specify that it is an alternative to each guidance item.

You may provide separate test plans for each of the 3 UIC Class I Disposal Wells, or submit one test plan that will address each well individually.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Friday, May 01, 2009 8:16 AM
To: 'Moore, Darrell'; Griswold, Jim, EMNRD; Jones, Brad A., EMNRD
Cc: 'Ken Davis'; Rusty Smith; Jones, William V., EMNRD
Subject: RE: Fall off tests on Injection Wells

Darrell:

I'm looking this over this a.m.

You will recall that OCD had some concerns based on last years fall-off test and requested a test plan.

The test plan must meet the minimum criteria specified for a test plan under the UIC Guidance for Fall-Off at <http://www.emnrd.state.nm.us/oed/documents/UICGuidance.pdf>. If the report submitted by Navajo Refining Company does not address each of the elements provided in this guidance, it cannot be approved.

In addition, a fall-off test will be required at each UIC Class I Disposal Well this year. Consequently, Navajo Refining Company will need to run three separate fall-off tests at each of its wells. I will get something to you this morning. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Moore, Darrell [<mailto:Darrell.Moore@hollycorp.com>]
Sent: Friday, May 01, 2009 7:39 AM
To: Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD; Jones, Brad A., EMNRD
Cc: 'Ken Davis'; Rusty Smith
Subject: RE: Fall off tests on Injection Wells

Jim

Im just following up on the status of your reviewing our plan to perform fall-off tests on our Injection wells. It has been over a year since we tested these wells.

From: Griswold, Jim, EMNRD [mailto:Jim.Griswold@state.nm.us]
Sent: Wednesday, April 01, 2009 8:44 AM
To: Moore, Darrell
Subject: RE: Fall off tests on Injection Wells

Mr. Moore,

I began looking at the files for WDW-1, -2, and -3 yesterday. Is the 2008 plan you are referring to that submitted by Subsurface Construction Corp. dated October 2008, Project # 70G6142?

Jim Griswold

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Friday, March 27, 2009 7:26 AM
To: Chavez, Carl J, EMNRD; Jones, Brad A., EMNRD
Cc: Griswold, Jim, EMNRD; 'Ken Davis'; Rusty Smith
Subject: RE: Fall off tests on Injection Wells

Is he reviewing it now? What time frame are we looking at?

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, March 26, 2009 5:55 PM
To: Jones, Brad A., EMNRD; Moore, Darrell
Cc: Griswold, Jim, EMNRD
Subject: RE: Fall off tests on Injection Wells

Darrell:

I recommend that you not schedule the fall-off test until after Jim Griswold can review the test plan and approve it if it is approvable. The test plan was developed after your last Fall-Off test where the OCD had some concerns about the way you conducted it. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
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1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
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E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Jones, Brad A., EMNRD
Sent: Thursday, March 26, 2009 1:20 PM
To: Chavez, Carl J, EMNRD; Moore, Darrell
Subject: FW: Fall off tests on Injection Wells

Carl,

Could you assist Darrell in this matter, since I'm not up to speed with Navajo's permits? Thanks.

Brad

From: Moore, Darrell [mailto:Darrell.Moore@hollycorp.com]
Sent: Thursday, March 26, 2009 8:22 AM
To: Jones, Brad A., EMNRD
Cc: 'Ken Davis'; Rusty Smith
Subject: Fall off tests on Injection Wells

Brad

As you know, we have three injection wells that OCD requires us to perform pressure fall off (PFO) tests on annually. We sent a PFO plan to Carl last year that detailed the test plan. Do we need to resend another PFO plan this year? Is that one sufficient? We plan on doing the tests basically the same as last years plan. We are working on getting these tests done the second week of April so we need some guidance from you pretty quick. Thanks for your attention.

Darrell Moore
Environmental Manager for Water and Waste
Navajo Refining Company, LLC
Phone Number 575-746-5281
Cell Number 575-703-5058
Fax Number 575-746-5451

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**WELL BUILD-UP/FALL-OFF TEST PLAN
MEWBOURNE WELL NO. 1
CHUKKA WELL NO. 2
AND
GAINES WELL NO. 3**

**HOLLY CORPORATION INC.
NAVAJO REFINING
Artesia, New Mexico**

Subsurface Project No. 70G6142

October 2008

Prepared By:

**SUBSURFACE CONSTRUCTION CORP.
6925 Portwest Dr., Suite 110
Houston, Texas 77024**

**WELL BUILD-UP/FALL-OFF TEST PLAN
NAVAJO REFINERY
ARTESIA, NM
MEWBOURNE WELL NO. 1 (UIC-CLI-008-1)
CHUKKA WELL NO. 2 (UIC-CLI-008-2)
GAINES WELL NO 3 (UIC-CLI-008-3)**

General Test Operational Consideration

The falloff testing will be performed on Gaines Well No. 3 in the first year, then on the Mewbourne Well No. 1 in the second year, completing the process with Chukka Well No. 2 in the third year. This cycle will be repeated every three years.

