UIC- I - ___8___

MEETINGS

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, October 06, 2011 7:14 AM
To: Chavez, Carl J, EMNRD
Subject: Navajo Refining Company (UICI-008) WDWs 1, 2 & 3 MIT Meeting Determination on October 5, 2011

This note to the file documents the final determination by Ms. Jami Bailey (OCD Director) regarding the significant variation in annulus pressure systems at UIC Class I (NH) Injection Wells (WDWs 1, 2 & 3) under dynamic flow injection conditions. Quarterly monitoring and the annulus report document the variation in tubing and annulus pressures and volumes under the discharge permit and form the basis for the meeting.

After hearing the technical information presented at the meeting, the OCD Director determined the following:

1) No additional charts of the tubing versus annulus pressure are needed.
2) The injection wells have passed annual MITs and appear to be in good condition.
3) There appears to be a surface effluent flow-line issue(s) due to the C-141 releases that have been occurring upgradient from the Chukka Well (WDW-2) and other wells that needs to be addressed to correct this problem.

Consequently, the variation in annulus well pressure under dynamic flow conditions appears to physically affect the pressure in the well annulus system. This is considered to be normal based on the current mechanical design and construction of the injection system. The external tank fluid level monitoring couple with annual annulus pressure and bradenhead MITs will continue to be relied upon for mechanical integrity determination under the OCD's UIC Program.

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

Subject:	Holly-Frontier (Navajo Refining Co.) OCD UIC Class I (NH) Injection Wells (UICI-008) & Significant Variation in Annulus Pressures Noticed from Monitoring
Location:	T elephone Conference Call
Start:	Wed 10/5/2011 10:30 AM
End:	Wed 10/5/2011 12:00 PM
Recurrence:	(none)
Meeting Status:	Meeting organizer
Organizer:	Chavez, Carl J, EMNRD
Required Attendees:	Bailey, Jami, EMNRD; Sanchez, Daniel J., EMNRD; Ezeanyim, Richard, EMNRD; Jones, William V., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Griswold, Jim, EMNRD; Lackey, Johnny; Moore, Darrell; Gonzales, Elidio L, EMNRD; Brown, Maxey G, EMNRD
Categories:	Red Category

Request: Request for Holly-Frontier Representatives to send Carl Chavez any presentation in Acrobat Reader (pdf format) for the conference call for Carl to attach to this meeting notice and also Carl will place presentation files into OCD's Telephone Conference Call Folder at L:\ENVIRONM\WORD\COMMON\OCD Training\TELEPHONE CONFERENCE CALLS\Navajo Refining UIC Wells Meeting 10-5-2011for OCD Staff to access during the telephone conference call and/or to attach the file directly to this meeting notice for all meeting participants to access. Also, please send any agenda items that any of you may wish to add to the agenda by COB next Tuesday. Thank you.

Meeting Call-In Information:

Dial-in Number: 1-712-580-8025 (Midwest)
Participant Access Code:4509670
Organizer Access Code: *693464 (you must include the leading star key)

Tentative Meeting Agenda:

Purpose: To discuss monitored variation in injection well annulus pressures during injection for 3 UIC Class I (NH) Injection Wells in Eddy County.

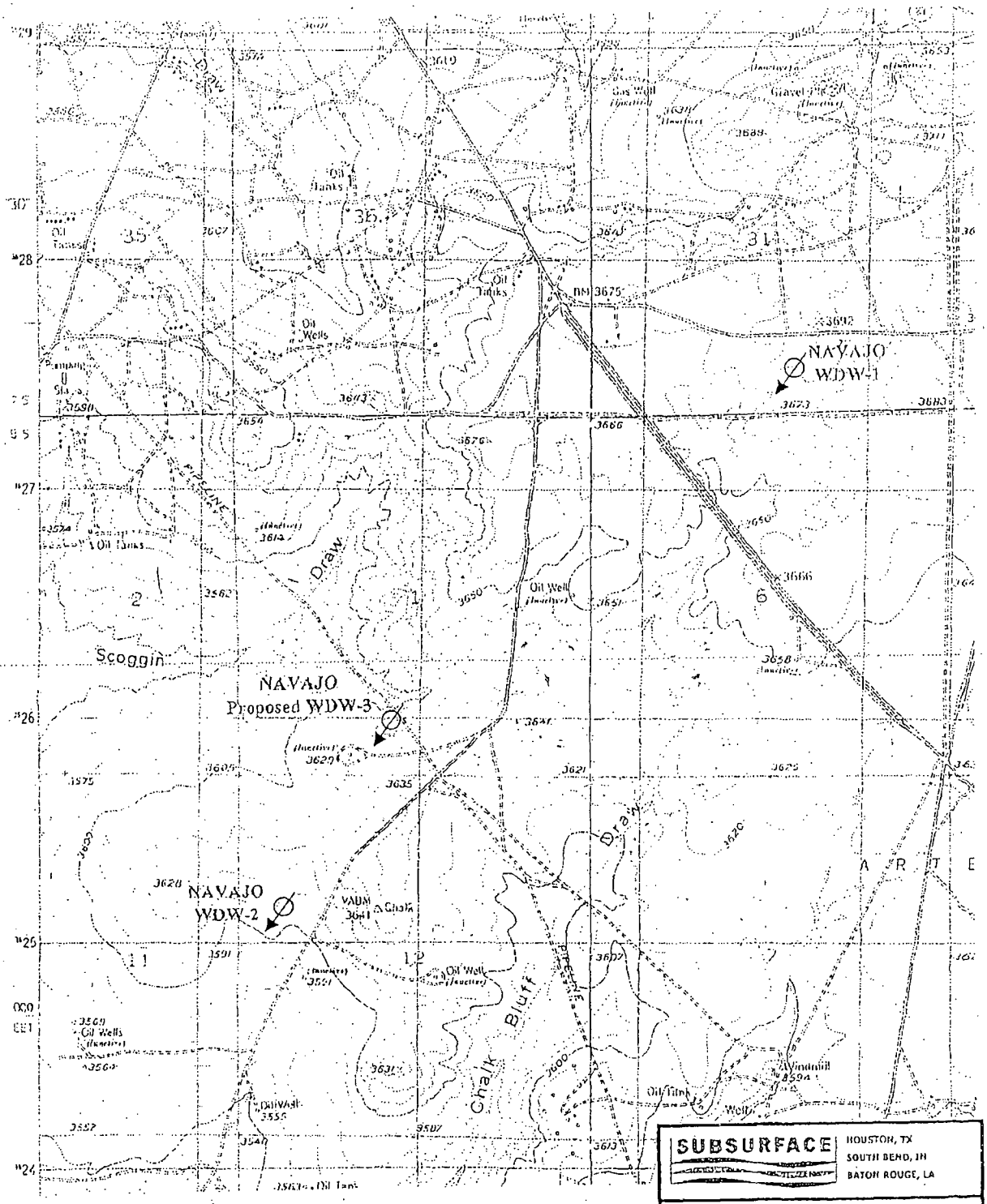
* Introductions
* Well Locations
* Fiberglass Effluent Line from Refinery to Injection Wells
* Monitored Annulus Pressure Data
* Miscellaneous
* Path Forward


UICI-8 FOT 9-22-2011.pdf


Well Info 9-23-2011.pdf


Effluent Line.pdf


Well Inspection Photos.pdf



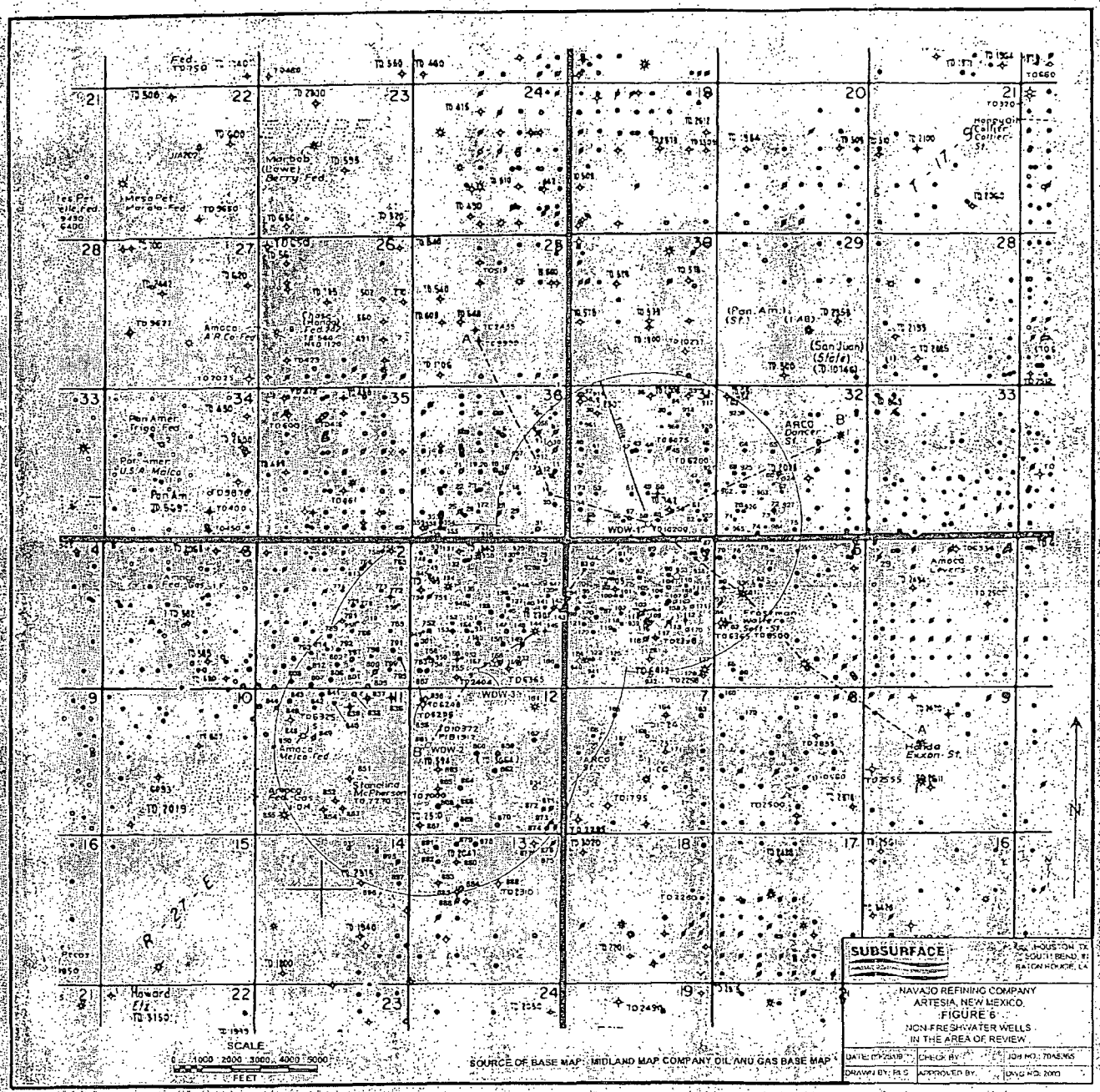
USGS Topographic Map
Red Lake Quadrangle, Eddy County, NM

Section corners marked with +

SUBSURFACE
HOUSTON, TX
SOUTH BEND, IN
BATON ROUGE, LA

EXHIBIT A
NAVAJO REFINING COMPANY
PROPOSED WDW-3
790' FSL, 2250' FWL I-18S-27E

DATE: 7/28/03	APPROVED BY: NLN	JOB NO: 6005497
DRAWN BY:	CHECKED BY:	SCALE: 1"=2000'



UIC - I - 8

EPA FALL-OFF TEST PLAN MAPs

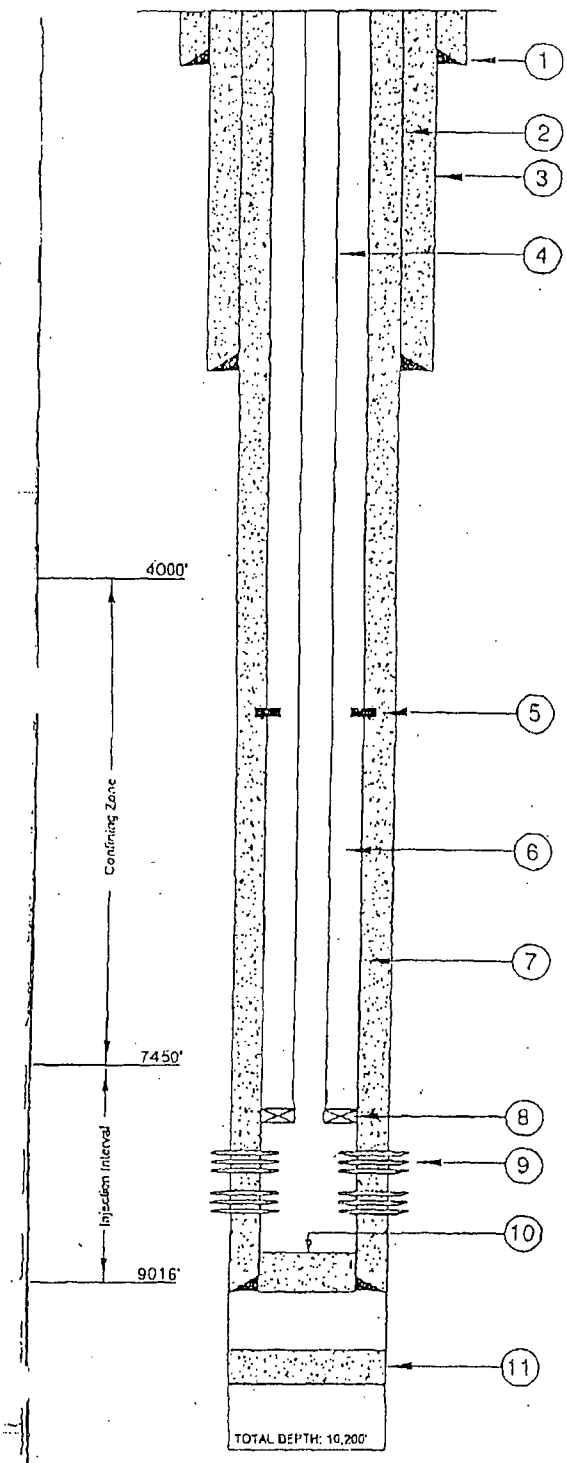
(WDW-3)

DATE:

2008 - Present

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



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 ⅜", 48 lb/ft, J-55, ST&C set at 390' in a 17 ½" hole. Cemented with 150 sx Class C with 3 % calcium chloride, 375 sx Class C Litewate w/3 % calcium chloride and ½ lb/sx flocele. Circulated 86 sx to surface.

2. Intermediate Casing: 9 ⅝", 36 lb/ft, J-55, ST&C set at 2,555' in a 12 ¼" hole. Cemented w/800 sx of Class C Lite w/ ½ 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 ½", 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 ¼ turn to the right and pick up.

9. Perforations (2 SPF):

   Upper Zone - 7924-7942', 7974-8030', 8050-8056', 8066-8080', 8116-8127', 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', 8470-8478'.

