GW - 7

GENERAL CORRESPONDENCE

YEAR(S):

2005-1981

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

February 3, 2005

Mr. Scott T. Pope
El Paso Corp.
P.O. Box 1087
Colorado Springs, CO 80944

The New Mexico Oil Conservation Division has received your request, dated December 1, 2004, to use remediation-derived groundwater for use as make up water in the brine water storage ponds at the Texas LPG Storage Company's (Texas LPG) LPG storage operation.

This request is hereby approved.

This approval does not relieve either El Paso Corp. (El Paso) or Texas LPG Storage Company of liability should operations at the site in question prove harmful to public health or the environment. Nor does it relieve El Paso or Texas LPG of their respective responsibilities to comply with the rules and regulations of any other governmental organization.

If you have any questions, contact me at 505-476-3492 or emartin@state.nm.us

NEW MEXICO OIL CONSERVATION DIVISION

Ed Martin

Edwin E. Martin
Environmental Engineer

elpaso

Certified Mail # 7001 1940 0002 1371 7935

December 1, 2004

Mr. William C. Olson
New Mexico Oil Conservation Division
1220 St. Francis Dr.
Santa Fe, NM 87504

RE: Request for Approval of Recovered Groundwater from Remediation System for Use as Make Up Water for Brine Water Ponds for the LPG Storage Operation at EPNG's formerly Owned Jal #4 Plant.

Dear Mr. Olson:

As discussed in phone conversations EPNG is requesting written approval to provide Texas LPG Storage Company, the current LPG storage operation at the formerly owned Jal #4 site, with remediation derived groundwater for use as make up water in their brine water storage ponds. The current LPG storage operation has a need for make up water lost to evaporation in brine water storage ponds. The brine is pumped into the storage formation when recovery of stored LPG is required. The chloride and hydrocarbon impacted groundwater recovered from the remediation system could effectively be used as the make up water for the current operation. The levels of chlorides are far below what are currently contained in the brine water storage ponds. As indicated by the attached lab data (sample number 10) the hydrocarbon component of the water is minor (80.7 ug/l benzene) and would likely volatilize when pumped into the lined ponds posing minimal risk to Human Health or the Environment. The approval of this plan would reduce TXLPG's dependence on freshwater and would provide a beneficial use for the groundwater recovered during remediation efforts. Currently all recovered groundwater is injected in the permitted onsite injection well Shell State #13 SWD.

Clearly this is a rare opportunity to derive a beneficial use from water generated during remediation efforts at the Jal #4 site. If you have any questions concerning this proposed plan, please call me (719) 520-4433.

Sincerely,

Scott T. Pope P.G.
Senior Environmental Scientist

xc: Mr. Chris Williams, NMOCD, Hobbs - w / enclosures;
Mr. Darrell Campbell, EPNG - w / enclosures
Mr. Buddy Richardson, BI - w / enclosures
Mr. Lorenzo Diaz, TXLPG – w / enclosure
Jal 4 file - w / enclosures

El Paso Corporation
PO Box 1087 Colorado Springs, Colorado 80944
tel 719.473.2300 fax 719.520.4318

LABORATORY SERVICE REPORT

REQUESTOR: Pope, Scott

REPORT DATE: 11/29/2004
REQUEST NO: 2004111601
APPROVED BY: Darrell Campbell
PENDING REQ. ID: 2004111601

DISTRIBUTION: Morrow, Kenny; St. John, Robert; Nichols, Ed; Doom, Jimmy; Whitney, Mark

PERFORMED BY: Accutest, TX

Request Description: Jal #4 monitor wells (4th quarter)
Date Received: 11/16/2004
Date Completed: 11/24/2004

Sample No: 1 Lab ID: 57010 Sampled By: Mark Whitney Sample Date: 11/9/2004 6:30:00 AM
Description:
Analysis: WP Jal #4 Quarters 1, 2, 3 & 4
Purpose: Disposal/Environmental Concerns
Matrix: Water
Location: EPNG - Midland - Plains - Jal #4 - 0+0 - Quality Control - Pump Blank

Sample No: 2 Lab ID: 57011 Sampled By: Mark Whitney Sample Date: 11/9/2004 7:15:00 AM
Description:
Analysis: WP Jal #4 Quarters 1, 2, 3 & 4
Purpose: Disposal/Environmental Concerns
Matrix: Water
Location: EPNG - Midland - Plains - Jal #4 - 0+0 - Quality Control - Bailer Blank

Sample No: 3 Lab ID: 57012 Sampled By: Mark Whitney Sample Date: 11/9/2004 7:30:00 AM
Description:
Analysis: WP Jal #4 Quarters 1, 2, 3 & 4
Purpose: Disposal/Environmental Concerns
Matrix: Water
Location: EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #1

Sample No: 4 Lab ID: 57013 Sampled By: Mark Whitney Sample Date: 11/9/2004 9:15:00 AM
Description:
Analysis: WP Jal #4 Quarters 1, 2, 3 & 4
Purpose: Disposal/Environmental Concerns
Matrix: Water
Location: EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #2A

Sample No: 5 Lab ID: 57014 Sampled By: Mark Whitney Sample Date: 11/9/2004 9:40:00 AM
Description:
Analysis: WP Jal #4 Quarters 1, 2, 3 & 4
Purpose: Disposal/Environmental Concerns
Matrix: Water
Location: EPNG - Midland - Plains - Jal #4 - 0+0 - Recovery Well - RW #1

Sample No:	6	Lab ID: 57015	Sampled By: Mark Whitney	Sample Date:	11/9/2004 10:00:00 A
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Recovery Well - ENSR #2		
Sample No:	7	Lab ID: 57016	Sampled By: Mark Whitney	Sample Date:	11/9/2004 11:05:00 A
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #4		
Sample No:	8	Lab ID: 57017	Sampled By: Mark Whitney	Sample Date:	11/9/2004 12:15:00 PM
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #3		
Sample No:	9	Lab ID: 57018	Sampled By: Mark Whitney	Sample Date:	11/9/2004 1:30:00 PM
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #8		
Sample No:	10	Lab ID: 57019	Sampled By: Mark Whitney	Sample Date:	11/9/2004 2:20:00 PM
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Injection Well - Downstream of filters		
Sample No:	11	Lab ID: 57020	Sampled By: Mark Whitney	Sample Date:	11/10/2004 7:30:00 A
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ENSR #1		
Sample No:	12	Lab ID: 57021	Sampled By: Mark Whitney	Sample Date:	11/10/2004 7:45:00 A
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ENSR #1 Duplicate		
Sample No:	13	Lab ID: 57022	Sampled By: Mark Whitney	Sample Date:	11/10/2004 9:00:00 A
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ENSR #3		

Sample No:	14	Lab ID:	57023	Sampled By:	Mark Whitney	Sample Date:	11/10/2004 10:30:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #11				
Sample No:	15	Lab ID:	57024	Sampled By:	Mark Whitney	Sample Date:	11/10/2004 11:30:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - PTP #1				
Sample No:	16	Lab ID:	57025	Sampled By:	Mark Whitney	Sample Date:	11/10/2004 12:30:00 P
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Recovery Well - RW #2				
Sample No:	17	Lab ID:	57026	Sampled By:	Mark Whitney	Sample Date:	11/10/2004 1:00:00 PM
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #9				
Sample No:	18	Lab ID:	57027	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 7:00:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Quality Control - Pump Blank				
Sample No:	19	Lab ID:	57028	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 7:30:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Quality Control - Bailer Blank				
Sample No:	20	Lab ID:	57029	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 8:15:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #13				
Sample No:	21	Lab ID:	57030	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 10:25:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #10				

Sample No:	22	Lab ID:	57031	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 12:15:00 P
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #12				
Sample No:	23	Lab ID:	57032	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 1:40:00 PM
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Production Well - Oxy				
Sample No:	24	Lab ID:	57033	Sampled By:	Mark Whitney	Sample Date:	11/11/2004 2:30:00 PM
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #15				
Sample No:	25	Lab ID:	57034	Sampled By:	Mark Whitney	Sample Date:	11/12/2004 7:45:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #14				
Sample No:	26	Lab ID:	57035	Sampled By:	Mark Whitney	Sample Date:	11/12/2004 9:15:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #5				
Sample No:	27	Lab ID:	57036	Sampled By:	Mark Whitney	Sample Date:	11/12/2004 11:00:00 A
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #7				
Sample No:	28	Lab ID:	57037	Sampled By:	Mark Whitney	Sample Date:	11/12/2004 12:30:00 P
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW #6				
Sample No:	29	Lab ID:	57038	Sampled By:	Mark Whitney	Sample Date:	11/12/2004 12:45:00 P
		Description:					
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4				
		Purpose:	Disposal/Environmental Concerns				
		Matrix:	Water				
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Monitor Well - ACW # 6 Duplicate				

Sample No:	30	Lab ID: 57039	Sampled By: Mark Whitney	Sample Date:	11/12/2004 2:40:00 PM
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Production Well - EPNG#1		
Sample No:	31	Lab ID: 57040	Sampled By: Mark Whitney	Sample Date:	11/12/2004 2:50:00 PM
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Quality Control - Bailer Blank		
Sample No:	32	Lab ID: 57041	Sampled By: Mark Whitney	Sample Date:	11/12/2004 3:10:00 PM
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Quality Control - Pump Blank		
Sample No:	33	Lab ID: 57042	Sampled By: Mark Whitney	Sample Date:	11/15/2004 11:15:00 A
		Description:			
		Analysis:	WP Jal #4 Quarters 1, 2, 3 & 4		
		Purpose:	Disposal/Environmental Concerns		
		Matrix:	Water		
		Location:	EPNG - Midland - Plains - Jal #4 - 0+0 - Production Well - Doom		

Data: See attached sheet(s).

Comments:

Sample:		**1**	**2**	**3**	**4**	**5**
Total Metals						
Sodium	µg/l	*69800*	*< 5000*	*696000*	*3950000*	*12400000*
Anions						
Chloride	mg/l	59	1	2570	4290	23700
General Analyses						
Solids, Total Dissolved	mg/l	653	< 10	5140	11300	39900
Volatile Organic Compounds						
Benzene	µg/l	ND	ND	ND	47.9	114
Ethylbenzene	µg/l	ND	ND	ND	15	70.3
Toluene	µg/l	ND	ND	1.7	17.1	24.1
Xylene (Total)	µg/l	ND	ND	ND	28.4	62.1

Request: 2004111601

Sample:		6	7	8	9	10
Total Metals						
Sodium	µg/l	7840000	22000000	2800000	2420000	6010000
Anions						
Chloride	mg/l	12900	10800	4980	6280	11300
General Analyses						
Solids, Total Dissolved	mg/l	22500	19700	8580	10100	20300
Volatile Organic Compounds						
Benzene	µg/l	72.1	189	13.7	25.3	80.7
Ethylbenzene	µg/l	18.1	69.8	7	1.6	25.6
Toluene	µg/l	28.4	42.9	5.4	2.1	14
Xylene (Total)	µg/l	93.8	101.0	6.6	1.2	25.1

Sample:		11	12	13	14	15
Total Metals						
Sodium	µg/l	881	823	168	2270	167
Anions						
Chloride	mg/l	1920	1420	561	7950	496
General Analyses						
Solids, Total Dissolved	mg/l	3900	3150	1810	18300	1560
Volatile Organic Compounds						
Benzene	µg/l	10.8	11.4	12	19.3	13.6
Ethylbenzene	µg/l	2.8	2.4	3.8	0.53	18.7
Toluene	µg/l	1.1	1.3	0.42	ND	ND
Xylene (Total)	µg/l	2	1.7	3.4	ND	9.6

Sample:		16	17	18	19	20
Total Metals						
Sodium	µg/l	1220	1220	81.7	< 5.0	79.1
Anions						
Chloride	mg/l	2850	2150	52	< 1.0	50
General Analyses						
Solids, Total Dissolved	mg/l	7000	4680	732	40	558
Volatile Organic Compounds						
Benzene	µg/l	2.1	0.82	6.2	ND	0.5
Ethylbenzene	µg/l	ND	ND	2.9	ND	ND
Toluene	µg/l	0.48	ND	1.6	ND	ND
Xylene (Total)	µg/l	ND	ND	3.6	ND	ND

Request: 2004111601

Sample:		**21**	**22**	**23**	**24**	**25**
Total Metals						
Sodium	µg/l	176	137	65.6	73.5	88.7
Anions						
Chloride	mg/l	720	449	135	29	55.0
General Analyses						
Solids, Total Dissolved	mg/l	1990	1300	588	468	572
Volatile Organic Compounds						
Benzene	µg/l	0.51	1.8	ND	ND	ND
Ethylbenzene	µg/l	ND	ND	ND	ND	ND
Toluene	µg/l	ND	ND	ND	ND	ND
Xylene (Total)	µg/l	ND	ND	ND	ND	ND

Sample:		**26**	**27**	**28**	**29**	**30**
Total Metals						
Sodium	µg/l	411	3140	1190	1260	87.7
Anions						
Chloride	mg/l	708	5610	1060	1230	68.0
General Analyses						
Solids, Total Dissolved	mg/l	2540	10400	3430	3490	516
Volatile Organic Compounds						
Benzene	µg/l	0.42	14.0	ND	ND	ND
Ethylbenzene	µg/l	0.51	3.2	ND	ND	ND
Toluene	µg/l	ND	0.54	ND	ND	ND
Xylene (Total)	µg/l	ND	1.3	ND	ND	ND

Sample:		**31**	**32**	**33**
Total Metals				
Sodium	µg/l	< 5.0	75.3	61.8
Anions				
Chloride	mg/l	< 1.0	58.0	28
General Analyses				
Solids, Total Dissolved	mg/l	< 10	744	1
Volatile Organic Compounds				
Benzene	µg/l	ND	ND	ND
Ethylbenzene	µg/l	ND	ND	ND
Toluene	µg/l	ND	ND	ND
Xylene (Total)	µg/l	ND	ND	ND

Gulf Coast
ACCUTEST
Laboratories

11/19/04

Technical Report for

El Paso Corporation - El Paso, TX

Jal #4, 1200 South Third Street, Jal, NM, 88252

4th Quarter/D-LSE-03-18-03-DGC-01 EPNG-JAL#4

Accutest Job Number: T8711

Sampling Date: 11/09/04

Report to:

El Paso Corporation

scott.pope@elpaso.com

ATTN: Scott Pope

Total number of pages in report: 54

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Ron Martino
Laboratory Manager

Table of Contents

Sections: 1 2 3 4 5 6

-1-

Sample Summary

El Paso Corporation - El Paso, TX

Job No: T8711

Jal #4, 1200 South Third Street, Jal, NM, 88252
Project No: 4th Quarter/D-LSE-03-18-03-DGC-01 EPNG-JAL#4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
T8711-1	11/09/04	06:30	MW	11/10/04	AQ	Ground Water	1
T8711-2	11/09/04	07:15	MW	11/10/04	AQ	Ground Water	2
T8711-3	11/09/04	07:30	MW	11/10/04	AQ	Ground Water	3
T8711-4	11/09/04	09:15	MW	11/10/04	AQ	Ground Water	4
T8711-5	11/09/04	09:40	MW	11/10/04	AQ	Ground Water	5
T8711-6	11/09/04	10:00	MW	11/10/04	AQ	Ground Water	6
T8711-7	11/09/04	11:05	MW	11/10/04	AQ	Ground Water	7
T8711-8	11/09/04	12:15	MW	11/10/04	AQ	Ground Water	8
T8711-9	11/09/04	13:30	MW	11/10/04	AQ	Ground Water	9
T8711-10	11/09/04	14:20	MW	11/10/04	AQ	Ground Water	10

Accutest Laboratories

Report of Analysis

Client Sample ID:	1		
Lab Sample ID:	T8711-1	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02481.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02531.D	10	11/17/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.40	ug/l	
108-88-3	Toluene	ND	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	79%	89%	71-127%
98-08-8	aaa-Trifluorotoluene	88%	88%	66-136%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	1		
Lab Sample ID:	T8711-1	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	69800	5000	ug/l	1	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	1		
Lab Sample ID:	T8711-1	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	59.0	2.0	mg/l	2	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	653	10	mg/l	1	11/15/04 15:00	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	2		
Lab Sample ID:	T8711-2	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02482.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02532.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.40	ug/l	
108-88-3	Toluene	ND	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	81%	86%	71-127%
98-08-8	aaa-Trifluorotoluene	88%	84%	66-136%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	2		
Lab Sample ID:	T8711-2	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	<5000	5000	ug/l	1	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	2		
Lab Sample ID:	T8711-2	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	1.0	1.0	mg/l	1	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	<10	10	mg/l	1	11/15/04 15:00	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	3		
Lab Sample ID:	T8711-3	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02483.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02535.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.40	ug/l	
108-88-3	Toluene	1.7	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	8058% [a]	0% [a]	71-127%
98-08-8	aaa-Trifluorotoluene	146% [a]	96%	66-136%

(a) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	3		
Lab Sample ID:	T8711-3	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	696000	50000	ug/l	10	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	3		
Lab Sample ID:	T8711-3	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	*Jal #4, 1200 South Third Street, Jal, NM, 88252*		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2570	80	mg/l	80	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	5140	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	4		
Lab Sample ID:	T8711-4	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02484.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02536.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	47.9	1.0	0.40	ug/l	
108-88-3	Toluene	17.1	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	15.0	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	28.4	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	20963% [a]	7403% [a]	71-127%
98-08-8	aaa-Trifluorotoluene	166% [a]	91%	66-136%

(a) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	4		
Lab Sample ID:	T8711-4	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	3950000	250000	ug/l	50	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	4		
Lab Sample ID:	T8711-4	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	4290	100	mg/l	100	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	11300	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	5		
Lab Sample ID:	T8711-5	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02489.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02537.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	114 [a]	10	4.0	ug/l	
108-88-3	Toluene	24.1	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	70.3	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	62.1	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	19875% [b]	4186% [b]	71-127%
98-08-8	aaa-Trifluorotoluene	265% [b]	106%	66-136%

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	5		
Lab Sample ID:	T8711-5	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	12400000	500000	ug/l	100	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	5		
Lab Sample ID:	T8711-5	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	23700	1000	mg/l	1000	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	39900	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	6		
Lab Sample ID:	T8711-6	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02490.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02538.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	72.1 [a]	10	4.0	ug/l	
108-88-3	Toluene	28.4	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	18.1	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	93.8	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	11762% [b]	91%	71-127%
98-08-8	aaa-Trifluorotoluene	250% [b]	104%	66-136%

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	6		
Lab Sample ID:	T8711-6	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	7840000	500000	ug/l	100	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	6		
Lab Sample ID:	T8711-6	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	12900	400	mg/l	400	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	22500	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	7		
Lab Sample ID:	T8711-7	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02491.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02539.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	189 [a]	10	4.0	ug/l	
108-88-3	Toluene	42.9	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	69.8	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	101	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	20355% [b]	223% [b]	71-127%
98-08-8	aaa-Trifluorotoluene	337% [b]	109%	66-136%

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	7		
Lab Sample ID:	T8711-7	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	22000000	2500000	ug/l	500	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	7		
Lab Sample ID:	T8711-7	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	10800	400	mg/l	400	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	19700	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	8		
Lab Sample ID:	T8711-8	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02492.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02540.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	13.7	1.0	0.40	ug/l	
108-88-3	Toluene	5.4	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	7.0	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	6.60	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	1718% [a]	73%	71-127%
98-08-8	aaa-Trifluorotoluene	111%	89%	66-136%

(a) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	8		
Lab Sample ID:	T8711-8	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	2800000	500000	ug/l	100	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	8		
Lab Sample ID:	T8711-8	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	4980	200	mg/l	200	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	8580	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	9		
Lab Sample ID:	T8711-9	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02493.D	1	11/16/04	JH	n/a	n/a	GKK456
Run #2	KK02541.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	25.3	1.0	0.40	ug/l	
108-88-3	Toluene	2.1	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	1.6	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	1.2	2.0	0.80	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	71%	71%	71-127%
98-08-8	aaa-Trifluorotoluene	92%	87%	66-136%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	9		
Lab Sample ID:	T8711-9	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	2420000	500000	ug/l	100	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	9		
Lab Sample ID:	T8711-9	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	6280	200	mg/l	200	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	10100	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	10		
Lab Sample ID:	T8711-10	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
Method:	SW846 8021B	Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	KK02494.D	1	11/17/04	JH	n/a	n/a	GKK456
Run #2	KK02542.D	10	11/18/04	JH	n/a	n/a	GKK457

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	80.7	1.0	0.40	ug/l	
108-88-3	Toluene	14.0	1.0	0.40	ug/l	
100-41-4	Ethylbenzene	25.6	1.0	0.40	ug/l	
1330-20-7	Xylenes (total)	25.1	2.0	0.80	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	8751% [a]	0% [a]	71-127%
98-08-8	aaa-Trifluorotoluene	187% [a]	9% [a]	66-136%

(a) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	10		
Lab Sample ID:	T8711-10	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	6010000	500000	ug/l	100	11/11/04	11/19/04	JM	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA1788
(2) Prep QC Batch: MP3261

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	10		
Lab Sample ID:	T8711-10	Date Sampled:	11/09/04
Matrix:	AQ - Ground Water	Date Received:	11/10/04
		Percent Solids:	n/a
Project:	Jal #4, 1200 South Third Street, Jal, NM, 88252		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	11300	400	mg/l	400	11/15/04 12:15	LN	EPA 325.3
Solids, Total Dissolved	20300	200	mg/l	20	11/16/04 14:30	LC	EPA 160.1

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

10165 Harwin Drive, Ste. 150, Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.accutest.com

FED-EX Tracking # | Bottle Order Control #

Accutest Quote # | Accutest Job # T8711

Client / Reporting Information

Company Name: EPNG
Address:
City / State / Zip:
Project Contact: Darrell Campbell | E-mail:
Phone #: 915-587-3728
Sampler's Name: Mark Whitney

Project Information

Project Name: Jal #4 4th Quarter
Street:
City / State:
Project #:
Fax #:
Client Purchase Order #:

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Number of preserved Bottles: HCl	H2SO4	HNO3	NONE	NaOH	MCH	ZnOAc	TDS	BTEX 8260	CL	NO3
1	MW-9		11-9	0630	MW	GW	4	2		1		1			X	X	X	X
2				0715														
3				0730														
4				0915														
5				0940														
6				1000														
7				1105														
8				1215														
9				1330														
10			↓	1420	↓	↓	↓	↓		↓		↓			↓	↓	↓	↓

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

LAB USE ONLY

Turnaround Time (Business Days)

- [X] 10 Day *STANDARD*
- [ ] 5 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] TRRP13
- [ ] EDD Format

Commercial "A" = Results Only

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler	Date Time	Received by	Relinquished by	Date Time	Received by
1	Mark Whitney		Fed Ex	Fed Ex	11/10 1000	
2	Relinquished by:	Date Time	Received by:	Relinquished by:	Date Time	Received by:
3						
4	Relinquished by:	Date Time:	Received by:	Custody Seals #	Preserved where applicable	On Ice / Cooler Temp
5				Yes		3

3.1

T8711: Chain of Custody
Page 1 of 3

ACCUTEST

SAMPLE RECEIPT LOG

JOB #: T8711 DATE/TIME RECEIVED: 11/10

CLIENT: Epng INITIALS: [illegible]

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see variance for explanation):

1. Y N Sample received in undamaged condition.
2. Y N Samples received within temp. range.
3. Y N Sample received with proper pH.
4. Y N Sample received in proper containers.
5. Y N Sample volume sufficient for analysis.
6. Y N Sample received with chain of custody.
7. Y N Chain of Custody matches sample IDs and analysis on containers.
8. Y N Custody seal received intact and tamper evident on cooler.
9. Y N Custody seal received intact and tamper evident on bottles.