This sequence will be repeated for each well on a yearly basis. For example, in 2009 the reservoir (Wolfcamp/Cisco/Canyon) will be tested via the Gaines Well No. 3, in 2010 via the Mewbourne Well No. 1, and in 2011 via the Chukka Well No. 2. This represents a fair approximation of the reservoir buildup pressure over time as all three wells inject into the Wolfcamp/Cisco/Canyon formations. The 2008 falloff tests show that the wells communicate, which will allow a fair representation of the reservoir pressure (reference to "2008 Annual Bottom-Hole Pressure Survey and Pressure Falloff Test for Mewbourne Well No.1, Chukka Well No. 2, and Gaines Well No. 3"). Communication between the wells shows that the reservoir is continuous between each well and that results from one well should be sufficient to represent the general reservoir characteristic and pressure buildup over time. See Table 5 for comparisons of reservoir values over time.

The process of performing buildup/falloff test on each individual well under the same conditions would likely yield similar results for each test, adding unneeded, costly redundancy. The request by Navajo Refining to perform one buildup/falloff test a year alternating between the well is justified having shown that the wells are communicating as represented in the data obtained during the 2008 buildup/falloff testing. The mechanical integrity testing will continue to be performed annually on each well as required.

The procedure for the target well will consist of the following. A constant rate will be maintained in the first targeted well for 24 hours prior to shut in with one offset well shut in and the other offset under a constant injection rate. Tandem bottom-hole memory



gauges will be lowered into the targeted well (two memory gauges per well, one primary, and one backup), and allowed to stabilize for one hour. Just before the targeted well is shut in, the two offset wells will be set to maintain a low constant injection rate. The targeted well will be shut in for a minimum of 72 hours, with both of the offset wells maintaining a low constant injection rate. At the end of the falloff test, the bottom-hole pressure gauges will be pulled from the well making gradient stops every 1,000 feet.

The injection build-up period will consist of no less than 72 hours at a constant rate. The pressure falloff sequence will be maintained for at a minimum, the same amount of time. Due to refinery expansion, the refinery does not have the storage capacity to shut in more than two wells for 24 hours and will have to maintain a constant injection into the two offset wells while performing a falloff in the adjacent well.

The memory gauges that will be used are quartz or sapphire gauges that will have a resolution of 0.0002% (FS) or 0.0003% (FS) respectively. The pressure range of the gauges will be from 0 - 10,000 psi minimum. These are typical bottom-hole memory gauges, with the best accuracy available in the area. The gauges will be lowered to the top of the injection interval at 7,924 feet in Mewbourne Well No. 1, 7,820 feet in Chukka Well No. 2, and 7,660 feet in Gaines Well No. 3. The recording period will be set to record pressures at a minimum of every 10 seconds, which should allow for a minimum of a 10-day recording period.

The fluid that will be used for the injection test is the refinery's brine waste water (effluent). A current waste analysis of the fluid will be included in the final report.

A crown valve has been installed on each of the three wells. A wireline lubricator will be installed into the crown valve before running into the wellbore with the memory gauges. The wells will be shut in through two inline gate valves. The first valve is located in the injection line just prior to the wellhead (wing valve), and the other is located behind the filter pods, and is mechanically operated from the control room at the plant (primary and secondary shut-in valves). The instantaneous shut in of the wells will be accomplished by the mechanical operated valve (MOV) behind the filter pods.

Background Information

All background information will be included in the final report encompassing a log of the events (Chronology of Field Activity), an overview of the Geology, a current one mile area of review (AOR) update, falloff analysis including injection data (rate and volume history), gauge calibration certificates, bottom-hole pressure analysis, well schematic, electric logs (if necessary), reservoir fluid description, and injection fluid analysis. The procedure for the buildup/falloff testing will also be included in the final report. An AOR update will be completed prior to the build-up/falloff testing to ascertain any changes, which have occurred in the AOR that might have an effect on the testing. Historically, there has not been any production or injection in the current injection interval within a one mile radius of Mewborune Well No. 1, Chukka Well No. 2, or Gaines Well No. 3.