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: 70052256
DRAWN BY: WDL	APPROVED BY:	DWG. NO:

FIGURE 1

NOTICE OF PUBLICATION

Navajo Refining Company
Artesia, New Mexico

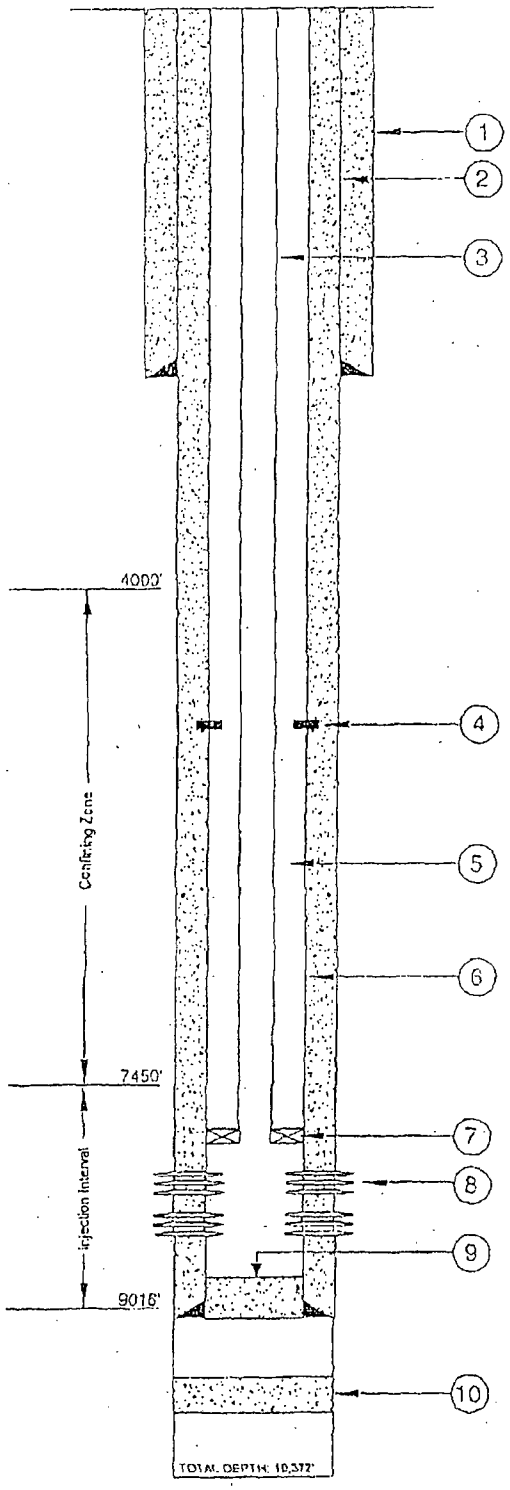
Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations (20.6.2.3108 NMAC), the following discharge permit application(s) has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(I-008) Navajo Refining Company, Darrell Moore, Environmental Manager for Water and Waste, 501 East Main Street, P.O. Box Drawer 159, Artesia, New Mexico, 88211-0159, has submitted an application for a Class I Injection Well Discharge Permit (UIC-CLI-008) for injection well WDW-1 (API#30-015-27592) located in the SW/4, SE/4 of Section 31, Township 17 South, Range 28 East, NMPM, Eddy County, New Mexico. The injection well is located approximately 11 miles East-Southeast of Artesia on Hwy-82 from Hwy-285 and about 1 mile south on Hilltop Road. Oil field exempt and non-exempt non-hazardous industrial waste will be transported about 11 miles underground from the Navajo-Artesia Refinery located at 501 E. Main Street, Artesia, NM via a 6 inch dia. pipeline to WDW-1 for disposal into the Wolfcamp, Cisco, and Canyon Formations in the injection interval from 7,924 to 8,476 feet (depth below ground level). The total dissolved solids concentration of the injection zone ranges from 13,000 mg/l to 119,909 mg/l. The injection rate will not exceed 500 gpm at a maximum injection pressure of 1,580 psig. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 100 feet below the ground surface, with a total dissolved solids concentration of 100 to 1,535 mg/l. The discharge plan addresses operation, monitoring, associated surface facilities, and provides a contingency plan in the event of accidental spills, leaks, and other accidental discharges in order to protect fresh water.

The NMOCD has determined that the application is administratively complete and has prepared a draft permit. The NMOCD will accept comments and statements of interest regarding this application and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be reviewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or also may be viewed at the NMOCD web site http://www.emnrd.state.nm.us/ocd. Persons interested in obtaining a copy of the application and draft permit may contact NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice, during which interested persons may submit comments or request the NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the permit based on information available, including all comments received. If a public hearing is held, the Director will approve or disapprove the proposed permit based on information in the permit application and information submitted at the hearing.

Published in the Artesia Daily Press on August 9, 2009. Legal 20795.



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 5/8", 32 lb/ft, set at 1995' in an 11" hole. Cemented to surface with 800 sacks of cement.
3. Injection Tubing: 3 ½", 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 ½", 17 lb/ft, L-80, LT&C; 8869' to the surface and set in a 7 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 ½" x 2 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 ¼ 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: 2005256
DRAWN BY: WDL	APPROVED BY:	DWG. NO:

FIGURE 4

NOTICE OF PUBLICATION

Navajo Refining Company
Artesia, New Mexico

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations (20.6.2.3108 NMAC), the following discharge permit application(s) has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(I-008-1) Navajo Refining Company, Darrell Moore, Environmental Manager for Water and Waste, 501 East Main Street, P.O. Box Drawer 159, Artesia, New Mexico, 88211-0159, has submitted an application for a Class I Injection Well Discharge Permit (UIC-CLI-008-1) for injection well WDW-2 (API#30-015-20894) located in the SW/4, NW/4 of Section 12, Township 18 South, Range 27 East, NMPM, Eddy County, New Mexico. The injection well is located approximately 10.5 miles East-Southeast of Artesia on Hwy-82 from Hwy-285 and about 3.3 miles south on Hilltop Road. Oil field exempt and non-exempt non-hazardous industrial waste will be transported about 10.5 miles underground from the Navajo Artesia Refinery located at 501 E. Main Street, Artesia, NM via a 6 inch dia. pipeline to WDW-2 for disposal into the Wolfcamp, Cisco, and Canyon Formations in the injection interval from 7,570 to 8,399 feet (depth below ground level). The total dissolved solids concentration of the injection zone ranges from 13,000 mg/l to 119,909 mg/l. The injection rate will not exceed 500 gpm at a maximum injection pressure of 1,510 psig. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 100 feet below the ground surface, with a total dissolved solids concentration of 100 to 1,535 mg/l. The discharge plan addresses well operation, monitoring, associated surface facilities, and provides a contingency plan in the event of accidental spills, leaks, and other accidental discharges in order to protect fresh water.

The NMOCD has determined that the application is administratively complete and has prepared a draft permit. The NMOCD will accept comments and statements of interest regarding this application and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be reviewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or also may be viewed at the NMOCD web site http://www.emnrd.state.nm.us/ocd. Persons interested in obtaining a copy of the application and draft permit may contact NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice, during which interested persons may submit comments or request the NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the permit based on information available, including all comments received. If a public hearing is held, the Director will approve or disapprove the proposed permit based on information in the permit application and information submitted at the hearing.

Published in the Artesia Daily Press, August 9, 2009, Legal 20793.

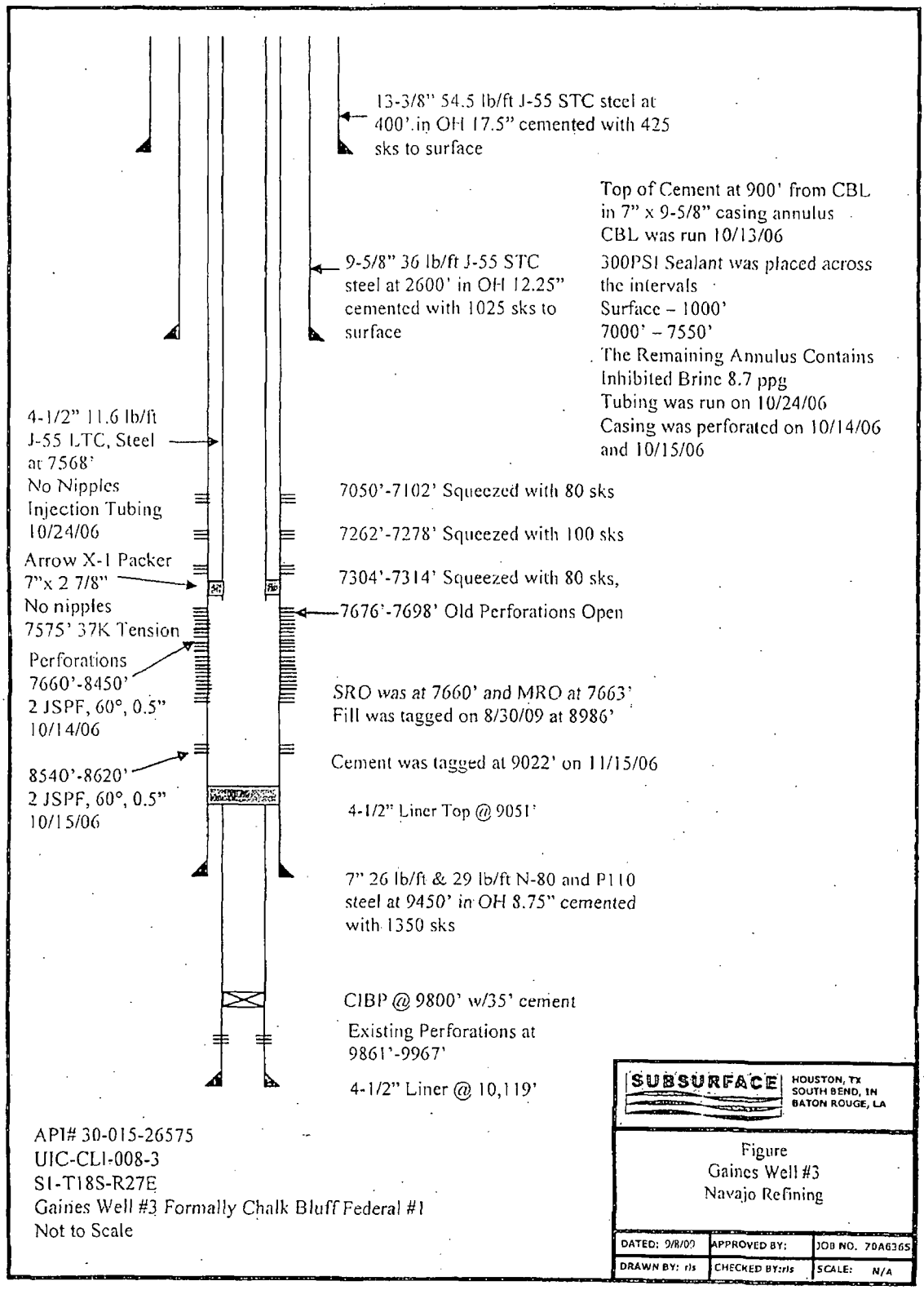

13-3/8" 54.5 lb/ft J-55 STC steel at 400' in OH 17.5" cemented with 425 sks to surface
Top of Cement at 900' from CBL in 7" x 9-5/8" casing annulus
CBL was run 10/13/06
9-5/8" 36 lb/ft J-55 STC steel at 2600' in OH 12.25" cemented with 1025 sks to surface
300PSI Sealant was placed across the intervals
Surface – 1000'
7000' – 7550'
The Remaining Annulus Contains Inhibited Brine 8.7 ppg
Tubing was run on 10/24/06
Casing was perforated on 10/14/06 and 10/15/06
4-1/2" 11.6 lb/ft J-55 LTC, Steel at 7568'
No Nipples
Injection Tubing 10/24/06
7050'-7102' Squeezed with 80 sks
7262'-7278' Squeezed with 100 sks
Arrow X-1 Packer 7"x 2 7/8"
7304'-7314' Squeezed with 80 sks,
No nipples
7575' 37K Tension
7676'-7698' Old Perforations Open
Perforations 7660'-8450' 2 JSPF, 60°, 0.5" 10/14/06
SRO was at 7660' and MRO at 7663'
Fill was tagged on 8/30/09 at 8986'
Cement was tagged at 9022' on 11/15/06
8540'-8620' 2 JSPF, 60°, 0.5" 10/15/06
4-1/2" Liner Top @ 9051'
7" 26 lb/ft & 29 lb/ft N-80 and P110 steel at 9450' in OH 8.75" cemented with 1350 sks
CIBP @ 9800' w/35' cement
Existing Perforations at 9861'-9967'
4-1/2" Liner @ 10,119'
API# 30-015-26575
UIC-CLI-008-3
S1-T18S-R27E
Gaines Well #3 Formally Chalk Bluff Federal #1
Not to Scale
SUBSURFACE
HOUSTON, TX
SOUTH BEND, IN
BATON ROUGE, LA
Figure
Gaines Well #3
Navajo Refining
DATED: 9/8/09
APPROVED BY:
JOB NO. 70A636S
DRAWN BY: rls
CHECKED BY: rls
SCALE: N/A

FIGURE 3

PUBLIC NOTICE

NOTICE OF DISCHARGE PERMIT REQUEST

Pursuant to the requirements of the New Mexico Water Quality Control Commission regulation 20 NMAC 6.2.3108, Navajo Refining Company hereby announces that it is making application to the New Mexico Oil Conservation Division (NMOCD) – Environmental Bureau for a discharge permit to inject waste water from Navajo Refining Company's Artesia plant into an injection well that is called WDW-3 located in Unit N, Section 1, Township 18S, Range 27E, Eddy County, New Mexico or approximately 10 miles east of Artesia on US Hwy 82 from US Hwy 285 and about 3 miles south on Hilltop Road. Previously, WDW-1 and WDW-2 were already permitted under separate plans. This waste water will originate at Navajo's Artesia, NM refinery which is located at 501 E. Main Street, Artesia, NM and will then be carried through an underground pipeline approximately 12 miles to the above mentioned well site. The waste water will be injected into the Lower Wolfcamp, Cisco, and Canyon Formations located between 7650 feet and 8620 feet (log depth). The injection rate will not exceed 500 gpm at an injection pressure not to exceed 1530 psig.

The generation of waste water from the Artesia Plant is a result of water that is entrained in the crude supply, water used for cooling and heating, water used to remove salts from the crude supply, and boiler blow down. The Artesia Plant's waste water could potentially be put into WDW-3. This waste water will have a total dissolved solids (TDS) content of 7000 parts per million, a pH from 7 to 9, and minor metal concentrations. In the area of the well location, fresh water is at a depth of 80 feet with a TDS of 1500 to 2200 parts per million.

Navajo's operation of the affected facilities will comply with all applicable State and Federal regulations.

The owner and operator of the facility is: Navajo Refining Company, L.P.
501 E. Main Street
Artesia, NM 88210

Comments and inquiries may be directed to:
Mr. Jim Resinger, Refinery Manager, (505) 748-3311

Persons interested in obtaining further information, submitting comments, or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the New Mexico Oil Conservation Division.

Comments and inquiries on regulations should be directed to:
Director
New Mexico Oil Conservation Division (NMOCD)
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505
Telephone: (505) 476-3440

Chavez, Carl J, EMNRD

Subject:	Holly-Frontier (Navajo Refining Co.) OCD UIC Class I (NH) Injection Wells (UICI-008) & Significant Variation in Annulus Pressures Noticed from Monitoring
Location:	T elephone Conference Call
Start:	Wed 10/5/2011 10:30 AM
End:	Wed 10/5/2011 12:00 PM
Recurrence:	(none)
Meeting Status:	Meeting organizer
Organizer:	Chavez, Carl J, EMNRD
Required Attendees:	Bailey, Jami, EMNRD; Sanchez, Daniel J., EMNRD; Ezeanyim, Richard, EMNRD; Jones, William V., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Griswold, Jim, EMNRD; Lackey, Johnny; Moore, Darrell; Gonzales, Elidio L, EMNRD; Brown, Maxey G, EMNRD
Categories:	Red Category

Request: Request for Holly-Frontier Representatives to send Carl Chavez any presentation in Acrobat Reader (pdf format) for the conference call for Carl to attach to this meeting notice and also Carl will place presentation files into OCD's Telephone Conference Call Folder at L:\ENVIRONM\WORD\COMMON\OCD Training\TELEPHONE CONFERENCE CALLS\Navajo Refining UIC Wells Meeting 10-5-2011for OCD Staff to access during the telephone conference call and/or to attach the file directly to this meeting notice for all meeting participants to access. Also, please send any agenda items that any of you may wish to add to the agenda by COB next Tuesday. Thank you.

Meeting Call-In Information:

Dial-in Number: 1-712-580-8025 (Midwest)
Participant Access Code:4509670
Organizer Access Code: *693464 (you must include the leading star key)

Tentative Meeting Agenda:

Purpose: To discuss monitored variation in injection well annulus pressures during injection for 3 UIC Class I (NH) Injection Wells in Eddy County.

* Introductions
* Well Locations
* Fiberglass Effluent Line from Refinery to Injection Wells
* Monitored Annulus Pressure Data
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* Path Forward


UICI-8 FOT 9-22-2011.pdf


Well Info 9-23-2011.pdf


Effluent Line.pdf


Well Inspection Photos.pdf

HOLLY ENERGY PARTNERS

PROJECT SUMMARY

PROJECT: 8" Water Effluent Pipeline

PROJECT LOCATION: Artesia, NM

The 8" Water Effluent Pipeline project will consist of designing and constructing approximately 15miles of new 8" Fiberglass pipeline. This new pipeline will parallel the existing 8" carbon steel water effluent pipeline (starting inside the Navajo Refinery and heading East to three injection wells). The current 8" carbon steel water effluent line is in service and operating but is highly corroded(due to internal corrosion), thus the need to design/construct a new pipeline parallel to it.

The new pipeline design needs to take into consideration the tie ins to the well injection locations and accommodate minimal down time on the existing carbon steel pipeline when activating the new line and deactivating the old (carbon steel) pipeline. The new fiberglass pipeline will be below grade and all below grade to above grade transitions will be accomplished with internal and external coated carbon steel. These carbon steel sections will also be protected with anode banks, for external corrosion protection. The scope of work will stop at the inlet to the filter isolation valves at each injection well sites. The isolation/block valves (qty 6) will be below grade in a concrete valve box (with the exception to the west river valve setting). The entire construction will consist of approximately 10weeks (see attached schedule).

The 8" Fiberglass is a NOV, STAR, Anhydride line pipe product with a design pressure rating 1500psig at 150deg F(see attached spec sheet). The fluid in this design is effluent water which comes from the Navajo Refinery (see attached water samples). The pipeline max flow rate for design is 750gpm (~26,000bbl/day) at 130deg F(max) and pressures shall stay within the pressure rating of ANSI 600#.