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
6	1-3	11/9	GW	VOA	VRef	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2U	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
7	1-3			VOA	VRef	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2U	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
8	1-3			VOA	VRef	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2U	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
9	1-3			VOA	VRef	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2U	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
10	1-3			VOA	VRef	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2U	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA

LOCATION: WI: Walk-In VR: Volatile Refrig. SUB: Subcontract EF: Encore Freezer

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: Other

Comments:

pH of waters checked excluding volatiles

pH of soils N/A

Delivery method: Courier: Fos

Tracking#:

COOLER TEMP: 3° COOLER TEMP:

COOLER TEMP: 3° COOLER TEMP:

Method of sample disposal: (circle one) Accutest disposal Hold Return to Client

Form: SM012, Rev. 6/4/04, QAO

3.1 3

T8711: Chain of Custody

Page 2 of 3

ACCUTEST

SAMPLE RECEIPT LOG

JOB #: T8711 DATE/TIME RECEIVED: 11/10

CLIENT: EPNG INITIALS: [illegible]

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see variance for explanation):

1. Y N Sample received in undamaged condition.
2. Y N Samples received within temp. range.
3. Y N Sample received with proper pH.
4. Y N Sample received in proper containers.
5. Y N Sample volume sufficient for analysis.
6. Y N Sample received with chain of custody.
7. Y N Chain of Custody matches sample IDs and analysis on containers.
8. Y N Custody seal received intact and tamper evident on cooler.
9. Y N Custody seal received intact and tamper evident on bottles.

SAMPLE or FIELD ID	BOTTLE #	DATE SAMPLED	MATRIX	VOLUME	LOCATION	PRESERV.	PH
1	1-3	11/9	GW	VOA	VR	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2V	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
2	1-3			VOA	VR	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2V	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
3	1-3			VOA	VR	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2V	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
4	1-3			VOA	VR	1,2,3,4,5,6	U, <2, >12, NA
	1			1L	2V	1,2,3,4,5,6	U, <2, >12, NA
	1			500		1,2,3,4,5,6	U, <2, >12, NA
5	1-3			VOA	VR	1,2,3,4,5,6	U, <2, >12, NA
	1			500	2V	1,2,3,4,5,6	U, <2, >12, NA
	1			1L		1,2,3,4,5,6	U, <2, >12, NA
						1,2,3,4,5,6	U, <2, >12, NA

LOCATION: WI: Walk-In VR: Volatile Refrig. SUB: Subcontract EF: Encore Freezer

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: Other

Comments:

pH of waters checked excluding volatiles

pH of soils N/A

Delivery method: Courier: Fe. COOLER TEMP: 3° COOLER TEMP:

Tracking#: COOLER TEMP: 3° COOLER TEMP:

Method of sample disposal: (circle one) Accutest disposal Hold Return to Client

Form: SM012, Rev. 6/4/04, QAO

3.1 3

T8711: Chain of Custody

Page 3 of 3

Price, Wayne

From: Ken Parker [Parker_Ken@msn.com]

Sent: Tuesday, September 30, 2003 4:50 PM

To: Wayne Price

Subject: Discharge Permit GW-007, Condition 16

Wayne:
Based on my calculations the LPG underground storage caverns are being tested and operated below the salt dome fracture pressure.

See attachment file for calculation details.

Ken

Texas LPG Storage Company

September 30, 2003

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: Wayne Price

Re: Discharge Permit GW-007, Condition 16, Maximum Injection/Test Pressure

Dear Wayne:

I am using .90 pressure gradient at the casing shoe as the fracture pressure of each salt dome cavern located at the Jal facility. I have broken down the calculations into four categories. They are fracture pressure, test pressure, operating pressure, and shutdown pressure.

31055 STATE LPG STORAGE WELL 1, 30-025-35954

Well 1 Fracture Pressure	
Casing Shoe	1,521
Propane	.22
Surface Pressure	1,035
Reservoir Pressure	1,370
Pressure Gradient at Shoe	.90

Well 1 Test Pressure	
Casing Shoe	1,521
Propane	.22
Surface Pressure	960
Reservoir Pressure	1,295
Pressure Gradient at Shoe	.85

Well 1 Operating Pressure	
Casing Shoe	1,521
Propane	.22
Surface Pressure	450
Reservoir Pressure	785
Pressure Gradient at Shoe	.52

Well 1 Maximum Injection Pressure	
Casing Shoe	1,521
Propane	.22
Surface Pressure	840
Reservoir Pressure	1,175
Pressure Gradient at Shoe	.77

31055 STATE LPG STORAGE WELL 2, 30-025-35955

Well 2 Fracture Pressure	
Casing Shoe	1,672
Propane	.22
Surface Pressure	1,140
Reservoir Pressure	1,508
Pressure Gradient at Shoe	.90

Well 2 Test Pressure	
Casing Shoe	1,672
Propane	.22
Surface Pressure	960
Reservoir Pressure	1,328
Pressure Gradient at Shoe	.79

Well 2 Operating Pressure	
Casing Shoe	1,672
Propane	.22
Surface Pressure	500
Reservoir Pressure	868
Pressure Gradient at Shoe	.52

Well 2 Maximum Injection Pressure	
Casing Shoe	1,672
Propane	.22
Surface Pressure	900
Reservoir Pressure	1,268
Pressure Gradient at Shoe	.76

Texas LPG Storage Company

September 30, 2003

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: Wayne Price

Re: Discharge Permit GW-007, Condition 16, Maximum Injection/Test Pressure

31055 STATE LPG STORAGE WELL 3, 30-025-35956

Well 3 Fracture Pressure		Well 3 Test Pressure	
Casing Shoe	1,666	Casing Shoe	1,666
Propane	.22	Propane	.22
Surface Pressure	1,140	Surface Pressure	960
Reservoir Pressure	1,507	Reservoir Pressure	1,327
Pressure Gradient at Shoe	.90	Pressure Gradient at Shoe	.80

Well 3 Operating Pressure		Well 3 Maximum Injection Pressure	
Casing Shoe	1,666	Casing Shoe	1,666
Propane	.22	Propane	.22
Surface Pressure	600	Surface Pressure	900
Reservoir Pressure	967	Reservoir Pressure	1,267
Pressure Gradient at Shoe	.58	Pressure Gradient at Shoe	.76

31055 STATE LPG STORAGE WELL 4, 30-025-35957

Well 4 Fracture Pressure		Well 4 Test Pressure	
Casing Shoe	1,666	Casing Shoe	1,666
Propane	.22	Propane	.22
Surface Pressure	1,140	Surface Pressure	960
Reservoir Pressure	1,507	Reservoir Pressure	1,327
Pressure Gradient at Shoe	.90	Pressure Gradient at Shoe	.80

Well 4 Operating Pressure		Well 4 Maximum Injection Pressure	
Casing Shoe	1,666	Casing Shoe	1,666
Propane	.22	Propane	.22
Surface Pressure	500	Surface Pressure	900
Reservoir Pressure	867	Reservoir Pressure	1,267
Pressure Gradient at Shoe	.52	Pressure Gradient at Shoe	.76

Price, Wayne

From: Price, Wayne
Sent: Monday, March 31, 2003 1:49 PM
To: 'Ken Parker'
Subject: RE: New Brine Pond Modification

Approved! Please send in an as built final drawing.

-----Original Message-----
From: Ken Parker [mailto:Parker_Ken@msn.com]
Sent: Friday, March 28, 2003 2:54 PM
To: Wayne Price
Subject: New Brine Pond Modification

Wayne:
The original drawing submitted to OCD indicates the top of the berm measures 4 feet. wide. With OCD approval, an additional 4 feet will be added making the top of the berm 8 feet.

Again referencing the original drawing. The base of the berm North and West (North 52 ft. and West 49 ft.) from the property line will not change. There will be a minor shift to the East and South for this modification.

Sincerely,

Ken Parker

Price, Wayne

From: Price, Wayne
Sent: Monday, March 31, 2003 1:45 PM
To: 'Ken Parker'
Subject: RE: Contaminated Sand Disposal Letter

OCD is in receipt of your letter dated 1-17-03 requesting using the out of service below grade classifier tank as secondary containment for disposal of salt contaminated sand. OCD hereby approves of the plan with the following conditions:

1. Sites maps will be updated to show the exact location for future reference. A gps reading shall be recorded.
3. Collect a representative sample of the waste material and analyze for general chemistry parameters including anions and cations.
2. Please provide photos before, during and after and send in a completion report for OCD approval.

Please be advised that NMOCD approval of this plan does not relieve Texas LPG of liability should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve Texas LPG of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

-----Original Message-----
From: Ken Parker [mailto:Parker_Ken@msn.com]
Sent: Friday, March 28, 2003 2:58 PM
To: Wayne Price
Subject: Contaminated Sand Disposal Letter

Wayne:
Please check your records for a letter dated 1/17/03. I haven't received your response. If necessary, I will e-mail you another copy.

Sincerely:

Ken

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

January 20, 2003

Mr. Lorenzo Diaz, President
Texas LPG Storage Co.
11390 Gateway East
El Paso, TX 79927

Re: $5,000 Single-Well Cash Bond
Texas LPG Storage Co., Principal
Wells Fargo Bank – El Paso, TX, Depository – Acct No. 8538142251
State LPG Storage No. 3 – 1000'FSL and 530' FWL
Section 32, Township 23 South, Range 37 East,
Lea County, NM
Bond No. OCD-738

Dear Mr. Diaz:

The New Mexico Oil Conservation Division hereby approves the above-referenced single-well cash bond.

Sincerely,

David K. Brooks

DAVID K. BROOKS
Assistant General Counsel

DKB/dp

cc: Oil Conservation Division – Hobbs, NM

Wells Fargo Bank, N.A.
221 N. Kansas St.
El Paso, TX 79901

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

January 20, 2003

Mr. Lorenzo Diaz, President
Texas LPG Storage Co.
11390 Gateway East
El Paso, TX 79927

Re: $5,000 Single-Well Cash Bond
Texas LPG Storage Co., Principal
Wells Fargo Bank – El Paso, TX, Depository – Acct No. 8538142251
State LPG Storage No. 2– 100'FSL and 280' FWL
Section 32, Township 23 South, Range 37 East,
Lea County, NM
Bond No. OCD-739

Dear Mr. Diaz:

The New Mexico Oil Conservation Division hereby approves the above-referenced single-well cash bond.

Sincerely,

David K. Brooks

DAVID K. BROOKS
Assistant General Counsel

DKB/dp

cc: Oil Conservation Division – Hobbs, NM

Wells Fargo Bank, N.A.
221 N. Kansas St.
El Paso, TX 79901

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

January 20, 2003

Mr. Lorenzo Diaz, President
Texas LPG Storage Co.
11390 Gateway East
El Paso, TX 79927

Re: $5,000 Single-Well Cash Bond
Texas LPG Storage Co., Principal
Wells Fargo Bank – El Paso, TX, Depository – Acct No. 8538142251
State LPG Storage No. 1 – 450' FSL and 780' FWL
Section 32, Township 23 South, Range 37 East,
Lea County, NM
Bond No. OCD-740

Dear Mr. Diaz:

The New Mexico Oil Conservation Division hereby approves the above-referenced single-well cash bond.

Sincerely,

David K. Brooks

DAVID K. BROOKS
Assistant General Counsel

DKB/dp

cc: Oil Conservation Division – Hobbs, NM

Wells Fargo Bank, N.A.
221 N. Kansas St.
El Paso, TX 79901

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

January 20, 2003

Mr. Lorenzo Diaz, President
Texas LPG Storage Co.
11390 Gateway East
El Paso, TX 79927

Re: $5,000 Single-Well Cash Bond
Texas LPG Storage Co., Principal
Wells Fargo Bank – El Paso, TX, Depository – Acct No. 8538142251
State LPG Storage No. 4 – 1000' FSL and 1230' FWL
Section 32, Township 23 South, Range 37 East,
Lea County, NM
Bond No. OCD-737

Dear Mr. Diaz:

The New Mexico Oil Conservation Division hereby approves the above-referenced single-well cash bond.

Sincerely,

David K. Brooks

DAVID K. BROOKS
Assistant General Counsel

DKB/dp

cc: Oil Conservation Division – Hobbs, NM

Wells Fargo Bank, N.A.
221 N. Kansas St.
El Paso, TX 79901

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

January 14, 2003

Mr. Lorenzo Diaz, President
Texas LPG Storage Co.
11390 Gateway East
El Paso, TX 79927

Re: $5,000 Single-Well Cash Bond
Texas LPG Storage Co,. Principal
Wells Fargo Bank – El Paso, TX - Depository – Account No. 8538142251
Shell State No. 13 – 1980' FSL and 660' FWL
Section 32, Township 23 South, Range 37 East,
Lea County, NM
Bond No. OCD-736

Dear Mr. Diaz:

The New Mexico Oil Conservation Division hereby approves the above-captioned single-well cash bond.

Sincerely,

David K. Brooks

DAVID K. BROOKS
Assistant General Counsel

DKB/dp

cc: Oil Conservation Division – Hobbs, NM

Wells Fargo Bank, N.A.
221 N. Kansas St.
El Paso, TX 79901

To: Wayne Price
From: Ken Parker

RE: New Brine Pond

Enclosed is a copy of the material specification and the installation procedures. If you have any questions please call.

Ken

Falcon Environmental Lining Systems, Inc.

Field Installation
Quality Assurance Plan

This manual contains proprietary information belonging to Falcon Environmental Lining Systems, Inc. Any information contained herein is not to be discussed with others outside the involved organizations, except with the express prior written consent of Falcon's management. This document represents activities commonly undertaken by Falcon for installation projects. No part of this document shall be construed as an official contractual document unless attributed to a specific job.

Falcon Environmental Lining Systems, Inc. reserves the right to change, modify, or discontinue the use of the policies and procedures described herein without notice or prior consent except as contractually obligated to do so otherwise.

TABLE OF CONTENTS

3.3 Repairs

FALCON'S MISSION STATEMENT

To be the leader in providing geosynthetic lining solutions, products and services to satisfy our customers' needs for protecting the environment

1.0 INTRODUCTION

1.1 Overview of Construction Quality Assurance Plan

The Falcon's Installation Quality Assurance Plan was developed based on the company's long-tem policy and tradition of quality being the single most significant determining factor. Some projects have specifications which may require project specific modifications to this manual. Such documents, when required, will become an appendix to the construction contract or this manual.

Commonly used geosynthetic components of a lining system are discussed in this manual This includes polyethylene geomembranes, geotextiles, geonets and geocomposites. This manual can be a useful guide in delineating the quality assurance procedures and minimum requirements for the installation of all the above geosynthetic products.

This manual does not address design guidelines, installation specifications, or selection of geomembranes, bentonite blankets, and other geosynthetics.

1.2 Project Duties and Qualifications of the Geosynthetic Installer Personnel

1.2.1 Project Manager

The Falcon Project Manager is charged, at a minimum, with the following responsibilities.

- Primary customer contact for all aspects of the project
- Coordinate projects with clients with regard to submittals, documentation, material delivery, crew mobilization, job progress, invoicing and project close- out
- Develop and implement staffing, equipment and operational plans prior to job start
- Continuously monitor job progress and make necessary adjustments to ensure successful completion; maintain revised schedules and schedule coordination with other project activities to reflect current status subsequent to any significant change
- Attend pre-construction meetings
- Available for site visits and meetings as job progresses to ensure client satisfaction

1.2.2 **Site Supervisor**

The Site Supervisor shall have installed a minimum of 5,000,000 square feet of geomembrane. The Falcon Site Supervisor is charged, at a minimum, with the following responsibilities.

- Accept surface conditions as satisfactory for deployment or advise customers and project manager if not satisfactory
- The deployment, seaming, testing, repair and detailing of the geosynthetic components installation for which Falcon is contracted to install
- The Welding Technicians and other field staff
- Repair and maintenance of all equipment and vehicles used on jobsite
- Communication with the customer on all matters of scheduling and the installer's role in project
- Develop time and scope estimates for any applicable change orders with assistance from project manager
- Act as the primary on-site contact for the customer and Independent construction quality assurance (CQA) personnel
- Supervise the completion of all lining installation work including clean up of the jobsite

1.2.3 **Quality Assurance Technician**

The Quality Assurance (QA) Technician is charged, at a minimum, with the following responsibilities.

- Removal of all conformance and destructive samples from the liner
- Monitor all trial welds
- Performance of all non-destructive and destructive testing
- Maintain records of testing performed
- Measurement of deployed materials
- Inspections (walkdown) of completed areas of installation
- Other tasks required

1.2.4 **Welding Technician**

The Welding Technician is charged, at a minimum, with the following responsibilities.

- Perform deployment, seaming, and repairs as required for project
- Equipment maintenance as required
- Perform trial welds
- Perform other functions for the scope of work as directed by the Site Supervisor
- Assist QA Technician as required by the Site Manager

The Master Seamer shall be a welding technician with a minimum of 1,000,000 square feet of geomembrane seaming work and can also be the Site Supervisor or QA Technician

1.3 **Construction Meeting**

1.3. 1 Pre-Construction Meeting

Following the award of contract, a Pre-Construction Meeting should be held. This meeting should include all involved parties

The purpose of this meeting is to begin planning coordination of task, addressing problems which might cause difficulties and delays in construction, and present the relevant quality assurance guidelines to all the parties involved. It is very important that the specifications regarding testing, repair, etc. be known and accepted by all.

This meeting should include, but not limited to, the following activities:

- Communicate to all parties any relevant documents
- Review critical design details of the project
- Review the relevant quality assurance guidelines and specifications and agree on any appropriate modifications
- Make appropriate site-specific modifications to the design criteria, plans and specifications through the implementation of a documented, site specific addendum
- Reach an agreement on quality control procedures, especially on methods of determining acceptability of the lining system
- Establish lines of authority and communication
- Review safety plans and procedures
- Prepare a time schedule for all operations and any other site specific items pertinent to the lining installation

The meeting should be documented and minutes transmitted to all parties within one week of the meeting

1.3.2 **Progress Meetings**

It is recommended an informal daily installation Progress Meeting be held among appropriate parties to discuss current progress.

2.0 GEOMEMBRANE INSTALLATION

2.1 **Earthwork**

2 .1. 1 Surface Preparation

The Earthwork Contractor shall be responsible for preparing the subgrade according to the project Specifications

The Site Supervisor shall verify that:

a) The surface to be lined has been prepared so as to be free of irregularities, protrusions, vegetation, excessive water, loose soil or abrupt changes in grade.

b) The supporting surface does not contain stones or other matter of such composition, shape or size which may be damaging to the geomembrane and

c) There are no excessively soft surface areas.

