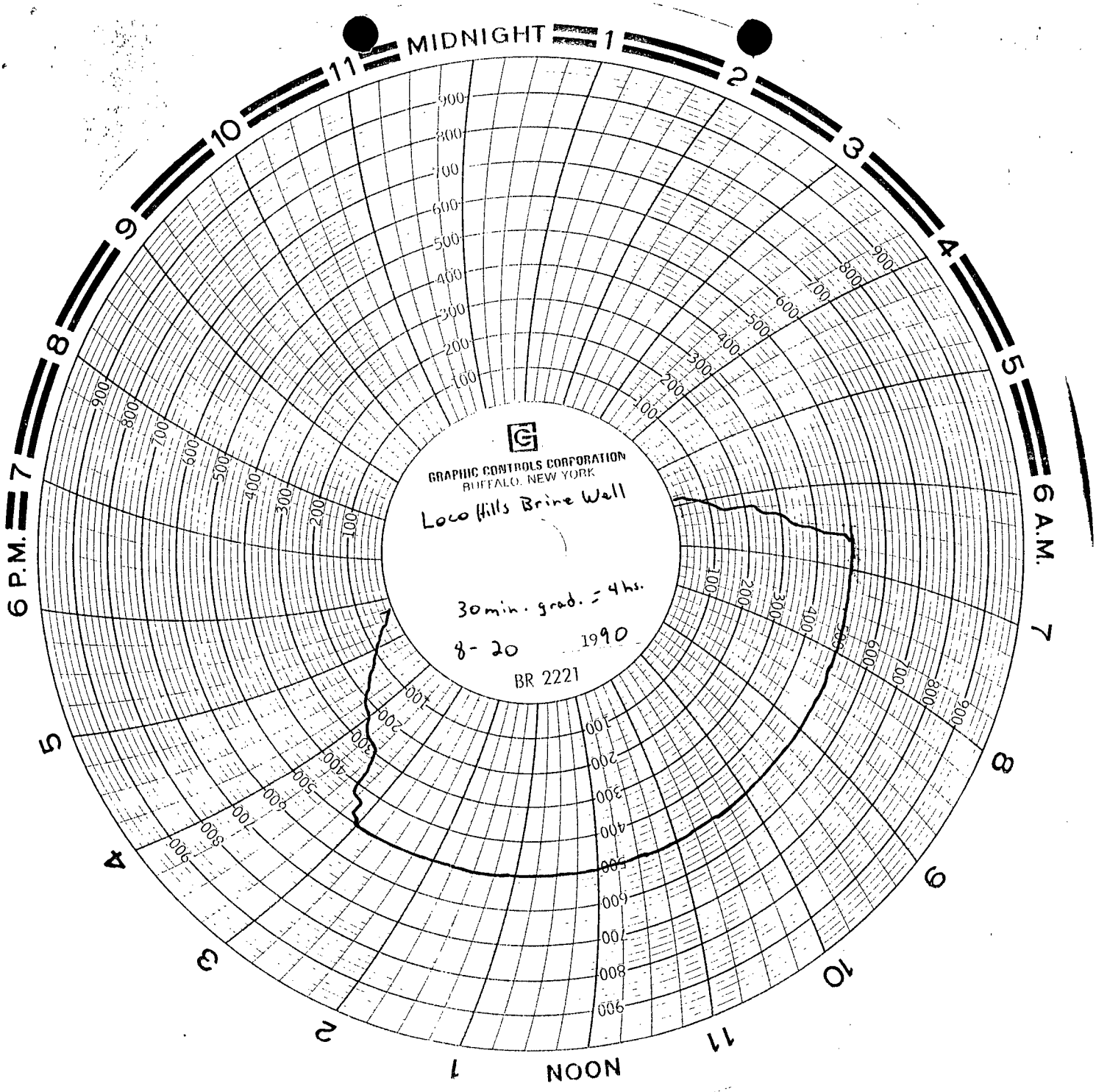
BW - 21

MECHANICAL INTEGRITY TEST (MITs)

DATE: _____



Pulled tubing & set retrievable packer & tested ~~tes~~ casing while working over well.

Southwest Region

February 27, 1991

Mr. Randy Harris
Ray Westall Company
Loco Hills, N.M.

Dear Mr. Harris,

The calculated bottom hole fracture pressure of a 900 foot deep salt section would be as follows:

$$BHFP = Pr + \frac{v}{1-v} \quad (Po-Pr)$$

$$BHFP = 419 + \frac{.22}{.78} \quad (900 - 419)$$

BHFP = 555 psi

psi/ft = .62

Where:

Pr = reservoir pressure

Po = overburden pressure

v = Poisson's ratio

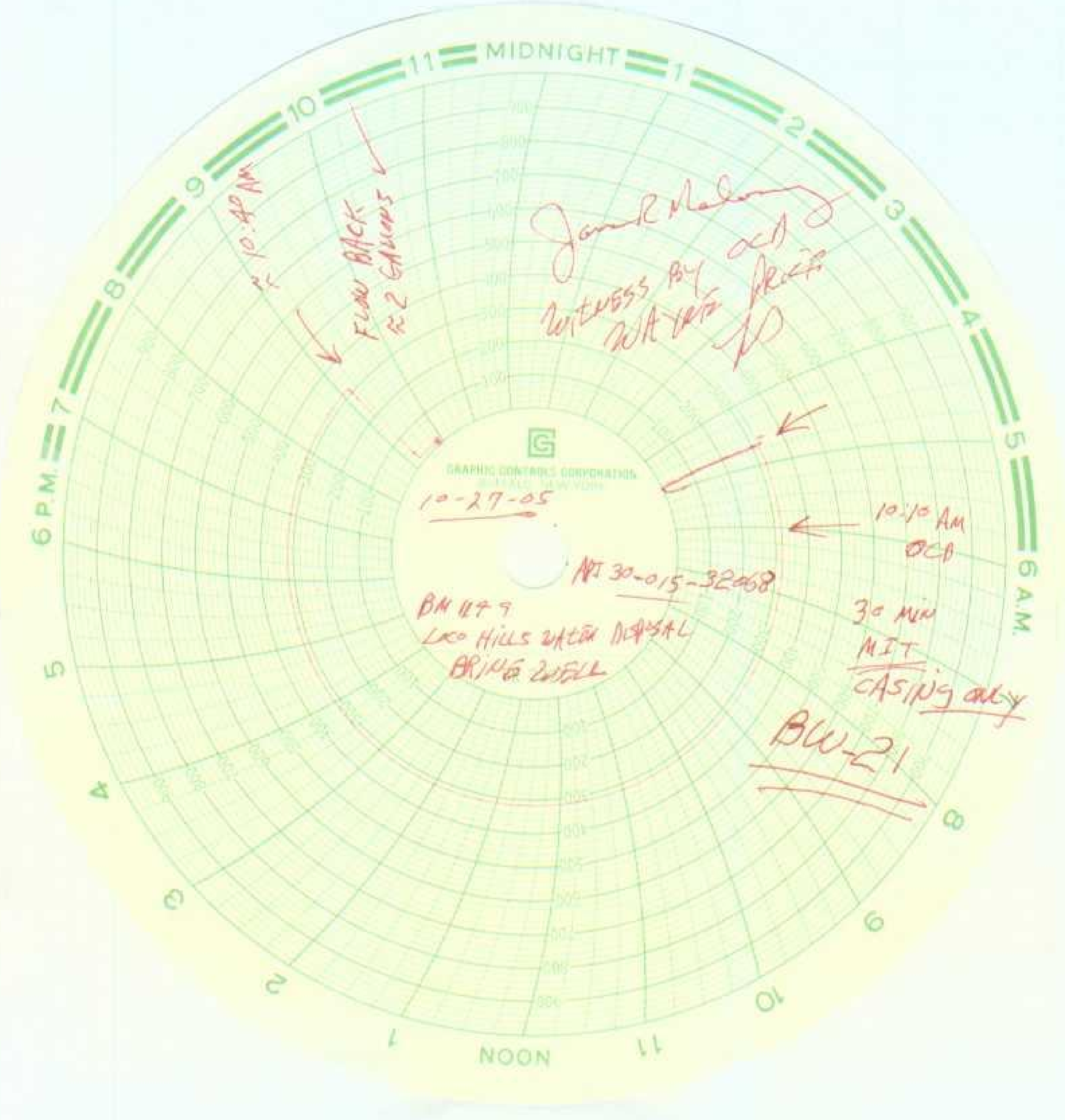
Poisson's ratio is assumed to be .2 which is typical for this area. An overburden of 900 psi was also assumed.

An injection/step-rate test could be used to confirm this calculation.