Navajo Refining has been running buildup/falloff tests on Mewborune Well No. 1, Chukka Well No. 2 since 2000 using sapphire gauges. The tests were performed to comply with EPA directives for UIC non-hazardous Class I injection wells. April 1, 2008 through April 4, 2008 buildup/falloff tests were conducted on Mewborne Well No. 1, Chukka Well No. 2, and Gaines Well No. 3 concurrently, and the injection rates were varied at the end of the testing to ascertain that the wells were hydraulically connected. The 24-hour buildup portion of the testing was done at a constant injection rate in each of the offset wells. The falloff portion of the testing was terminated after 24 hours. The Mewbourne Well No. 1 had a permeability of 2,010 md (height of 175 ft, reservoir viscosity 0.72 cp), for a radius of investigation of 8,455 ft and a skin of 262. The Chukka Well No. 2 had a permeability of 1,091 md (height of 175 ft, reservoir viscosity 0.72 cp), for a radius of investigation of 6,221 ft and a skin of 155. The Gaines Well No. 3 had a permeability of 1,322 md (height of 175 ft, reservoir viscosity 0.72 cp), for a radius of investigation of 7,003 ft and a skin of 107. The pressure data at the end of the testing shows that the wells were hydraulically connected with pressure responses relative to changes in the offset wells injection rate (reference "2008 Annual Bottom-Hole Pressure Survey and Pressure Falloff Test for Mewbourne Well No.1, Chukka Well No. 2, and Gaines Well No. 3" for additional information). A summary of the historical reservoir data is presented in Table 5.



Figures 1 through 3 are the well schematics for Mewborune Well No. 1, Chukka Well No. 2, or Gaines Well No. 3. Table 2 is a summary of the injection intervals for each well. Table 3 is a summary of the injection fluid analysis. Table 4 is a summary of the formation fluids. The majority of the background information can also be found in the permit application that was submitted to the State of New Mexico Oil Conservation Division for each well, and reference data for this request can be found in the "2008 Annual Bottom-Hole Pressure Survey and Pressure Falloff Test for Mewbourne Well No.1, Chukka Well No. 2, and Gaines Well No. 3".

Conduct Annulus Pressure Testing

Utilizing the Navajo annulus monitoring system on each well, an annulus pressure test (APT) will be run at a minimum pressure of 300 psi for a period of no less than 30 minutes. The annulus pressure data will be recorded using a digital surface readout pressure recorder or plant recording equipment (RTU/PLC). Each well will be tested annually apart from the buildup/falloff testing of the reservoir.

Conducting the Falloff Testing

This is the generalized procedure that will be used to perform the buildup/falloff testing at Navajo Refining facility in Artesia, New Mexico:

Day 1

- Inject into one of the offset wells at a low constant rate.
- Shut in the remaining offset well.
- Inject into the target well for the buildup portion of the testing, at a constant rate, for a minimum of 72 hours.

Day 4

- Move in and rig up slick line unit on target well. Make a gauge ring run into the well and tag the bottom of fill. Pull out of the hole with the gauge ring and run tandem memory tools into the well. The memory tools will be set at top of the perforations. Allow the pressure to stabilize for approximately one hour. After



setting the memory tools in place, shut in the target well for a minimum of 72 hours.

- Start injection into each of the offset wells at a minimum constant rate just before shut in of the targeted well and maintain a constant rate for duration of the falloff testing period.

Day 7

- End the 72 hour pressure falloff test, making gradient stops every 1,000 feet while pulling the memory gauges from the wellbore.
- Turn over the targeted well to the refinery operations.
- Turn over the offset wells to the refinery operations.

Evaluation of the Test Results

The falloff analysis will be completed by a qualified engineer using PanSystem®2006 Edinburgh Petroleum Services Ltd. transient pressure analysis program and reviewed for accuracy by a licensed professional engineer (PE). The falloff analysis will include the following:

- A log-log plot with a derivative diagnostic plot used to identify flow regimes;
- A wellbore storage portion and infinite acting portion of the plot;
- A semi-log plot with wellbore storage, p^* , and slope;
- An expanded portion of the semi-log plot showing the infinite acting pressure portion (radial flow);
- The geological parameters, height, porosity, compressibility of the rock for the falloff analysis will be based on historical data, loss and local geology developed for the permit application;
- The viscosity of the formation used for the calculations based on historical data;
- A summary of all the equations used for the analysis;
- An explanation of any temperature or pressure anomalies;

The injection records prior to the testing will be included in the analysis. All records from the testing shall be kept on file for no less than 5 years.