Under no circumstances shall the installer deploy any geomembrane in areas not acceptable within these guidelines. A completed surface acceptance form shall be provided to the customer specifically indicating the areas accepted for geomembrane installation during each day's activities. This form shall be provided after the installation activities within that area. If at any time during the installation of the geosynthetic lining system the prepared subgrade deteriorates, becomes damaged, or in any way is determined unacceptable by the Site Supervisor, all liner installation work shall stop in those areas and the condition of those areas brought to the attention of the appropriate party.

2.1.2 **Anchor Trench**

The Earthwork Contractor shall construct the anchor trenches (unless otherwise specified in the contract) to the lines, widths and depths as shown on the drawings and specifications. This task should be performed prior to the geomembrane deployment.

The edges where the geosynthetics enter the trench should be free of irregularities, protrusions, etc. to avoid potential damage to the material. Backfilling of the anchor trench shall be the responsibility of the Earthwork Contractor in accordance with specifications. Backfilling should occur when the geosynthetic material is at its most contracted state to avoid potential bridging problems. Care must be taken to avoid damaging the geosynthetics during backfilling

2.2 **Geomembrane Deployment**

The site supervisor, in conjunction with the customer shall agree upon the following issues. If any adverse situation or disagreement exists, the site supervisor shall cease deployment until issues are resolved.

2.2.1 Installation

The Site Supervisor shall proceed with deployment provided that:

- Deployment equipment does not damage the subgrade.
- Personnel who are in contact with the liner do not smoke, wear damaging shoes or engage in other activities which risk damage to the liner.
- Use of a low ground pressure, rubber-tired all terrain vehicle (i.e. ATV) is allowed on the geosynthetic surface, provided proper care is taken to avoid damage and excessive traffic.

Field panel placement installation sequence should take into account site drainage, wind direction, subgrade surface, access to the site, and production schedule of the project. Geomembrane panel deployment shall not proceed when adverse weather conditions exist which may jeopardize the integrity of the liner installation. Field panels should be seamed as soon as possible after deployment and all deployed material shall be marked with appropriate identification.

2.2.2 Visual Inspection

The Site Supervisor and/or the QA Technician and the designated Independent Inspector shall visually inspect each panel, as soon as possible after deployment, for damage or areas needing repair. Areas shall be marked for repair.

2.3 Field Seaming

Field seaming involves the bonding of adjacent panels using thermal methods.

2.3.1 Seam Layout

In general, seams shall be oriented parallel to the direction of maximum slope, i.e. oriented along, not across, the slope. In corners and odd-shaped geometric locations, the number of seams should be minimized No horizontal seams should occur on a panel less than five lineal feet from the toe of the slope. On slopes of less than 10% (6L:1H), this rule shall not apply. A cross slope seam may be utilized provided the panel ends are cut at an angle of approximately 45°
A seam is considered a separate entity if it is the principal attachment that joins two or more panels. Repairs are not considered seams in this context.

A numbering system using adjacent panel numbers shall identify each seam.

2.3.2 Seaming Equipment and Products

Approved processes for field seaming and repairing are extrusion welding and fusion welding. All welding equipment shall have accurate temperature monitoring devices to insure proper measurement of the welder temperatures.

a) Fusion Process

This process shall be used for seaming panels together and is not generally used for patching or detail work. The apparatus shall be of a hot wedge type and is commonly equipped with a "split wedge" to allow air pressure seam testing.

Fusion welding equipment shall be self-propelled devices and shall be equipped with functioning wedge temperature and seaming speed controllers to assure proper control by the Welding Technician.

b) Extrusion Process

This process shall be used primarily for repairs, patching, and special detail fabrication. This method is also useful to connect new panels to previously installed liner that does not have an exposed edge capable of being fusion welded.

The extrusion welding apparatus (handwelder) shall be equipped with temperature monitoring devices.

2.3.3 Seam Preparation

The Welding Technician shall verify that prior to seaming, the seam area is free of moisture, dust, dirt, sand, or debris of any nature; the seam is properly overlapped for welding; the seam is properly heat tacked and abraded when extrusion welding, and seams are performed to minimize "fishmouths."

2.3.4 Trial Seams (Trial Welds)

Prior to production seaming, trial seams shall be made and accepted using specified criteria. Trial seams shall be made on appropriate sized pieces of identical or equivalent geomembrane material to verify that seaming conditions and procedures are adequate. Each trial seam sample shall be assigned a number and the test results recorded in the appropriate log.

- Trial seams shall be performed for each welder to be used and by each operator of extrusion welders, and by the primary operator of each fusion welder.
- A passing trial seam shall be made prior to the beginning of each seaming period. Typically this is at the start of the day and after lunch break.
- Fusion welded trial seam samples shall be approximately six feet long by one foot wide with the seam centered lengthwise. For extrusion welding, the trial seam sample size shall be approximately three feet long, by one foot wide with the seam centered lengthwise.
- Four specimens, each one inch wide and six inches long shall be cut from the trial seam using a coupon cutter. Two of the specimens shall be tested in shear and two specimens tested for peel on a field tensiometer. When testing a fusion welded seam, both inside and outside seams shall be tested. All shear and peel test specimens shall meet or exceed the project requirements.

2.3.5 Panel Seams (Production Seaming)

Upon acceptance of the trial seams, work may begin on deployed panels. All seams shall be non-destructively and destructively tested. Each completed seam shall be labeled with pertinent information.

2.3.6 Non-Destructive Seam Testing

Falcon shall non-destructive test field seams for their full length using an air pressure test or a vacuum test. The purpose of non-destructive tests is to demonstrate the leak resistance of the seam.

On seams that cannot be non-destructively tested by vacuum or air-pressure methods due to physical constraints, i.e. a boot detail, the seam shall be tested using other approved methods.

The Site Supervisor shall schedule all non-destructive testing operations in order to ensure prompt demonstration of weld quality and the orderly progress of the project.

The QA Technician shall instruct the testing personnel regarding marking of repairs needed, leaks and sign-off marks on seam and repairs

a) Vacuum Testing

Vacuum testing is routinely performed on extrusion welds and can be performed on fusion welds. The equipment shall consist of a vacuum box assembly with a vacuum gauge, a pumping device, and a soap solution.

The following procedure shall be followed:

- Wet a section of the seam with the soap solution. The seam section must be longer than the vacuum box.
- Place the vacuum box over the wetted area and apply body weight to form a seal between the gasket and the liner.
- Evacuate air to create a negative pressure of approximately 5 psig.
- Observe the seam through the viewing window for presence of soap bubbles emitting from the seam.
- If no bubbles are observed, reposition the box on the next wetted area for testing with a slight overlap.
- If bubbles are detected, which indicates a leak in the seam, mark the area of the leak for repair and retest.

b) Air Pressure Testing

Air pressure testing is performed on seams made by a double-seam fusion welding apparatus.

The equipment shall be comprised of the following:

- An air pump, or air tank capable of producing a minimum air pressure of 25 psig in the seam channel.
- A sharp hollow needle to insert air into the air channel of the seam.
- A hot air gun or other heating device to seal the ends of the air channel.

The following procedures shall be followed:

- Seal both ends of the air channel of the seam to be tested.
- Insert the needle into the air chamber at either end of the seam to be tested.
- Pressurize the air channel to a minimum of 25 psig. Allow the pressure to stabilize, and if necessary, re-pressurize to 25 psig and note the pressure.
- With a minimum pressure of 25 psig stabilized in the air channel, the time of day shall be noted.
- After approximately 5 minutes, the air pressure should be read again.
- If the difference between the two readings is more than 4 psig, the seam needs to be retested.
- Upon completion of the test and recording all information required, open the opposite end of the seam from the needle. Escaping air will confirm that the entire length of the seam was pressurized and therefore tested. If air does not escape, the channel is blocked. The blockage must be located and the test redone from that point.
- Upon completion of the air pressure test the seam shall be marked and points requiring repair identified.

c) Procedures for Air Pressure Test Failure

Should the seam fail the air pressure test, the following procedure shall be followed:

- Reposition the apparatus and retest the same section.
- While the seam air-channel is under pressure, traverse the length of the seam and listen for the leak.
- While the seam air-channel is under pressure, apply a soapy solution to the seam edge (do not trim excess material from edge of seam) and observe for bubbles formed by escaping air.
- Re-test the seam in progressively smaller increments, until the area of leakage is identified.
- Repair the identified leak area by extrusion welding the excess material at the edge of the seam and then vacuum test.
- In areas where the air channel is closed and integrity of the weld is not suspect, vacuum testing is acceptable.

2.3.7 Destructive Seam Testing

Destructive seam tests shall be performed at selected locations. The purpose of these tests is to evaluate bonded seam strength. Seam strength testing shall be performed as work progresses.

a) Location and Frequency

The frequency of sample removal is commonly no more than one sample per 500 lineal feet of seam.

b) Size of Samples

A sample segment twelve inches by twelve inches shall be cut with the seam centered lengthwise. Additional segments may be cut for independent lab testing, archival retain or other uses.

c) Sample Identification.

The sample shall be marked with the appropriate destructive sample (D/S) number.

d) Field Testing

Sample shall be tested in peel and in shear using the following procedure:

- Ten specimens of one inch width shall be cut with a coupon cutter from the segment a machine press and die.
- Five specimens shall be tested for peel. Fusion welds shall be tested from both sides.
- Five specimens shall be tested for shear.
- If specified, a field tesiometer will be supplied. Testing will occur at a rate of two inches per minute.

e) Pass/Fail Criteria

Seams shall exhibit a film tear bond (FTB). For projects which utilize a tensiometer, the following table provides minimum acceptable values.

ASTMD 4437		Seam Strength			
		Shear		Peel	
Product Name	Thickness ASTMD 5199 mm(mils)	Extrusion kN/m (Ib/in)	Fusion kN/m (Ib/in)	Extrusion kN/m (Ib/in)	Fusion kN/m (Ib/in)
HDPE Smooth	1.0(40)	14.1(81)	14.1(81)	9.1(52)	11.4(65)
HDPE Smooth	1.5(60)	21.2(121)	21.2(121)	13.7(78)	17.2(98)
HDPE Smooth	2.0(80)	28.4(162)	28.4(112)	18.2(104)	22.8(130)
ASTMD 4437		Seam Strength			

		Shear		Peel	
Product Name	Thickness ASTMD 5199 mm(mils)	Extrusion kN/m (Ib/in)	Fusion kN/m (Ib/in)	Extrusion kN/m (Ib/in)	Fusion kN/m (Ib/in)
HDPE Textured	1.0(40)	14.1(81)	14.1(81)	9.1(52)	11.4(65)
HDPE Textured	1.5(60)	21.2(121)	21.2(121)	13.7(78)	17.2(98)
HDPE Textured	2.0(80)	28.4(162)	28.4(162)	18.2(104)	22.8(130)

In addition to these values, the sample shall not fail within the seam area. Four out of five specimens meeting the above criteria will constitute a passing test.

If the seam fails the test, the following procedure shall be followed. Additional sample segments of the same size shall be removed approximately 10 lineal feet in each direction from the failed seam. Both of these sample segments shall be tested accordance with the criteria listed above and each segment must pass. This procedure is repeated until a passing result is obtained. In lieu of taking an excessive number of samples, the entire seam may be repaired as outlined in Section 2.3.8 a.

2.3.8 Defects and Repairs

All seams and non-sewn areas of the polyethylene lining system shall be examined for identification of defects. Identification of the defect or repair may be made by marking on the sheet/seam with an appropriate marking device.

a) Repair Procedures

Any portion of the polyethylene lining system exhibiting a defect, which has been marked for repair, shall be repaired with any one or combination of the following methods:

- Patching: used to repair holes, tears.
- Grind and reweld: used to repair small sections of extruded seams.
- Spot welding: used to repair small minor, localized flaws.
- Flap welding: used to extrusion weld the flap of a fusion weld in lieu of a full cap.
- Capping: used to repair failed seams.
- Topping: application of extrudate bead directly to existing Seams.

The suspected defect shall be demonstratable as out of specification and detrimental to the performance of the liner.

The following conditions shall apply to all the above methods:

- Surfaces of the polyethylene, which are to be repaired, shall be lightly abraded to assure cleanliness.
- All surfaces intended to receive extrudate must be clean and dry at the time of the repair.
- All patches and caps shall extend at least four inches beyond the edge of the defect, and all patches shall have rounded corners.

b) Verification of Repairs

Repairs shall be non-destructively tested according to the criteria established in Section 2.3.6 e.

Repairs which pass the non-destructive test will be taken as an indication of an adequate repair. Failed tests indicate that the repair must be re-done and re-tested until a passing test result is obtained.

2.4 Lining System Acceptance

After work is complete, the Site Supervisor and/or QA Technician shall conduct a final inspection (walk-down) of the area for confirmation that all repairs have been appropriately performed, all test results are acceptable and the area has all scrap, trash and debris removed. Only after careful evaluation by the Site Supervisor and acceptance by the Customer shall any material be placed upon the lining system.

The geosynthetic lining system will be accepted by the customer when:

- Installation of materials is complete
- Verification of the adequacy of all seams and repairs, including associated testing and documentation is complete

Acceptance will be indicated by all parties involved by signing a Certificate of Acceptance (see Section 4) Partial areas of the installation may be accepted in order to allow further construction of the project.

3.0 ANCILLARY GEOSYNTHETICS INSTALLATION (Geonets, Geocomposites, GCL's, Geotextiles, and Geogrids)

3.1 Handling

Falcon shall handle all geotextile, geonets, geogrids and geocomposites, in such a manner as to ensure they are not damaged.

- On slopes, the geosynthetics shall be securely anchored in the anchor trench and then rolled down the slope in such a manner as to keep the material in tension.
- Sandbags shall be used to secure the edges of the material when the potential for wind damage is significant.

- Cutting of the material shall be done in such a manner as to prevent damage to any underlying or adjacent geomembrane.
- Care should be taken when deploying geosynthetic materials that stones, debris or other material is not trapped by the geonet, geocomposites, geotextile, geogrids, or GCL and which might damage the geosynthhetic or geomembrane.

3.2 Deployment

3.2.1 Geonet (GSE HyperNet®)

Geonets shall be overlapped approximately four inches and fastened together with plastic cable ties,

3.2.2 Geotextile/Geonet Geocomposite (GSE FabriNet®)

The geonet component shall be butted or overlapped and fastened together with plastic cable ties. The unbonded edges of the geotextile component shall remain overlapped. Bonded edges of the geocomposite shall be overlapped approximately four inches and fastened with plastic cable ties.

3.2.3 Geotextile

Geotextiles may be installed by overlapping, by heat bonding (spot or continual basis) or by sewing as specifications dictate.

3.2.4 Geogrid

Geogrids should be installed per manufacturer's recommendations and/or project specifications.

3.2.5 Geosynthetic Clay Liner (GCL)

Seaming of GCLs is achieved by overlapping the GCL panels approximately six inches. When installing GSE GundSeal® GCL with the geomembrane backing up and the bentonite side down, it is necessary to place tape over the seam to prevent intrusion of overlying cover soils into the overlap during soil placement. Alternately, the geomembrane backing may be welded in accordance with GSE GundSeal installation specification.

3.3 Geosynthetic Repairs

Repairs shall be made on geosynthetic products as necessary.

3.3.1 Geonet

Any tears larger than twelve inches shall be repaired. Patches shall extend at least six inches from all sides of the tear and shall be fastened with plastic cable ties.

3.3.2 Geotextile/Geonet Geocomposite

Holes or tears in the geocomposite material shall be repaired with a patch of identical or similar material extending at least 6" from all sides of the hole or tear and fastened with plastic cable ties.

3.3.3 Geotextile

Holes in geotextile material shall be repaired using a patch of identical or similar material extending approximately six inches on all sides from the hole and heat bonded to the parent material

3.3.4 Geogrid

Repair of geogrid shall only be made according to the geogrid manufacturer's instructions

3.3.5 Geosynthetic Clay Liner (GCL)

The area to be repaired (patched) must be free of contamination by foreign matter. Patches should have approximately twelve inches overlaps around the damaged area. For fabric-encased GCLs, the patch is to be tucked into place with excess bentonite poured over the overlap. Simple overlapping of the patch is sufficient for geomembrane backed GCLs. However, temporary attachment of patches is required to ensure that the patch is not dislodged by covering with geomembrane or soil.

4.0 DOCUMENTATION (see attached)

Various aspects of the liner system installation shall be recorded and approved. Attached are Falcon's standard Field Installation forms.

4.1 Subgrade Surface Acceptance

4.2 Daily Progress Report/Panel Log

4.3 4.3 Certificate of Acceptance

Falcon Environmental Lining Systems, Inc.
P.O. Box 4306, Odessa Texas, 79760
5200 Johnson Rd. 79764
Phone 915/366-2611 1-800-842-0945 Fax 915-266-2999

PANEL DEPLOYMENT LOG

Project Name	**Job Number**
Field Supervisor	**Page of**

Panel Number	Roll Number	Mil	Deployment Date	Gross Width (ft.)	Gross Length (ft.)	Gross Square Feet

FALCON ENVIRONMENTAL LINING SYSTEM'S INC.
P.O. BOX 4306 ODESSA, TEXAS 79760
5200 JOHNSON RD. ODESSA, TEXAS 79764
Ph. 915/366-2611 1/800/842-0945 Fax 915/366-2999

Project Name:	**Job Number**
Field Supervisor:	**Page of**
Location:	**Sheet Thickness and Type**

SEAM Number	TESTED BY	TEST DATE	AIR TEST PSI Before / After		Time Begin	End	No. of Repairs	TEST Results	ACCEPTED DATE

FALCON ENVIRONMENTAL LINING SYSTEM'S INC.
P.O. BOX 4306 ODESSA, TEXAS 79760
5200 JOHNSON RD. ODESSA, TEXAS 79764
Ph. 915/366-2611 1/800/842-0945 Fax 915/366-2999

JOB NAME______________________________ **MATERIAL TYPE**__________

GEOMENBRANE SEAMING LOG

Seam #	TECH	WELDER #	DATE	Start Time	Finish Time

Falcon Environmental Lining Systems, Inc.
P.O. Box 4306 Odessa, Texas 79760
5200 Johnson Rd. 79764
Phone 015-366-2611 Fax 915-366-2999

Sub-grade Surface Acceptance

Project Name: _____

Location: _____

Date: _____

Partial: _____ **Final:** _____

This document only applies to the acceptability of surface conditions for installation of Geosynthetic liner. Falcon does not accept responsibility for compaction, elevation or moisture content, nor for the surface condition maintenance during deployment. Structural integrity of the sub grade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

_____

_____

_____

_____

For Falcon Environmental Lining
Accepted by: _____

_____

For Contractor/Owner
Accepted by: _____

_____

Acceptance Number: _____

Area Accepted: _____/SF

Total Area accepted to date: _____/SF

Pre-Weld Test

Job Name:_____ Machine #_____

Date:_____ Type weld: wedge_____ extruder_____

Weld Tech:_____ Speed Setting:_____

Liner Matl._____ Temp Setting:_____

AM Test Results

Peel in-side	Peel out-side	Shear test	pass	fail
1. _____	_____	1. _____	P____	F____
2. _____	_____	2. _____	P____	F____
3. _____	_____	3. _____	P____	F____

Comments on repairs: _____

_____

_____

PM Test Results

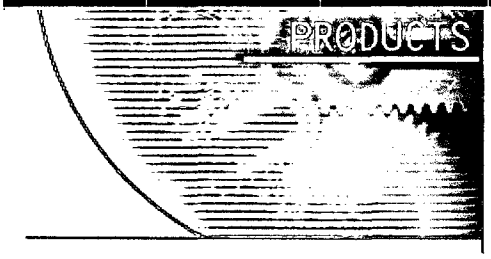
Peel in-side	Peel out-side	Shear test	pass	fail
1. _____	_____	1. _____	P____	F____
2. _____	_____	2. _____	P____	F____
3. _____	_____	3. _____	P____	F____

Comments on repairs: _____

_____

_____

Supervisor:_____



- DATA SHEET (ENGLISH - PDF) (SPANISH - PDF)
- PRODUCT APPLICATION
- PRODUCT QA/QC
- BIBLIOGRAPHY
- FAQ
- E-MAIL FOR MATERIAL

Choose a Product CLICK TO GO

GSE HD

GSE HD is a smooth, high quality, high density polyethylene (HDPE) geomembrane liner. GSE HD is designed for use in a variety of covered and exposed geomembrane applications: landfill liners and caps, potable water containment, hazardous waste containment, sewage treatment, agricultural applications and others are among the broad range of applications where HDPE geomembranes are being successfully used. GSE HD is manufactured using specially formulated resins specifically designed for geomembrane production. GSE HD is available in roll widths from 13.1' (4 meters) to 22.5' (6.9 meters), depending on GSE's manufacturing location.

PRIMARY FEATURES of GSE HD:

- Made from resins, specifically designed for geomembrane production
- Outstanding strength and stiffness properties.
- Demonstrated ability to withstand the rigors of direct exposure to the sun and ultraviolet light.
- Excellent chemical resistance.
- Proven history of success
- Backed by the GSE commitment to quality.

FOR MORE INFORMATION about GSE HD, REFER TO THE FOLLOWING:

- GSE HD Data Sheet (specification values)
- Frequently Asked Questions: GSE HD
- Bibliography of Related Articles

GSE HD

TYPICAL QUESTIONS AND ANSWERS - FAQ

Q: *What is GSE HD Geomembrane?*
A: GSE HD is a smooth, high quality, high density polyethylene (HDPE) geomembrane liner. It is made with resins specifically designed for geomembrane production.