Sincerely,

Pete Hust
Account Representative

NM 12 175 3


MIDNIGHT
NOON
6 P.M.
6 A.M.
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
FLOW BACK
WITNESS BY OCD
10-27-05
API 30-015-32068
LOCO HILLS WATER DISPOSAL
BRINE WELL
10:10 AM
OCD
30 MIN
MIT
CASING only
BW-21


MIDNIGHT
NOON
6 P.M.
6 A.M.
GRAPHIC CONTROLS CORPORATION
BR 2221
James R Mahaffey
8/18/04
LOCO HILLS BRINE WELL #1 API# 30-015-32068
BW-021
OPEN HOLE NITROGEN TEST
WITNESS BY JD PRICE - OCD
8/18/04
PASSED TEST - OK
SEE ATTACHED
CALCULATION
SHEETS.

8/18/04 W Price - OCD
API # 30-015-32068
LOCO HILLS BRINE WELL
MIT TEST - OPEN TO FORMATION

Nitrogen Brine Well Test

Loss allowed in BBL's/year	1000
Loss allowed in BBL's/day	2.74
Loss allowed in BBL's/hour	0.11

PRESSURE DROP DUE TO LEAKAGE

Input start pressure (psig)	298.37	
Input stop pressure (psig)	296	
Input volume in BBL's ***	53	*** N_2 SCF divided by compressibility number form engineering charts
Length of test in hours	4.25	*** Example: 20,000 scf / 111 = 180 bbls of N_2 300 psig @ 80 f see page 11-2 BJ engr. book

$\frac{5000}{93} = 53$

Ans Loss in BBl's/hour	0.099055851	<V1 - V1*(Pf/Ps)>/time

PASSED OH Test

< .11 PER SALT INSTITUTE GUIDELINES!

Ideal Gas Law for N2	PV=nRT	(P1*V1)/T1 = (P2*V2)/T2	P in PSIG V in Ft^3 T in degress Rankin

Temp $R^0 = 459.69 + F^0$
P = pressure psig
V = Volume FT^3
n = number of moles
R = 55.15 constant for N2
MW of N2 is 28..016

Input T1 Deg F	180
Input T2 Deg F	160
Set V1=V2	----------
Input P1 PSIG	308
Solve P2 PSIG	298.3703356

PRESSURE DROP DUE TO TEMP CHANGE

8/18/04
API 30-015-32068

BJ

TREATMENT REPORT

Page____ of ____

Date 8-18-04 District [illegible] F. Receipt [illegible] Customer [illegible]
Lease [illegible] Well No. [illegible] Field [illegible] Location
County Eddy State N.M. Stage Number______ This Zone ☐ This Well ☐

WELL DATA OG ☐ NG ☐ NO ☐ OO ☐ WD ☐ IW ☐ Misc. ☐ Depth TD/PB______ Formation______
Tubing Size 2 3/8 WT.______ Set at: 650 Type Packer______ Set At______
Casing Size 5 1/2 Wt.______ Set From 0 To 650 Liner Size______ Wt.______
Liner Set From______ To______ Open Hole: Size______ From______ To______ Casing Perforations: Size______
Holes Per Foot______ Intervals______
Previous Treatment______ Prior Production______

TREATMENT DATA Pad Used: Yes ☐ No ☐ Pad Type______
Treating Fluid Type: Water ☐ Acid ☐ Oil ☐ Treat. Fluid Vol.______ Gal.
Prop Type: Sand ☐ ISP ☐ Resin ☐ Baux. ☐ Other______ Total Prop. Qty.______ Lbs.
Prop Mesh Sizes, Types and Quantities______
Hole Loaded With [illegible] Treat Via: Tubing ☐ Casing ☐ Anul. ☐ Tubing & Anul. ☑
Ball Sealers: 0 In N/A Stages of______
Types and Number of Pumps Used______
Auxiliary Materials 1 - Nitrogen

LIQUID PUMPED AND CAPACITIES IN BBLS.
Tubing Cap.______
Casing Cap.______
Annular Cap.______
Open Hole Cap.______
Fluid to Load______
Pad Volume______
Treating Fluid______
Flush______
Overflush______
Fluid to Recover 0

PROCEDURE SUMMARY

Time AM/PM	Treating Pressure-Psi		Surface Slurry BBLS. Pumped		Slurry Rate BPM	Comments
	STP	Annulus	Stage	Total		
8:00					—	[illegible]
8:15	—	-	—		—	Held Safety Meeting
8:30	1500	-	—	-	-	Test Lines
8:45	280	-	-	-		Open Wellhead
8:46	280	-	-	0	300	Start N2
8:47	310	0	0	5,000	300	Shutdown - Pressure limit [illegible]
8:50	310	-	—	↑	-	Rig down - End of Treatment
				SCF		
				N2		PER BJ TEMP IN = 180°F
						LAST MEASURED T = 160°F
						20 ΔT
						W [signature] 8/18/04

Treating Pressure	Injection Rates	Shut In Pressures	Customer Rep.
Minimum	Treating Fluid	ISDP	BJ Rep.
Maximum	Flush	5 Min.	Job Number
Average	Average	10 Min.	Rec. ID No.
Operator's Max. Pressure		15 Min.	Distribution
		Final in Min.	
		Flush Dens. lb./gal.	

1208 (1/98)

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

NO TEST REQUIRED
ALREADY TESTED THIS YEAR!

October 20, 2001

LOCO HILLS BRINE ST
BW-21

CERTIFIED MAIL
RETURN RECEIPT NO. 5357 7478

Attention: Brine Well Operators

Re: Mechanical Integrity Testing of Brine Supply Wells

The Underground Injection Control Program of the Federal Safe Drinking Water Act requires that operators demonstrate mechanical integrity of all injection wells by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and injection zones.

The Oil Conservation Division (OCD) requires operators of brine supply wells to perform the following mechanical integrity test:

1. At least once every five years isolate the cavern formation from the casing/tubing annuals and hydrostatic fluid pressure test the casing at 300 psig for 30 minutes. New brine wells and wells being worked over will have to be tested in this manner before operations begin.

2. Annually perform an open hole cavern formation pressure test by pressuring up the formation with fluids to one and one-half times the normal operating pressure or 300 psig whichever is greater for four hours. However, no operator may exceed surface injection or test pressures that may cause formation fracturing or system failures. Systems requiring test pressures less than 300 psig or methods that use testing media other than fluids, i.e. gas, must be approved by OCD prior to testing. Brine supply wells operating with isolation packers will have to pressure test both the cavern formation and casing/tubing annuals.

Please find enclosed an "OCD Brine Well Test Schedule November 2001" and "Brine Well Test Procedure Guidance Document" for this November 26 through November 30, 2001. Please have your well ready for testing on the date and time you are scheduled. Please refer to the Well Test Schedule attached for the **Type of Test** you are scheduled to perform. You must receive prior OCD approval to alter the scheduled time or type of test.

What's New!! Please note that operators are required to have their pressure recording devices calibrated to 500 psig and 8-hour clock. See Guidance Document attached.

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What's New!! Please note that operators are required to have their pressure recording devices calibrated to 500 psig and 8-hour clock. See Guidance Document attached.

What's New!! All operators will provide to the OCD the maximum test pressure that will not cause formation fracturing or system failures.

Operators will be responsible for providing equipment and shall bear all costs incurred. All tests must be witnessed by the New Mexico Oil Conservation Division. Operators failing to abide by the procedures, type of test, and time schedules listed herein may be required to shut-in their systems until OCD has an opportunity to approve and witness testing.

If you require any further information or assistance please do not hesitate to write or call me at 505-476-3487 or E-mail WPRICE@state.nm.us.

Sincerely Yours,

Wayne Price- Senior Envr. Engr..
Environnemental Bureau

cc: OCD District Offices

Attachments-
1. OCD Brine Well Test Schedule November 2001
2. Brine Well Testing Procedure Guidance Document

Brine Well Testing Procedure Guidance Document

1) The cavern and all piping must be filled, pressured up and stabilized for a period of at least 24 hours prior to testing. If this test requires a packer then casing/tubing annulus must be loaded with inert fluid 24 hours prior to testing.

2) Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.

3) Pumps, tanks, external lines etc. must be isolated from the wellhead during test.

4) A continuous recording pressure device with an 8-hour clock (min) shall be installed on the casing/tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months. **Note: Wells with packer installed: If this test requires both the casing/tubing annulus and cavern to be tested then two recording devices must be supplied or one recording device with two pins.**

5) A minimum of one pressure gauge shall be installed on the casing/tubing annulus.

6) OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.

7) The Operator will supply the following information on the pressure chart:

   A. Company Name, Well Name, API #, Legal Location.
   B. Test Procedure (1) Casing + Formation (2) Casing Test Only (3) Both (4) Other
   C. Testing Media: Water, Gas, Oil, Etc.
   D. Date, time started and ending.
   E. Name (printed) and signature of company representative and OCD Inspector

8) **TEST ACCEPTANCE:** The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

   A. **Passes** if Zero Bleed-Off during the test.
   B. **Passes** if Final Test Pressure is within ± 1% of Starting Pressure, if approved by the OCD inspector.
   C. **Fails** if any Final Test Pressure is greater than ± 1% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and injection zones. Wells shall not resume operations until approved by OCD.