Table 1 is a summary of Well Data. Table 2 is a summary of the local geology for injection intervals. Table 3 is a summary of injected waste water. Table 4 is a summary of formation fluids. Table 5 is a summary of pressure fall-off test results.



TABLES



Well Data Table 1

	Mewbourne Well No. 1	Chukka Well No. 2	Gaines Well No. 3
Tubing	4.5", 11.6 lb/ft, N-80, SMLS, R3, LT&C 7879'	3.5", 9.2 lb/ft, J-55, NUE 10RD 7528'	4.5", 11.6 lb/ft, J-55, LT&C, 8RD 7575'
Packer	7"x 3.5", EVI Oil Tools (Arrow), X-1, ID 3", 7879'	5.5"x 2.875" Weatherford (Arrow), X-1, ID 2.4375", 7528'	7"x 2.875" Kenco Tools (Arrow), X-1, ID 2.4375" 7575'
Perforations	Upper 7924 - 42 7974 - 8030 8050 - 56 8066 - 80 8118 - 27 8132 - 40 8160 - 64 8170 - 88 Lower 8220 - 54 8260 - 70 8280 - 8302 8360 - 66 8370 - 78 8400 - 10 8419 - 23 8430 - 46 8460 - 64 8470 - 76	Upper 7570 - 7620 7676 - 7736 Lower 7826 - 34 7858 - 80 7886 - 7904 7916 - 36 7944 - 64 7990 - 8042 8096 - 8116 8191 - 8201 8304 - 19 8395 - 99	Upper 7660 - 8450 Lower 8540 - 8620
Protection Casing	7", 29 lb/ft, N-80, LT&C, 9094 - 7031	5.5", 17 lb/ft, L-80, LT&C	7", 29 lb/ft, N-80, LT&C
Cement Top Protection Casing	Surface	Surface	900'
PBTD / TD	9004' / 10,200'	8770' / 10,372'	9022' / 10,119'
Formation	Wolfcamp / Cisco / Canyon	Wolfcamp / Cisco / Canyon	Wolfcamp / Cisco / Canyon
Inj. Interval	7450' - 9016'	7270' - 8894'	7303' - 8894'
OCD UIC Permit Number	UIC-CLI-008-1	UIC-CLI-008-2	UIC-CLI-008-3
API Number	30-015-27592	30-015-20894	30-015-26575



Geology Information Table 2

Injection Zone Formation	Mewbourn Well No. 1 (KB height = 3693 feet)		Chukka Well No. 2 (KB height = 3623 feet)		Gaines Well No. 3 (KB height = 3625 feet)	
	Measured Depth below KB (feet)	Subsea Depth (feet)	Measured Depth below KB (feet)	Subsea Depth (feet)	Measured Depth below KB (feet)	Subsea Depth (feet)
Lower Wolfcamp	7450	-3757	7270	-3647	7303	-3678
Cisco	7816	-4123	7645	-4022	7650	-4025
Canyon	8475	-4782	8390	-4767	8390	-4765
Base of Injection Zone (base of Canyon)	9016	-5323	8894	-5271	8894	-5269



Injected Brine Waste Water Table 3

Chemical	Refinery Waste Water	Refinery Waste Water
Date	Jan 22, 1998	June 14, 1999
Calcium (mg/L)	48	21
Magnesium (mg/L)	98	31
Potassium (mg/L)	51	18
Sodium (mg/L)	1200	424
Chloride (mg/L)	1100	630
Fluoride (mg/L)	3.9	74
Nitrate-N (mg/L)	<0.01	<10
Sulfate (mg/L)	1500	570
Alkalinity (CaCO ₃) (mg/L)	100	40
pH (s.u.)	6.0 – 9.0	6.0 – 9.0
Specific Gravity (g/L)	1.00 – 1.01	1.00 – 1.01

Formation Fluids Table 4

Chemical	Mewbourn Well No. 1	Chukka Well No. 2	Gaines Well No. 3	Average
Date	July 31, 1998	June 14, 1999	Nov 8, 2006	
Fluoride (mg/l)	2.6	9.7	Not Detected	6.15
Chloride (mg/L)	19,000	15,000	10,447	14,815.67
NO3-N (mg/L)	<10	<10	--	<10
SO4 (mg/L)	2,200	2000	1,908	2,036
CaCO3 (mg/L)	1000	1210	--	1105
Specific Gravity (g/L)	1.034	1.0249	--	1.0295
TDS (mg/L)	33,000	20,000	--	26,500
Specific Conductance (uMHOS/cm)	52,000	43,000	--	47,500
Potassium (mg/L)	213	235	85.5	177.83
Magnesium (mg/L)	143	128	155	142
Calcium (mg/L)	390	609	393	464
Sodium (mg/L)	12,770	8,074	6,080	8,974.67
pH (s.u.)	8.1	7.2	--	7.65