Q: *Why use HDPE liners?*
A: HDPE liners have a proven history of success in almost every geomembrane application. HDPE's combination of physical properties, chemical resistance and long term performance exceed the capabilities of any other material. All GSE HDPE geomembrane materials meet or exceed the material property requirements of GRI GM-13. The US EPA, local, state and federal regulatory bodies have recommended the use of HDPE geomembranes for a broad variety of containment applications. HDPE is the material of choice for applications requiring durability.

Q: *What are some other uses of HDPE?*
A: Undersea telephone cables, gas transmission pipelines, agriculture and household chemicals containers, low level radioactive waste disposal drums and hazardous waste containment.

Q: *Where would GSE HD be particularly useful?*
A: GSE HD has demonstrated long term performance in geomembrane applications such as landfill liners and caps, mining, potable water containment, hazardous waste containment, sewage treatment, agricultural applications and others.

Q: *What are the benefits of using GSE HD?*
A: GSE HD has an extensive proven record as one of the premier HDPE materials available with thousands of successful installations. GSE HD is produced with resins designed to provide superior performance in physical properties, resistance to stress-cracking and long term performance, in both exposed and buried applications.

Q: *In order to weld GSE HD successfully, is any special preparation involved?*

A: GSE HD can be easily and simply welded utilizing standard fusion or extrusion welding equipment and technologies. No extra preparation of the liner is required; optimum welding conditions will vary.

Q: *Is the welding rod for GSE HD made from the same material as the geomembrane?*

A: The welding rod is made from the same high quality raw materials as the membrane itself.

Q: *How can I be assured that my liner had no holes when the material is produced?*

A: To detect the presence of holes in the liner all of GSE's production lines utilize an electronic spark (hole) detection system. Every square inch of liner must pass through the spark detection device before it is wound onto a roll and submitted to the GSE lab for final approval.

Q: *How are rolls of liner stored and handled?*

A: Rolls should be stored on a firm, smooth surface free of large and sharp stones. GSE's geomembrane materials are UV stabilized and require no special protection from moisture and sunlight. Rolls of liner should always be handled by using the attached carrying straps with adequately sized equipment. The carrying straps should be inspected before handling to ensure no wear or damage to the straps. Handling rolls by forklift may damage the material.

Q: *How are the rolls of GSE HD shipped to the jobsite?*

A: GSE usually ships rolls to the job site via flatbed truck. Containerized packaging for export orders, roll shipment via rail and several other shipping options can be used. Contact your authorized GSE representative for additional information.

Employment	Corporate	Home	Industry Links	Search	Contact Us
Products	Installation Services	Fabrication	QA/QC	Applications	Dealer Locations	Locations	Drop-In Specifications
Datasheet	Product Application	Product QA/QC	Bibliography	FAQ	E-Mail for Material

GSE HD

Smooth HDPE Geomembrane

GSE HD is a high quality, high density polyethylene (HDPE) geomembrane produced from specially formulated, virgin polyethylene resin. This polyethylene resin is designed specifically for flexible geomembrane applications. It contains approximately 97.5% polyethylene, 2.5% carbon black and trace amounts of antioxidants and heat stabilizers; no other additives, fillers or extenders are used. GSE HD has outstanding chemical resistance, mechanical properties, environmental stress crack resistance, dimensional stability and thermal aging characteristics. GSE HD has excellent resistance to UV radiation and is suitable for exposed conditions.

Product Specifications

TESTED PROPERTY	TEST METHOD	MINIMUM VALUES				
Thickness, mils (mm)	ASTM D 5199	27 (0.69)	36 (0.91)	54 (1.4)	72 (1.8)	90 (2.3)
Density, g/cm³	ASTM D 1505	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 638, Type IV					
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm	122 (21)	162 (28)	243 (43)	324 (57)	405 (71)
Strength at Yield, lb/in-width (N/mm)		63 (11)	84 (15)	130 (23)	173 (30)	216 (38)
Elongation at Break, %	G.L. 2.0 in (51 mm)	700	700	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)	13	13	13	13	13
Tear Resistance, lb (N)	ASTM D 1004	21 (93)	28 (124)	42 (187)	56 (249)	70 (311)
Puncture Resistance, lb (N)	ASTM D 4833	59 (263)	79 (352)	119 (530)	158 (703)	198 (881)
Carbon Black Content, %	ASTM D 1603	2.0	2.0	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	400	400	400	400	400
REFERENCE PROPERTY	**TEST METHOD**	**NOMINAL VALUES**				
Thickness, mils (mm)	ASTM D 5199	30 (0.75)	40 (1.0)	60 (1.5)	80 (2.0)	100 (2.5)
Roll Length (approximate), ft (m)		1120 (341)	870 (265)	560 (171)	430 (131)	340 (104)
Oxidative Induction Time, minutes	ASTM D 3895, 200° C; O_2, 1 atm	>100	>100	>100	>100	>100

NOTES:

+Note 1: Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.

GSE HD is available in rolls approximately 22.5 ft (6.9 m) wide and weighing about 2,900 lb (1,315 kg).

All GSE geomembranes have dimensional stability of ±2% when tested with ASTM D 1204 and LTB of <-77° C when tested with ASTM D 746.

Americas
GSE Lining Technology, Inc.
Houston, Texas
Phone: 800-435-2008
281-443-8564
Fax: 281-230-8650

Asia/Pacific
GSE Lining Technology Company Ltd.
Bangkok, Thailand
Phone: 66-2-937-0091
Fax: 66-2-937-0097

Europe/Middle East
GSE Lining Technology GmbH
Hamburg, Germany
Phone: 49-40-767420
Fax: 49-40-7674233

A Gundle/SLT Environmental, Inc. Company
www.gseworld.com

Represented by:

Falcon Environmental Lining Systems, Inc.
P.O. Box 4306
Odessa, Texas 79760-4306

GSE NW16*

Polypropylene, Staple Fiber, Nonwoven Needle Punched Geotextile

GSE NW16 is a polypropylene staple fiber nonwoven needle punched geotextile. Manufactured using an advanced manufacturing and quality system, GSE NW16 is the most uniform and consistent nonwoven needle punched geotextile currently available in the industry. GSE combines a fiber selection and approval system with in-line quality control and a state-of-the-art laboratory to ensure that every roll shipped meets customer specifications. The company has performed extensive performance testing to evaluate the suitability of NW16 nonwoven geotextile for various design applications. When designed and installed properly, GSE NW16 should perform its design function for the life of your project.

TESTED PROPERTY	TEST METHOD	MINIMUM AVERAGE ROLL	
		English	Metric
Mass per Unit Area	ASTM D 5261	16 oz./yd²	540 g/m²
Thickness	ASTM D 5199	165 mils	4.1 mm
Grab Tensile Strength	ASTM D 4632	390 lbs	1735 N
Grab Elongation	ASTM D 4632	50 %	50 %
Puncture Strength	ASTM D 4833	250 lbs	1110 N
Mullen Burst Strength	ASTM D 3786	800 psi	5515 kPa
Trapezoidal Tear Strength	ASTM D 4533	150 lbs	665 N
Apparent Opening Size (AOS)	ASTM D 4751	100 US Sieve	0.150 mm
Permittivity	ASTM D 4491	0.70 sec⁻¹	0.70 sec⁻¹
Permeability	ASTM D 4491	0.27 cm/sec	0.27 cm/sec
Water Flow Rate	ASTM D 4491	50 gpm/ft²	2035 l/min/m²
UV Resistance (retained after 500 hours)	ASTM D 4355	70 %	70 %

1 The property values listed are in weaker principal direction. Minimum Average Roll Values (MARV) are calculated as typical minus two standard deviations. **Statistically, this yields 95% confidence level that any sample taken from a roll will exceed the value reported.**

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Check with GSE for current, standard minimum quality assurance procedures.

Americas
GSE Lining Technology, Inc.
19103 Gundle Road
Houston, TX 77073
U.S.A.
Phone: 281-443-8564
800-435-2008
Fax: 281-230-8650

Europe/Africa
GSE Lining Technology GmbH
Buxtehuder Strasse 112
D-21037 Hamburg
Germany
Phone: 49-40767420
Fax: 49-40-7674233

Asia/Pacific
GSE Lining Technology Company Ltd.
RASA Tower 555, 26th Floor
Phaholyothin Road, Ladyao
Chatuchak
Bangkok 10900
Thailand
Phone: 66-2-937-0091
Fax: 66-2-937-0097

Represented by:

Falcon Environmental Lining Systems, Inc.
P.O. Box 4306
Odessa, Texas 79760-4306

*For environmental lining solutions...the world comes to GSE.**

A Gundle/SLT Environmental, Inc. Company

www.gseworld.com

Chemical Resistance

Listed below are test results reported by a supplier of the high density polyethylene resin used to manufacture **GSE** liner. The high density polyethylene is resistant to the chemicals listed. The degree of chemical attack on any material is influenced by a number of variable factors and their interaction, including temperature, pressure, size of area under attack, exposure duration and the like. Where liner will be exposed to a mixture of chemicals, it is recommended that tests be performed for liner resistance to that chemical mixture. Therefore, these ratings are offered as a guide only.

Abbreviations

S = Satisfactory
L = Limited application possible
U = Unsatisfactory
— = Not tested

Concentration
sat. sol. = Saturated aqueous solution, prepared at 20°C (68°F)
sol. = aqueous solution with concentration above 10% but below saturation level
dil. sol. = diluted aqueous solution with concentration below 10%
cust. conc. = customary service concentration

Meduim	Concentration	Resistance at 20°C (68°F)	Resistance at 60°C (140°F)
A			
Acetic acid	100%	S	L
Acetic acid	10%	S	S
Acetic acid anhydride	100%	S	L
Acetone	100%	L	L
Adipic acid	sat. sol.	S	S
Allyl alcohol	96%	S	S
Aluminum chloride	sat. sol.	S	S
Aluminum fluoride	sat. sol.	S	S
Aluminum sulfate	sat. sol.	S	S
Alum	sol.	S	S
Ammonia, aqueous	dil. sol.	S	S
Ammonia, gaseous dry	100%	S	S
Ammonia, liquid	100%	S	S
Ammonium chloride	sat. sol.	S	S
Ammonium fluoride	sol.	S	S
Ammonium nitrate	sat. sol.	S	S
Ammonium sulfate	sat. sol.	S	S
Ammonium sulfide	sol.	S	S
Amyl acetate	100%	S	L
Amyl alcohol	100%	S	L
Aniline	100%	S	L
Antimony trichloride	90%	S	S
Arsenic acid	sat. sol.	S	S
Aqua regia	HCl-HNO33/1	U	U
B			
Barium carbonate	sat. sol.	S	S
Barium chloride	sat. sol.	S	S
Barium hydroxide	sat. sol	S	S
Barium sulfate	sat. sol	S	S
Barium sulfide	sol.	S	S
Benzaldehyde	100%	S	L
Benzene	—	L	L
Benzoic acid	sat. sol.	S	S
Beer	—	S	S
Borax (sodium tetraborate)	sat. sol.	S	S

Meduim	Concentration	Resistance at 20°C (68°F)	Resistance at 60°C (140°F)
Boric acid	sat. sol	S	S
Bromine, gaseous dry	100%	U	U
Bromine, liquid	100%	U	U
Butane, gaseous	100%	S	S
1-Butanol	100%	S	S
Butyric acid	100%	S	L
C			
Calcium carbonate	sat. sol.	S	S
Calcium chlorate	sat. sol.	S	S
Calcium chloride	sat. sol.	S	S
Calcium nitrate	sat. sol.	S	S
Calcium sulfate	sat. sol	S	S
Calcium sulfide	dil. sol.	L	L
Carbon dioxide, gaseous dry	100%	S	S
Carbon disulfide	100%	L	U
Carbon monoxide	100%	S	S
Chloracetic acid	sol.	S	S
Carbon tetrachloride	100%	L	U
Chlorine, aqueous solution	sat. sol.	L	U
Chlorine, gaseous dry	100%	L	U
Chloroform	100%	U	U
Chromic acid	20%	S	L
Chromic acid	50%	S	L
Citric acid	sat. sol.	S	S
Copper chloride	sat. sol.	S	S
Copper nitrate	sat. sol.	S	S
Copper sulfate	sat. sol.	S	S
Cresylic acid	sat. sol.	L	—
Cyclohexanol	100%	S	S
Cyclohexanone	100%	S	L
D			
Decahydronaphthalene	100%	S	L
Dextrine	sol.	S	S
Diethyl ether	100%	L	—

(CONTINUED ON OTHER SIDE)

(S) Satisfactory: *Liner material is resistant to the given reagent at the given concentration and temperature. No mechanical or chemical degradation is observed.*
(L) Limited Application Possible: *Liner material may reflect some attack. Factors such as concentration, pressure and temperature directly affect liner performance against the given media. Application, however, is possible under less severe conditions, e.g. lower concentration, secondary containment, additional liner protections, etc.*
(U) Unsatisfactory: ***Liner material is not resistant to the given reagent at the given concentration and temperature. Mechanical and/or chemical degradation is observed.***
(–) Not tested

GSE Lining Technology, Inc.
19103 Gundle Road
Houston, Texas 77073
USA
800-435-2008
713-443-8564
FAX: 713-875-6010

GSE Lining Technology GmbH
Buxtehuder Strasse 112
D-21073 Hamburg
Germany
49-40-767-420
FAX: 49-40-767-42-33

GSE Lining Technology Ltd.
ECF Complex - Banters Lane
Great Leighs, Essex CM3 1QX
United Kingdom
44-1-245-362-688
FAX: 44-1-245-362-375

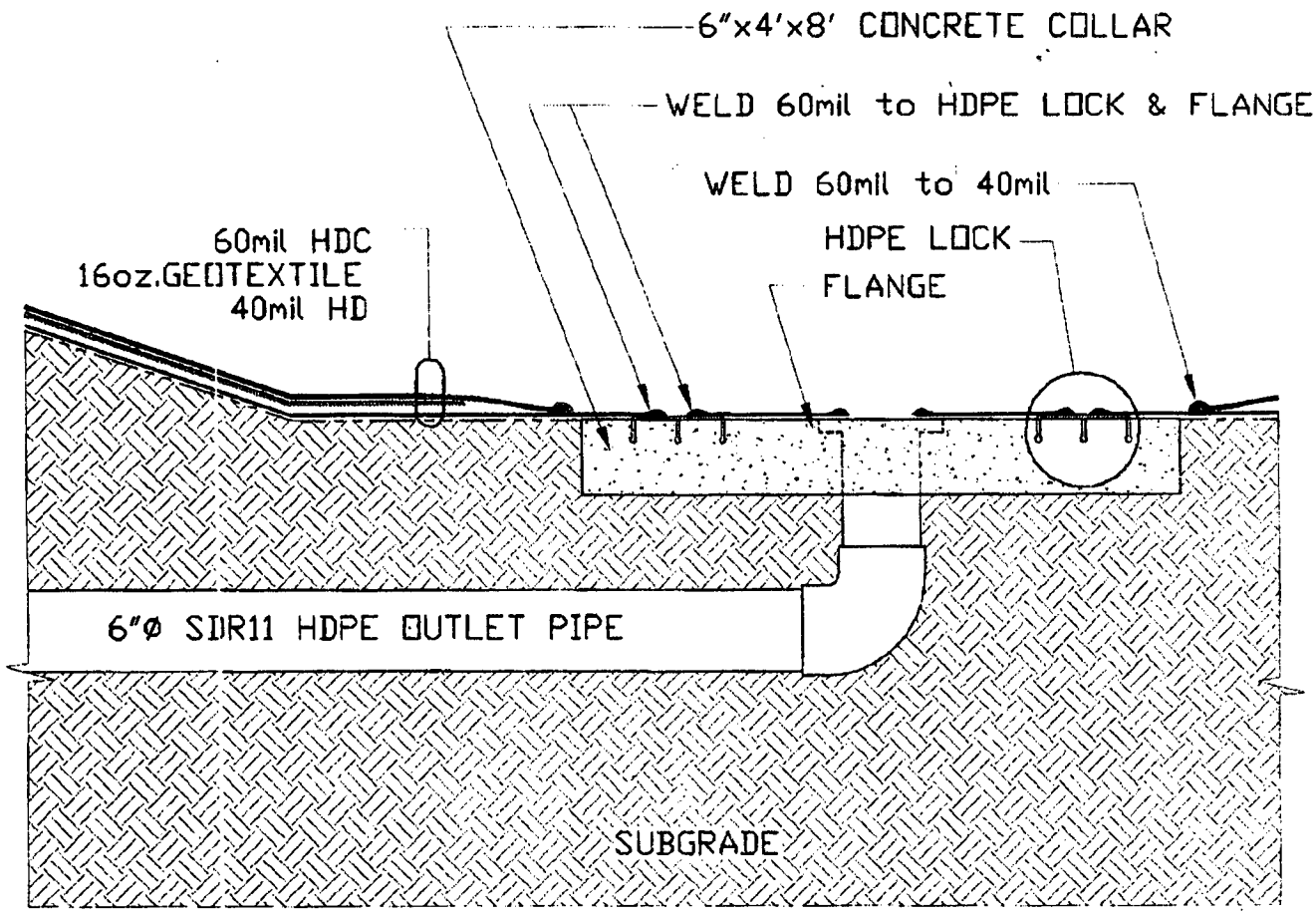
GSE Lining Technology Pte Ltd.
182 Tagore Lane
Singapore 787581
65-459-2466
FAX: 65-459-4366

GSE Lining Technology Pty Ltd.
24 Regent Cresent
Moorebank, New South Wales
Australia 2170
61-2-9821-2977
FAX: 61-2-9821-3611

Meduim	Concentration	Resistance at 20°C (68°F)	Resistance at 60°C (140°F)
Dioctylphthalate	100%	S	L
Dioxane	100%	S	S
E			
Ethanediol	100%	S	S
Ethanol	40%	S	L
Ethyl acetate	100%	S	U
Ethylene trichloride	100%	U	U
F			
Ferric chloride	sat. sol.	S	S
Ferric nitrate	sol.	S	S
Ferric sulfate	sat. sol.	S	S
Ferrous chloride	sat. sol.	S	S
Ferrous sulfate	sat. sol.	S	S
Fluorine, gaseous	100%	U	U
Fluorosilicic acid	40%	S	S
Formaldehyde	40%	S	S
Formic acid	50%	S	S
Formic acid	98-100%	S	S
Furfuryl alcohol	100%	S	L
G			
Gasoline	—	S	L
Glacial acetic acid	96%	S	L
Glucose	sat. sol.	S	S
Glycerine	100%	S	S
Glycol	sol.	S	S
H			
Heptane	100%	S	U
Hydrobromic acid	50%	S	S
Hydrobromic acid	100%	S	S
Hydrochloric acid	10%	S	S
Hydrochloric acid	35%	S	S
Hydrocyanic acid	10%	S	S
Hydrofluoric acid	4%	S	S
Hydrofluoric acid	60%	S	L
Hydrogen	100%	S	S
Hydrogen peroxide	30%	S	L
Hydrogen peroxide	90%	S	U
Hydrogen sulfide, gaseous	100%	S	S
L			
Lactic acid	100%	S	S
Lead acetate	sat. sol.	S	—
M			
Magnesium carbonate	sat. sol.	S	S
Magnesium chloride	sat. sol.	S	S
Magnesium hydroxide	sat. sol.	S	S
Magnesium nitrate	sat. sol.	S	S
Maleic acid	sat. sol.	S	S
Mercuric chloride	sat. sol.	S	S
Mercuric cyanide	sat. sol.	S	S
Mercuric nitrate	sol.	S	S
Mercury	100%	S	S
Methanol	100%	S	S
Methylene chloride	100%	L	—
Milk	—	S	S
Molasses	—	S	S
N			
Nickel chloride	sat. sol.	S	S
Nickel nitrate	sat. sol.	S	S
Nickel sulfate	sat. sol.	S	S
Nicotinic acid	dil. sol.	S	—
Nitric acid	25%	S	S
Nitric acid	50%	S	U
Nitric acid	75%	U	U
Nitric acid	100%	U	U
O			
Oils and Grease	—	S	L
Oleic acid	100%	S	L
Orthophosphoric acid	50%	S	S
Orthophosphoric acid	95%	S	L
Oxalic acid	sat. sol.	S	S
Oxygen	100%	S	L
Ozone	100%	L	U
P			
Petroleum (kerosene)	—	S	L
Phenol	sol.	S	S
Phosphorus trichloride	100%	S	L
Photographic developer	cust. conc.	S	S
Picric acid	sat. sol.	S	—
Potassium bicarbonate	sat. sol	S	S
Potassium bisulfide	sol.	S	S
Potassium bromate	sat. sol.	S	S
Potassium bromide	sat. sol.	S	S
Potassium carbonate	sat. sol.	S	S