Note: **OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If operator wishes to make or anticipate changes please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.**

OCD BRINE WELL TESTING SCHEDULE 2001 OCD Contact Wayne Price cell 505-660-1067

Company	DP#	Facility Name		Date of Test	Start	Stop		Type of Test(s) Required	Contact Person	Telephone	FAX #/cell
		Crossroads Area									
Stearns Inc.	BW-013	Crossroads	Mon	26-Nov-01	12 noon	4:00 PM	2	Pressure test cavern	L.A. Stearns	1-505-675-2356	1-505-675-2339
		Loco Hills Area									
Marbob Brine Well	BW-029	M. Dodd "A" BW#1	Tue	27-Nov	9:00 AM	1:00 PM	2	Pressure test cavern	Doyle Davis	748-5975 cell	1-505-748-2523
Jims Water Ser.	BW-005	SE of Artesia	Tue	27-Nov	10:00 AM	2:00 PM	*	Pressure test cavern or casing	Sammy Stonemen	1-505-748-1352	1-505-748-3227
								* 1,2 or 3			
		Hobbs Area									
Key Energy	BW-018	Truckers #2 (Hobbs)	Wen	28-Nov-01	8:00 AM	12 noon	2	Pressure test cavern	Royce Crowell	(505) 393-9171	505-910-4185
Scurlock-Permian	BW-012	Hobbs Station	Wen	28-Nov-01	9:00 AM	1:00 PM	2	Pressure test cavern	Richard Lentz	505-392-8212	392-6988
Zia Transportation	BW-018	Salty Dog-Ark Jct	Wen	28-Nov-01	10:00 AM	2:00 PM	2	Pressure test cavern	Piter Bergstein	806-741-1080	
Marathon Brine St	BW-015	Marathon Road	Wen	28-Nov-01	11:30 AM	3:30 PM	1	Pressure Test Casing	CW Trainer		
		Eunice Area									
P&S Brine	BW-002	Eunice Brine Station	Thur	29-Nov-01	8:00 AM	12 noon	2	Pressure test cavern	Dink Prather	505-394-2545	394-2428
Key Simms-McCasland	BW-009A	Eunice Brine Station	Thur	29-Nov-01	9:00 AM	1:00 PM	2	Pressure test cavern	Royce Crowell	(505) 393-9171	505-910-4185
Yale E. Key (Old Goldstar)	BW-028	Eunice Brine Station	Thur	29-Nov-01	10:00 AM	2:00 PM	2	Pressure test cavern	Royce Crowell	1-505-394-2504	1-505-394-2560
		Carlsbad Area									
I & W	BW-06	Carlsbad -Euginie	Fri	30-Nov-01	8:00 AM	12 noon	2	Pressure test cavern	George Parchman	505-885-8683	885-8477
Key Energy-Carlsbad	BW-019	Rowland Truckers	Fri	30-Nov-01	9:00 AM	1:00 PM	2	Pressure test cavern	John Hutcheson	1-505-885-2053	cell 390-1833
Scurlock/Permian	BW-027 &27A	Carlsbad Brine St.	Fri	30-Nov-01	10:00 AM	2:00 PM	2	Pressure test cavern	Richard Lentz	505-392-8212	392-6988
		Wells Already Tested in 2001									
Gandy	BW-04	Wasserhund-Edison									
Gandy	BW-22	Tatum Brine St.									
Ray Westall	BW-21	Loco Hills Brine St.									
		Wells Being Repaired-									
Chaparral SWD	BW-25	Salado Brine #2- Jal									

Notes:

Type of Pressure Test:

1 Casing Test — Isolate cavern formation from the casing/tubing annuals and hydrostatic fluid pressure test the casing at 300 psig for 30 minutes.

2 Open Hole Cavern Pressure Test — Open hole cavern formation pressure test by pressuring up the formation with fluid to one and one-half times the normal operating pressure or 300 psig whichever is greater for four hours. Operators shall not exceed surface pressures that may cause formation fracturing or system failures. OCD prior to test shall approve test pressures below 300 psig and methods that use media other than fluids. Brine supply wells operating with packers will have to pressure both the cavern formation and casing/tubing annuals.

3 Others — Nitrogen-Brine Interface Test, Nitrogen Test, Etc.

Price, Wayne

From: Price, Wayne
Sent: Tuesday, January 30, 2001 10:18 AM
To: Gum, Tim; Stubblefield, Mike
Subject: Loco Hills Brine well Test- BW-021

Dear Mike:

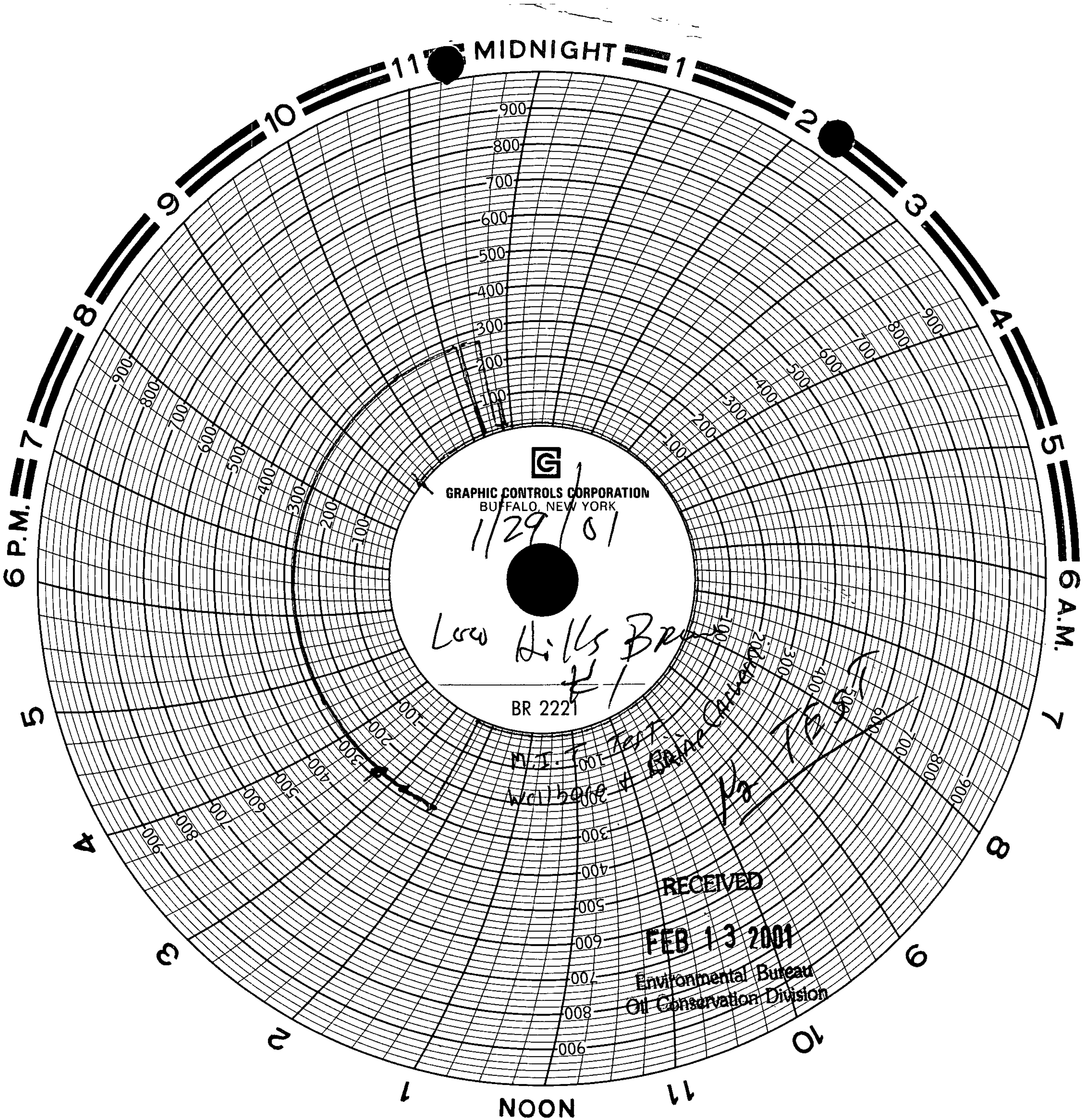
I have received the copy of the faxed pressure chart for the Loco Hills Brine Well Open to Formation pressure test utilizing compressed nitrogen gas. After discussing this with you I understand there were approximately 12 BBL's of compressed N2 gas injected into the well. I understand that it required approximately 6 BBL's to fill the casing/annuals which ensured that we had nitrogen below the shoe of the casing which is required to make sure we are performing an external test. I understand that the injected temperature of N2 was between 60-70 degrees F. The starting pressure was 278 psig and four hours later the pressure was 270 psig. I had approved the 278 starting pressure since Loco Hills had previously pressure tested their casing at 300 psig.