Summary of Pressure Fall-off Test Results Table 5

Test No.	Test Date	P_{static} (psia)	kh/μ (md-ft/cp)	V_{well} (10⁶ gal)	V_{total} (10⁶ gal)
WDW-1					
(Static Pressure Ref Depth 7924 ft)					
1	07/31/98	2913.7	537,308	0.0	0.0
2	04/19/00	3073.7	479,925	95.4	108.6
3	12/18/00	3202.9	413,013	196.5	240.3
4	01/14/01	3207.8	405,663	204.7	253.2
5	05/17/01	3243.6	357,754	247.9	303.7
6	08/30/01	3254.8	354,579	276.4	349.5
7	02/14/02	3332.9	398,234	333.1	424.3
8	03/26/03	3370.33	452,416	466.6	631.7
9	03/26/03	3380.97	484,330	506.6	702.5
10	04/05/06	3422.45	751,105	842.4	1208.9
11	04/04/08	3443.53	351,832	1087.0	2714.6
WDW-2					
(Static Pressure Ref Depth 7570 ft)					
1	06/05/99	2973.0	1,527,413	0.0	0.0
2	01/13/01	3207.7	713,248	48.7	253.0
3	02/02/01	3213.6	713,575	50.8	262.5
4	05/18/01	3243.6	712,844	56.3	304.4
5	08/29/01	3258.7	572,135	73.4	349.3
6	02/15/02	3311.7	874,047	91.5	424.3
7	03/22/03	3342.48	854,309	165.1	631.7
8	08/27/03	3349.14	837,073	195.9	702.5
9	04/06/06	3395.12	707,786	366.5	1208.9
10	04/03/08	3494.13	265,300	409.4	2714.6
WDW-3					
(Static Pressure Ref Depth 7660 ft)					
1	11/05/06	3324.93	1,601,204	0.0	0.0
2	04/02/08	3326.72	321,411	9.3	2714.6

FIGURES



BELOW GROUND DETAILS

All depths are referenced to the Kelly bushing elevation of 12.5' above ground level. Ground level elevation is 3,678' above mean sea level.

1. Surface Casing: 13 3/8", 48 lb/ft, J-55, ST&C set at 390' in a 17 1/2" hole. Cemented with 150 sx Class C with 3 % calcium chloride, 375 sx Class C Lite w/3 % calcium chloride and 1/2 lb/sx flocele. Circulated 86 sx to surface.
2. Intermediate Casing: 9 5/8", 36 lb/ft, J-55, ST&C set at 2,555' in a 12 1/4" hole. Cemented w/800 sx of Class C Lite w/ 1/2 lb/sx flocele and 2 lb/sx Gilsonite and 12 % salt. Followed by 200 sx of Class C w/2 % calcium chloride. Circulated 133 sx to surface.
3. Base of the USDW at 493'.
4. Injection Tubing: 4 1/2", 11.6 lb/ft, N-80, SMLS, R3, LT&C set at 7,879'.
5. DV Tool: at 5,498'.

6. Annulus Fluid: 8.7 lb/gal brine water mixed w/UniChem Techni-Hib 370 corrosion inhibitor.

7. Protection Casing: 7", 29 lb/ft, N-80, LT&C: 9094' to 7031'. 7", 29 lb/ft, P-110, LT&C: 7031' to 5845'. 7", 26 lb/ft, P-110, LT&C: 5845' to surface. Casing cemented in two stages as follows:

First Stage - 600 sx modified Class H w/0.4 % CFR-3, 5 lb/sx Gilsonite, 0.5% Halad-344, and 1 lb/sx salt mixed at 13.0 ppg. Opened DV tool at 5498' and circulated 142 sx to surface.

Second Stage - Lead Slurry: 220 sx Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sx modified Class H w/0.4 % CFR-3, 5 lb/sx, Gilsonite, 0.5 % Halad-344, 0.1% HR-7, and 1 lb/sx mixed at 13.0 ppg. Circulated 75 sx to surface. Top out w/20 sx permium plus 3 % calcium chloride.

8. Packer: 7" x 3.5" EVI Oil Tools (Arrow), Model X-1 retrievable packer set at 7879'. Minimum I.D. is 3.0". Wireline re-entry guide on bottom. To release: turn 1/4 turn to the right and pick up.