Meduim	Concentration	Resistance at 20°C (68°F)	Resistance at 60°C (140°F)
Potassium chlorate	sat. sol.	S	S
Potassium chloride	sat. sol.	S	S
Potassium chromate	sat. sol.	S	S
Potassium cyanide	sol.	S	S
Potassium dichromate	sat. sol.	S	S
Potassium ferricyanide	sat. sol.	S	S
Potassium ferrocyanide	sat. sol.	S	S
Potassium fluoride	sat. sol.	S	S
Potassium hydroxide	10%	S	S
Potassium hydroxide	sol.	S	S
Potassium hypochlorite	sol.	S	L
Potassium nitrate	sat. sol.	S	S
Potassium orthophosphate	sat. sol.	S	S
Potassium perchlorate	sat. sol.	S	S
Potassium permanganate	20%	S	S
Potassium persulfate	sat. sol.	S	S
Potassium sulfate	sat. sol.	S	S
Potassium sulfite	sol.	S	S
Propionic acid	50%	S	S
Propionic acid	100%	S	L
Pyridine	100%	S	L
Q			
Quinol (Hydroquinone)	sat. sol.	S	S
S			
Salicylic acid	sat. sol.	S	S
Silver acetate	sat. sol.	S	S
Silver cyanide	sat. sol.	S	S
Silver nitrate	sat. sol.	S	S
Sodium benzoate	sat. sol.	S	S
Sodium bicarbonate	sat. sol.	S	S
Sodium biphosphate	sat. sol.	S	S
Sodium bisulfite	sol.	S	S
Sodium bromide	sat. sol.	S	S
Sodium carbonate	sat. sol.	S	S
Sodium chlorate	sat. sol.	S	S
Sodium chloride	sat. sol.	S	S
Sodium cyanide	sat. sol.	S	S
Sodium ferricyanide	sat. sol.	S	S
Sodium ferrocyanide	sat. sol.	S	S
Sodium fluoride	sat. sol.	S	S
Sodium hydroxide	40%	S	S
Sodium hydroxide	sat. sol.	S	S
Sodium hypochlorite	15% active chlorine	S	S
Sodium nitrate	sat. sol.	S	S
Sodium nitrite	sat. sol.	S	S
Sodium orthophosphate	sat. sol.	S	S
Sodium sulfate	sat. sol.	S	S
Sodium sulfide	sat. sol.	S	S
Sulfur dioxide, dry	100%	S	S
Sulfur trioxide	100%	U	U
Sulfuric acid	10%	S	S
Sulfuric acid	50%	S	S
Sulfuric acid	98%	S	U
Sulfuric acid	fuming	U	U
Sulfurous acid	30%	S	S
T			
Tannic acid	sol.	S	S
Tartaric acid	sol.	S	S
Thionyl chloride	100%	L	U
Toluene	100%	L	U
Triethylamine	sol.	S	L
U			
Urea	sol.	S	S
Urine	—	S	S
W			
Water	—	S	S
Wine vinegar	—	S	S
Wines and liquors	—	S	S
X			
Xylenes	100%	L	U
Y			
Yeast	sol.	S	S
Z			
Zinc carbonate	sat. sol.	S	S
Zinc chloride	sat. sol.	S	S
Zinc (II) chloride	sat. sol.	S	S
Zinc (IV) chloride	sat. sol.	S	S
Zinc oxide	sat. sol.	S	S
Zinc sulfate	sat. sol.	S	S

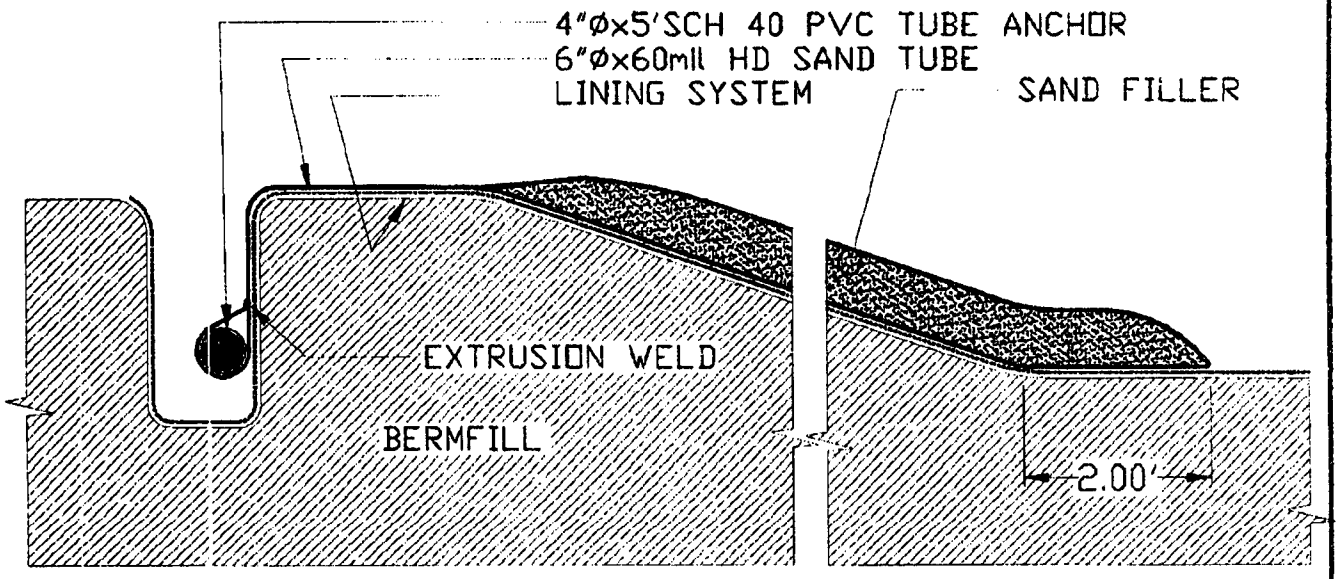
Specific immersion testing should be undertaken to ascertain the suitability of chemicals not listed above with reference to special requirements.



OUTLET DETAIL

FALCON ENVIRONMENTAL
LINING SYSTEMS, INC.
5200 Johnson Road, Odessa, Tx. 79760
(915) 366 2611 FAX - 366 2999

DRAWN BY: JASMIN	DRAWING TITLE: OUTLET DETAIL	MATERIALS: HDPE	
DATE: 04/08/08			
APPROVED BY:	PROJECT/LOCATION: LINER INSTALLATION DETAILS PHASE II	PROJECT NO	DRAWING NO: 1/1
DATE:			
SCALE: As Shown			



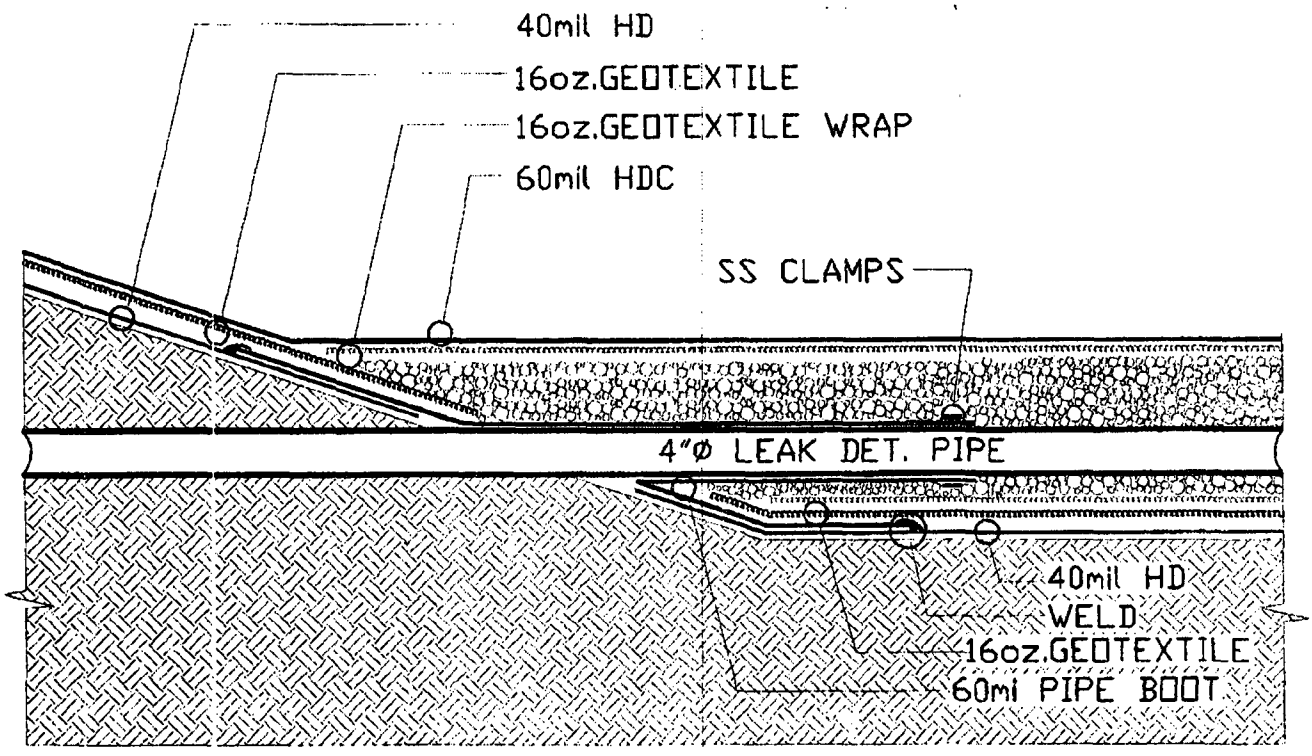
SAND TUBE DETAIL

FALCON ENVIRONMENTAL
LINING SYSTEMS, INC.
5206 Johnson Road, Odessa, Tx. 79760
(915) 366 2811 FAX - 366 2999

DRAWN BY: JASMIN	DRAWING TITLE: SAND TUBE DETAIL
DATE: 12/11/02	
APPROVED BY:	PROJECT/LOCATION: LINER INSTALLATION DETAILS
DATE:	
SCALE: As Shown	

MATERIALS: HDPE

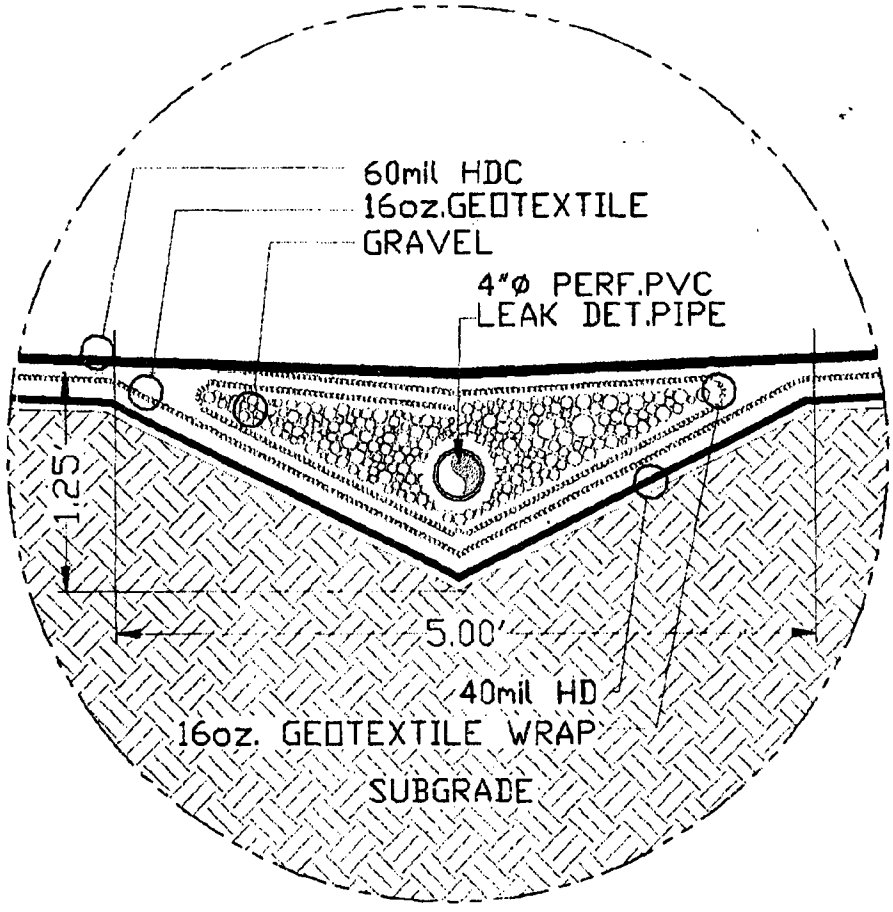
PROJECT NO | DRAWING NO: 1/1



PIPE PENETRATION DETAIL

FALCON ENVIRONMENTAL
LINING SYSTEMS, INC.
5201 Johnson Road, Odessa, TX. 79760
(915) 366 2611 FAX - 366 2999

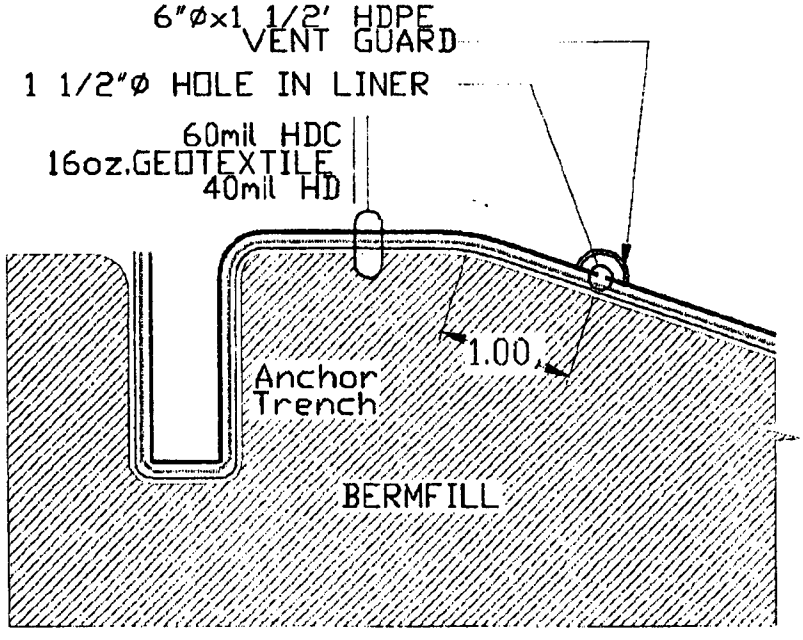
DRAWN BY: JASMIN	DRAWING TITLE: PIPE PENETRATION DETAIL	MATERIALS: HDPE	
DATE: 12/11/02			
APPROVED BY:	PROJECT/LOCATION: LINER INSTALLATION DETAILS	PROJECT NO	DRAWING NO: 1/1
DATE:			
SCALE: As Shown			



LEACHATE DETAIL

FALCON ENVIRONMENTAL
LINING SYSTEMS, INC.
5200 Johnson Road, Odessa, Tx. 79760
(915) 366 2611 FAX - 366 2999

DRAWN BY: JASMIN	DRAWING TITLE: LEACHATE DETAIL	MATERIALS: 60 MIL HD 60 MIL HDT GEOCOMPOSITE GEOTEXTILE	
DATE: 04/03/08			
APPROVED BY:	PROJECT/LOCATION: SANITARY LANDFILL PHASE II	PROJECT NO	DRAWING NO: 1/1
DATE:			
SCALE: As Shown			



AIR VENT DETAIL

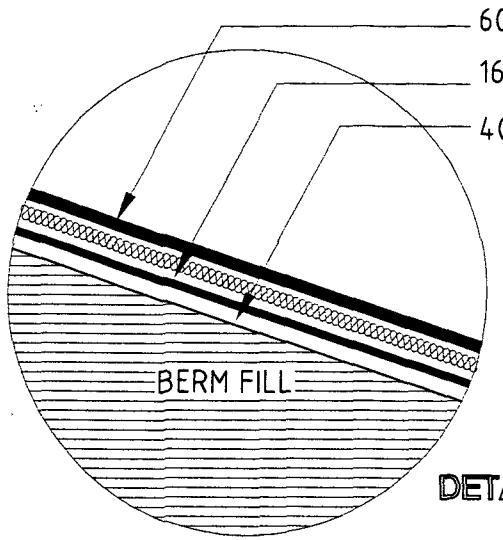
FALCON ENVIRONMENTAL
LINING SYSTEMS, INC.
5200 Johnson Road, Odessa, Tx. 79760
(915) 366 2611 FAX - 366 2999

DRAWN BY: JASMIN	DRAWING TITLE: AIR VENT DETAIL	MATERIALS: HDPE	
DATE: 12/11/02			
APPROVED BY:	PROJECT/LOCATION: LINER INSTALLATION DETAILS	PROJECT NO.	DRAWING NO. 1/1
DATE:			
SCALE: As Shown			

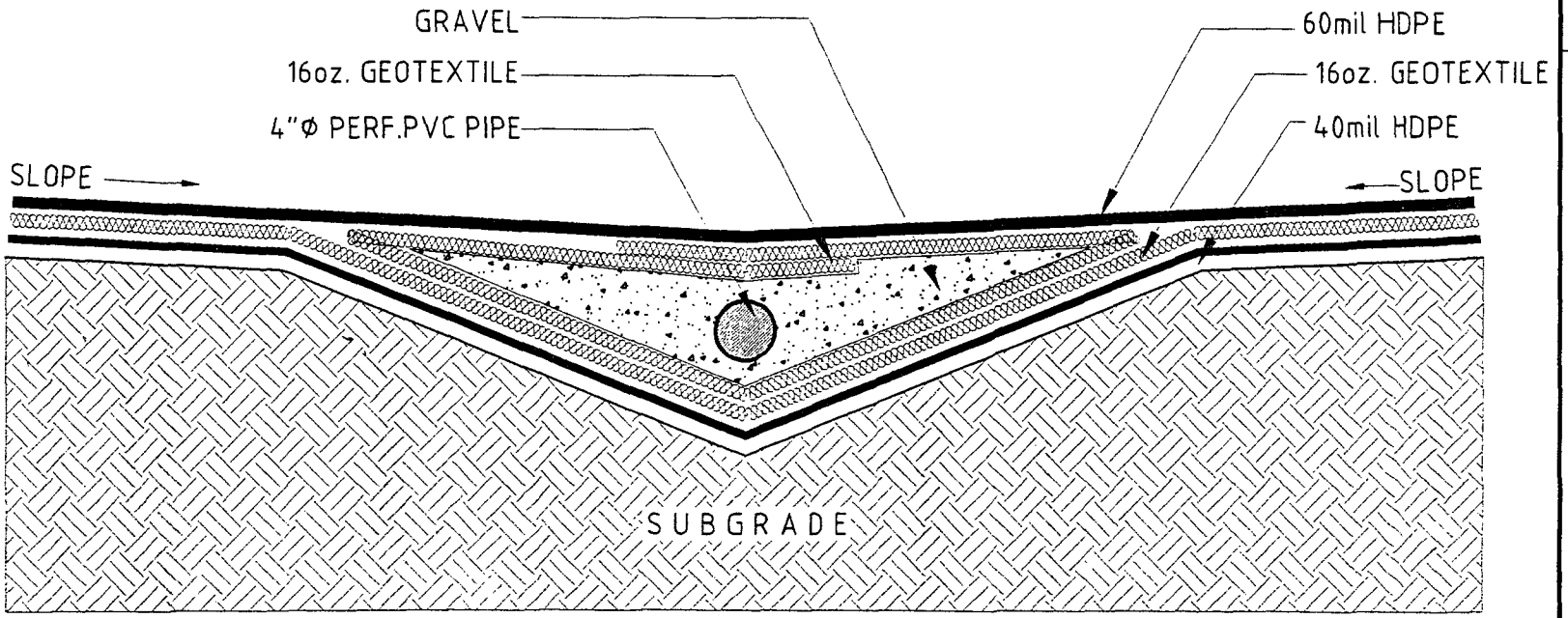
NOTE :

FALCON CAN PROVIDE SEVERAL OPTION FOR A LEAK DETECTION LAYER WITH THE FOLLOWING :

1. 16oz. GEOTEXTILE
2. HDPE DRAINAGE NET
3. HDPE DRAINAGE NET WITH GEOTEXTILE BONDED ON 2 SIDES.



DETAIL "B"



LEAK DETECTION TRENCH SECTION

NOT TO SCALE

MATERIALS:

PROJECT NO. | DRAWING NO.

DRAWING TITLE: **LINER DETAILS**

PROJECT/LOCATION

DRAWN BY: JASMIN | DATE: 04/26/97

APPROVED BY: | DATE:

SCALE: As Shown

FALCON ENVIRONMENTAL LINING SYSTEMS, INC.