I utilized the Solution Mining Research Institute's guidelines and an industry standard of 1000 BBl's/year or less for a pass-fail criteria. Please note this equates to .11 bbl's/hr of nitrogen leak-off. It should be pointed out that nitrogen is ten times more sensitivity than water. Other words nitrogen has the ability to escape faster than water. Using the pass-fail criteria above it is assumed under most circumstances this would satisfy the requirement of absence of any significant fluid movement into a USDW. Also the fact that there is no groundwater in the area of the brine well. Under these conditions it is normally assumed that water probably will not migrate.

Please note I ran the data supplied and I calculated a value of .086 bbl's/hr which is less than the .11 bbl's/hr. Therefore this would pass the criteria.

Therefore I hereby approve the MIT and pass the test for the Loco Hills brine station. Please inform Loco Hills and include this disclaimer below:

Please be advised that NMOCD approval of this test does not relieve Loco Hills Water Disposal Company of responsibility should their activities fail to properly demonstrate mechanical integrity of the brine well system, and/or pose a future threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve Loco Hills Water Disposal Company of responsibility for compliance with any other federal, state, or local laws and/or regulations


MIDNIGHT
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10
11
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
BR 2221
1/29/01
Low Hills Brine
#1
M.I.T. Test
Wellbore & Brine Cavern
RECEIVED
FEB 13 2001
Environmental Bureau
Oil Conservation Division

1/29/2001

RAY Westall

Brine Supply Well

M.I.T.

Brine Carvern / Wellbore.

2:30pm 7:30pm.

Mike Stubblefield O.C.D.

TREATMENT REPORT(ENERGIZED)

Date 29-JAN-01 District Odessa Coiled Tubing F.Receipt 256410211 Operator Westall Ray

Lease loco Hills Water Disp. Well No. #1 Field Location Odessa Coiled Tubing

County Eddy State New Mexico

WELL DATA

OG ☐ NG ☐ NO ☐ OO ☑ WD ☐ IW ☐ Misc. ☐ Depth TD/PB Formation

Tubing Size 2 7/8 WT. 6.5' Set at: ~~Type~~ Packer Shoe Set At 418'

Casing Size 5 1/2" Wt. 15.5 Set From To Liner Size Wt.

Liner Set From To Open Hole: Size From To Casing Perforations: Size

Holes Per Foot Intervals

Previous Treatment Prior Production

TREATMENT DATA

Pad Used: Yes ☐ No ☐ Pad Type

Treating Fluid Type: Foam ☐ Water ☐ Acid ☐ Oil ☐ Treat. Fluid Vol. Gal.

Base Fluid Type Base Fluid Vol. Gal.

Foam Qual.: % Mitchell ☐ Slurry ☐ Surface ☐ Downhole ☐ tal Prop Qty. Lbs.

Prop Type: Sand ☐ WP-1 ☐ WP-3 ☐ Baux. ☐ Other

Prop Mesh Sizes, Types and Quantities

Hole Loaded With Treat Via: Tubing ☑ Casing ☐ Anul. ☐ Tubing & Anul. ☐

Ball Sealers: In Stages of

Types and Number of Pumps Used

~~Additive Materials~~ Pumped N12 @ 400-500 scfm Stop @ 300# Stop Monitor Pressure Pumped 1,100 to 1500 scf

LIQUID PUMPED AND CAPACITIES IN BBLS.

Tubing Cap. 6.5 BBL

Casing Cap. 6.6 BBL

Annular Cap.

Open Hole Cap.

Fluid to Load

Pad Volume

Treating Fluid

Flush

Overflush

Fluid to Recover

Total N_2 1,100 - 1500 scf

Total CO_2

PROCEDURE SUMMARY

Time AM/PM	Treating Pressure-Psi STP	Annulus	Surface Slurry BBLS. Pumped Stage	Total	Slurry Rate BPM	Surface CO_2 BBLS. Pumped Stage	Total	CO_2 Rate BPM	Surface N_2 MSCF Pumped Stage	Total	N_2 Rate SCFM	DH Rate BPM	DH Foam Pumped	Comments
1:00														After loc Rig-up
1:30	0													Safety meeting
1:30	0													ccoCDn
1:57	0										400-500			Start N12
2:00	300								1100 scf	0				Stop 300#
								to	1500 scf					on surface
2:30	300#										0			Watch Pressure
4:00	300-													Stop Rig DC

RECEIVED

FEB 13 2001

Environmental Bureau

Oil Conservation Division

Treating Pressure	Injection Rates	Shut In Pressures	Customer Rep.
Minimum	Treating Fluid	ISDP	BJ Rep. Roberto Pl Vega
Maximum	Flush	5 Min.	Job Number
Average	Average	10 Min.	Rec. ID No.
Operators Max. Pressure		15 Min.	Distribution
		Final in Min.	
		Flush Dens. lb./gal.	

IN COMING!

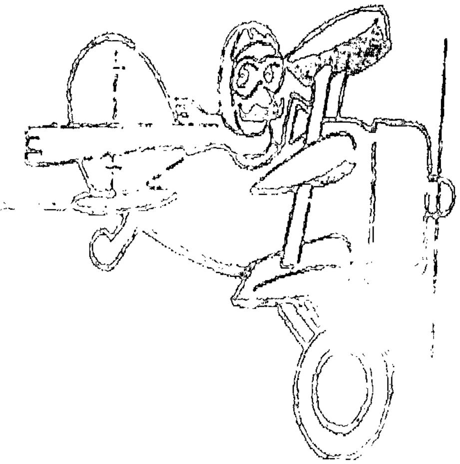
/30/2001

ATTENTION: Wayne Price

Mike Stubblefield

NUMBER OF PAGES INCLUDING COVER SHEET:

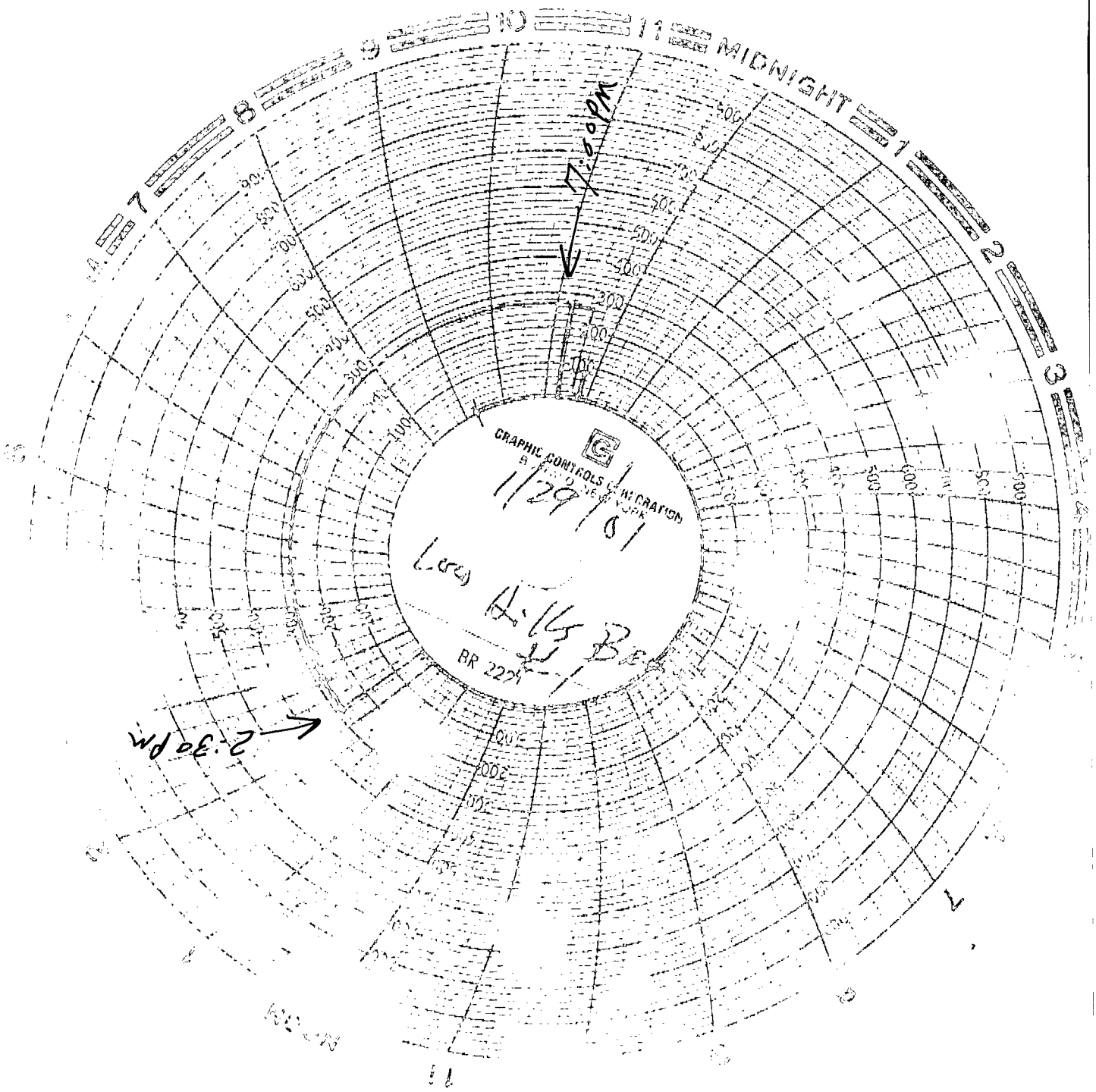
4



ON DIVISION

NY PROBLEMS WITH THIS TRANSMISSION OR IF YOU DO NOT
GES, PLEASE CALL 505-748-1283.
(505) 748-9720

HAVE A GREAT DAY!