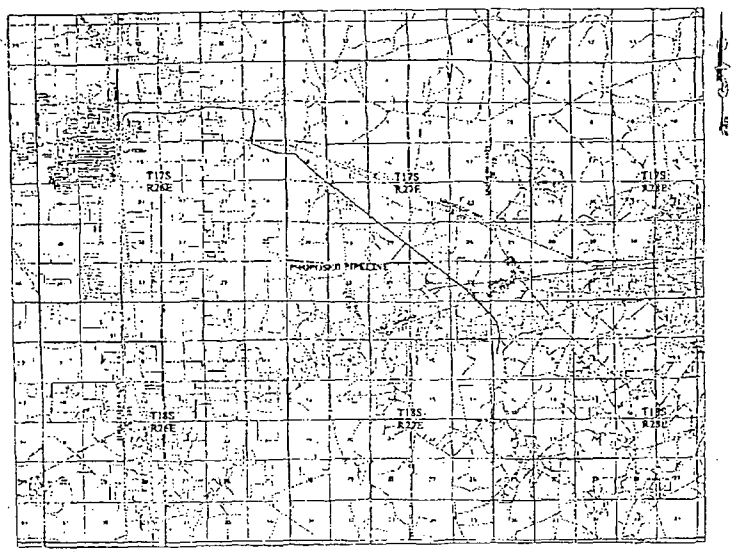
We will use the fiberglass line pipe max temperature rating (150 deg F) and the valves/flanges pressure rating (1480psig) as the constraints for design parameters.

The pipeline will be designed so that it can be pigged (with a foam pig) from the start of the pipeline (inside the refinery), the to last injection well (Mewbourne – Inj. well #1). The two other laterals are short sections with isolation valves that won't be pigged (Chukka –Inj. Well #2; Gains – Inj. Well #3).

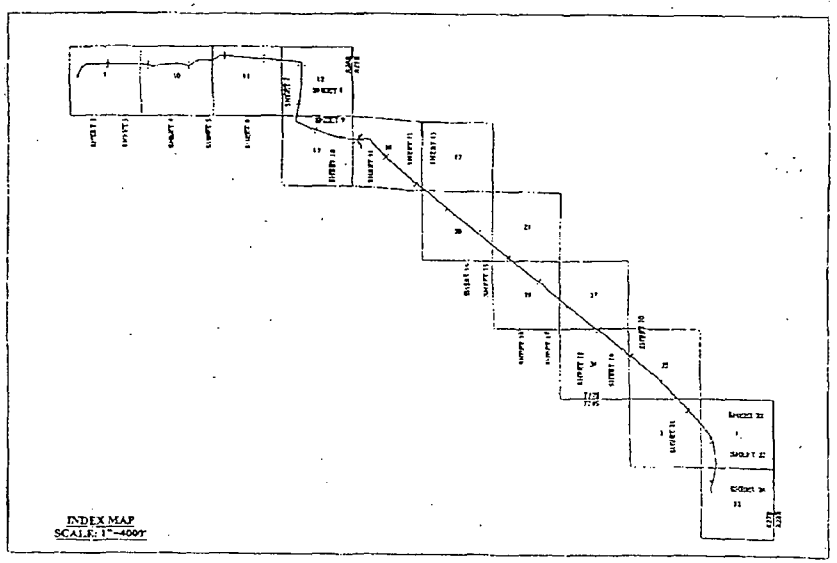
This pipeline will have several locations where steel casing will be encasing the fiberglass pipeline to protect it from third party damage as additional precaution. These locations include but are not limited to county road crossings, state highway crossings, river crossing, and major pipeline corridor crossings.

Thus overall the new pipeline design will be much more resilient to internal corrosion and the addition of more isolation valves will make it easier to work on sections of the line or injection well if a problem does prevail.

1. Specifications and Standards for Design
    a. US DOT CFR 49 Part 195 -Hazardous Liquids
    b. American Society of Mechanical Engineers B31.4 (ASME)
    c. American Petroleum Institute 6D(API)
    d. American Petroleum Institute 1104(API)
    e. American Petroleum Institute Recommended Practice 1102(API RP)
    f. American Society for Testing and Materials (ASTM)
    g. Occupational Safety and Health Administration (OSHA)
    h. American Concrete Institute (ACI)
    i. National Association of Corrosion Engineers (NACE)
    j. National Electric Code (NEC)



VICINITY MAP
NOT TO SCALE



INDEX MAP
SCALE: 1"=4000'

LEGEND AND GENERAL NOTES:

- ● - DENOTES FOUND MONUMENT AS NOTED
- ○ - DENOTES CALCULATED CORNER
- ——·—— - DENOTES FENCE LINE
- ——E—— - DENOTES ELECTRIC LINE
- ——— - DENOTES EXISTING PIPELINE BY OTHERS
- ——— - DENOTES EXISTING WATER OR SALES
- ═══ - DENOTES EXISTING ROAD

GENERAL NOTES:

1) BEARINGS SHOWN HEREON ARE REFERENCED GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) REFER TO MONUMENT TABLE SUBMITTED BY JOHN WEST SURVEYING COMPANY.

3) UTILITY LOCATIONS SHOWN ARE FROM OBSERVED SURFACE EVIDENCE. ACTUAL LOCATIONS SHOULD BE VERIFIED

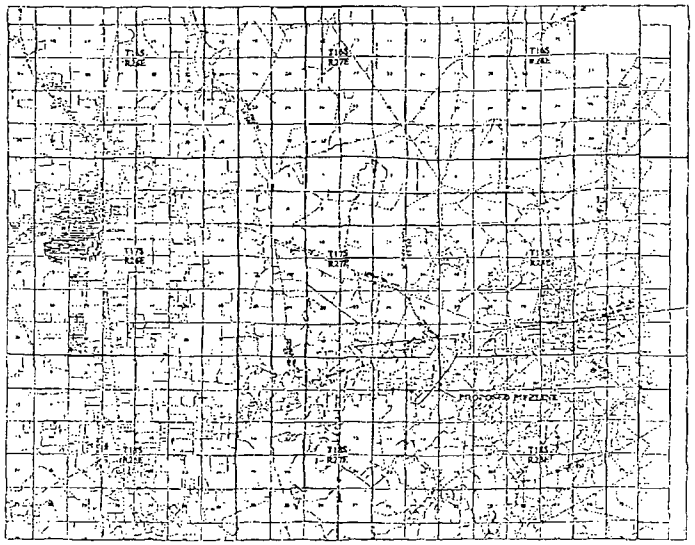
No.	Rev. By	Chk'd By	REVISIONS

BEGINNING IN SECTION 9, TOWNSHIP 17 SOUTH, RANGE 26 EAST, N.M.P.M.
& ENDING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

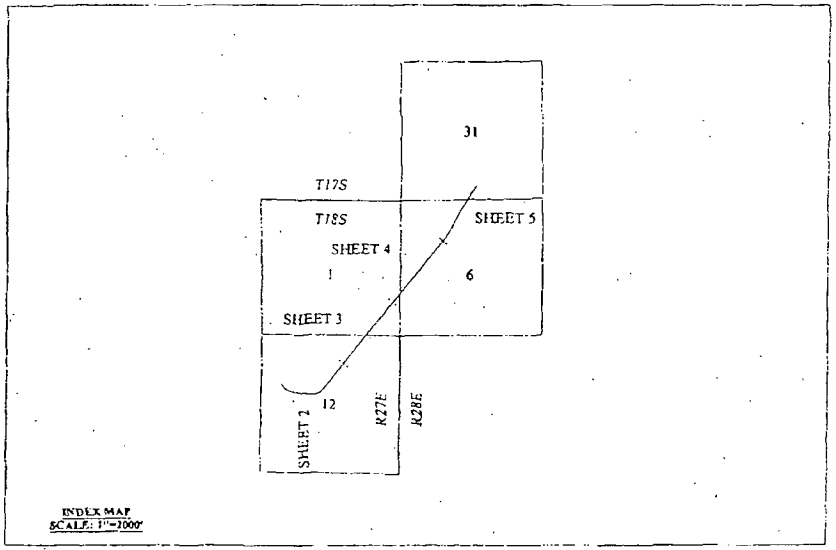
HOLLY ENERGY PARTNERS
PROPOSED PIPELINE INDEX MAP, LEGEND AND GENERAL NOTES

PROFESSIONAL SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No:	18111343	Sheet No. 1 of 14 TOTAL SHEETS	
Survey Date:	10/11/18	CAD Dwg By:	LF
CAD Dwg Name:	10/25/18 1 Plan Plat		E-3334
Scale: 1" = 1000'			



VICINITY MAP
NOT TO SCALE



INDEX MAP
SCALE: 1"=7000'

LEGEND AND GENERAL NOTES:

- = DENOTES FOUND MONUMENT AS NOTED
- = DENOTES CALCULATED CORNER
- DENOTES FENCE LINE
- DENOTES ELECTRIC LINE
- DENOTES EXISTING PIPELINE BY OTHERS
- DENOTES EXISTING DITCH OR DRAIN
- DENOTES EXISTING ROAD

GENERAL NOTES:

1) BEARINGS SHOWN HEREON ARE HORIZONTAL GRID AND REFERENCED TO THE NEW MEXICO COORDINATE SYSTEM NEW MEXICO EAST ZONE, NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) REFER TO RIGHT-OF-WAY PLATS SUBMITTED BY JOHN WEST SURVEYING COMPANY.

3) UTILITY LOCATIONS SHOWN ARE FROM SURFACE AND SURFACE EVIDENCE. ACTUAL LOCATIONS SHOULD BE VERIFIED.

No.	Ref. By	Date By	REVISIONS

BEGINNING IN SECTION 12, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
& ENDING IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HOLLY ENERGY PARTNERS
PLAN AND PROFILE
STA. 00 + 00 TO STA. 115 + 15.7

JOHN WEST SURVEYING COMPANY
SINCE 1948
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

Work Order No.	10.11.1512	Sheet No.:	1 of 1
Survey Date:	10/13/10	CAD Dwg. By:	LS
CAD Dwg. Date:	12/27/10	File No.:	P-1336
Scale: 1" = 100'			

UICI-008 Navajo Refinery
UIC Class I (NH) Injection Wells (WDWs, 1, 2 & 3)
General Well Expansion Tank (WAM) Monitoring Requirements in Discharge Permit

Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-2 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

SUBSURFACE

October 5, 2011

Mr. Darrell Moore
Navajo Refining Company
P.O. Box 159
Highway 82 East
Artesia, New Mexico 88211

RE: Chukka WDW-2 Annulus Pressure Test (APT) Results
Subsurface Project Number: 70A6645
Test Date: September 26, 2011

Darrell,

A chart recorder was rigged up to the annulus on the wellhead of Chukka WDW-2. The lines from the wellhead to the annulus pumps were closed off at the wellhead and the annulus pumps were turned off. The chart recorder was set to record for 60 minutes. 12 hours on the chart would correspond to a 30-minute test.

The annulus pressure test was started at 1555 hours. This time corresponds with the "1 AM" curve on the attached chart. At 1555 hours, the annulus pressure was approximately 655 psig. At 1625 hours, the annulus pressure was approximately 643 psig. This time corresponds with the "1 PM" curve on the attached chart. The annulus pressure drop was 12 psig or 1.83%. Therefore, Chukka WDW-2 demonstrated mechanical integrity between the casing–tubing annulus.

Sincerely,

Tim Jones

Tim Jones
Project Engineer
Subsurface Technology

TJ/bl

Enclosures

T. Walter Cook N.M. PE 20219 Confirmation Attached

ANNULUS PRESSURE TEST OF NAVAJO REFINING WASTE DISPOSAL WELL 2 (WDW-2 CHUKKA)

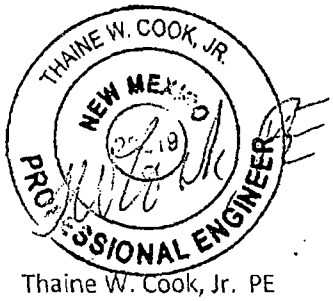
NAVAJO REFINING COMPANY
ARTESIA, NEW MEXICO
PROJECT NO. 70A6645

SUBMITTED:
SEPTEMBER 2011

SUBSURFACE TECHNOLOGY, INC.
6925 PORTWEST DR., STE. 110
HOUSTON, TEXAS 77024
pfh@subsurfacegroup.com

To whom it may concern:

I Thane Walter Cook, Jr PE certify that the engineering materials contained herein have been prepared by personnel under my supervision. I have met the requirements of NMSA 1978 61-23-3 (definition of responsible charge) with respect to these materials. I have personally reviewed the content and made any calculations and changes needed.

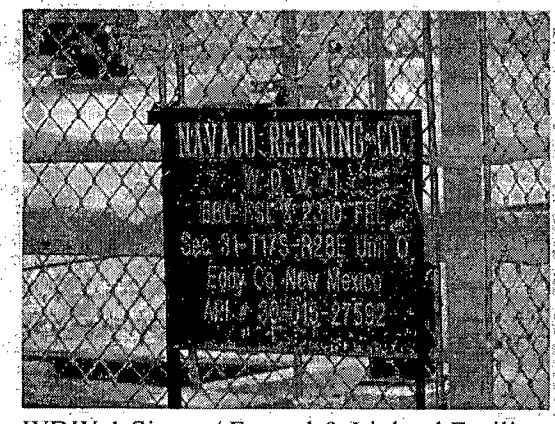


Thaine W. Cook, Jr. PE

August 26, 2011

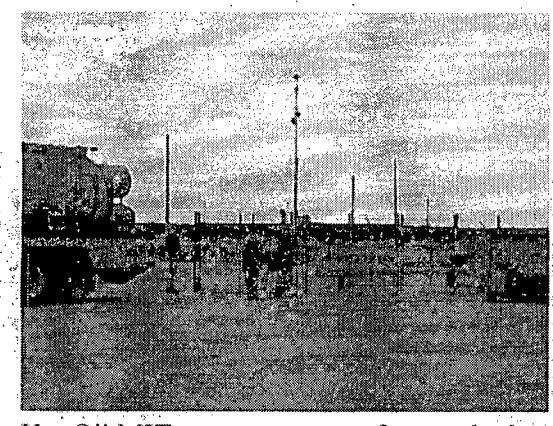
New Mexico PE 20219

WDW-1 Inspection & MIT (8/14/2009)

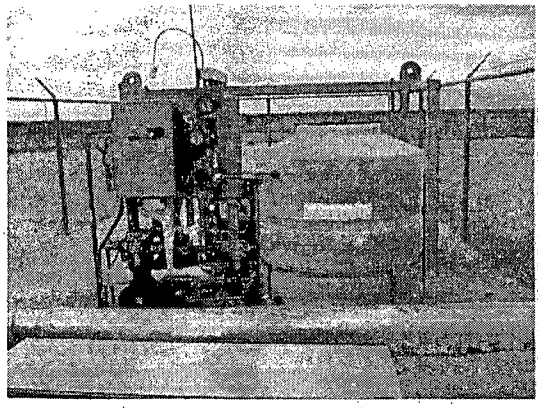


WDW-1 Sign w/ Fenced & Lighted Facility 24/7

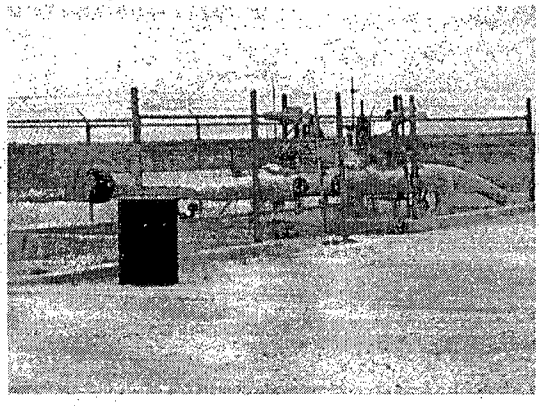
Wellhead



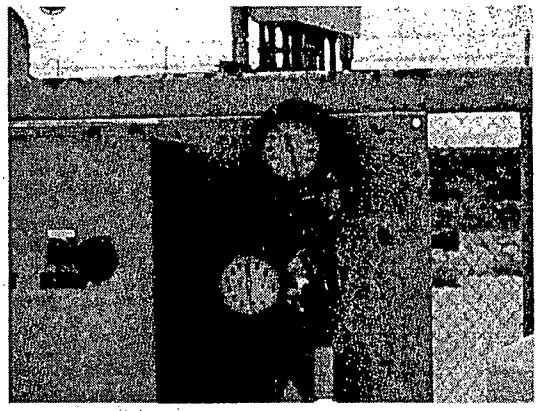
Hot Oil MIT contractor setup for standard annulus pressure test MIT