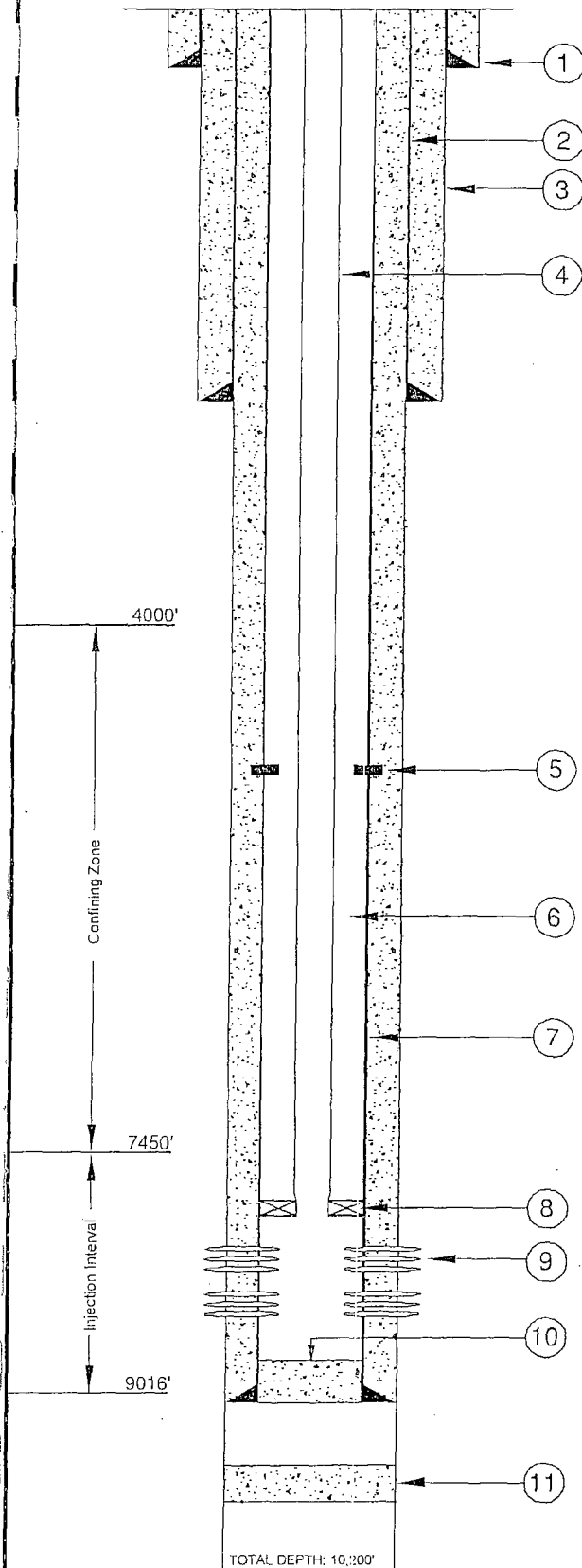
9. Perforations (2 SPF):

Upper Zone - 7924-7942', 7974-8030', 8050-8056', 8066-8080', 8118-8127', 8132-8140', 8160-8164', 8170-8188'.

Lower Zone - 8220-8254', 8260-8270', 8280-8302', 8360-8366', 8370-8378', 8400-8410', 8419-8423', 8430-8446', 8460-8464', 8470-8476'.

10. PBTD: 9004'.

11. Cement Plug: 45 sx Class H from 9624' to 9734'.



SUBSURFACE

HOUSTON, TX.
SOUTH BEND, IN.
BATON ROUGE, LA.