5200 Johnson Road, Odessa, Tx. 79760

(915) 366-2011 FAX - 366-2909

SCHEDULE 40

PIPE SIZE	O.D.	MIN. WALL	AVG. I.D.	NOM. WEIGHT (lbs/ft)	MAX. W.P. PSI
1/4"	.540	.088	.354	.091	7[illegible]
[illegible]	.675	.091	.483	.122	6[illegible]
1/2"	.840	.109	.608	.180	5[illegible]
3/4"	1.050	.113	.810	.239	4[illegible]
1"	1.315	.133	1.033	.352	45[illegible]
1 1/4"	1.660	.140	1.364	.475	365
1 1/2"	1.900	.145	1.592	.568	33[illegible]
2"	2.375	.154	2.049	.761	27[illegible]
2 1/2"	2.875	.203	2.445	1.201	30[illegible]
3"	3.500	.216	3.042	1.572	26[illegible]
3 1/2"	4.000	.226	3.520	1.905	24[illegible]
4"	4.500	.237	3.998	2.239	22[illegible]
6"	6.625	.280	6.031	3.945	18[illegible]
8"	8.625	.322	7.903	5.958	160
10"	10.750	.365	9.976	8.458	140
12"	1[illegible]	.406	11.890	11.172	130

SCHEDULE 80

PIPE SIZE	O.D.	MIN. WALL	AVG. I.D.	NOM. WEIGHT (lbs/ft)	MAX. W.P. PSI
1/4"	.540	.119	.288	.112	1130
3/8"	.675	.126	.407	.154	920
1/2"	.840	.147	.528	.225	850
3/4"	1.050	.154	.724	.305	690
1"	1.315	.179	.935	.449	630
1 1/4"	1.660	.191	1.256	.618	520
1 1/2"	1.900	.200	1.476	.751	470
2"	2.375	.218	1.913	1.040	400
2 1/2"	2.875	.276	2.289	1.584	420
3"	3.500	.300	2.864	2.124	370
3 1/2"	4.000	.318	3.326	2.607	350
4"	4.500	.337	3.786	3.105	320
6"	6.625	.432	5.709	5.929	280
8"	8.625	.500	7.565	9.051	250
10"	10.750	.593	9.492	13.429	230
12"	12.750	.687	11.290	18.458	230

ASTM STANDARD D1784 MATERIAL CLASSIFICATION EQUIVALENTS:
Cell Classification 23447-B = CPVC Type IV Grade I = CPVC 4120

PIPE SIZES SHOWN ARE MANUFACTURED IN STRICT COMPLIANCE WITH ASTM F441

Sch 26

The pressure ratings given are for water, non-shock, @ 73°F. The following temperature de-rating factors are to be applied to the working pressure ratings listed when operating at elevated temperatures.

OPERATING TEMPERATURE (°F)	DE-RATING FACTOR
73 - 80	1.00
90	0.91
100	0.82
110	0.72
120	0.65
130	0.57
140	0.50
150	0.42
160	0.40
170	0.29
180	0.25
200	0.20

Multiply the working pressure rating of the selected pipe at 73°F. by the appropriate de-rating factor to determine the maximum working pressure [illegible] of the pipe at the elevated [illegible]ure chosen.

EX: 10" CPVC SCH 80 @ 120°F = ?
230 psi x 0.65 = 149.5 psi max. @ 120°F

THE MAXIMUM SERVICE TEMPERATURE FOR CPVC IS 200°F.

Solvent cemented joints should be utilized when working at or near maximum temperatures. Harvel Plastics does not recommend the use of CPVC for threaded connections at temperatures above 150°F; use flanged joints, unions, or roll grooved couplings where disassembly is necessary at elevated temperatures.

Threading of Sch 40 CPVC pipe is not a recommended practice due to insufficient wall thickness. Thread only Sch 80 or heavier walls. ***Threading requires a 50% reduction in pressure rating stated for plain end pipe @73°F.***

Chemical resistance data should be referenced for proper material selection and possible de-rating when working with fluids other than water. Refer to Harvel Plastics 112/401 Product Bulletin for chemical resistance and installation data.

Price, Wayne

From: Price, Wayne
Sent: Wednesday, October 01, 2003 3:26 PM
To: 'Ken Parker'; Price, Wayne
Subject: RE: Salt

Approved!

-----Original Message-----
From: Ken Parker [mailto:Parker_Ken@msn.com]
Sent: Wednesday, October 01, 2003 3:12 PM
To: Wayne Price
Subject: Salt

Mr. Wayne Price:
I removed between 1,400-1,800 yards of salt from the North brine pond at Jal. The salt appears to be in good condition meaning there is very little sand. My first thoughts were to encapsulate the salt in lining material and bury on plant property.

I contacted Mr. Wesley Watts with the New Mexico Salt and Minerals Corporation located in Carlsbad New Mexico. He wanted a hydrocarbon analysis run on the salt. I faxed a copy of the analysis to Wesley and his company has given him the approval to take the salt.

Earlier today I faxed you a copy of the analysis for your review. With OCD approval Texas LPG Storage Company would like to begin working out the details to transfer salt from Jal Terminal to New Mexico Salt and Minerals Corporation located in Carlsbad.

Once the salt transfer is complete, it is my understanding, the salt is not considered a finished product and will need to be reclaimed.

Sincerely,

Ken Parker

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
Date: October 29, 2002

RE: Transfer of Discharge Plan GW-007 & Commitment
Texas LPG Storage Company, Jal Terminal
Lea County, New Mexico

Dear Mr. Price:

Please be advised that Texas LPG Storage Company is in the process of buying the Christie Gas Facility located in Section 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico.

It is my understanding that Christie Gas submitted their original Discharge Plan in April 1992. The plan was approved. The same plan was approved in June 1997. Since there were no changes in the facility operation, August 21,2002, Christie Gas resubmitted the Discharge Plan in its original form and is awaiting approval.

Texas LPG Storage Company will abide by all commitments submitted in the application dated August 21, 2002 from Christie Gas and all prior OCD approvals.

Thank you,

John R. Greenwood
President, Texas LPG Storage Company

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Date: 1-17-03

RE: North Pond Secondary Liner Investigation

Dear Mr. Price:

OCD requested Texas LPG Storage Company to provide valid documented proof the secondary liner is not compromised and causing ground water contamination.

El Paso is involved in ground water monitoring at the Texas LPG Storage facility and have eleven wells down stream, one up stream, of the pond in question. The monitor wells are sampled and tested. The results of this test are filed with the OCD office in Santa Fe, New Mexico.

Ken Parker met with OCD representative Wayne Price and Bill Olson on January 14, 2003 in the Santa Fe office. In our meeting we reviewed the test results on wells: ACW-1, ACW-2A, ACW-3, ACW-4, ACW-8, ACW-11, ENSR-1, ENSR-2, ENSR-3, ENPG-1, PTP-1, RW-1. After reviewing the chloride analysis of each well, OCD representative Wayne Price, Bill Olson, and I are in agreement that the secondary liner is not compromised and contaminating the ground water. Therefore Texas LPG Storage Company has documented proof that the secondary liner is ok and no other test is necessary. Only the primary line is in need of repair before returning to service.

Sincerely,

Ken Parker

Ken Parker
Manager

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Date: 1-17-03

RE: Contaminated Sand Disposal

Dear Mr. Price:

Texas LPG Storage Company is the early stages of repairing the primary liner. It appears that we will need to dispose of some sand that is contaminated with salt. I understand that we have some options for disposal.

What I am proposing to do, encapsulate the sand using HDPE 60 Mil lining material. Insert the 60 Mil liner into the classifier and cover to surface level with fresh dirt.

The classifier is located on site at the Jal facility and has not been in service since the late 1980's. It is a steel constructed open top tank that is about 50 feet in diameter and buried to a depth of 20 feet. The classifier will be utilized as secondary containment.

Preparing the classifier for contaminated material storage. The HDPE liner will be molded to fit, seams welded, then inserted within the classifier's structure. Fresh dirt will be utilized for a cushion between the classifier's steel bottom, sidewalls, and liner. The minium thickness of the cushion is twelve inches. The liner will be filled with the contaminated sand within two feet of its top and capped. The cap will be welded. Then the capsule is covered with fresh dirt.

Sincerely,

Ken Parker
Manager


North Pond
New Bone Pond
South Pond
2 WELLS
4 wells
CR 8
CR 8
CR 8
CR 8
CR 8
18
18
18
DeLORME
© 2001 DeLorme. Topo USA® 3.0
Zoom Level: 15-0 Datum: WGS84
Scale 1 : 6,400
1" = 533.34 ft
TN
MN
9.6°E

Price, Wayne

From: Price, Wayne
Sent: Monday, January 06, 2003 4:44 PM
To: 'Parker_Ken@msn.com'
Subject: Texas LPG Storage Co. GW-007

Contacts: Ken Parker

Dear Mr. Parker:

The OCD is in receipt of the North Pond Investigation report Dated 12/13/02. Please provide to OCD by January 31, 2003 a plan to investigate the secondary liner to determine if it has been leaking.

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Date: December 12, 2002

RE: Discharge Plan GW-007 Commitment
Texas LPG Storage Company, Jal Terminal
Lea County, New Mexico

Dear Mr. Price:

Texas LPG Storage Company has on file at the Jal Terminal; all OCD approved discharge plans dating back to April 1992. The approved discharge plans were reviewed. Therefore, there is a complete understanding of the terms and conditions within.

Without reservation, Texas LPG Storage Company will abide by the terms and conditions pursuant to NMAC 20.6.2.3111 (Transfer of Discharge Permit).

Sincerely:

John R Greenwood
President, Texas LPG Storage Company

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Date: 12-23-02

RE: North Brine Pond Primary Liner Leak

Dear Mr. Price:

Please be advised that the North brine pond is leaking in the primary liner. The pond was taken out of service in July 2002 and the brine water was transferred to the South pond.

The pond has not been in service since July 2002. Once the brine water was removed a twelve inch residue of salt and sand remained. Fresh water was used to clean an area around the suction and discharge flanges. The flange gaskets were removed and new ones installed. About four feet of fresh water was added to the pond. The leak detection was monitored. Readings from the leak detection indicates there is another leak. The water analysis taken from the monitors indicates the water is brine.

The plan of action is to remove the salt and sand from the bottom of the liner. Do a thorough inspection of the bottom of the liner and make the necessary repairs. Once the repairs are made the pond will be tested using fresh water. The work is expected to begin the last week of this year.

Sincerely:

Ken Parker
Manager

THE SANTA FE NEW MEXICAN
Founded 1849

RECEIVED
DEC 16 2002
OIL CONSERVATION DIVISION

NM OIL CONSERVATION DIVISION
1220 S. ST. FRANCIS DR.
SANTA FE, NM 87505
ATTN WAYNE PRICE

AD NUMBER: 294424 ACCOUNT: 56689
LEGAL NO: 72588 P.O.#: 02199000249
195 LINES 1 time(s) at $ 85.96
AFFIDAVITS: 5.25
TAX: 5.70
TOTAL: 96.91

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE

I, K. Voorhees being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily newspaper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a Newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication #72588 a copy of which is hereto attached was published in said newspaper 1 day(s) between 12/13/2002 and 12/13/2002 and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 13 day of December, 2002 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ K. Voorhees
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this
13 day of December A.D., 2002

Notary Laura E. Harding

Commission Expires 11/23/03

NOTICE OF PUBLICATION

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

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

(GW-007) - Texas LPG Storage Company has purchased the Christie Gas Corporation's Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Texas LPG Storage Company has submitted a discharge plan addendum to the previously submitted renewal application for the LPG Gas Storage wells and brine water storage ponds located on site. The renewal application was previously submitted by Christie Gas and public noticed was issued on August 22, 2002. The new plan proposes construction of a new 280,761 barrel double lined storage pond with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.
A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 6th day of December 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

LORI WROTENBERY, Director

Legal #72588
Pub. December 13, 2002

Texas LPG Storage Company
PO Box 1345
Jal, New Mexico 88252
Phone: 505-395-2632
Fax: 505-395-2260

Texas LPG Storage Company

Fax

To:	Wayne Price	**From:**	Ken Parker
Fax:	505-476-3462	**Pages:**	1+ cover sheet
Phone:	505-476-3487	**Date:**	10/29/02
Re:	Discharge Plan	**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
Date: October 29, 2002

RE: Transfer of Discharge Plan GW-007 & Commitment
Texas LPG Storage Company, Jal Terminal
Lea County, New Mexico

Dear Mr. Price:

Please be advised that Texas LPG Storage Company is in the process of buying the Christie Gas Facility located in Section 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico.

It is my understanding that Christie Gas submitted their original Discharge Plan in April 1992. The plan was approved. The same plan was approved in June 1997. Since there were no changes in the facility operation, August 21,2002, Christie Gas resubmitted the Discharge Plan in its original form and is awaiting approval.

Texas LPG Storage Company will abide by all commitments submitted in the application dated August 21, 2002 from Christie Gas and all prior OCD approvals.

Thank you,

John R. Greenwood
President, Texas LPG Storage Company

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

(GW-007) – Texas LPG Storage Company has purchased the Christie Gas Corporation's Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Texas LPG Storage Company has submitted a discharge plan addendum to the previously submitted renewal application for the LPG Gas Storage wells and brine water storage ponds located on site. The renewal application was previously submitted by Christie Gas and public noticed was issued on August 22, 2002. The new plan proposes construction of a new 280,761 barrel double lined storage pond with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.
A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 6th day of December 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

for LORI WROTENBERY, Director

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

(GW-007) – Texas LPG Storage Company has purchased the Christie Gas Corporation's Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Texas LPG Storage Company has submitted a discharge plan addendum to the previously submitted renewal application for the LPG Gas Storage wells and brine water storage ponds located on site. The renewal application was previously submitted by Christie Gas and public noticed was issued on August 22, 2002. The new plan proposes construction of a new 280,761 barrel double lined storage pond with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.
A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 6th day of December 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

LORI WROTENBERY, Director

12/5/02 W Price, M Kieling, R Anderson

Notes from staff meeting:

Was there calculations for 3 feet freeboard
Bottom hole samples
Location OK 60 feet setback from property line.
Are there any Buried pipelines under or close to pond.
Drain pipe for LD sump enough slope where is detail
PP liner sun resistant ????
PVC pipe under pond ?? Load resistant.

Parker_ [illegible] @ msn.com

[illegible] Parker
[illegible]

Price, Wayne

From: Price, Wayne
Sent: Friday, December 06, 2002 11:33 AM
To: Sheeley, Paul; Johnson, Larry
Cc: 'Parker_Ken@msn.com'
Subject: FW: Addendum to Discharge Plan -Christie Gas Plant Jal #4 GW-007

Contacts: Ken Parker

-----Original Message-----
From: Price, Wayne
Sent: Friday, December 06, 2002 11:31 AM
To: 'Parker_Ken@msn.com'
Subject: Addendum to Discharge Plan

Dear Ken:

The OCD conducted a staff meeting yesterday and reviewed your addendum to the previously submitted discharge plan. We have the following comments:

1. Bonding should be completed and a written commitment to abiding by the terms and conditions of the existing discharge plan shall be submitted pursuant to Condition # 13 (Transfer of Discharge Plan).
2. Pursuant to your question, the location of the new brine pond is acceptable. All existing underground piping, equipment. etc. shall be removed under the new pond.
3. OCD understands you want to get a baseline of the underlying soils. We recommend that you sample for BTEX, TPH, Metals and General chemistry.
4. OCD will be issuing a corrected public notice. After issued, we will have a 30 day waiting period for comments. During the 30 day period I hope we can finalize all permit conditions and design concerns if any. The facility will be permitted as a gas plant with a $4000 renewal fee for 5 years.

OCD has no objections to any preliminary work to start preparation of modifying the facility. However, please be advised any actions taken before final discharge plan approval does not relieve either Christie Gas or Texas LPG should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, it does not relieve of you of any future discharge plan conditions imposed by OCD or responsibility for compliance with any other federal, state, or local laws and/or regulations.

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

Price, Wayne

From: Price, Wayne
Sent: Friday, December 06, 2002 11:31 AM
To: 'Parker_Ken@msn.com'
Subject: Addendum to Discharge Plan

Contacts: Ken Parker

Dear Ken:

The OCD conducted a staff meeting yesterday and reviewed your addendum to the previously submitted discharge plan. We have the following comments:

1. Bonding should be completed and a written commitment to abiding by the terms and conditions of the existing discharge plan shall be submitted pursuant to Condition # 13 (Transfer of Discharge Plan).
2. Pursuant to your question, the location of the new brine pond is acceptable. All existing underground piping, equipment. etc. shall be removed under the new pond.
3. OCD understands you want to get a baseline of the underlying soils. We recommend that you sample for BTEX, TPH, Metals and General chemistry.
4. OCD will be issuing a corrected public notice. After issued, we will have a 30 day waiting period for comments. During the 30 day period I hope we can finalize all permit conditions and design concerns if any. The facility will be permitted as a gas plant with a $4000 renewal fee for 5 years.

OCD has no objections to any preliminary work to start preparation of modifying the facility. However, please be advised any actions taken before final discharge plan approval does not relieve either Christie Gas or Texas LPG should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, it does not relieve of you of any future discharge plan conditions imposed by OCD or responsibility for compliance with any other federal, state, or local laws and/or regulations.

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

ANALYTICAL REPORT

Prepared for:

Ken Parker
Texas LPG Storage Company
P.O. Box 1345
Jal, NM 88252

Project:	North Pond NW-Leak Detection
PO#:	
Order#:	G0205202
Report Date:	12/13/2002

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

Texas LPG Storage Company
P.O. Box 1345
Jal, NM 88252
505-395-2260

Order#: G0205202
Project: None Given
Project Name: North Pond NW-Leak Detection
Location: #4 Plant

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0205202-01	NP- L.D.	WATER	12/9/02 10:00	12/9/02 16:04	1 L Plastic	Ice

Lab Testing: **Rejected:** No **Temp:** -1.5 C

Chloride
Total Dissolved Solids (TDS)

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

Ken Parker		Order#:	G0205202
Texas LPG Storage Company		Project:	None Given
P.O. Box 1345		Project Name:	North Pond NW-Leak Detection
Jal, NM 88252		Location:	#4 Plant

Lab ID: 0205202-01
Sample ID: NP- L.D.

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	253000	mg/L	1	5.00	9253	12/11/02	SB
Total Dissolved Solids (TDS)	348000	mg/L	1	5.0	160.1	12/11/02	TAL

Approval: Raland K Tuttle 12-13-02
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS I, LTD. 12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0205202

BLANK WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0004041-01			<5.00		
Total Dissolved Solids (TDS)-mg/L	0004050-01			<5.0		
DUPLICATE WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Total Dissolved Solids (TDS)-mg/L	0205202-01	348000		349000		0.3%
MS WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0205206-01	1050	500	1540	98.%	
MSD WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0205206-01	1050	500	1530	96.%	0.7%
SRM WATER	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/L	0004041-04		5000	4960	99.2%	

Environmental Lab of Texas, Inc.

12600 West I-20 East
Odessa, Texas 79763
Phone: 915-563-1800
Fax: 915-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: KEN PARKER
Company Name: TEXAS LPG STORAGE Co.
Company Address: P.O. Box 1345
City/State/Zip: JAL, N.M. 88252
Telephone No: 505-395-2632 Fax No: 505-395-2260
Sampler Signature: Don Green

Project Name: NORTH POND NW - LEAK DETECTION
Project #: —
Project Loc: #4 PLANT
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For: TDS / CL / SAR / EC	Analyze For: TPH 418.1	Analyze For: TPH TX 1005/1006	Analyze For: TPH 8015M GRO/DRO	Analyze For: TCLP: Metals: As Ag Ba Cd Cr Pb Hg Se	Analyze For: TOTAL: Volatiles	Analyze For: Semivolatiles	Analyze For: BTEX 8021B/5030	RUSH TAT (Pre-Schedule)	Standard TAT
020502 01	NP-L.D.	12-9-02	10:00	1	✓							✓				✓									✓

Special Instructions:

Sample Containers Intact? Y N
Temperature Upon Receipt: 1.5 C
Laboratory Comments: 1 L PLASTIC

Relinquished by:	Date	Time	Received by:	Date	Time
Don Green	12-9-02	16:04			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Maura Caudill	12/9/02	1604

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised January 24, 2001

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES,GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☒ Renewal ☐ Modification

1. Type: GAS PLANT
2. Operator: CHRISTIE GAS CORP.

   Address: PO BOX 1345 JAL, NM 88252

   Contact Person: KEN PARKER Phone: 505-395-2632
3. Location: ____/4 ____/4 Section 32 Township 23S Range 37E

   Submit large scale topographic map showing exact location.
4. Attach the name, telephone number and address of the landowner of the facility site.
5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.
6. Attach a description of all materials stored or used at the facility.
7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.
8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.
9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.
10. Attach a routine inspection and maintenance plan to ensure permit compliance.
11. Attach a contingency plan for reporting and clean-up of spills or releases.
12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.
13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.
14. CERTIFICATION I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: JOE CHRISTIE Title: PRESIDENT

Signature: Joe Christie Date: 8/21/2002

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised January 24, 2001

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES,GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☐ Renewal ☒ Modification

1. Type: LPG Storage
2. Operator: Texas LPG Storage Company
   Address: P.O. Box 1345 Jal, NM 88252
   Contact Person: _____ Phone: _____
3. Location: _____/4 _____/4 Section 32 Township 23S Range 37E
   Submit large scale topographic map showing exact location.
4. Attach the name, telephone number and address of the landowner of the facility site.
5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.
6. Attach a description of all materials stored or used at the facility.
7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.
8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.
9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.
10. Attach a routine inspection and maintenance plan to ensure permit compliance.
11. Attach a contingency plan for reporting and clean-up of spills or releases.
12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.
13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

14. CERTIFICATIONI hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: John R. Greenwood Title: President

Signature: John R Greenwood Date: November 16, 2002

TEXAS LPG STORAGE COMPANY

November 11, 2002

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: Wayne Price

Re: Modify Discharge Plan GW-007 for Texas LPG Storage Company

Background Information

In August 2002, Christie Gas submitted their application for discharge plan renewal. Since there were no plans for changes, Christie Gas resubmitted the discharge plan in its original form dated April 1992.