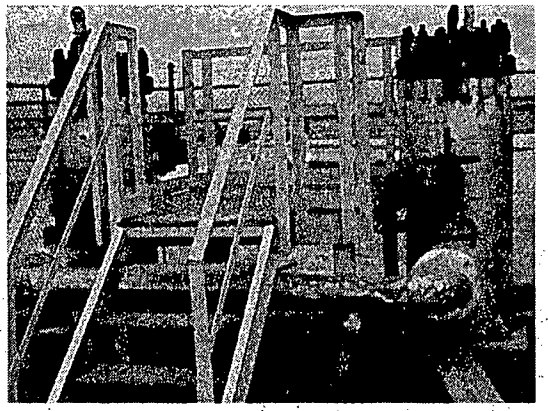
WAMs Unit



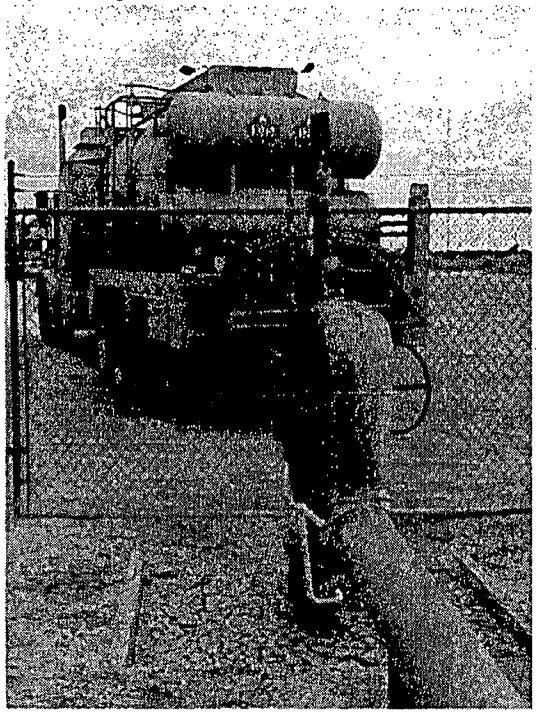
Looking W-SW at fenced pipeline pig station for ~12 mile WDW-1 back to refinery



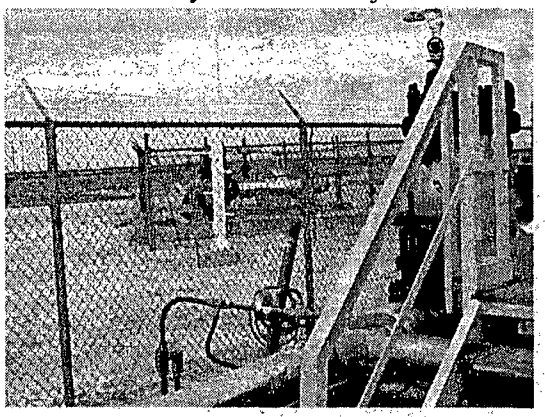
Injection pressure station



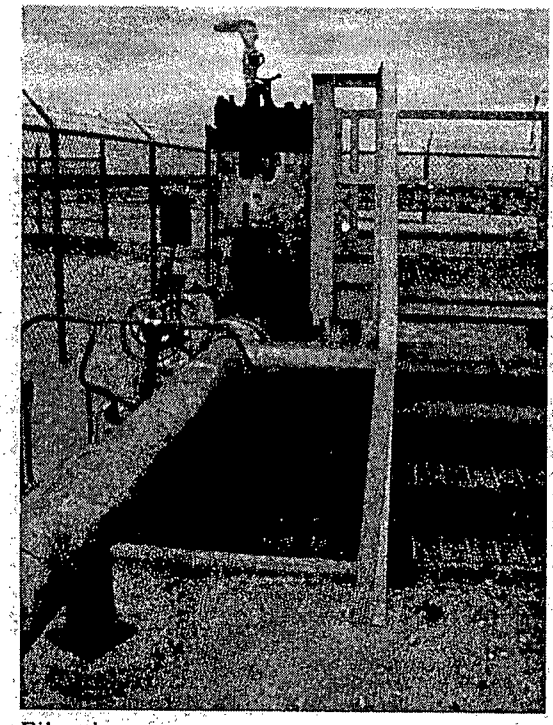
Dual filtration system before injection



Hot Oil Truck fluid pressure up on annulus



Looking S-SW at pipeline pig station in background



Filtration system

Calibrated chart recorder

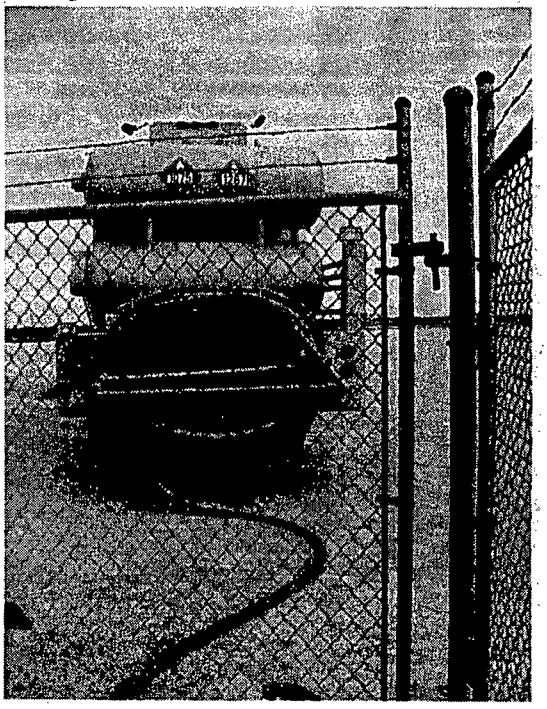
Pre-MIT annulus pressure at ~220 psig

Recommended AFE to replace ½ inch dia. pipe with 1 inch or greater.

Drums of ethylene glycol stored on ground need to be on impermeable pad

Ethylene glycol drums w/ rusty trash drum close-up

Chart recorder setup w/ valve arrangement during MIT



Hot Oil truck in background connected to annulus during fluid pressure up.

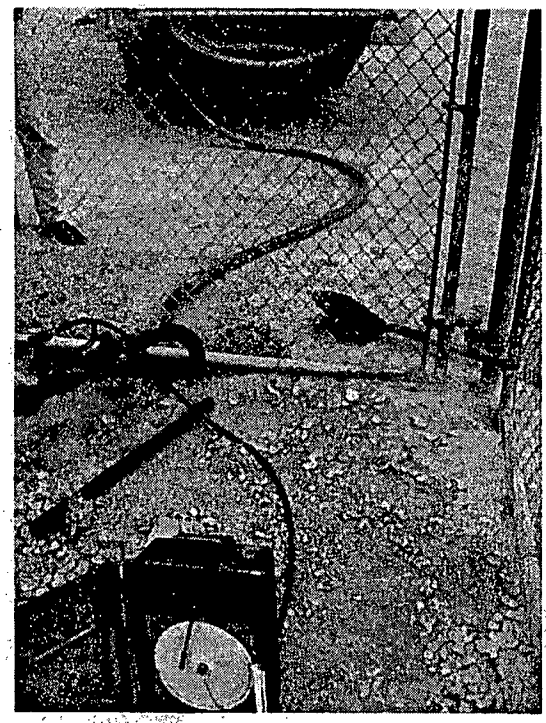


Chart recorder in action

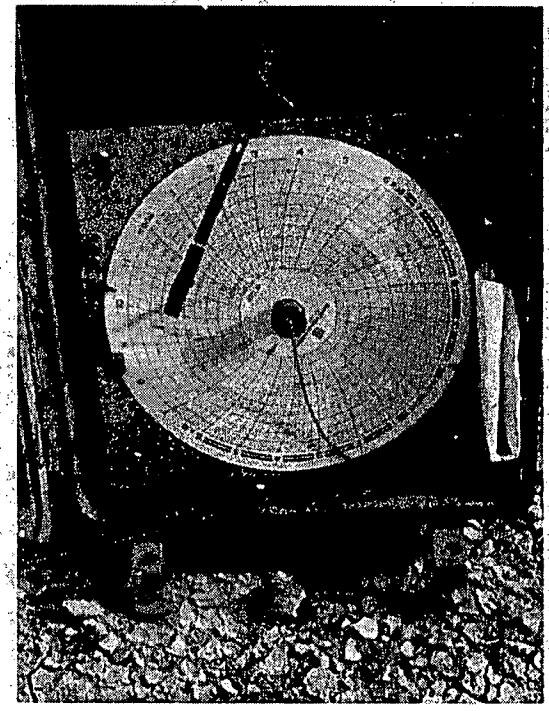
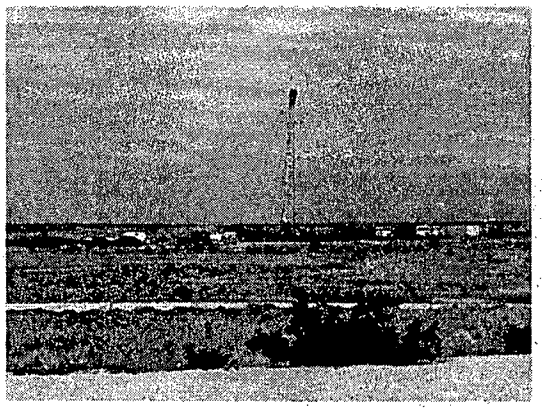
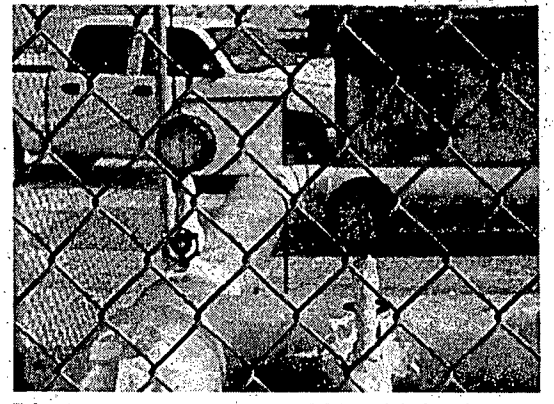


Chart recorder during pressure up w/ calibration sheet

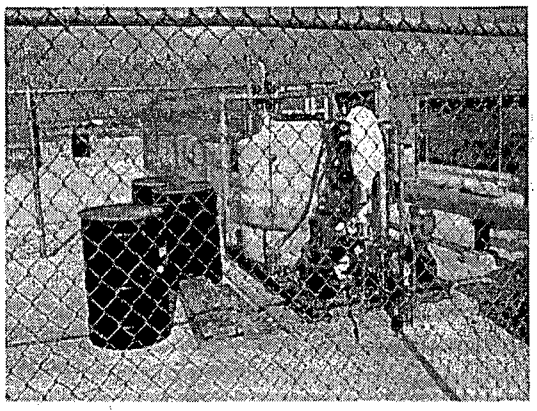


Noticed either new or well workover in progress NW of disposal well

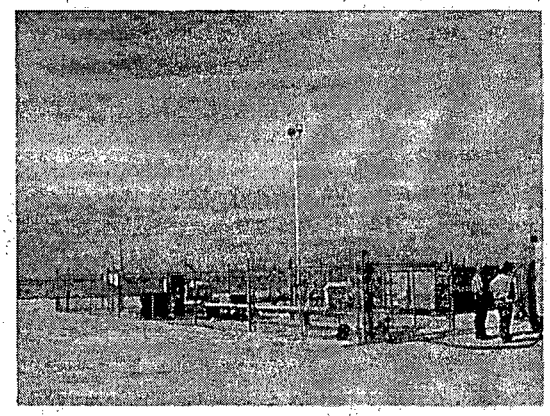
WAMs Unit w/ ethylene glycol drums sitting on ground



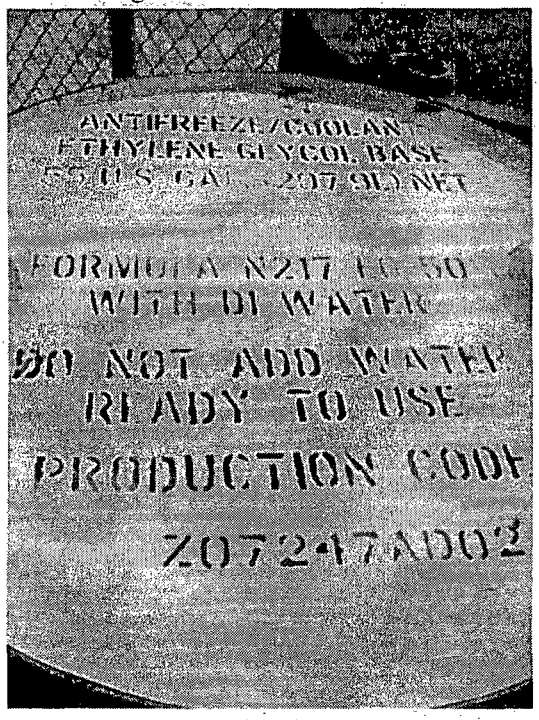
Line pressure gauges ~ 1300 psi injection pressure during MIT



Drums on ground near WAMs Unit



Fenced facility w/ lighting 24/7



Close-up ethylene glycol drum

Hot Oil Truck

Standard annulus pressure test MIT under dynamic condition

Trash drum

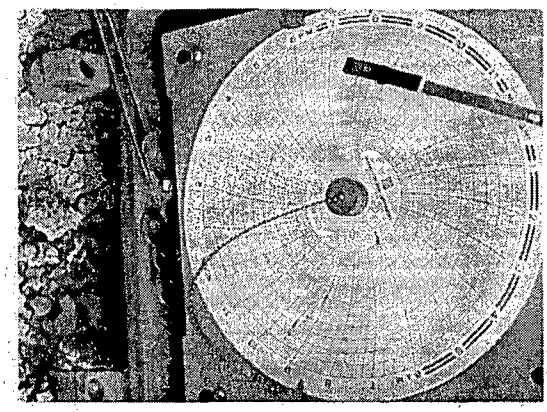
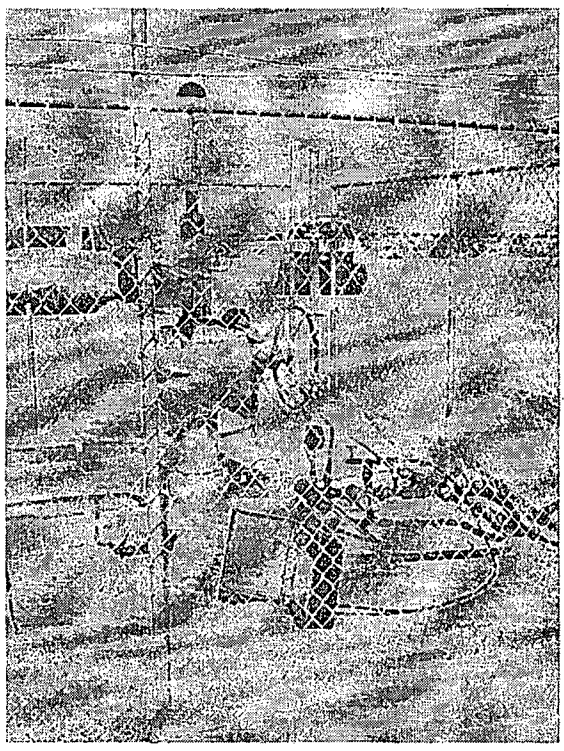


Chart recorder at end of MIT

Notes:

1) Passed standard annulus pressure MIT (Start @ 575 psig & End @ 580 psig) over 30 minutes.
2) AFE submitted to replace ½ inch dia. piping w/ 1 inch or greater- safety and breakage concerns.
3) Operator indicated WAMs fluid level ok (no loss or addition of ethylene glycol).
4) Drums containing chemicals need to be stored in impermeable pad area or removed from facility.



Standard annulus pressure test MIT under dynamic condition

Trash drum

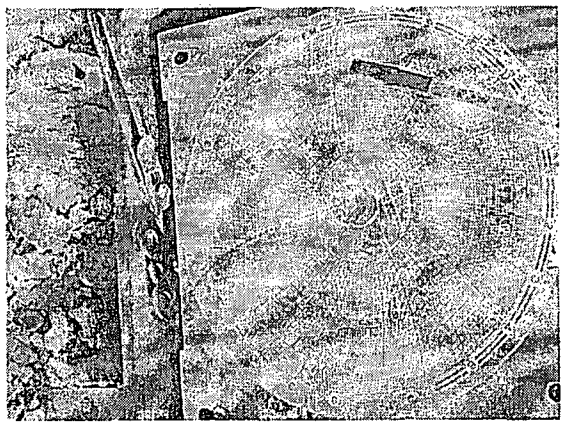


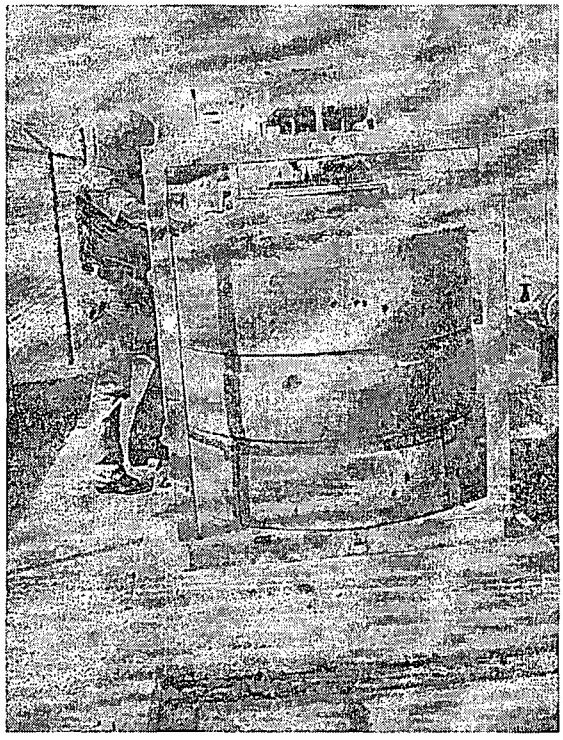
Chart recorder at end of MIT

Notes:

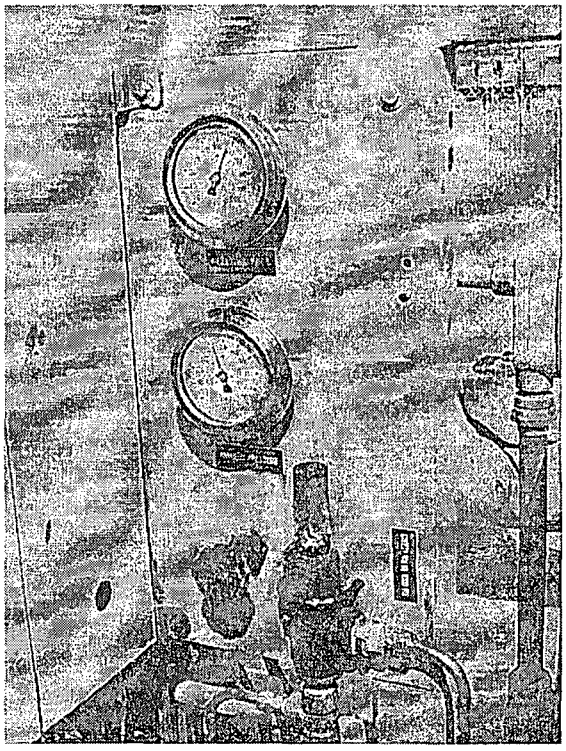
1) Passed standard annulus pressure MIT (Start @ 575 psig & End @ 580 psig) over 30 minutes.
2) AFE submitted to replace ½ inch dia. piping w/ 1 inch or greater- safety and breakage concerns.
3) Operator indicated WAMs fluid level ok (no loss or addition of ethylene glycol).
4) Drums containing chemicals need to be stored in impermeable pad area or removed from facility.