≈ 12 BBL'S NITROGEN

≈ TEMP = 60°F

START PRESS = 278 psig

STOP PRESS = 270 psig

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

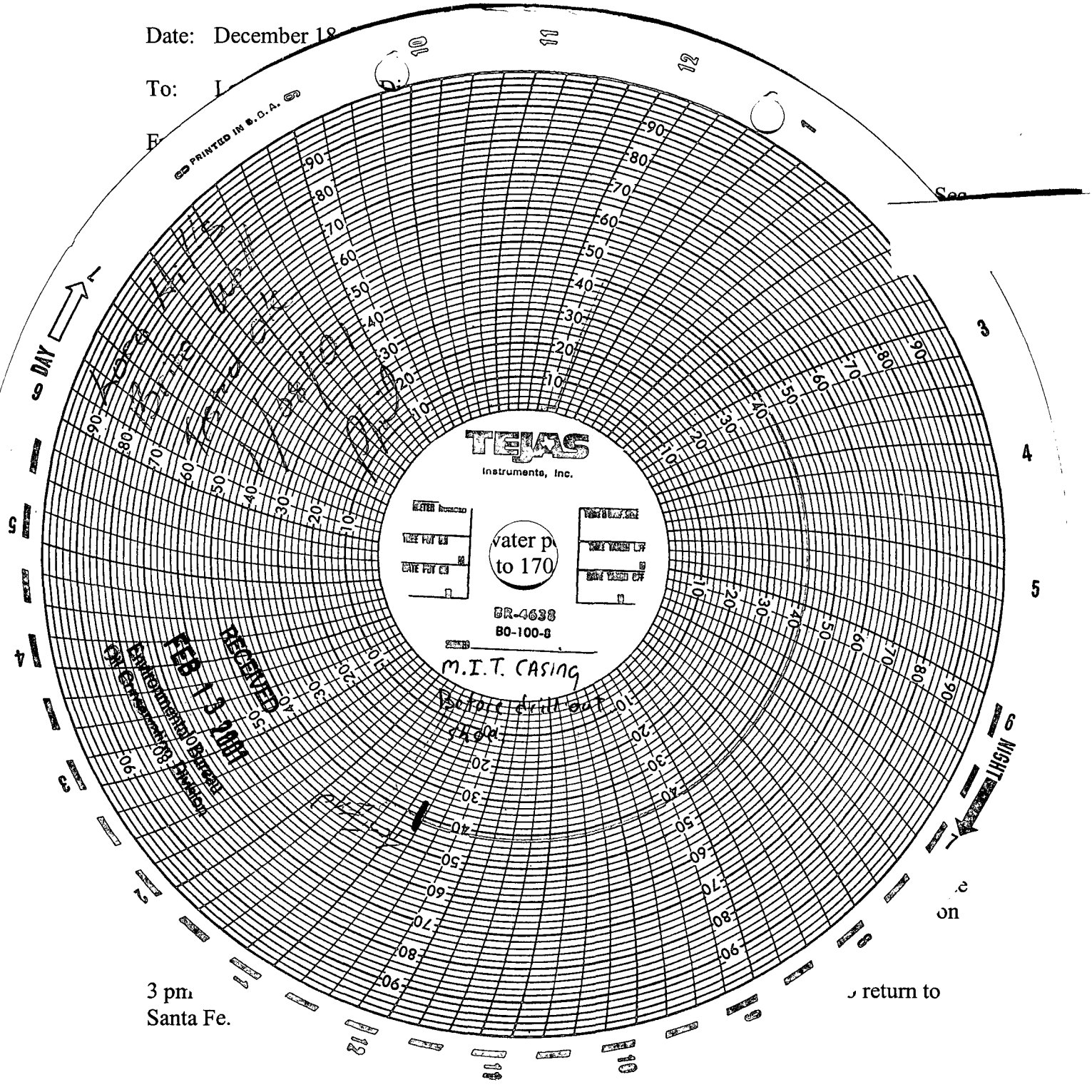
GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

Date: December 18

To: L

F



Se

e

on

3 pm

return to Santa Fe.

Oil Conservation Division * 2040 South Pacheco Street * Santa Fe, New Mexico 87505
Phone: (505) 827-7131 * Fax (505) 827-8177 * http://www.emnrd.state.nm.us

OCD ENVIRONMENTAL BUREAU

SITE INSPECTION SHEET

DATE: 12/13/00 Time: 1:15 PM

Type of Facility: Refinery ☐ Gas Plant ☐ Compressor St. ☐ Brine St. ☑ Oilfield Service Co. ☐
Surface Waste Mgt. Facility ☐ E&P Site ☐ Crude Oil Pump Station ☐
Other ☐_____

Discharge Plan: No ☐ Yes ☑ DP# BW-021

FACILITY NAME: LOCO HILLS BRINE ST NO API #

PHYSICAL LOCATION: _____

Legal: QTR___QTR____ Sec___ TS____ R___ County EDDY

OWNER/OPERATOR (NAME) LOCO HILLS WATER DISPOSAL

Contact Person:_____ Tele:#_____

MAILING

ADDRESS:_____ State_____ ZIP_____

Owner/Operator Rep's: DICK MALONEY

OCD INSPECTORS: W PRICE, M. STUBBLEFIELD

1. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums will be stored on their sides with the bungs in and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets will also be stored on an impermeable pad and curb type containment.

NA

2. Process Areas: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

OK

3. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new tanks or existing tanks that undergo a major modification, as determined by the Division, must be placed within an impermeable bermed enclosure.

NA

4. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

NA

5. Labeling: All tanks, drums and containers will be clearly labeled to identify their contents and other emergency notification information.

—

6. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-detection into the design. All pre-existing sumps and below-grade tanks must demonstrate integrity on an annual basis. Integrity tests include pressure testing to 3 pounds per square inch above normal operating pressure and/or visual inspection of cleaned out tanks and/or sumps, or other OCD approved methods. The OCD will be notified at least 72 hours prior to all testing.

NA

7. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter, or prior to discharge plan renewal. The permittee may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure or other means acceptable to the OCD. The OCD will be notified at least 72 hours prior to all testing.

NA

8. Onsite/Offsite Waste Disposal and Storage Practices: Are all wastes properly characterized and disposed of correctly? Does the facility have an EPA hazardous waste number? _____ Yes _____ No

ARE ALL WASTE CHARACTERIZED AND DISPOSED OF PROPERLY? YES ☐ NO ☐ IF NO DETAIL BELOW.

9. Class V Wells: Leach fields and other wastewater disposal systems at OCD regulated facilities which inject non-hazardous fluid into or above an underground source of drinking water are considered Class V injection wells under the EPA UIC program. All Class V wells that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes will be closed unless it can be demonstrated that groundwater will not be impacted in the reasonably foreseeable future. Closure of Class V wells must be in accordance with a plan approved by the Division's Santa Fe Office. The OCD allows industry to submit closure plans which are protective of human health, the environment and groundwater as defined by the WQCC, and are cost effective. Class V wells that inject domestic waste only must be permitted by the New Mexico Environment Department.

ANY CLASS V WELLS NO ☑ YES ☐ IF YES DESCRIBE BELOW ! Undetermined ☐

10. Housekeeping: All systems designed for spill collection/prevention will be inspected weekly and after each storm event to ensure proper operation and to prevent overtopping or system failure. A record of inspections will be retained on site for a period of five years.

OK

11. Spill Reporting: All spills/releases will be reported pursuant to OCD Rule 116 and WQCC 1203 to the proper OCD District Office.

—

12. Does the facility have any other potential environmental concerns/issues?

13. Does the facility have any other environmental permits - i.e. SPCC, Stormwater Plan, etc.?

14. ANY WATER WELLS ON SITE ? NO ☑ YES ☐ IF YES, HOW IS IT BEING USED ?

MW'S 90' → 266' South of Well

Miscellaneous Comments:

MIT - OPEN HOLE N_2 TEST (1610 STD ft^3 60°F) VOLUME of ANNULAS +10%
6 1/4 I.D. - 2 7/8" O.D.