In September 2002, Christie Gas Corporation sold their facility to Texas LPG Storage Company. The facility operates in Section 31 and 32, T-23-S, R-37-E, Lea County New Mexico, and under a discharge plan that was approved by New Mexico Oil Conservation Division permit number GWR-7. Since the application for renewal was submitted before the buy out, Texas LPG Storage Company needs to modify the discharge plan in two different areas, general information and new construction, before its renewal is approved.

General Information

A. Name of Discharge or Legally Responsible Party:

Texas LPG Storage Company
John Greenwood, President
PO Box 177
Andrews, Texas 79714
Phone: 915-523-9279

B. Name of Local Representative or Contact Person:

Ken Parker
PO Box 1345
Jal, New Mexico 88252
Phone: 505-395-2632

Site Characteristics

With respect to groundwater quality beneath the site, it is Texas LPG Storage Company's understanding that EPNG is currently engaged in a groundwater investigation. EPNG is committed to working with the NMOCD to mitigate any groundwater problems that are the direct results of plant operations while under their ownership.

EPNG has 12 monitoring well strategically located within the facility's boundary. With OCD approved construction of another above ground brine pond, any groundwater problem that were the direct results of its existence would be detected by the existing monitoring wells. Monitoring wells are pin pointed on attached topo map.

TEXAS LPG STORAGE COMPANY

November 11, 2002

Re: Modify Discharge Plan GW-007 for Texas LPG Storage Company

Purpose

The facility includes four underground salt caverns for the storing of propane and butane. The total combined capacity of these wells is 487,348 barrels. Presently the two above ground brine ponds have a combined storage capacity of 212,000 barrels. The below ground storage exceeds the above ground storage 275,348 barrels.

Texas LPG Storage Company's only facility modification is to increase the above ground brine storage. The construction of a 280,761-barrel brine pond would give the facility an approximate 1 to 1 ratio for above and below ground storage. This pond is a necessity to maximize the facility full Storage potential. More importantly, the needed expansion would protect the salt dome storage from unwanted cavern growth.

Location

The purposed location of the brine pond is SE ¼ SE ¼ Section 31, SW ¼ SW ¼ Section 32, Township 23 South, Range 37 East, Lea County, New Mexico. To better clarify the attached topo map will pin point the exact location of the purposed brine pond, property line, and El Paso monitor wells.

Engineering Design

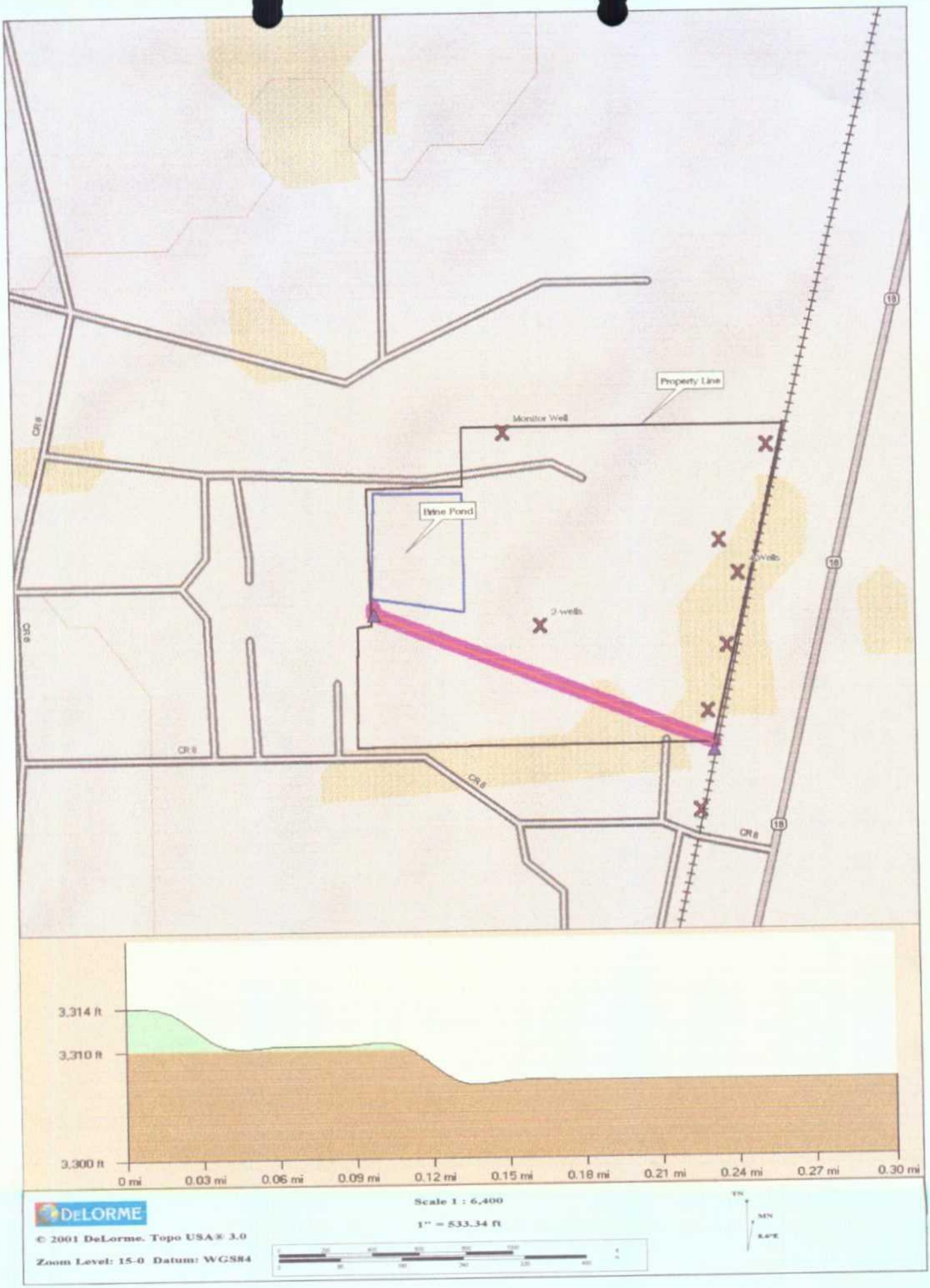
See the attached detailed drawing on the design and material for the purposed brine pond.

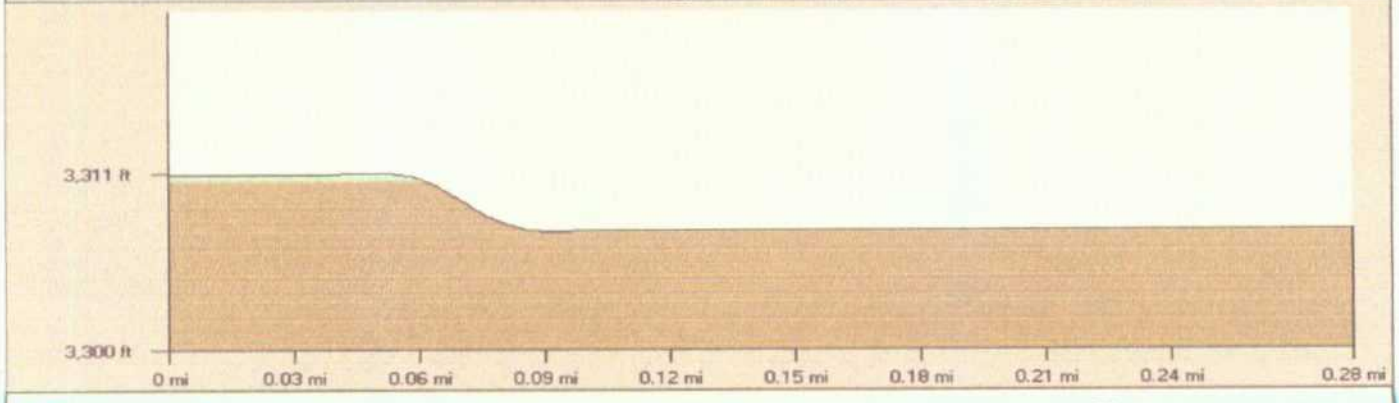
Affirmation

I hereby certify that I am familiar with the information contained in and submitted with the modified application and the information is true to the best of my knowledge and belief.

John R. Greenwood, President

November 15, 02
Date


Property Line
Monitor Well
Wine Pond
2 wells
2 wells
CR 8
CR 8
CR 8
CR 8
CR 8
19
19
19
3,314 ft
3,310 ft
3,300 ft
0 mi
0.03 mi
0.06 mi
0.09 mi
0.12 mi
0.15 mi
0.18 mi
0.21 mi
0.24 mi
0.27 mi
0.30 mi
DeLORME
© 2001 DeLorme. Topo USA® 3.0
Zoom Level: 15-0 Datum: WGS84
Scale 1 : 6,400
1" = 533.34 ft
MN

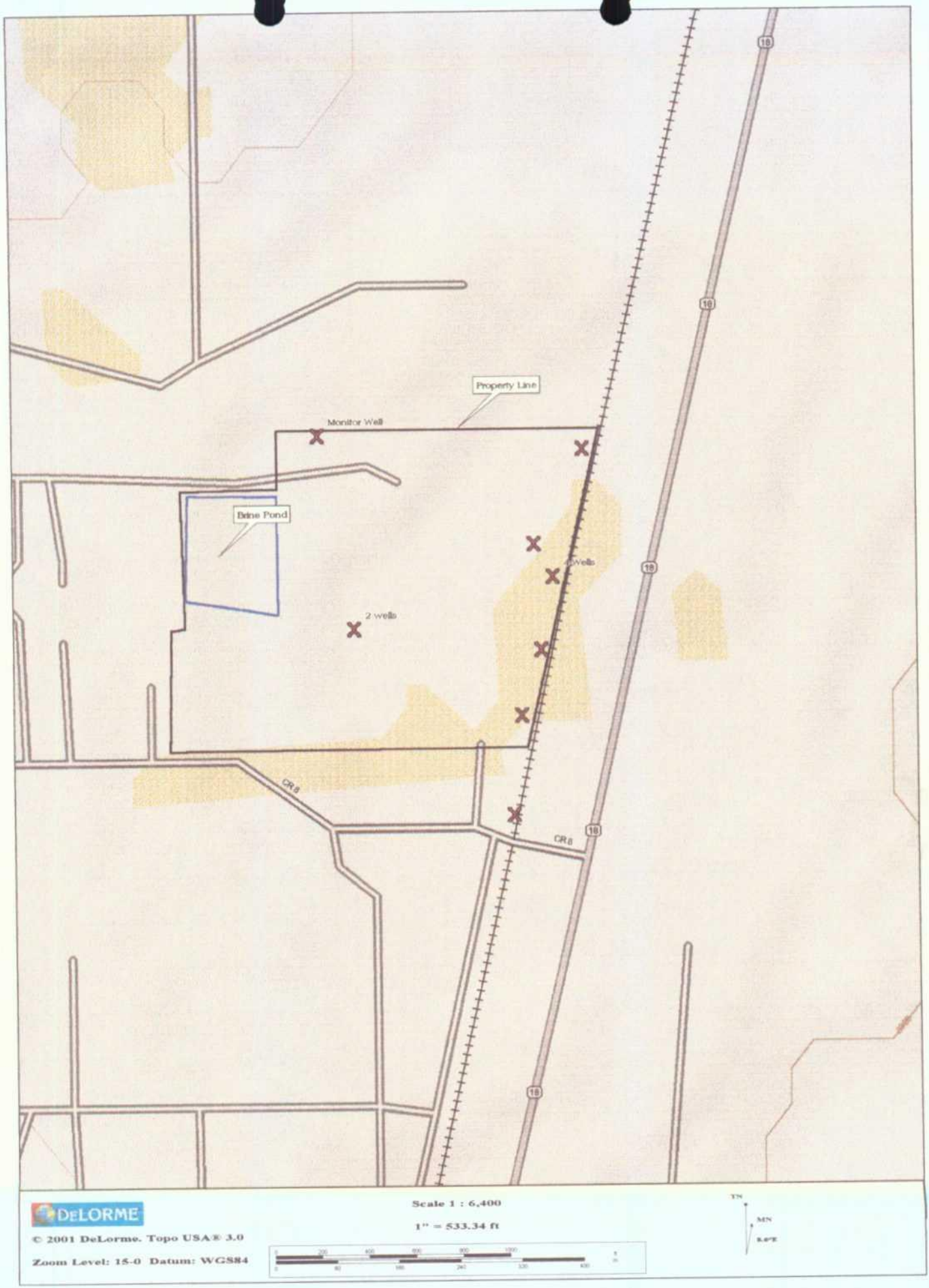


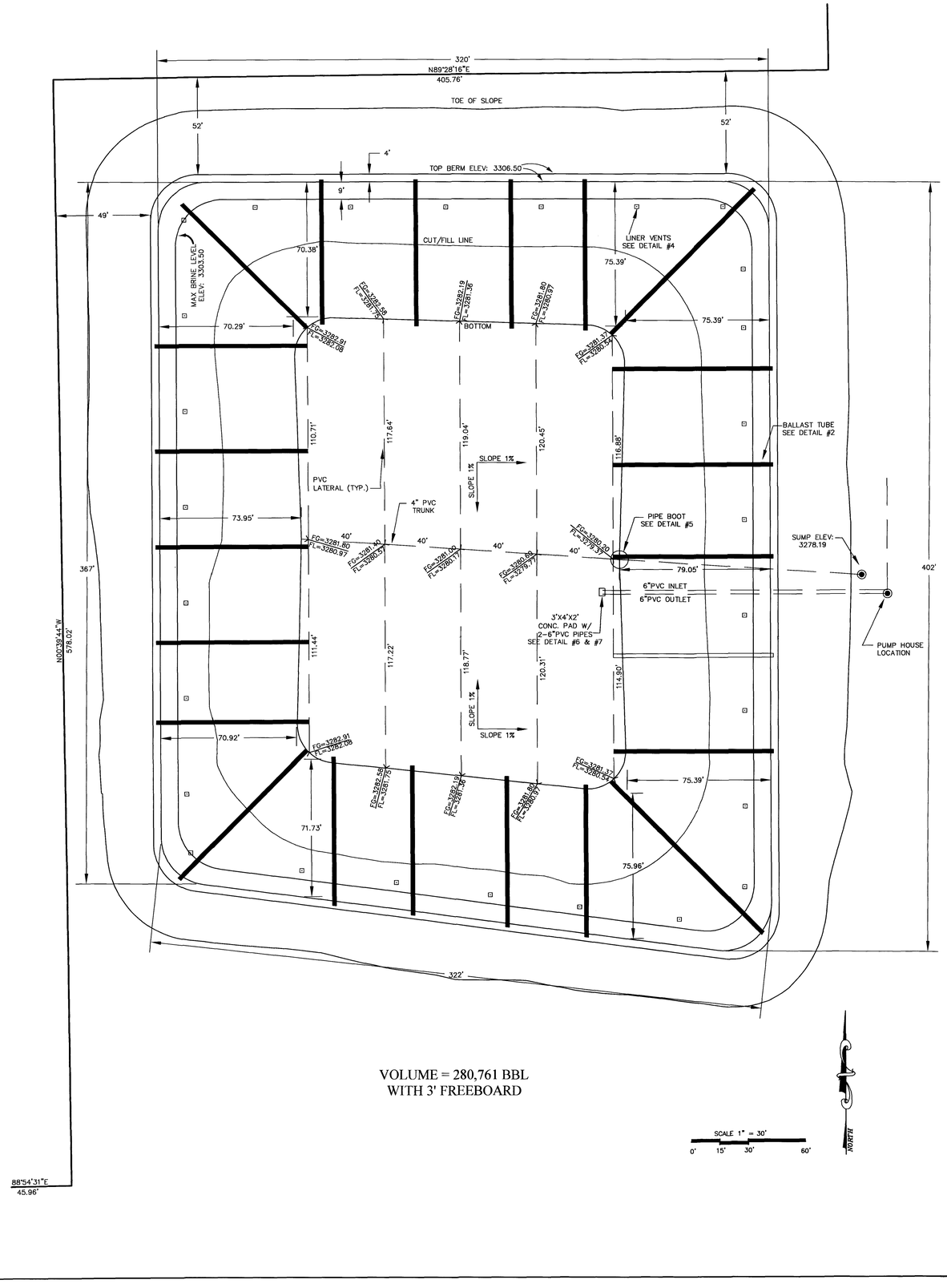
DeLORME

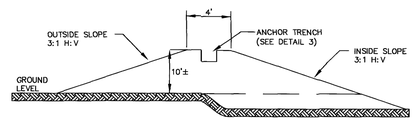
Zoom Level: 15-0 Datum: WGS84

Scale 1 : 6,400

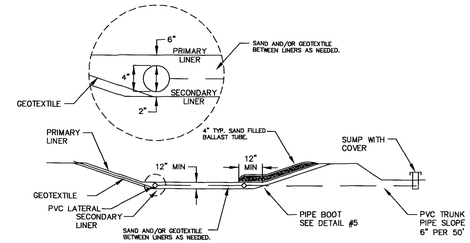
1" = 533.34 ft


Property Line
Monitor Well
Brine Pond
2 wells
2 wells
CR 8
CR 8
18
18
18
18
DeLORME
© 2001 DeLorme. Topo USA® 3.0
Zoom Level: 15-0 Datum: WGS84
Scale 1 : 6,400
1" = 533.34 ft
TN
MN
EAST

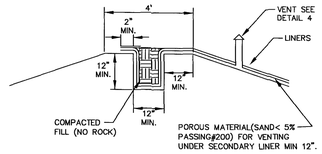




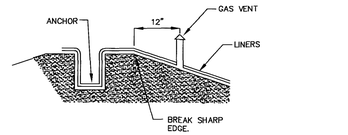
DETAIL #1
PIT CONSTRUCTION
N.T.S



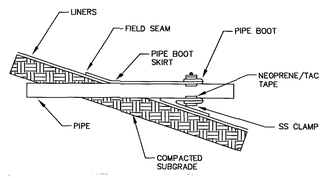
DETAIL #2
LEAK DETECTION & BALLAST TUBE
N.T.S



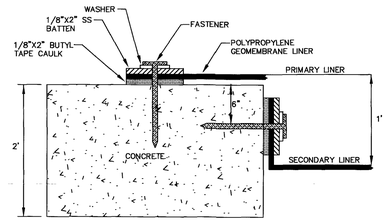
DETAIL #3
ANCHOR TRENCH
N.T.S



DETAIL #4
VENT DESIGN
N.T.S



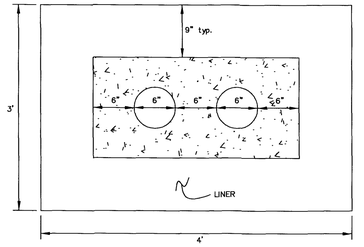
DETAIL #5
PIPE BOOT
N.T.S



DETAIL #6
BATTEN
N.T.S

NOTES:

1) INSTALL VENT EVERY 50' AROUND PERIMETER OF POND.
2) INSTALL BALLAST TUBE EVERY 50' AROUND PERIMETER OF POND BETWEEN VENTS.
3) PRIMARY LINER–60 MIL POLYPROPYLENE.
4) SECONDARY LINER–36 MIL POLYPROPYLENE.
5) FABRIC UNDERLAY–8lb. NONWOVEN GEOTEXTILE.
6) PVC PIPE–
   a) LATERAL–4" PVC SDR–41 W/ (2) 3/8" ø HOLES AT 180° AT 5" O.C. SOLVENT WELD ALL JOINTS.
   b) TRUNK–4" PVC SDR–26 SOLVENT WELD ALL JOINTS.
7) ANCHOR TRENCH BACKFILL MATERIAL SHALL HAVE A PI OF 4 MIN TO 12 MAX.
8) ALL MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95% ASTM D–698 AT +4% TO –2% OPTIMUM MOISTURE.
9) DETAILS SHOWN FOR REFERENCE ONLY INSTALL LINER AS PER MANUFACTURER'S RECOMMENDATION.



DETAIL #7
CONCRETE INLET/OUTLET DETAIL
N.T.S

* EROSION OF OUTER SLOPE IS LIKELY TO OCCUR GIVEN THE SANDY NATURE OF THE EXISTING SOILS, THEREFORE SLOPE DRESSING MAY BE NECESSARY YEARLY.