WDW-2 Inspection & MIT (8/14/2009)

Well sign w/ security fence and lighting 24/7

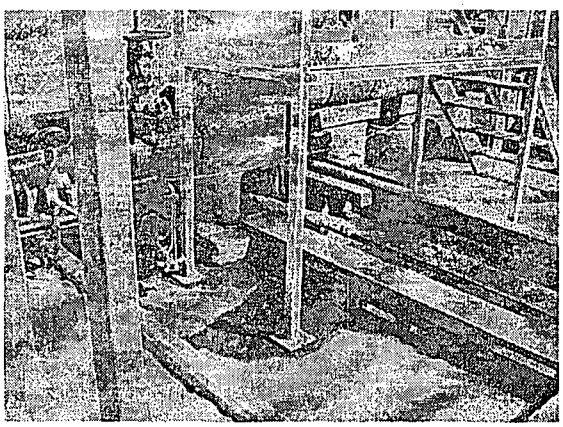


WAMs Unit annulus fluid level monitoring device for OCD UIC Class I Wells



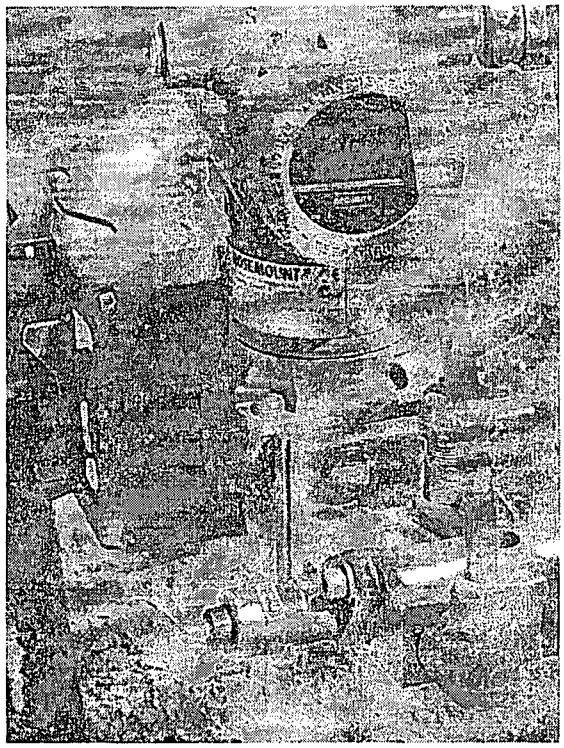
Injection well pressure monitoring station

WAMs Unit close-up w/ manometer

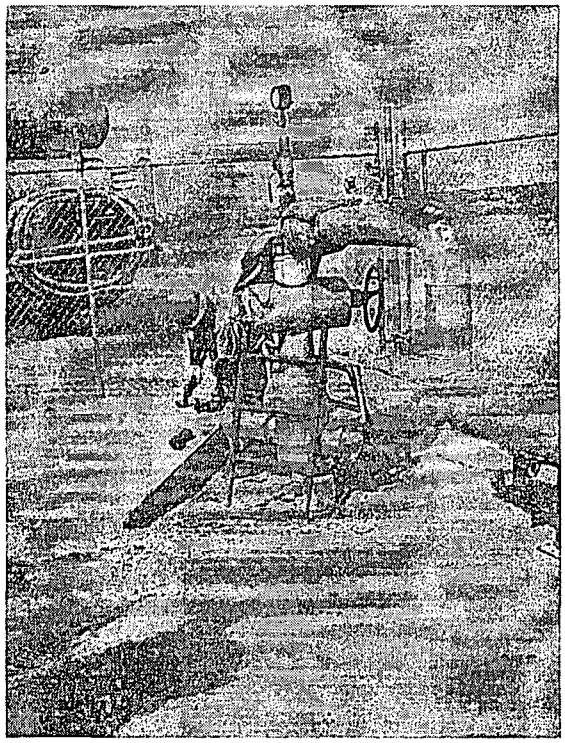


Impermeable curb in process area

Ethylene glycol fluid needs to be stored on impermeable pad area

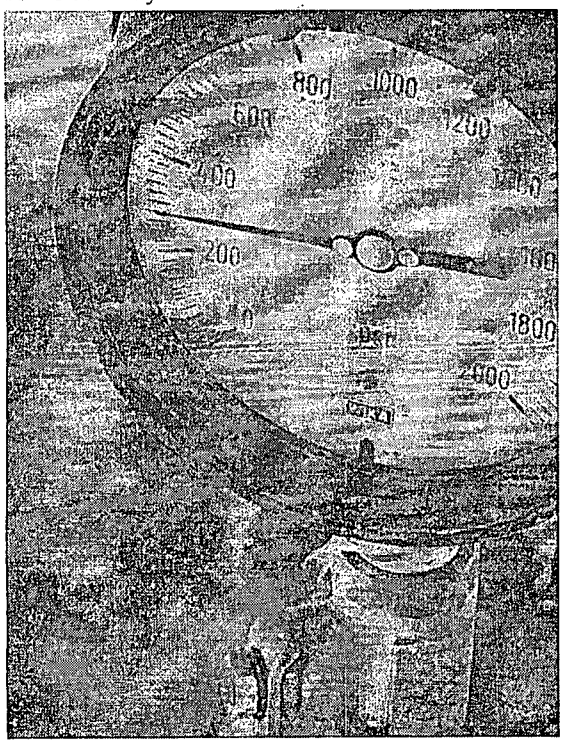


Electronic in-line flow rate monitor gauge

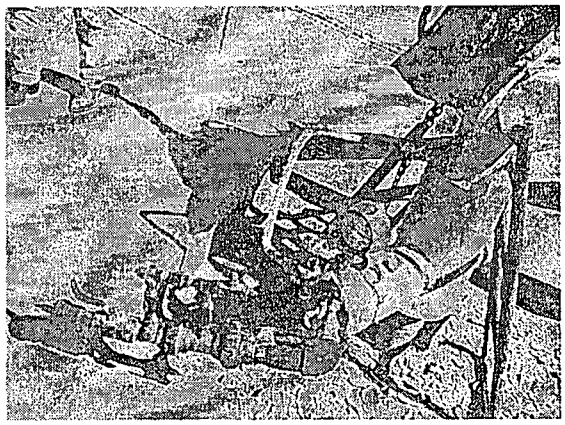


Wellhead w/ Hot Oil Operator preparing to install chart recorder for MIT

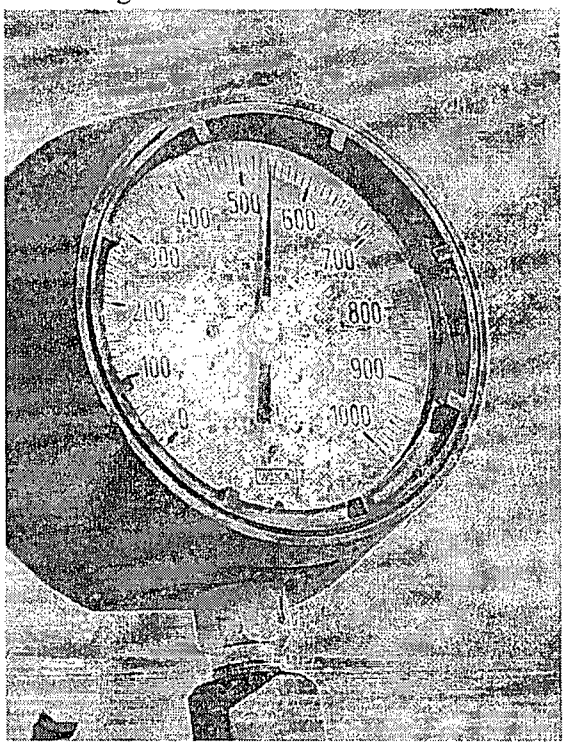
Filtration system before injection w/ boxes for O&M by workers



Pressure gauge reading ~300 psig pre-MIT



Connection to annulus through small ½ inch dia. fitting



Annulus pressure gauge reading ~ 535 psig during MIT

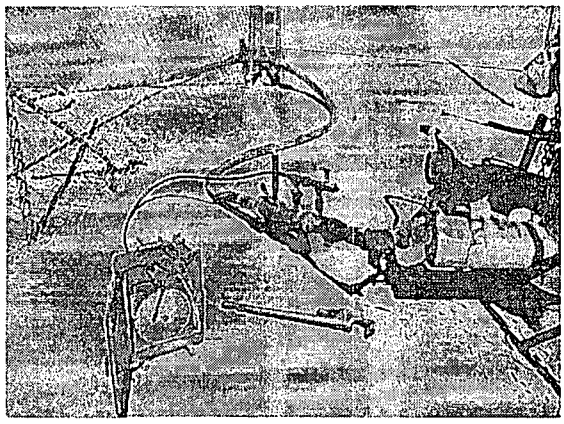
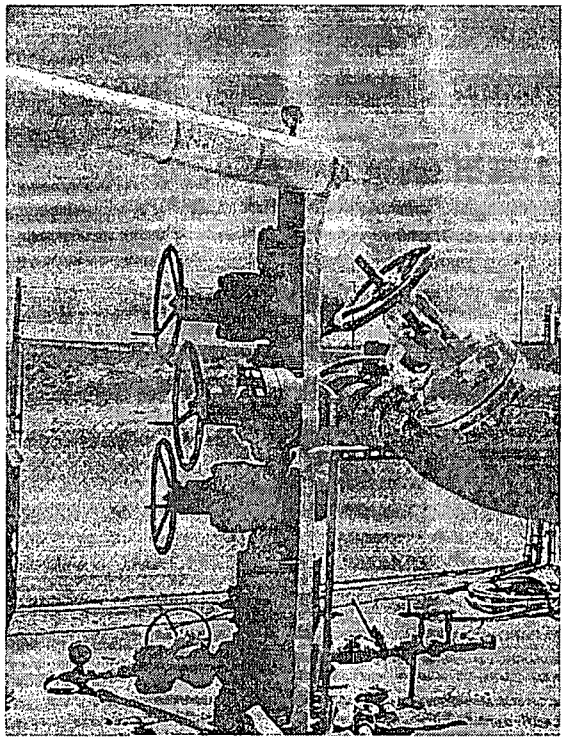
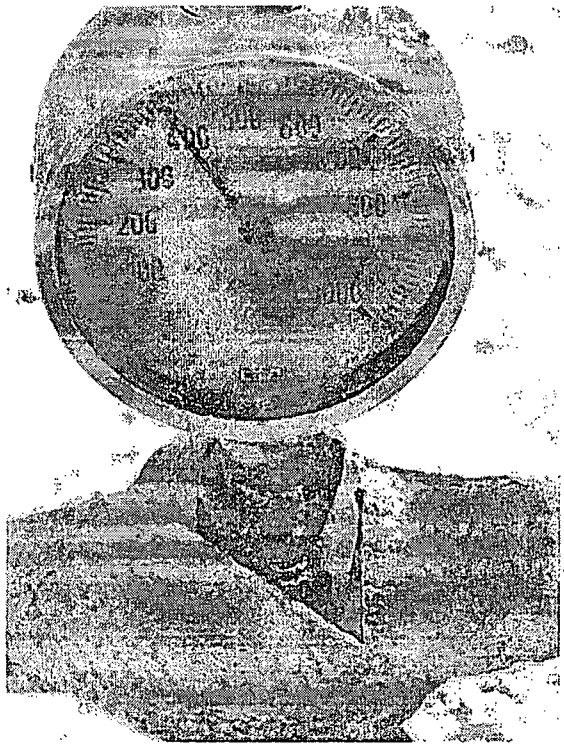


Chart recorder set-up w/ valve arrangement. Operator wants to replace ½ inch line with 1 inch or greater diameter size due to pressure on small line and breakage concerns during MITs.



Wellhead w/ blow-out preventers



Another in-line pressure gauge reading during pressure up pre-MIT

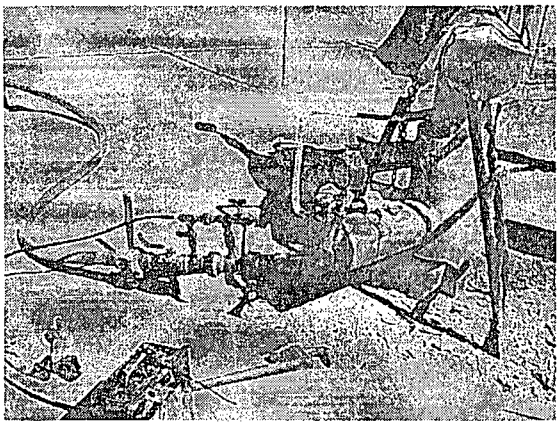
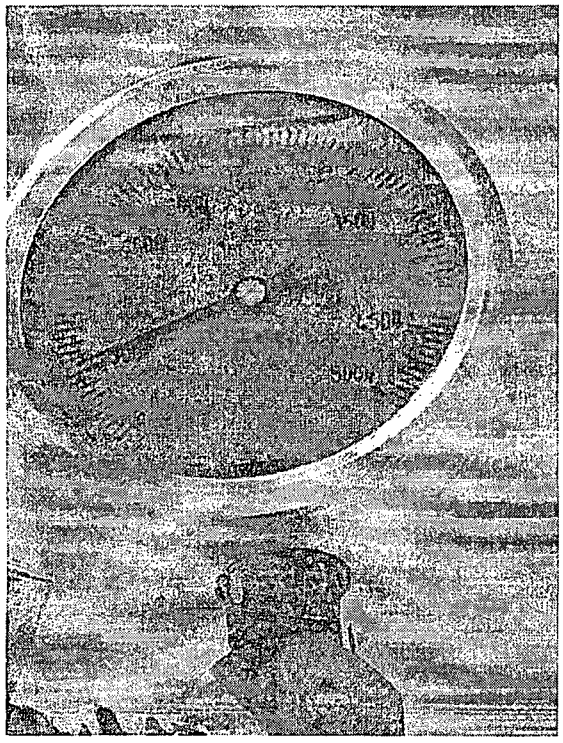


Chart recorder setup w/ valve arrangement

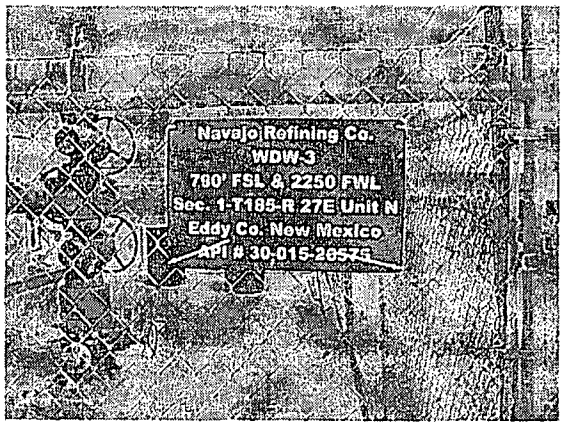


Annulus pressure increasing during pressure up on annulus pre-MIT

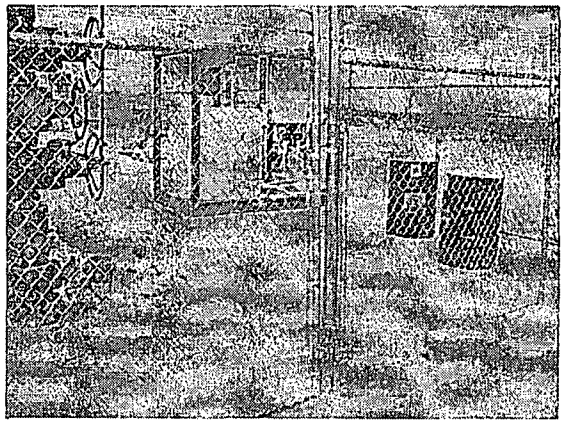
1) Passed standard annulus pressure MIT (Start @ 525 psig & End @ 520 psig) over 30 minutes.
2) Operator indicated WAMs fluid level ok (no loss or addition of ethylene glycol).
3) Drums containing chemicals need to be stored in impermeable pad area or removed from facility.