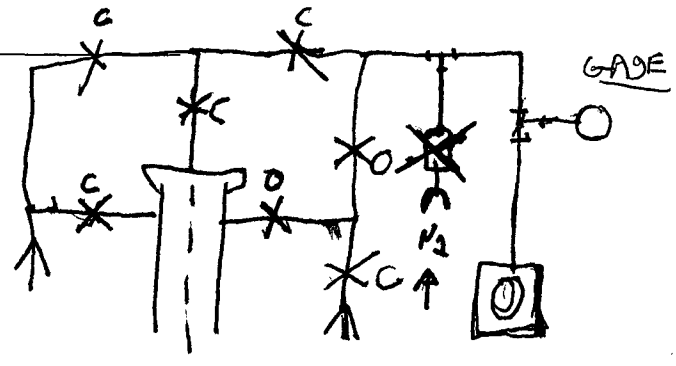
GAGE 0 - 400 psig START 420' CASING
STOP

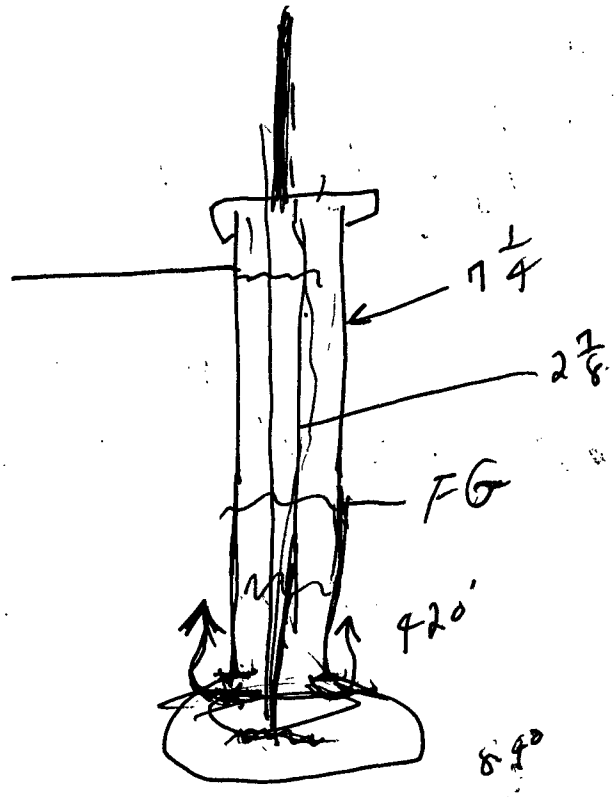
Number of Photos taken at this site: 11
attachments-

OCD Inspection Sheet
Page ___ of ___

MIT - FAILED
WOULD NOT HOLD PRESSURE!
BUBBLES ALL AROUND CASING
OUT of GROUND!

RECORDER - 12 HR -




7 1/4
2 7/8
FG
420'
84°

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

October 20, 2000

CERTIFIED MAIL
RETURN RECEIPT NO. 5051 4461 Loco Hills BW-021

Attention: Brine Well Operators

Re: Mechanical Integrity Testing of Brine Supply Wells

The Underground Injection Control Program of the Federal Safe Drinking Water Act requires that operators demonstrate mechanical integrity of all injection wells by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and injection zones.

The Oil Conservation Division (OCD) requires operators of brine supply wells to perform the following mechanical integrity tests:

1. At least once every five years isolate the cavern formation from the casing/tubing annuals and hydrostatic fluid pressure test the casing at 300 psig for 30 minutes. New brine wells and wells being worked over will have to be tested in this manner before operations begin.

2. Annually perform an open hole cavern formation pressure test by pressuring up the formation with fluid to one and one-half times the normal operating pressure or 300 psig whichever is greater for four hours. Operators shall not exceed surface pressures that may cause formation fracturing or system failures. OCD prior to test shall approve test pressures below 300 psig and methods that use media other than fluids. Brine supply wells operating with packers will have to pressure both the cavern formation and casing/tubing annuals.

Please find enclosed an "OCD Brine Well Test Schedule December 2000" and "Brine Well Test Procedure Guidance Document" for this December 8th through 18th 2000. Please have your well ready for testing on the date and time you are scheduled. Please refer to the Well Test Schedule attached for the **type of test** you are scheduled to perform. You must receive prior OCD approval to alter the scheduled time or type of test.

Operators will be responsible for providing equipment and shall bear all costs incurred. All tests must be witnessed by the New Mexico Oil Conservation Division. Operators failing to abide by the procedures, type of test, and time schedules listed herein may be required to shut-in their systems until OCD has an opportunity to approve and witness testing.

If you require any further information or assistance please do not hesitate to write or call me at (505-827-7155).

Sincerely Yours,

Wayne Price

Wayne Price-Pet. Engr. Spec.
Environmental Bureau

cc: OCD District Offices

Attachments- 1. OCD Brine Well Test Schedule December 2000.
2. Brine Well Testing Procedure Guidance Document.

OCD BRINE WELL TEST SCHEDULE December of 2000

Company	DP#	Facility Name	Date of Test	Start	Stop	Type of Test(s) Required	Contact Person	Telephone	FAX #
Marbob Brine Well	BW-029	M. Dodd "A" BW#1	December 08, 2000	1:00 PM	5:00 PM	2 Pressure test cavern	Doyle Davis Raye Miller	748-5975 cell 748-3303	1-505-746-2523
P&S Brine	BW-002	Eunice Eunice Water ST.	December 11, 2000	8 am	12 noon	2 Pressure test cavern	Paul Prather	1-505-394-2545	1-505-394-2426
Simms-McCasland	BW-009A	Eunice Brine Station	December 11, 2000	9:30 am	1:30 pm	2 Pressure test cavern	Bob Patterson	1-505-394-2581	1-505-394-2584
Salty Dog, Inc.	BW-008	Arkansas-Jct	December 11, 2000	11 am	3 pm	2 Pressure test cavern	Mr. Piter Bergstein Walter Brisco	1-806-741-1080	
Steams Inc.	BW-013	Crossroads	December 12, 2000	8:00 AM	12 noon	2 Pressure test cavern	L.A. Steams	1-505-675-2356	1-505-675-2339
Gandy Corp.	BW-022	Tatum Water St.	December 12, 2000	9:00 AM	1:00 PM	2 Pressure test cavern	Larry Gandy	1-505-398-4960	cell 369-5721
Key Energy	BW-018	Truckers #2 (Hobbs)	December 12, 2000	10:30 AM	2:30 PM	2 Pressure test cavern	Pete Turner	1-505-397-4994	1-505-393-9023
I&W Trucking	BW-006 &6A	Carlsbad Yard	December 13, 2000	8:00 AM	12 noon	2 Pressure test cavern	George Parchman	1-505-885-6663	1-505-885-8477
Loco Hills Brine	BW-021	Loco Hills	December 13, 2000	1:30 PM	5:30 PM	2 Pressure test cavern	D. Maloney or R. Harris	1-505-677-2370	1-505-677-2361
Goldstar	BW-028	Eunice Brine Station	December 14, 2000	9:30 am	1:30 pm	2 Pressure test cavern	Royce Crowell	1-505-394-2504	1-505-394-2560
Quality Oil (Salado Brine Sales)	BW-025	Salado Brine St. #2	December 14, 2000	11am	3 pm	2 Pressure test cavern	see P&S		
Key Energy-Carlsbad	BW-019	Rowland Truckers	December 15, 2000	8:00 AM	12 noon	2 Pressure test cavern	John Hutcheson		1-505-887-3011
Scurlock/Permian	BW-027 &27A	Carlsbad Brine St.	December 15, 2000	9:00 AM	1:00 PM	2 Pressure test cavern	Jim Ephraim	1-713-672-8092	1-713-672-7609
Jims Water Ser.	BW-005	SE of Artesia	December 15, 2000	10:30 AM	2:30 PM	2 Pressure test cavern	Sammy Stoneman	1-505-748-1352	1-505-746-3227
Scurlock-Permian	BW-012	Hobbs Station	December 18, 2000	8:00 AM	12 noon	2 Pressure test cavern	Richard Lentz	1-505-392-8212	1-505-392-6988
Gandy- WasserHaun	BW-004	Buckeye St.	December 18, 2000	9:00 AM	1:00 PM	2 Pressure test cavern	Larry Gandy	1-505-398-4960	cell 369-5721

Notes:

Type of Pressure Test:

1 Casing Test — Isolate cavern formation from the casing/tubing annuals and hydrostatic fluid pressure test the casing at 300 psig for 30 minutes.

2 Open Hole Cavern Pressure Test — Open hole cavern formation pressure test by pressuring up the formation with fluid to one and one-half times the normal operating pressure or 300 psig whichever is greater for four hours. Operators shall not exceed surface pressures that may cause formation fracturing or system failures. OCD prior to test shall approve test pressures below 300 psig and methods that use media other than fluids.
Brine supply wells operating with packers will have to pressure both the cavern formation and casing/tubing annuals.