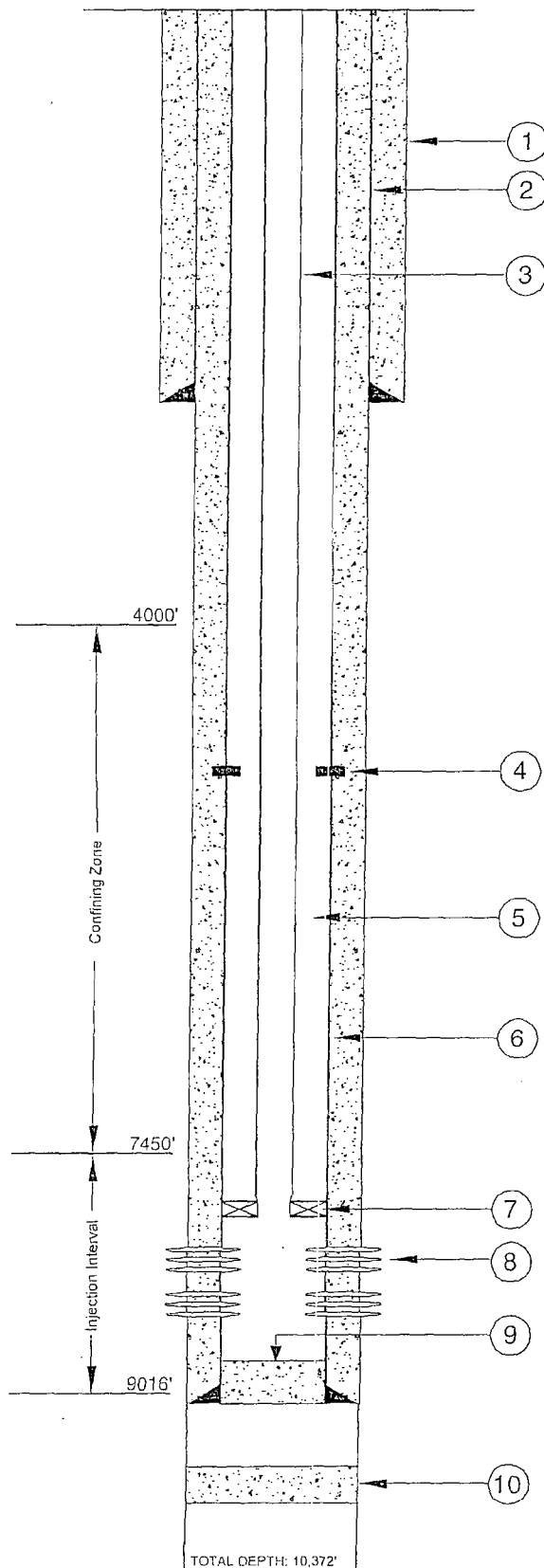
FIGURE 1

NAVAJO REFINING COMPANY
ARTESIA, NEW MEXICO

**BELOW GROUND DETAILS
WASTE DISPOSAL WELL NO. 1**

DATE: 07/13/01	CHECKED BY:	JOB NO: 7005256
DRAWN BY: WDL	APPROVED BY:	DWG. NO:

BELOW GROUND DETAILS



All depths are referenced to the Kelly bushing elevation of 13' above ground level. Ground level elevation is 3610' above mean sea level.

1. Base of the USDW at 473'.
2. Surface Casing: 8 $\frac{5}{8}$ ", 32 lb/ft, set at 1995' in an 11" hole. Cemented to surface with 800 sacks of cement.
3. Injection Tubing: 3 $\frac{1}{2}$ ", 9.2 lb/ft, J-55, smls, NUE 10 rd. set at 7528'.
4. DV Tool: at 5,785'.
5. Annulus Fluid: 8.7 lb/gal brine water mixed w/UniChem Techni-Hib 370 corrosion inhibitor.
6. Protection Casing: 5 $\frac{1}{2}$ ", 17 lb/ft, L-80, LT&C: 8869' to the surface and set in a 7 $\frac{7}{8}$ " hole. Casing cemented in two stages as follows:

First Stage - 575 sacks of modified Class "H" with 0.4 % CFR-3, 5 lb/sk Gilsonite, 0.5 % Halad-344, and 3 lb/sk salt. Mixed at 13.0 ppg. Opened DV tool at 5785 and circulated 20 sacks to surface.

Second Stage - Lead Slurry: 300 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail slurry: 695 sacks modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5 % Halad-344 and 3 lb/sk salt mixed at 13.0 ppg. Circulated 150 sacks to surface. Topped out with 10 yards of Redi-mix.
7. Packer: 5 $\frac{1}{2}$ " x 2 $\frac{7}{8}$ " Weatherford Completion Tools (Arrow) Model X-1 retrievable packer set at 7528'. Minimum ID is 2.4375". Wireline re-entry guide is on bottom. To release: turn $\frac{1}{4}$ turn to the right and pick up.
8. Perforations (2 SPF):

Zone 1: 7570-7620', 7676-7736'

Zone 2: 7826-7834', 7858-7880', 7886-7904', 7916-7936', 7944-7964', 7990-8042', 8096-8116', 8191-8201', 8304-8319', 8395-8399'.
9. PBTD: 8770'
10. Cement Plug: 45 sacks from 9675' to 9775'.