Notes:

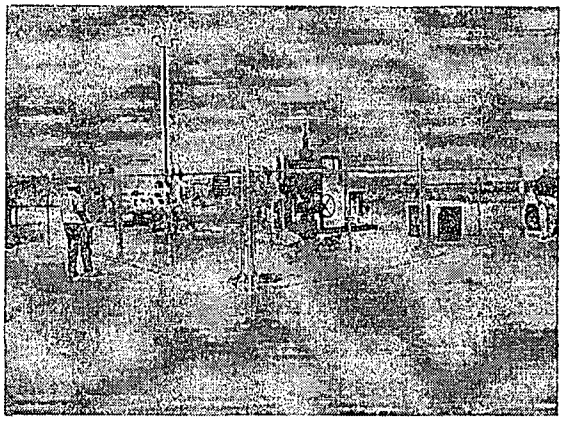
WDW-3 Inspection & MIT (8/14/2009)



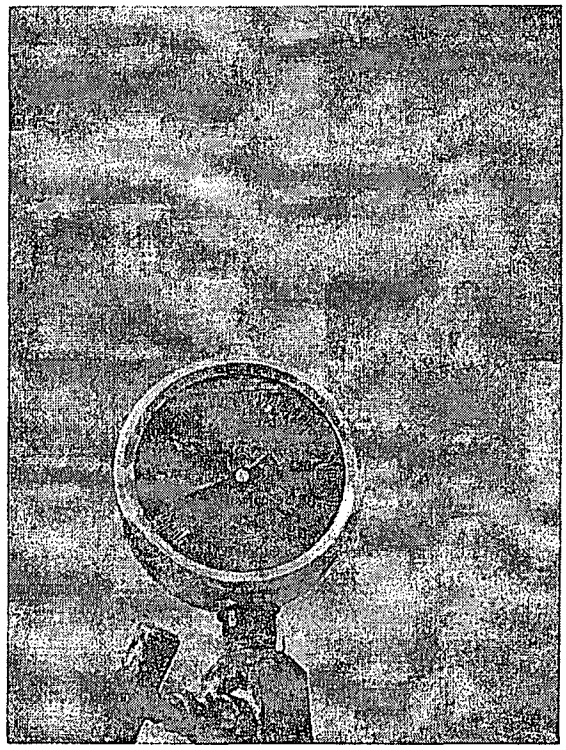
UIC Class I Well WDW-3 sign w/ security fence and lighting 24/7.



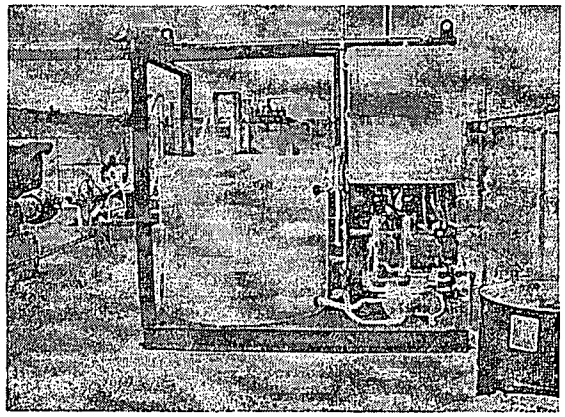
WAMs Unit near wellhead w/ drums of ethylene glycol not stored in impermeable area



Wellhead from a distance looking SE

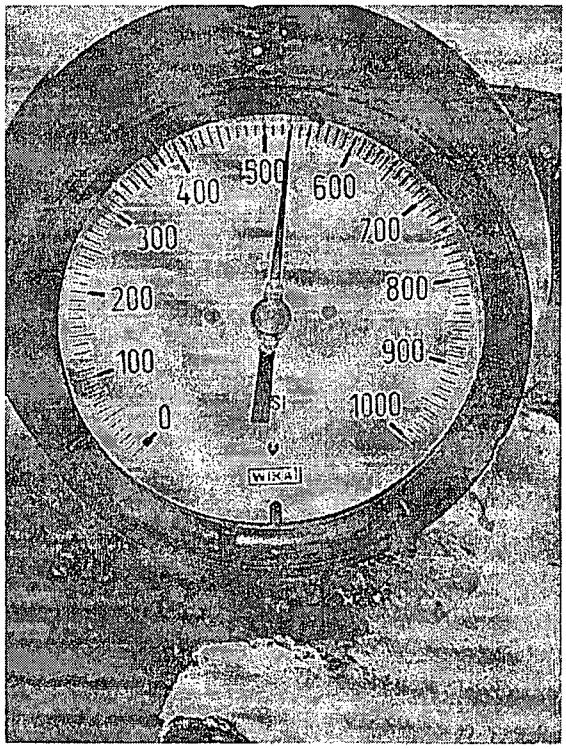


Annulus pressure gauge at top of well casing reading ~ 500 psig during pressure up on annulus



WAMs unit w/ overhead piping to wellhead looking E

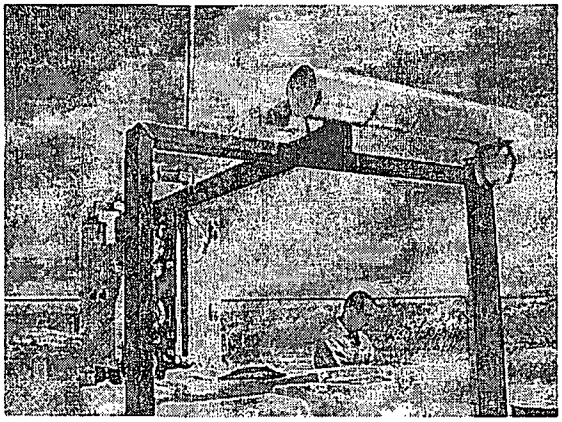
WAMs Unit fluid loss ~ 10gal/mo.



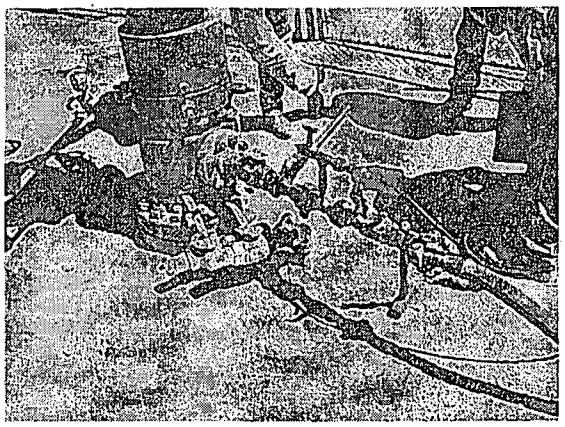
Another pressure gauge during MIT at ~ 530 psig

Annulus pressure gauge during MIT at ~530 psig

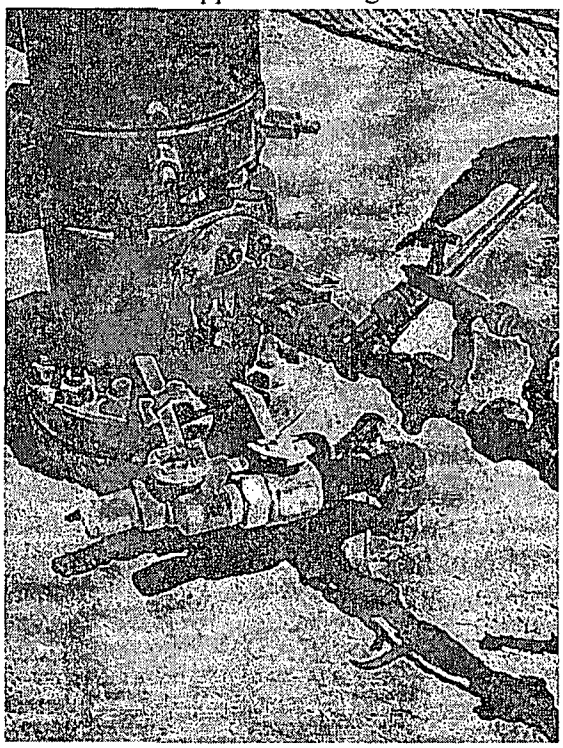
Rusty fittings near wellhead pinhole leak(s)?



WAMs Unit overhead piping into wellhead annulus w/ no apparent leakage observed



Hot Oil fluid pressure up on annulus w/ valve configuration during MIT



Operator wants to replace ½ inch nipple w/ at least 1 inch over breakage concerns and high pressure on small diameter pipe during the MITs, etc.

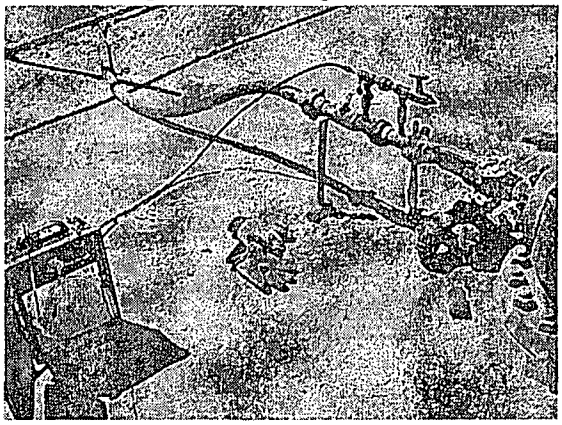
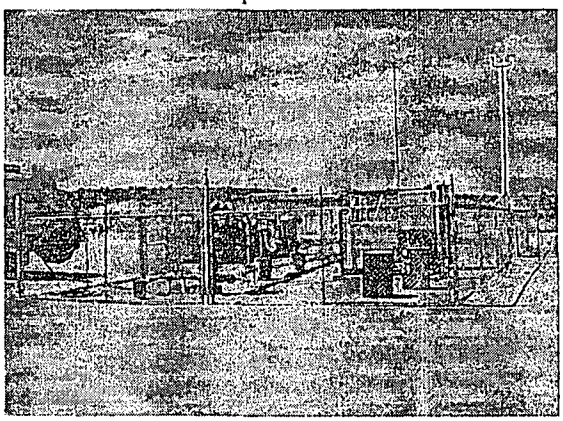
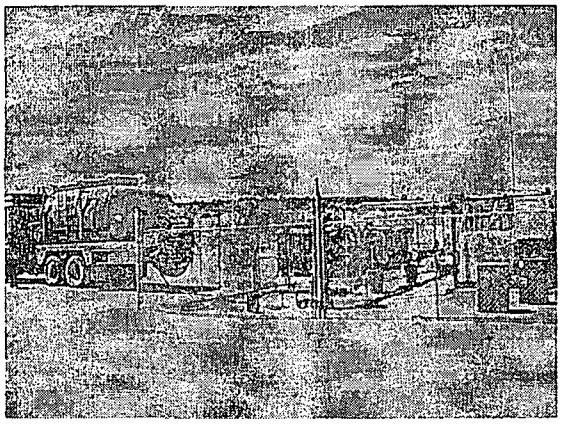


Chart recorder setup for test



Looking E across fenced and lighted facility w/ ethylene glycol drums stored on ground.



Hot Oil truck setup for MIT

Notes:

1) MIT passed (Start @ 560 psig w/ End @ 540 psig) on 8/14/2009.
2) MIT system integrity concerns about WAMs Unit & ethylene glycol leakage somewhere in the system. No discernable stains, leaks have been observed at surface. Company called "300 PSI" performed (~ 2006) a proprietary sealant leak application from surface to 1000 ft. and from ~ 7000 ft. to near top of perforated interval.
3) Need to test all surface lines, valves, etc. for pinhole leakage and proceed into well if leak not found in surface piping.
4) Drums need to be stored in the impermeable pad area.

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
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
"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

Subject: FW: OCD/NMED Mtg
Location: Santa Fe

Start: Tue 5/31/2011 10:00 AM
End: Tue 5/31/2011 12:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Lackey, Johnny

Johnny Lackey, et al.:

Re: Today's Meeting Summary

The New Mexico Oil Conservation Division (OCD) would like to thank the Navajo Refining Company and New Mexico Environment Department for participating in the meeting this morning. OCD Director Bailey was pleased to be able to meet you and requested a briefing of the meeting.

I'm writing to provide a basic summary and/or briefing of the meeting based on the agenda (see below) and other items that were discussed based on our communication this morning.

Agenda

A. Recovery System Upgrade

1. Project Scope
2. Drawings
3. Completion Schedule

B. Underground Line Testing

1. Status
2. Percentage Tested in 2010 (Lovington & Artesia)
3. Praxair Methods
    a. Long Range Guided Wave Ultrasonic Pipe Screening
    b. Tracer Tight Pipeline Testing
    c. Navajo Requests OCD approval to utilize both methods for Underground line testing in lieu of hydrotesting.

C. Injection Wells Fall Off Test Requirements (Any decision on one well per year?)

1. One well per year
2. All 3 wells inject into the same formation
3. View graph

Agenda Briefing:

A) Recovery System Upgrade:

OCD responded to the phase separated hydrocarbon recovery system report in March of 2011. The only changes to the original report were: Double walled tanks will be singled walled an set into fiberglass tubs for secondary containment. OCD requested to know if there were other changes from the original report that was reviewed by the OCD and NMED? The June 2011 deadline for completion of Phase I was moved back to December 15, 2011.

OCD requested that Navajo Engineers review the pipeline specs submitted by the consultant to ensure that lines (similar to last design that failed) are of proper size to allow pumps to operate efficiently etc. Also, Navajo indicated that the lines would be accessible during clean-outs when scale blocks flow and is required to be removed to maintain flow rates over time.

Issue: 24 hr. shut-down notification issues when system shut-down due to weather conditions and/or when product recovery wells automatically shut-off due to lack of product of specified thickness. Also, there may be periods of no flow even though the OCD expects flow to occur 24/7 for 365 days per year. There may be segments of the recovery system that go down periodically for more than 24 hours and/or the system may be shut-in due to weather conditions. The tanks are not insulated. OCD requires notification when the above occurs, and if the agencies notice the system is ineffective by the quarterly or annual reporting requirements, then corrective actions to the system must be undertaken. Thus, free-phase recovery well analysis will not be needed at each recovery well location with product.

Recent MW-94 product discovery in well shall be included in Phase I.

NMED and OCD were ok with Navajo moving forward with its Phase I, II and III Plans.

B) Underground Line Testing:

The 14 pipelines that are considered arteries to the refining process and would result in shutting-down units within the refinery to MIT the lines with water must be submitted to the OCD with identification and corresponding units. The refinery would like to use the Prax-Air Tracer Test and Ultrasonic Wave Technology on buried metal lines to identify corrosion spots within the line per Prax-Air QA/QC wall thickness methods and will conserve on water use at the facility. OCD will address this request upon receipt of the line information and communicate with Navajo on an acceptable approach to monitoring and replacement of identified corroded lines in the process. The benefit of the process is that all 14 lines could be tested at one time and during the Prax-Air Tracer Method for the above ground tank leak detection method.

C) Injection Well/Fall-Off Tests (FOTs):

1) OCD requests a Certified PE down-hole analysis from the recent 2010 Fall-Off Tests that supports Navajo's request for reduced FOTing on wells on wells seated in the same injection zone and that are shown to be connected by pressure differentials of offset Class I Wells during the FOT. By Federal Law, all UIC Class I Wells must undergo a FOT annually. WDWs 2 and 3 are within ½ mile of each other, but are over a mile away from WDW-1. OCD noticed that no professional analysis of the bottom-hole pressure data from off-set UIC Class I Wells was provided in the FOT reports for WDWs 1, 2 and 3. Navajo indicated that their down-hole consultant should have an analysis prepared and submitted to the OCD by June 30th or early July 2011.

2) OCD requested that a Certified PE provide an opinion on the variable annulus pressure observed in WDWs 1, 2 and 3 to determine why annulus pressure is oscillating in the wells. Navajo indicated that instrument calibrations and pump stabilizations have been undertaken to prevent the fluctuating annulus pressure from occurring in the wells. Also, Navajo noted that during MITs on the wells, they passed and bradenhead tests were also performed that passed. OCD indicated that the 30 min. MIT is a snap shot in time of well's MIT and that the oscillating annulus pressures should not be occurring, but that an expert opinion or analysis was needed for the OCD and EPA to consider based on the phenomena. Navajo will have a signed certified PE analysis with an opinion to the OCD by COB on 6/10/2011.