3 Others — Nitrogen-Brine Interface Test, Nitrogen Test, Etc.

Brine Well Testing Procedure Guidance Document

1) The cavern and all piping must be filled, pressured up and stabilized for a period of at least 24 hours prior to testing. If this test requires or utilizes a packer then the casing/tubing annulus must be loaded with inert fluid 24 hours prior to testing.

2) Have manpower and equipment available for pressure test. Well head shall be prepared for test and all valves and gauges should be in good working order.

3) Pressure devices i.e pumps, truck pumps, etc. must be isolated from the well head during test.

4) A continuous recording pressure chart with an 8 hour clock shall be installed on the casing/tubing annulus, as directed by the OCD, with a pressure range of not greater than 500 psig. The operator must provide proof that pressure recording device has a range of 0-500 psig and has been calibrated within the past 6 months. Wells, with isolation packers installed, which requires both the casing/tubing annulus and cavern to be tested will require two recording devices or one recording device with two pins. Operators may utilize other types of pressure recording devices, such as electronic data loggers, etc., if approved by OCD.

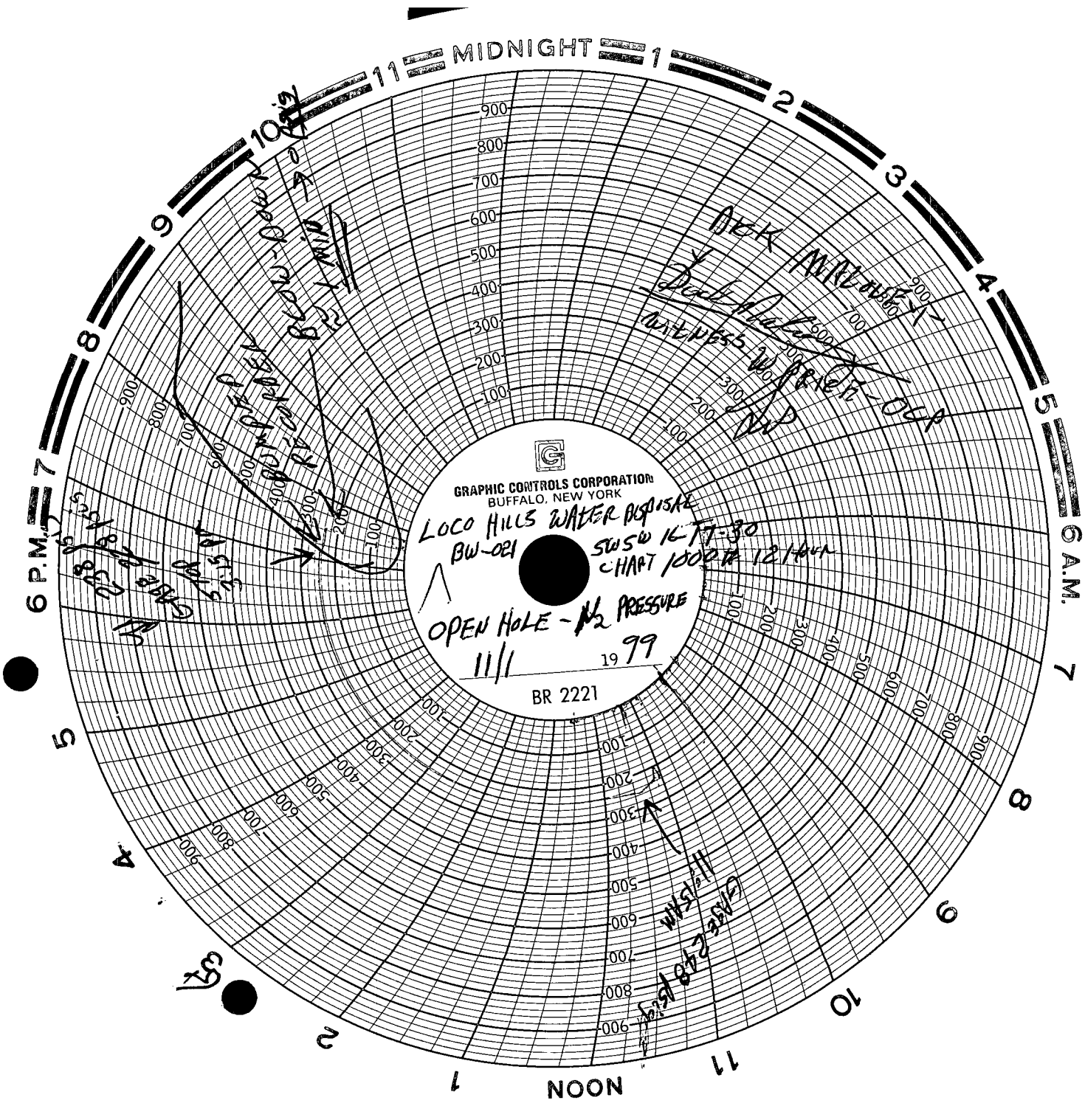
5) A minimum of one pressure gage shall be installed in the system as directed by OCD.

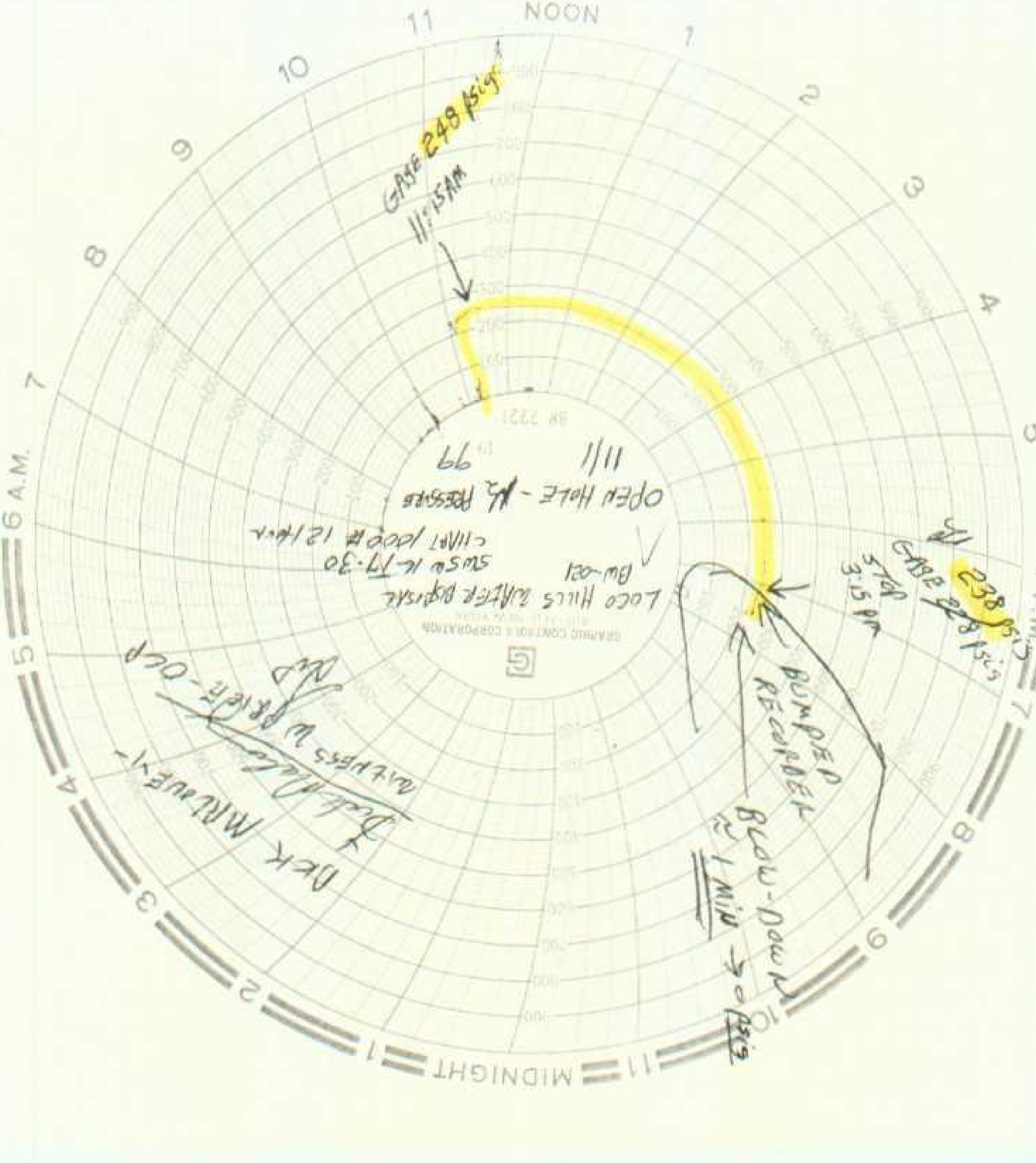
6) OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test operator may be required to bleed-off pressure to demonstrate recorder response.