SUBSURFACE

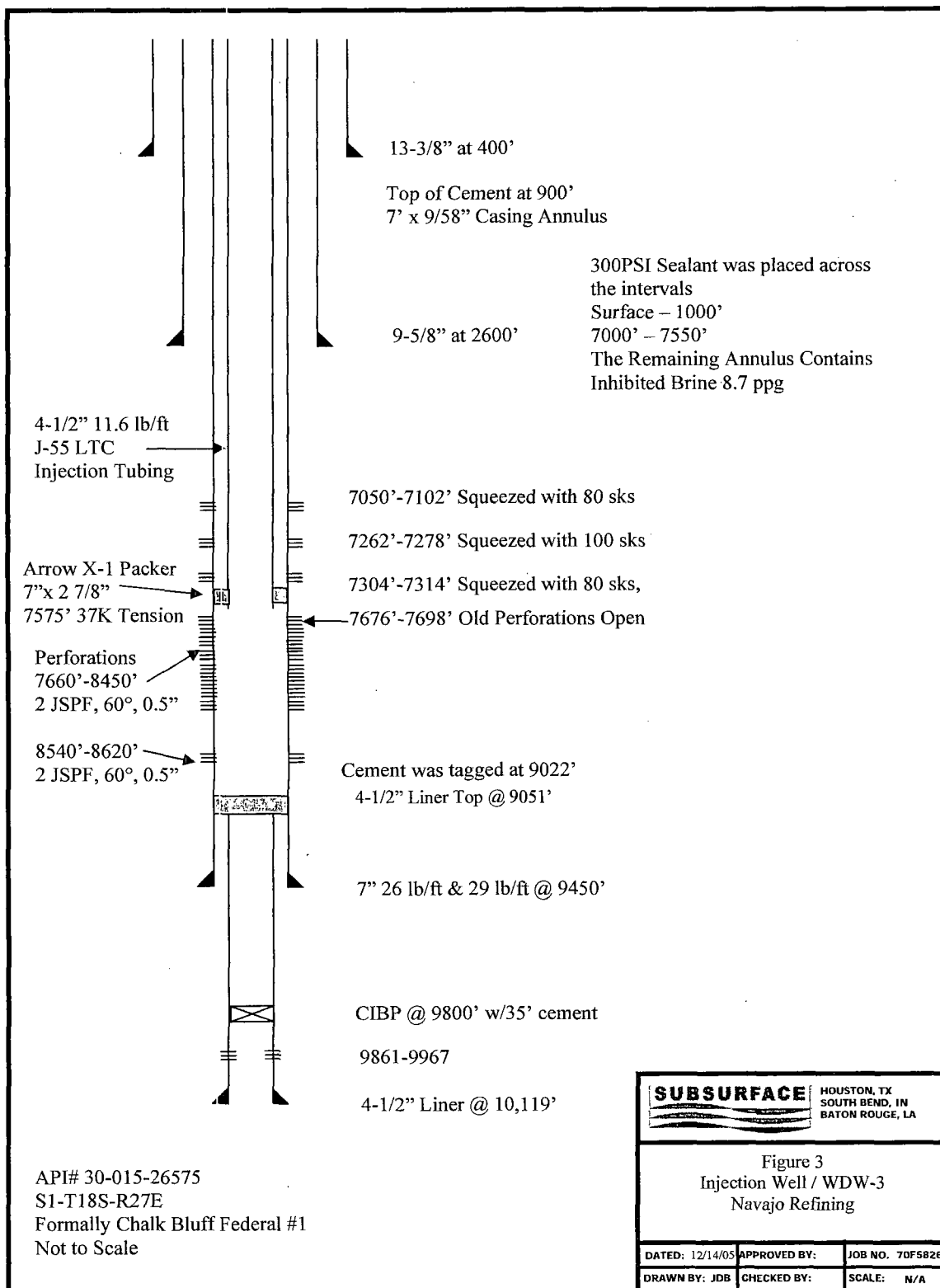
HOUSTON, TX.
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BATON ROUGE, LA.

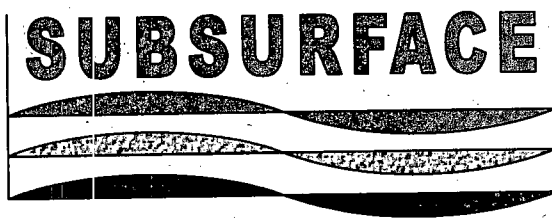
FIGURE 2

NAVAJO REFINING COMPANY
ARTESIA, NEW MEXICO

BELOW GROUND DETAILS WASTE DISPOSAL WELL NO. 2

DATE: 07/13/01	CHECKED BY:	JOB NO: 7005255
DRAWN BY: WDL	APPROVED BY:	DWG. NO:





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