Miscellaneous:

The OCD requested a new pipeline MIT procedure and report format for the new fiberglass effluent line from the refinery to the 2 UIC Class I (Non-Hazardous) disposal wells east of the refinery. The OCD received the recent MIT charts, but a procedure and report format with conclusions was not submitted for review by the OCD. Therefore, similar to past pipeline MIT reports from Navajo Refining Company's Consultant, the OCD needs to receive a report that summarizes the process with diagrams with any conclusions by the third-party consultant to ensure that an independent expert certifies that the MIT passed the test. Please submit the new procedure with report outline to the OCD by September 1, 2011.

The RO Reject effluent allowed for good cause by the OCD in the past is in questions based on recent annual reporting of the quality of the effluent. OCD noted from the annual report that Iron and Sulfates were exceeding 20.6.2 NMAC. Why did OCD allow the discharge onto the farm fields? OCD believes the data may have warranted the discharge at the time, but recent sampling indicates exceedances that violate the discharge permit. NMED is reviewing the recent Annual Report and will work with OCD on the response letter to give Navajo some guidance going forward to assess any impacts to ground water, etc. Navajo is looking into any process change that may have elevated the sulfate in the reject water and

	NAVAJO REFINING COMPANY MEETIN (5/31/2011)		
	SANTA FE, NEW MEXICO OIL CONSERVATION DIVISION		
Name	Company	Title	Phone
Carl Chavez	NMOCD	Env. Engr.	505-476-3490
Darrell Moore	Navajo Refining	Env. Mgr	575-746-5281
Johnny Lackey	Navajo Refining	ENV. Mgr	575-746-5490
Michael Wratley	Navajo Refining	REF MGR	575-748-6743
Hope Monzeglio Petrie	HWB	Project Leader	505-476-6045
LEONA TSINNAJINNIE	HWB		(505)476-6057
Dave Cobrain	HWB	Staff Mgr	505-476-6055

May 31, 2011

NMED/OCD Meeting Agenda

A. Recovery System Upgrade

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2. Drawings
3. Completion Schedule

B. Underground Line Testing

1. Status
2. Percentage Tested in 2010 (Lovington & Artesia)
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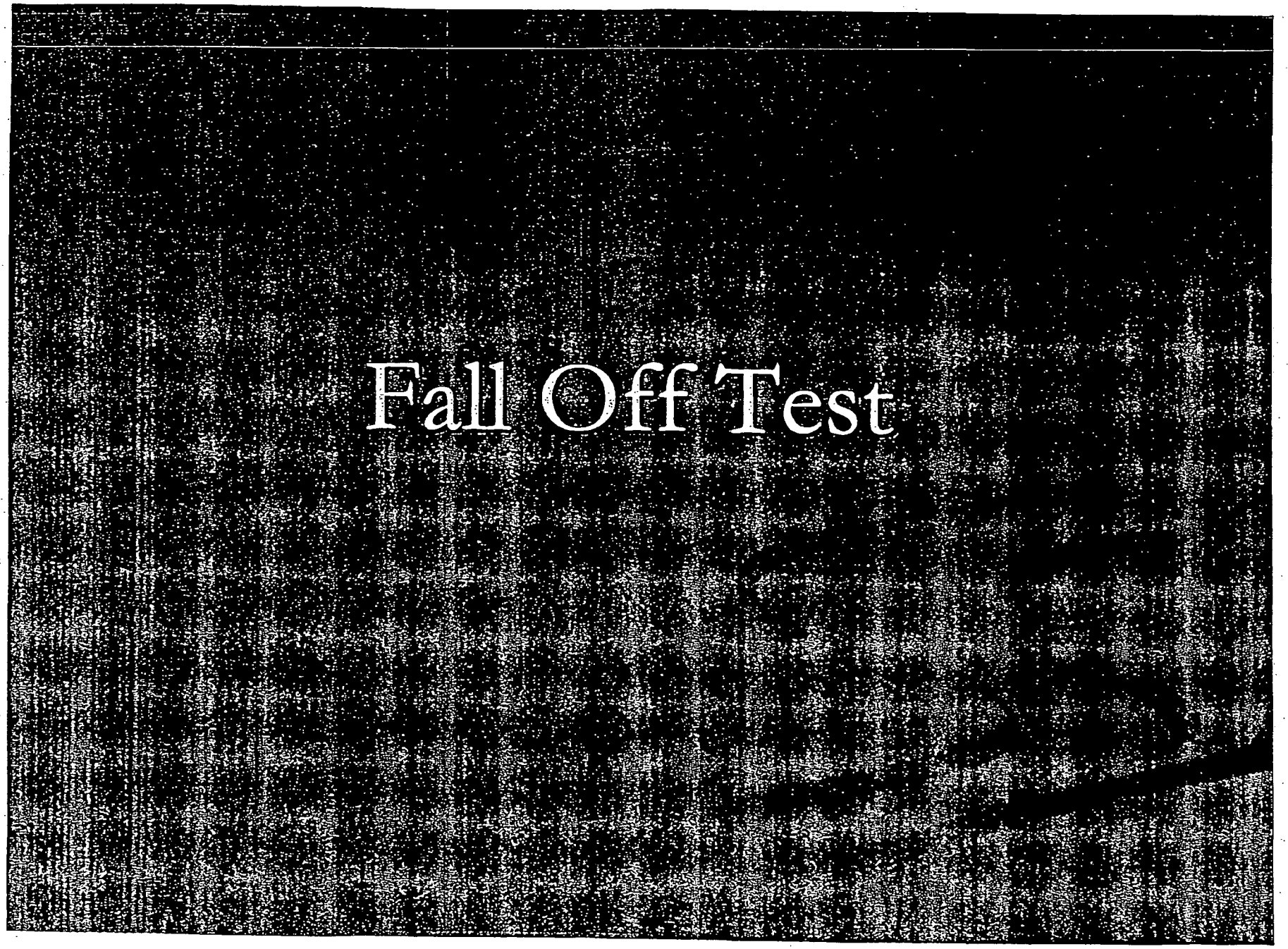
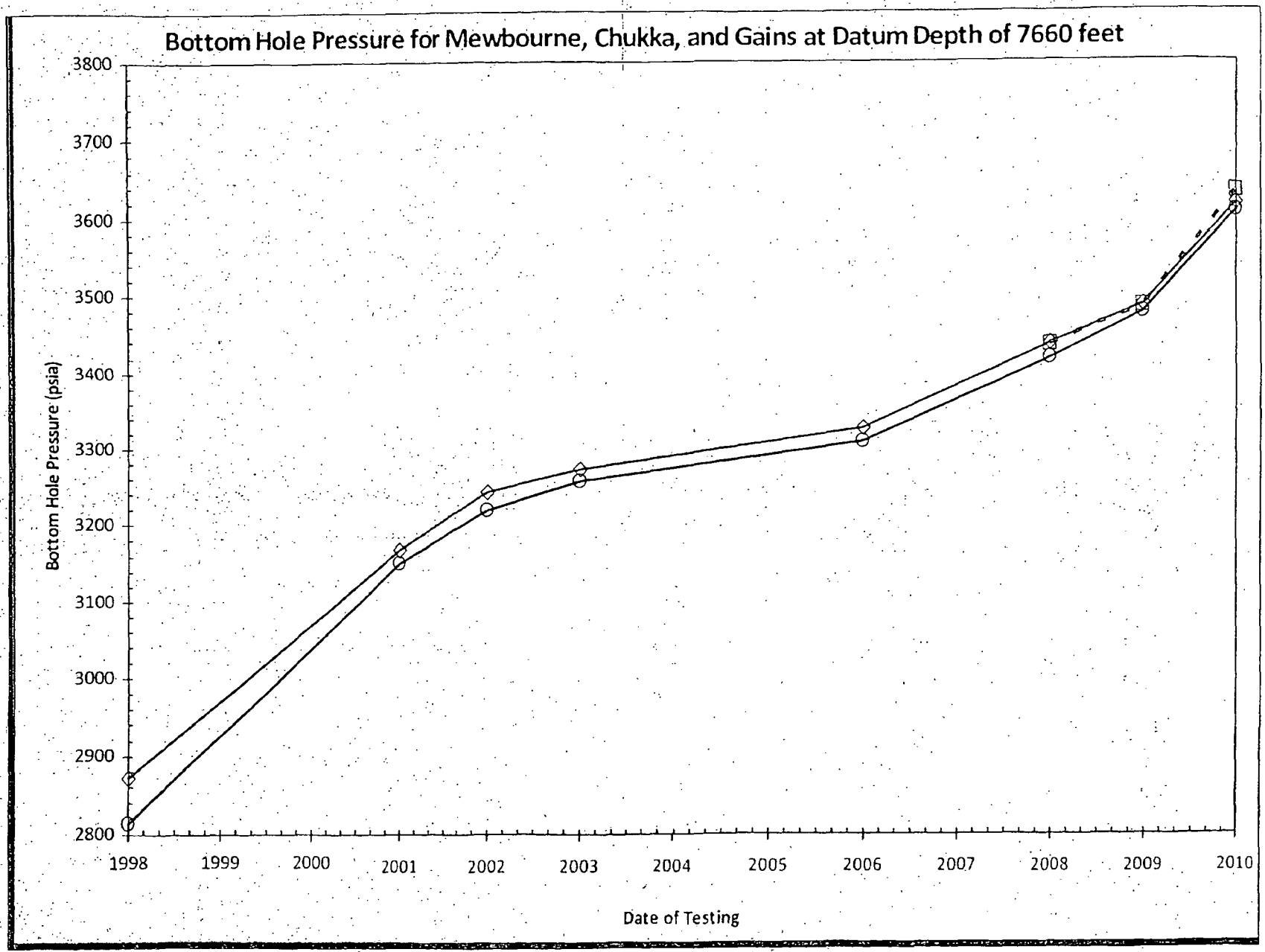
    c. Navajo Requests OCD approval to utilize both methods for Underground line testing in lieu of hydrotesting.

C. Injection Wells Fall Off Test Requirements (Any decision on one well per year?)

1. One well per year
2. All 3 wells inject into the same formation
3. View graph

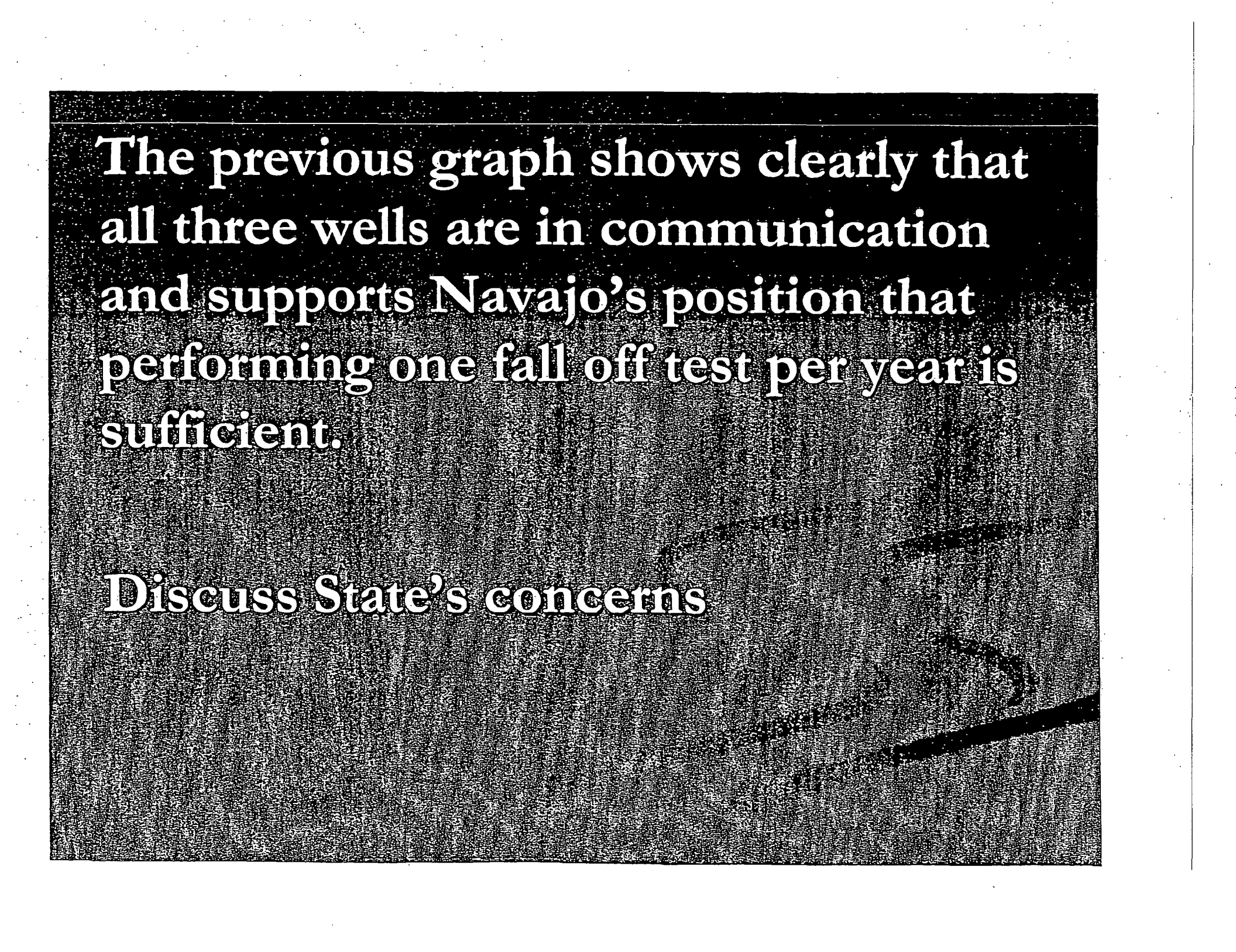
A brief PowerPoint presentation during discussion


Fall Off Test


Bottom Hole Pressure for Mewbourne, Chukka, and Gains at Datum Depth of 7660 feet
Bottom Hole Pressure (psia)
3800
3700
3600
3500
3400
3300
3200
3100
3000
2900
2800
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Date of Testing

The previous graph shows clearly that all three wells are in communication and supports Navajo's position that performing one fall off test per year is sufficient.

Discuss State's concerns



Navajo Refining Company, L.L.C.

FIGURE 1
2010 SUMMARY OF QUARTERLY MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

		Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
	WDW-1													Previous Year	27,647,056
1st qtr	Jan-10	597	688	569	149	274	131	169	268	46	5,108	9,401	4,478	158,333	27,805,389
	Feb-10	582	627	429	134	145	109	206	407	99	4,578	4,971	3,737	128,195	27,933,584
	Mar-10	605	636	582	131	135	125	414	528	271	4,492	4,636	4,286	139,254	28,072,838
2nd qtr	Apr-10	605	653	517	127	135	112	343	535	203	4,364	4,611	3,846	135,279	28,208,117
	May-10	548	659	366	130	139	111	462	592	245	4,472	4,749	3,792	138,633	28,346,751
	Jun-10	532	622	297	131	136	126	315	456	214	4,493	4,661	4,303	134,777	28,481,528
3rd qtr	Jul-10	615	765	367	129	136	98	349	585	182	4,412	4,668	3,346	136,768	28,618,296
	Aug-10	644	766	352	130	133	125	313	376	255	4,442	4,554	4,293	137,695	28,755,991
	Sep-10	691	691	691	130	130	130	425	425	425	4,460	4,460	4,460	133,791	28,889,783
4th qtr	Oct-10	684	777	628	128	142	124	242	366	77	4,385	4,865	4,263	135,942	29,025,724
	Nov-10	641	693	280	121	129	76	137	256	15	4,140	4,430	2,616	124,193	29,149,917
	Dec-10	634	748	283	115	140	71	420	650	209	3,960	4,814	2,431	122,746	29,272,663
	All 2009	615	777	280	130	274	71	316	650	15	4,442	9,401	2,431	1,625,608	29,272,663
	WDW-2													Previous Year	14,124,671
1st qtr	Jan-10	605	625	560	149	153	142	210	346	128	5,122	5,252	4,882	158,777	14,283,448
	Feb-10	568	625	442	145	149	130	346	530	257	4,963	5,097	4,465	138,969	14,422,416
	Mar-10	625	650	598	145	153	142	499	616	360	4,988	5,240	4,857	154,635	14,577,051
2nd qtr	Apr-10	624	672	502	142	145	128	442	652	251	4,854	4,988	4,404	150,481	14,727,532
	May-10	660	926	523	135	142	123	396	551	252	4,630	4,866	4,227	143,524	14,871,056
	Jun-10	648	668	583	138	143	135	322	537	124	4,735	4,889	4,625	142,053	15,013,110
3rd qtr	Jul-10	647	679	401	138	143	116	570	744	159	4,719	4,886	3,960	146,279	15,159,388
	Aug-10	688	709	661	140	141	138	387	608	182	4,785	4,824	4,736	148,339	15,307,727
	Sep-10	684	795	469	139	150	118	349	727	197	4,753	5,153	4,060	142,586	15,450,315
4th qtr	Oct-10	639	713	150	136	141	98	482	780	175	4,650	4,843	3,368	144,147	15,594,462
	Nov-10	628	707	279	133	138	96	291	576	130	4,565	4,733	3,300	136,954	15,731,416
	Dec-10	591	683	293	133	142	105	503	728	267	4,545	4,852	3,601	140,898	15,872,314
	All 2009	634	926	150	139	153	96	400	780	124	4,776	5,252	3,300	1,747,643	15,872,314
	WDW-3													Previous Year	4,559,320
1st qtr	Jan-10	614	637	572	199	208	183	262	357	223	6,828	7,120	6,275	211,672	4,770,992
	Feb-10	587	639	422	200	212	170	320	403	251	6,871	7,275	5,834	192,376	4,963,368
	Mar-10	633	657	570	209	217	187	379	529	236	7,171	7,446	6,406	222,303	5,185,671
2nd qtr	Apr-10	635	668	507	204	217	184	371	538	263	7,004	7,452	6,314	217,122	5,402,793
	May-10	620	688	460	169	195	128	324	448	253	5,807	6,678	4,374	180,017	5,582,809
	Jun-10	655	679	596	179	187	154	338	436	251	6,139	6,402	5,287	184,185	5,766,994
3rd qtr	Jul-10	657	705	366	179	189	159	323	460	104	6,126	6,490	5,464	189,917	5,956,911
	Aug-10	694	712	678	179	182	174	304	412	194	6,144	6,253	5,953	190,453	6,147,365
	Sep-10	663	727	279	179	189	168	284	427	9	6,154	6,497	5,764	184,619	6,331,983
4th qtr	Oct-10	687	790	275	189	211	161	258	424	10	6,490	7,248	5,516	201,178	6,533,161
	Nov-10	666	724	284	186	193	180	227	356	137	6,363	6,627	6,167	190,880	6,724,041
	Dec-10	630	696	285	185	194	146	338	624	197	6,329	6,660	4,997	196,195	6,920,236
	All 2009	645	790	275	188	217	128	311	624	9	6,452	7,452	4,374	2,360,915	6,920,236
														Total Injected fluids:	52,065,213