7) **The Operator will supply the following information on the pressure chart before starting test:**

   1. Company name, discharge plan #, well name and number, legal location UL, section, township, range and county.
   2. Type of Test: Open Hole, Casing Test, or Both.
   3. Date, time test started, time stop.
   4. Chart and Recorder information. (can be attached)
   5. Normal operating surface and formation fracture pressure. (can be attached)
   6. **After Test Completed:**
      Name (printed) and signature of company representative and OCD inspector.

Note: NMOCD recognizes that different operations, well constructions, well designs and field conditions may cause variations in the above procedures. Operator is responsible to notify OCD of any procedure that may cause harm to the well or formation. If operator wishes to make or anticipate changes you must notify the OCD for approval.


MIDNIGHT
NOON
6 P.M.
6 A.M.
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
LOCO HILLS WATER DISPOSAL
BW-021
SWSW 16-T17-30
CHART 1000# 12 HOUR
OPEN HOLE - N2 PRESSURE
11/1 1999
BR 2221


NOON
6 A.M.
6 P.M.
MIDNIGHT
GAGE 248 psig
11:15 AM
BUMPED RECORDER
BLOW-DOWN
1 MIN

HALLIBURTON

JOB LO

ORDER NO. 70006

REGION: North America	NWA/COUNTRY	BDA / STATE	COUNTY
MBU ID / EMP #	EMPLOYEE NAME	PSL DEPARTMENT	
LOCATION	COMPANY	CUSTOMER REP / PHONE	
TICKET AMOUNT	WELL TYPE	API / UWI #	
WELL LOCATION	DEPARTMENT	JOB PURPOSE CODE	
LEASE / WELL #	SEC / TWP / RNG		

TICKET #

TICKET DATE

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS T	PUMPS C	PRESS. (psi) Tbg	PRESS. (psi) Csg	JOB DESCRIPTION / REMARKS

To Find lbs. of N2 Used
Please Call Doug Love @
915-683-0268

HALLIBURTON

Wes Duncan
Nitrogen Service Supervisor
HALLIBURTON ENERGY SERVICES

P.O. Box 3746
6155 West Murphy
Odessa, Texas 79760-3746

Office: 915-381-2040
Fax: 915-385-0173
Mobile: 915-556-2677
Pager: 915-567-9265
Residence: 915-332-0790

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Fax: 1-505-677-2361

October 19, 1999

Mr. James Maloney and Randy Harris
Loco Hills Water Disposal Co.
P.O. Box 68
Loco Hills, New Mexico 88255

Re: Mechanical Integrity Testing of Brine Supply Wells.

This is a reminder that New Mexico Oil Conservation Division (NMOCD) will be witnessing mechanical integrity test for all brine supply wells during the time period between October 25 through November 2, 1999. A schedule was sent to each operator on September 11, 1999.

Please have your well(s) ready for testing on the date and time you are scheduled. If there is some emergency which interferes with the scheduled date and time please call and notify NMOCD.

Failure to notify NMOCD may result in your operations being suspended until testing is complete.

If you require any further information or assistance please do not hesitate to write or call me at (505-827-7155) or notify Mr. Roger Anderson at (505-827-7152).

Sincerely Yours,

Wayne Price-Pet. Engr. Spec.
Environmental Bureau

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

September 11, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z 357 870 156

Mr. James Maloney
Loco Hills Water Disposal Co.
P.O. Box 68
Loco Hills, New Mexico 88255

Re: Mechanical Integrity Testing of Brine Supply Wells

Dear Mr. James Maloney:

The Underground Injection Control Program of the Federal Safe Drinking Water Act requires that operators demonstrate mechanical integrity of all injection wells by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and injection zones.

The Oil Conservation Division (OCD) requires operators of brine supply wells to perform the following mechanical integrity test:

1. At least once every five years isolate the cavern formation from the casing/tubing annuals and pressure test the casing at 300 psig for 30 minutes. New brine wells and wells being worked over will have to be tested in this manner before operations begin.

2. Annually perform an open hole cavern formation pressure test by pressuring up the formation one and one-half times the normal operating pressure (not to exceed formation fracture pressure) or 300 psig whichever is greater for four hours. Brine supply wells operating with packers will have to pressure both the cavern formation and casing/tubing annuals.

Please find enclosed an OCD Brine Well Test Schedule and Test Procedure for this Fall October 25, 1999 through November 2, 1999. Please have your well ready for testing on the date and time you are schedule. Operators will be responsible for providing equipment and shall bear all costs incurred. All test must be witnessed by the New Mexico Oil Conservation Division.

If you require any further information or assistance please do not hesitate to write or call me at (505-827-7155).

Sincerely Yours,

Wayne Price

Wayne Price-Pet. Engr. Spec.
Environmental Bureau

cc: OCD District Offices
attachments- OCD Brine Well Test Schedule & Brine Well Testing Procedure Guidance Document

OCD BRINE WELL TEST SCHEDULE FALL OF 1999

Company		DP#	Facility Name	Date of Test	Start	Stop	Type of Test(s) Required
P&S Brine	**	BW-002	Eunice Eunice Water ST.	October 25 1999	8 am	12 noon	Isolate cavern & pressure test casing + Cavern survey***
Simms-McCasland	**	BW-009A	Eunice Brine Station	October 25 1999	9:30 am	1:30 pm	Isolate cavern & pressure test casing + Cavern survey***
Goldstar		BW-028	Eunice Brine Station	October 25 1999	11 am	3 pm	Pressure test cavern
Key Energy	**	BW-018	Rowland Truckers #2	October 26 1999	8 am	12 noon	Pressure test cavern + Cavern survey***
Scurlock-Permian	**	BW-012	Hobbs Station	October 26 1999	9:30 am	1:30 pm	Isolate cavern & pressure test casing + Cavern survey***
Salty Dog, Inc.	**	BW-008	Arkansas-Jct	October 26 1999	11 am	3 pm	Pressure test cavern + Cavern survey***
Quality Oil (Salado Brine Sales)	**	BW-025	Salado Brine St. #2	October 27 1999	8 am	12 noon	Isolate cavern & pressure test casing + Cavern survey***
Conoco	**	BW-001	Warren -McKee #3	October 27 1999	1:30 pm	5:30 pm	Isolate cavern & pressure test casing
Conoco	**	BW-001	Warren -McKee #4	October 27 1999	1:30 pm	5:30 pm	Isolate cavern & pressure test casing
[illegible]ality Brine		BW-022	Tatum Water St.	October 28 1999	9 am	1 pm	Pressure test cavern
Kenneth Tank Service		BW-013	Crossroads	October 28 1999	11 am	3 pm	Pressure test cavern
WasserHaun		BW-004	Buckeye	October 29 1999	9 am	1 pm	Pressure test cavern
Marathon Brine St.		BW-015	Marthon Road	October 29 1999	11 am	3 pm	Pressure test cavern
Loco Hills Brine		BW-021	Loco Hills	November 1 1999	9 am	1 pm	Pressure test cavern
Jims Water Ser.		BW-005	SE of Artesia	November 1 1999	11 am	3 pm	Pressure test cavern
I&W Trucking		BW-006 &6A	Carlsbad Yard	November 2 1999	8 am	12 noon	Pressure test cavern
Key Energy-Carlsbad		BW-019	Rowland Truckers	November 2 1999	9:30 am	1:30 pm	Pressure test cavern
Scurlock/Permian	**	BW-027 &27A	Carlsbad Brine St.	November 2 1999	11 am	3 pm	Isolate cavern & pressure test casing + Cavern survey***

Notes:

** Discharge Plan up for renewal

*** Cavern Surveys are Discharge Plan Requirments Companies have the option to perform now are at a later date approved by OCD.

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Brine Well Testing Procedure Guidance Document

1) The cavern and all piping must be filled, pressured up and stabilized for a period of at least 24 hours prior to testing. If this test requires a packer then casing/tubing annulus must be loaded with inert fluid 24 hours prior to testing.

2) Have manpower and equipment available for pressure test. Well head shall be prepared for test and all valves and gauges should be in good working order.

3) Pressure devices i.e pumps, truck pumps, etc. must be isolated from the well head before and during test.

4) A continuous recording pressure chart with an 8 hour clock shall be installed on the casing/tubing annulus. The pressure range shall not be greater than 1,000 psig. The operator must provide proof that the recording device has been calibrated within the past 6 months. **Note: Wells with packer installed: If this test requires both the casing/tubing annulus and cavern to be tested then two recording devices must be supplied or one recording device with two pins.**

5) A minimum of one pressure gage shall be installed in the system.

6) OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test operator shall bleed-off pressure by 10% to demonstrate recorder response.

7) The following information shall be place on the chart:

   1. Date, time test started, time stop.
   2. Company name, Discharge Plan #, well name and number, legal location UL, section, township, range and county.
   3. Type of Test; Open hole, Casing Test, or Both.
   4. Printed name and signature of company representative and OCD representative.

Note: NMOCD recognizes that different operations, well constructions and field conditions may cause variations in the above procedures. If operator wishes to make or anticipate changes please notify the OCD for approval.