REFINING COMPANY, LLC

RECEIVED OCD

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P.O. BOX 159 12: 44
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 29, 2011

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2011 Second Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2011 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for this well. The annular space also dropped at WDW-2 during the first week of June; however there were several small leaks on the stainless steel tubing near the antifreeze pump and gauges that were repaired during that timeframe. We are working with a third party to have annulus pressure tests preformed on the wells per your request. A Mechanical Integrity Test (MIT) on all the wells was last done on August 12, 2010 and a quarterly Bradenhead for WDW-3 was last done on June 29, 2011. All of the wells passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

This report covers the period from April 1, 2011 to June 30, 2011. We have disposed a total of 54,937,906 barrels of fluid into the three wells as of June 30, 2011. The volume per well is:

- 30,275,471 barrels into WDW-1
- 16,823,737 barrels into WDW-2
- 7,838,697 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.): DGM, JEL, AMS
Environmental File: Navajo: (ART: REF - 4 A 02 D)

Navajo Refining Company, L.L.C.

2011 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/5/11	4/11/11	4/18/11	4/25/11	5/2/11	5/9/11	5/16/11	5/24/11	5/31/11	6/6/11	6/13/11	6/20/11	6/28/11
WDW -1[1]	180	180	180	175	175	175	175	175	175	175	175	175	175
WDW-2[1]	180	180	180	180	180	180	180	180	180	150	150	150	150
WDW-3[1]	155	155	155	150	150	150	150	150	150	150	150	150	150
Comments: Several small antifreeze leaks near the antifreeze pump and gauges were repaired at WDW-2 during the first week of June. These leaks were repaired by replacing stainless steel tubing and fittings.													

[1] Graduated tank gauged weekly in the field. Reading is in gallons.

Chavez, Carl J, EMNRD

Subject: FW: OCD/NMED Mtg
Location: Santa Fe

Start: Tue 5/31/2011 10:00 AM
End: Tue 5/31/2011 12:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Lackey, Johnny

Johnny Lackey, et al.:

Re: Today's Meeting Summary

The New Mexico Oil Conservation Division (OCD) would like to thank the Navajo Refining Company and New Mexico Environment Department for participating in the meeting this morning. OCD Director Bailey was pleased to be able to meet you and requested a briefing of the meeting.

I'm writing to provide a basic summary and/or briefing of the meeting based on the agenda (see below) and other items that were discussed based on our communication this morning.

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A. Recovery System Upgrade

1. Project Scope
2. Drawings
3. Completion Schedule

B. Underground Line Testing

1. Status
2. Percentage Tested in 2010 (Lovington & Artesia)
3. Praxair Methods
    a. Long Range Guided Wave Ultrasonic Pipe Screening
    b. Tracer Tight Pipeline Testing
    c. Navajo Requests OCD approval to utilize both methods for Underground line testing in lieu of hydrotesting.

C. Injection Wells Fall Off Test Requirements (Any decision on one well per year?)

1. One well per year
2. All 3 wells inject into the same formation
3. View graph

Agenda Briefing:

A) Recovery System Upgrade:

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OCD requested that Navajo Engineers review the pipeline specs submitted by the consultant to ensure that lines (similar to last design that failed) are of proper size to allow pumps to operate efficiently etc. Also, Navajo indicated that the lines would be accessible during clean-outs when scale blocks flow and is required to be removed to maintain flow rates over time.

Issue: 24 hr. shut-down notification issues when system shut-down due to weather conditions and/or when product recovery wells automatically shut-off due to lack of product of specified thickness. Also, there may be periods of no flow even though the OCD expects flow to occur 24/7 for 365 days per year. There may be segments of the recovery system that go down periodically for more than 24 hours and/or the system may be shut-in due to weather conditions. The tanks are not insulated. OCD requires notification when the above occurs, and if the agencies notice the system is ineffective by the quarterly or annual reporting requirements, then corrective actions to the system must be undertaken. Thus, free-phase recovery well analysis will not be needed at each recovery well location with product.

Recent MW-94 product discovery in well shall be included in Phase I.

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The 14 pipelines that are considered arteries to the refining process and would result in shutting-down units within the refinery to MIT the lines with water must be submitted to the OCD with identification and corresponding units. The refinery would like to use the Prax-Air Tracer Test and Ultrasonic Wave Technology on buried metal lines to identify corrosion spots within the line per Prax-Air QA/QC wall thickness methods and will conserve on water use at the facility. OCD will address this request upon receipt of the line information and communicate with Navajo on an acceptable approach to monitoring and replacement of identified corroded lines in the process. The benefit of the process is that all 14 lines could be tested at one time and during the Prax-Air Tracer Method for the above ground tank leak detection method.

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1) OCD requests a Certified PE down-hole analysis from the recent 2010 Fall-Off Tests that supports Navajo's request for reduced FOTing on wells on wells seated in the same injection zone and that are shown to be connected by pressure differentials of offset Class I Wells during the FOT. By Federal Law, all UIC Class I Wells must undergo a FOT.annually. WDWs 2 and 3 are within ½ mile of each other, but are over a mile away from WDW-1. OCD noticed that no professional analysis of the bottom-hole pressure data from off-set UIC Class I Wells was provided in the FOT reports for WDWs 1, 2 and 3. Navajo indicated that their down-hole consultant should have an analysis prepared and submitted to the OCD by June 30th or early July 2011.

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Miscellaneous:

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	NAVAJO REFINING COMPANY MEETIN (5/31/2011)		
	SANTA FE, NEW MEXICO OIL CONSERVATION DIVISION		
Name	**Company**	**Title**	**Phone**
Carl Chavez	NMOCD	Env. Engr.	505-476-3490
Darrell Moore	Navajo Refining	Env. Mgr	575-746-5281
JOHNNY LACKEY	NAVAJO REFINING	ENV. MGR	575-746-5490
Michael Whatley	NAVAJO REFINING	REF MGR	575-748-6743
Hope Monzeglio Petrie	HWB	Project Leader	505-476-6045
LEONA TSINNAJINNIE	HWB		(505)476-6057
Dave Cobrain	HWB	Staff Mgr	505-476-6055

May 31, 2011

NMED/OCD Meeting Agenda

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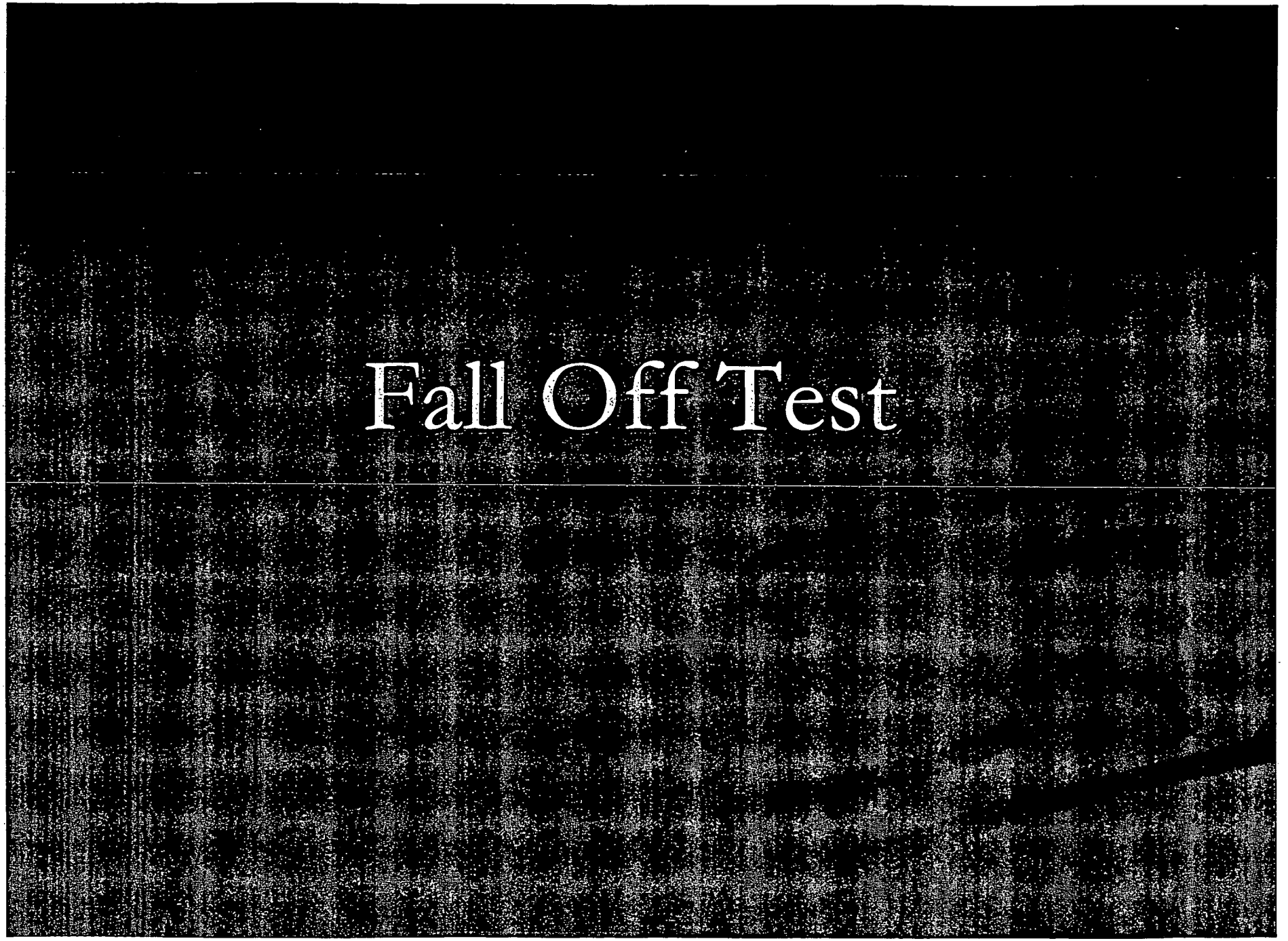
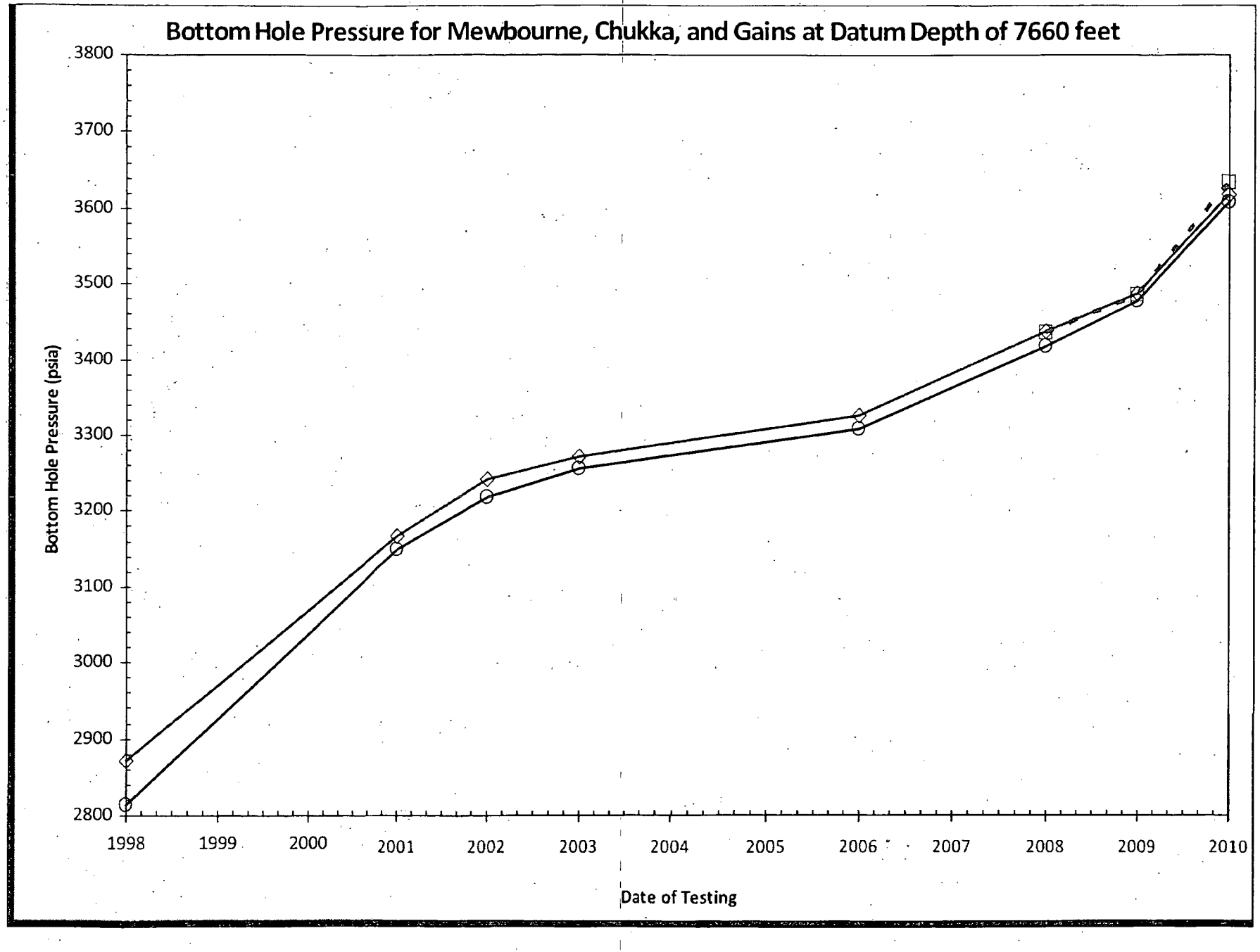
A brief PowerPoint presentation during discussion


Fall Off Test


Bottom Hole Pressure for Mewbourne, Chukka, and Gains at Datum Depth of 7660 feet
Bottom Hole Pressure (psia)
3800
3700
3600
3500
3400
3300
3200
3100
3000
2900
2800
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Date of Testing

The previous graph shows clearly that all three wells are in communication and supports Navajo's position that performing one fall off test per year is sufficient.

Discuss State's concerns

Chavez, Carl J, EMNRD

Subject: FW: OCD/NMED Mtg
Location: Santa Fe

Start: Tue 5/31/2011 10:00 AM
End: Tue 5/31/2011 12:00 PM
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Organizer: Lackey, Johnny

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also to discuss routing the farmland discharge (~ 8000 bbl/day) to the Artesia WWTP where the water could be treated and reused, but at a cost to the refinery.

NMED is expecting Work Plan in July of 2011 regarding the

End **********

-----Original Appointment-----
From: Lackey, Johnny
Sent: Wednesday, May 25, 2011 5:38 PM
To: Lackey, Johnny; Whatley, Michael; Moore, Darrell; Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Monzeglio, Hope, NMENV; jami.bailey@statenm.us; VonGonten, Glenn, EMNRD
Subject: OCD/NMED Mtg
When: Tuesday, May 31, 2011 10:00 AM-12:00 PM (GMT-07:00) Mountain Time (US & Canada).
Where: Santa Fe

Follow up meeting to discuss Navajo's Recovery System Project, Underground Line Testing and Injection Wells Fall Off Testing

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May 31 11 Meeting Agenda.doc