WILLIAM M. HICKS III NEW MEXICO 10682 REGISTERED PROFESSIONAL ENGINEER
10-28-02

LEGEND

⌀	POWER POLE
←	GUY WIRE
	FIRE HYDRANT
— OHE —	OVERHEAD ELECTRIC LINE
FG=3281.76	FINISH GRADE ELEV:
FL=3281.76	PIPE FLOWLINE ELEV:

PROPOSED NEW BRINE POND
SITE LAYOUT & DETAILS
TEXAS LPG STORAGE
JAL, NEW MEXICO

PETTIGREW AND ASSOCIATES
1110 N. GRIMES HOBBS, N.M. 88240
(505)393-9827

COMSTRUCTION PLAN FOR
TEXAS LPG STORAGE COMPANY
P.O. BOX 1777
ANDREWS, TEXAS 79714

REV	DATE	DESCRIPTION		
0		FINAL PLAN		
00	10/23/2002	PRELIMINARY PLAN	2002.1151	DRN BY: C. JOHNSON
	10/17/2002	DATE OF SURVEY	Acad brine pond\dwg\underdrninage.dwg	
				SHEET 2 OF 2

\\Server\Public\Data Files\2002.1151\Acad brine_pond\dwg\underdrninage.dwg, 10/28/2002 12:07:48 PM, Charles

SET 5/8" RB W/
ALUM CAP MKD
"MUTH NMPS 13239"
N=458966.87
E=893629.13

N89°28'16"E
405.76'

N00°59'44"W
578.02'

N88°54'31"E
45.96'

1/2" RB
W/PLASTIC
CAP MKD
PEPS 676
N=458388.90
E=893635.81
ELEV.=3297.24

TOE

BERM TOP

MAX WATER
LEVEL

CUT/FILL
LINE

POND
BOTTOM

FIRE
HOUSE

GAS WELL

ROAD

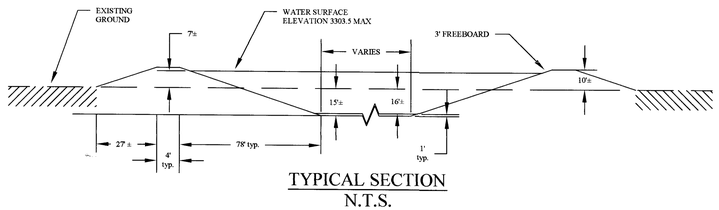
ROAD

ROAD

COMPRESSOR
BUILDING

TANK STACKS

OHE



TYPICAL SECTION
N.T.S.

WILLIAM M. HICKS III
NEW MEXICO
10682
REGISTERED PROFESSIONAL ENGINEER
10-28-02

SCALE 1" = 30'
0' 15' 30' 60'

NORTH

LEGEND	
	POWER POLE
	GUY WIRE
	FIRE HYDRANT
OHE	OVERHEAD ELECTRIC LINE

PROPOSED NEW BRINE POND
SITE LAYOUT
TEXAS LPG STORAGE
JAL, NEW MEXICO

REV	DATE	DESCRIPTION
0		FINAL PLAT
00	10/21/2002	PRELIMINARY PLAT
	10/17/2002	DATE OF SURVEY

PETTIGREW AND ASSOCIATES
1110 N. GRIMES HOBBS, N.M. 88240
(505) 393-0927

PLAT OF TOPOGRAPHIC SURVEY FOR
TEXAS LPG STORAGE COMPANY
P.O. BOX 1777
ANDREWS, TEXAS 79714

2002.1151 DRN BY: C. JOHNSON
Acadbrine_pond\dwg\totaltopo.dwg
SHEET 1 OF 2

\\Server\Public\Data Files\2002.1151\Acad brine_pond\dwg\totaltopo.dwg, 10/28/2002 01:31:55 PM, Fuzzy

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

(GW-007) – Christie Gas Corporation, Mr. Joe Christie, P.O. Box 1345, Jal, New Mexico 88252, has submitted a discharge plan renewal application for their Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant wastewater will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.
A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 28th day of August, 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

for LORI WROTENBERY, Director

RECEIVED
JUN 23 1997
Environmental Bureau
Oil Conservation Division

ATTACHMENT TO DISCHARGE PLAN GW-007
Christie Gas Corporation Jal #4 Gas Plant
DISCHARGE PLAN REQUIREMENTS
(June 12, 1997)

1. **Payment of Discharge Plan Fees**: The $50 filing fee and $1,667.50 flat fee shall be submitted upon receipt of this approval. The required flat fee may be paid in a single payment due at the time of approval, or in equal annual installments of $333.50 per installment over the duration of the plan, with the first payment due upon receipt of this approval.

2. **Christie Gas Corporation Commitments:** Christie Gas Corporation will abide by all commitments submitted in the application dated April 3, 1997 from **Christie Gas Corporation**, all prior OCD approvals, and this approval letter with conditions of approval from OCD dated June 12, 1997.

3. **Waste Disposal:** All wastes shall be disposed of at an NMOCD approved facility. Only oilfield exempt wastes shall be disposed of down Class II injection wells. Non-exempt oilfield wastes that are non-hazardous by characteristics may be disposed of at an NMOCD approved facility upon proper waste characterization per 40 CFR Part 261.

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

5. **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.

6. **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 facilities or modifications to existing facilities must place the tank on an impermeable type pad.

7. **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.

8. **Tank Labeling**: All tanks should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill, or ignite.

9. **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 that do not have secondary containment and leak detection 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 /or sumps.

10. **Underground Process/Wastewater Lines**: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present, and then every 5 years there after. Companies 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.

11. **Housekeeping**: All systems designed for spill collection/prevention should be inspected to ensure proper operation and to prevent overtopping or system failure.

Any soils contaminated with a non-exempt waste at the facility will be tested for hazardous constituents, and after receiving OCD approval, will be disposed of at an OCD approved site.

12. **Spill Reporting**: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the Hobbs OCD District Office at (505)-393-6161.

13. **Transfer of Discharge Plan:** The OCD will be notified prior to any transfer of ownership, control, or possession of a facility with an approved discharge plan. A written commitment to comply with the terms and conditions of the previously approved discharge plan must be submitted by the purchaser and approved by the OCD prior to transfer.

14. **Closure:** The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be submitted for approval by the director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

15. **Certification:** Christie Gas Corporation , by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Christie Gas Corporation, further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect groundwater, human health and the environment.

Accepted:
Christie Gas Corporation

by _____

Title President

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

(GW-007) – Christie Gas Corporation, Mr. Joe Christie, P.O. Box 1345, Jal, New Mexico 88252, has submitted a discharge plan renewal application for their Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant wastewater will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.
A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 28th day of August, 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

for LORI WROTENBERY, Director

Ford, Jack

From: Martin, Ed
Sent: Thursday, September 05, 2002 7:27 AM
To: Hobbs News-Sun Attn: Brenda Tison (E-mail)
Cc: Ford, Jack
Subject: Legal Notice

Please publish the attached legal notice, one time only, on or before Tuesday, September 10, 2002.
Upon publication, forward to this office:
1. Publisher's affidavit.
2. Invoice. Our purchase order number is **03-199-050129**

If you have any questions, please contact me. Thank you.

Publ. Notice
GW-007.doc

Ed Martin
New Mexico Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505
Phone: 505-476-3492
Fax: 505-476-3471

Ford, Jack

From: Martin, Ed
Sent: Thursday, September 05, 2002 7:24 AM
To: Santa Fe New Mexican (E-mail)
Cc: Ford, Jack
Subject: Legal Notice

Please publish the attached legal notice, one time only, on or before Tuesday, September 10, 2002.
Upon publication, forward to this office:
1. Publisher's affidavit
2. Invoice. Our purchase order number is **03-199-000050**

If you have any questions, please contact me. Thank you.

Publ. Notice
GW-007.doc

Ed Martin
New Mexico Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505
Phone: 505-476-3492
Fax: 505-476-3471

CHRISTIE GAS CORPORATION

August 21, 2002

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: Roger Anderson

Re: Renewal of Discharge Plan GW-007 for Christie Gas Corporation

Dear Mr. Anderson:

Enclosed are an Original and one copy of my company's application for renewal of its discharge plan for the Jal 4 plant that my company operates in Lea County. I also enclose my company's check to pay the required $100.00 filing fee.

The original application for this discharge plan was submitted in April 1992. Since no changes have been made in the plan, we wish to resubmit our discharge plan in its original form for your approval.

A copy of this letter and the application for renewal are being sent to your District 1 office in Hobbs.

Thank you,

Joe Christie
President, Christie Gas Corporation

cc: District 1 Office

901 MOPAC SOUTH • BLDG. 2, SUITE 515 • AUSTIN, TX 78746 • (512) 327-9510 • (512) 327-5272 FAX

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised January 24, 2001

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES, GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☒ Renewal ☐ Modification

1. Type: GAS PLANT
2. Operator: CHRISTIE GAS CORP.
   Address: PO BOX 1345 JAL, NM 88252
   Contact Person: KEN PARKER Phone: 505-395-2632
3. Location: ____/4 ____/4 Section 32 Township 23 S Range 37 E
   Submit large scale topographic map showing exact location.
4. Attach the name, telephone number and address of the landowner of the facility site.
5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.
6. Attach a description of all materials stored or used at the facility.
7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.
8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.
9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.
10. Attach a routine inspection and maintenance plan to ensure permit compliance.
11. Attach a contingency plan for reporting and clean-up of spills or releases.
12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.
13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.
14. CERTIFICATION I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: JOE CHRISTIE Title: PRESIDENT

Signature: J C Christie Date: 8/21/2002

OCD ENVIRONMENTAL BUREAU

SITE INSPECTION SHEET

DATE: 5-15-02 Time: 10:30 AM

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 ☐ GW# 07

FACILITY NAME: JAL #4 - LPG STORAGE
PHYSICAL LOCATION: 32° 16" 13.9' N / 103° 11" 33.2' W
Legal: QTR___QTR___ Sec___ TS___ R___ County LEA

OWNER/OPERATOR (NAME) CHRISTIE GAS CORP.
Contact Person: KEN PARKER Tele:# 505-375-2632
MAILING ADDRESS: _____ State___ ZIP___
Owner/Operator Rep's:

OCD INSPECTORS: W PRICE E. MARTIN

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.

PIC #4- NEED PROPER CONTAINMENT

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.

PIC #3 - PRODUCT INJECTION PUMP HOUSE + PUMP OIL WASTE (SINGLE WALL)

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.

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.

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.

PIC - #5 OLD OIL/WATER SEPARATOR BELOW GRADE TANKS - PIC #6 - NORTH BRINE POND - PIC #7 N POND LEAK DETECTION PRIMARY ~~LEAK~~ LINER HAD LEAK, BEEN REPAIRED

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.

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.

ON-SITE SWD-(214) CLASS II SHELL STATE SWD #13-L 32-29-37
API 30-025-10920

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 ☐

SEPTIC TANK - GREY WATER ONLY

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.

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?

- GAS PLANT HAS BEEN SHUT DOWN - ONLY LPG STORAGE
- ACTIVE GROUNDWATER REMEDIATION ON GOING

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

— NO —

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

15. Documents reviewed:

Miscellaneous Comments:

PIC # 1 - SIGN, PIC # 2 - STORAGE WELL #2 (EMPTY - C_3H_8 PROPANE) & BUTANE
PIC # 8 - STORAGE WELL #3
PIC # 9 - " " # 4 (ON TEST) - BACKGROUD S POND
PIC # 10 - RECOVERY WELL EAST of S BRINE POND - LOOKING NW
PIC # 11 - STORAGE WELL # 1

Photos taken: _____

Documents Reviewed/Collected: _____

Picture #1- Plant entrance sign.


Picture # 4- Empty drum storage area.


Picture # 2- Storage well #2- empty.


Picture # 5- Out of service Oil/Water separators below grade tanks.


Picture # 3- Product Injection Pump House and waste pump oil sump single wall.

Picture # 6- North Brine Pond looking east.

Picture # 7- North brine pond leak detection. Background shows plant SWD well system. Looking North.

Picture # 10- Groundwater Remediation Recovery well. Located east of south Brine Pond. Looking NW.

Picture # 8- Storage well # 3

Picture # 11- Storage well #1.

Picture # 9- Storage well # 4 (on test).

Christie Gas Plant and LPG Underground Storage System GW-07
OCD Discharge Plan Inspection: By W Price, E Martin
May 15, 2002 Page 1

Picture #1- Plant entrance sign.


Picture # 4- Empty drum storage area.

Picture # 2- Storage well #2- empty.

Picture # 5- Out of service Oil/Water separators below grade tanks.


Picture # 3- Product Injection Pump House and waste pump oil sump single wall.

Picture # 6- North Brine Pond looking east.

Picture # 7- North brine pond leak detection. Background shows plant SWD well system. Looking North.

Picture # 10- Groundwater Remediation Recovery well. Located east of south Brine Pond. Looking NW.

Picture # 8- Storage well # 3

Picture # 11- Storage well #1.

Picture # 9- Storage well # 4 (on test).

Picture #1- Plant entrance sign.


Picture # 4- Empty drum storage area.

Picture # 2- Storage well #2- empty.

Picture # 5- Out of service Oil/Water separators below grade tanks.


Picture # 3- Product Injection Pump House and waste pump oil sump single wall.

Picture # 6- North Brine Pond looking east.

Picture # 7- North brine pond leak detection. Background shows plant SWD well system. Looking North.

Picture # 10- Groundwater Remediation Recovery well. Located east of south Brine Pond. Looking NW.

Picture # 8- Storage well # 3

Picture # 11- Storage well #1.

Picture # 9- Storage well # 4 (on test).

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

2040 Pacheco St.
Santa Fe, NM 87505

WELL API NO.

5. Indicate Type of Lease STATE ☑ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: State LPG Storage Well

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER LPG Storage

2. Name of Operator: Christie Gas Corporation

8. Well No.: 2

3. Address of Operator: P.O. Box 1345, Jal NM 88252

9. Pool name or Wildcat: Salado

4. Well Location
Unit Letter M : 100 Feet From The South Line and 280 Feet From The West Line
Section 32 Township 23S Range 37E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS. ☐	PLUG AND ABANDONMENT ☐
PULL OR ALTER CASING ☐		CASING TEST AND CEMENT JOB ☐	
OTHER: Mechanical Integrity Test ☑		OTHER: ☐	

12. Describe Proposed or Completed Operations (*Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work*) SEE RULE 1103.

See Attachments

RECEIVED
MAY 29 2002
Environmental Bureau
Oil Conservation Division

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Ken Parker TITLE Manager DATE 4-16-02

TYPE OR PRINT NAME Ken Parker TELEPHONE NO. 505-395-2632

(This space for State Use)

APPROVED BY [signature] TITLE ENVR BUREAU DATE 6/28/02

CONDITIONS OF APPROVAL, IF ANY:

METERING & TESTING SERVICES, INC.
CALIBRATION REPORT

COMPANY: Metering & Testing	LEASE: Shop	DATE: 3-29-2002
COUNTY: Midland	STATE: Tx.	LOCATION: Shop
PURCHASER:	PIPELINE CONNECTION:	STATION NUMBER:
METER OF METER: Metserco	SERIAL NUMBER: MFG 0521	GAS GRAVITY:
~~DIFF. RANGE:~~	STATIC RANGE: 1500# X 1500#	TEMP. RANGE:
AVERAGE DIFF:	AVERAGE STATIC:	AVERAGE TEMP:
LINE SIZE:	UPSTREAM:	DOWNSTREAM:
ORIFICE SIZE:	ORIFICE CONDITION:	SEAL CONDITION:
FLANGE OR PIPE TAP:	VANES:	CALC. BETA RATIO:
PEN ARC: O.K.	PEN DRAG: O.K.	CLOCK ROTATION: 24 HR.

METER CALIBRATION DATA

1500# X 1500#

~~DIFFERENTIAL~~ STATIC		STATIC		TEMPERATURE	
FOUND PK DIFF	LEFT PK DIFF	FOUND DW STATIC	LEFT DW STATIC	FOUND THERM. TEMP.	LEFT THERM. TEMP.
0-0	0-0	0-0	0-0		
300-300	100-100	300-300	100-100		
600-600	300-300	600-600	300-300		
900-900	600-600	900-900	600-600		
1200-1200	900-900	1200-1200	900-900		
1500-1500	1200-1200	1500-1500	1200-1200		
	1500-1500		1500-1500		
	1200-1205		1200-1205		
	900-905		900-905		
	600-605		600-605		
	300-305		300-305		
	100-100		100-100		
	0-0		0-0		

REMARKS: METER (WAS / WAS NOT) IN CALIBRATION AS FOUND.

TESTER: B Elliott

WITNESS:

WITNESS:

RECEIVED
MAY 29 2002
Environmental Bureau
Oil Conservation Division

Christie Gas Corporation
State LPG Storage Well No. 2

Cavern Capacity: 130,201 Barrels
Pressure Medium: Used 7,019 gallons of propane to pressure test cavern

March 21, 2002: Injected fresh water into tubing until brine water surfaced at the casing vent. Shut well in. Tubing and casing pressures were 90 pounds.

April 17, 2002: A 1,500-pound dual pen recorder was connected to the tubing and casing. Propane was injected into the casing until the pressure reached 880 pounds. The tubing pressure increased to 560 pounds.

April 18, 2002: Injected propane into the casing until the pressure reached 982 pounds. Tubing pressure increased to 677 pounds. Well was blinded off for test.

April 19, 2002: Well stabilizing.
Casing Pressure: 965 @ 1:00 PM
Tubing Pressure: 650 @ 1:00 PM

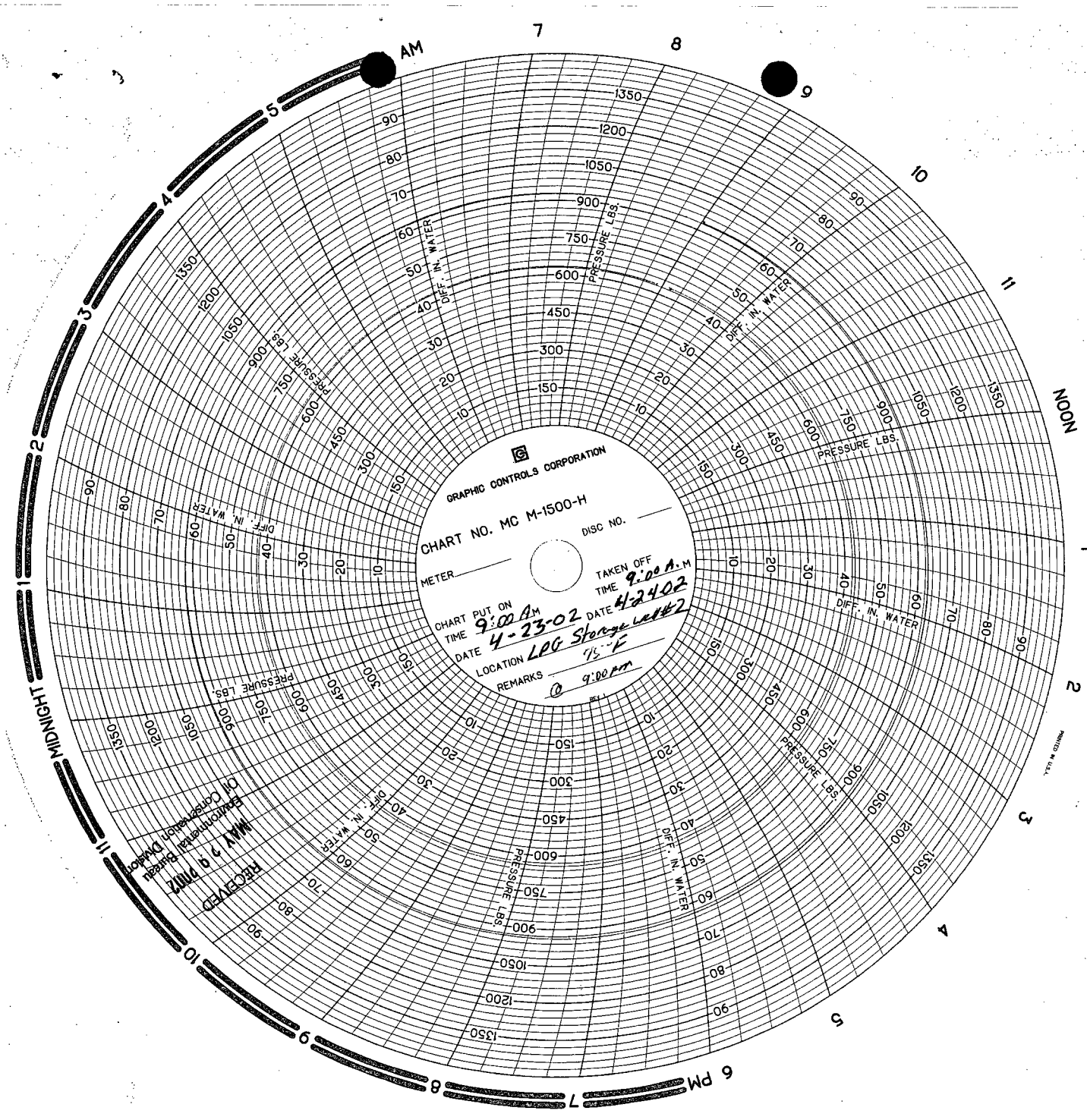
April 20, 2002: Well stabilizing.
Casing Pressure: 960 @ 1:00 PM
Tubing Pressure: 645 @ 1:00 PM

April 21, 2002: Well test.
Casing Pressure: 935 @ 1:00 PM
Tubing Pressure: 635 @ 1:00 PM

April 22, 2002: Well test.
Casing Pressure: 938 @ 1:00 PM
Tubing Pressure: 940 @ 1:00 PM

April 23, 2002: Well test.
Casing Pressure: 938 @ 1:00 PM
Tubing Pressure: 940 @ 1:00 PM

April 23, 2002: Well stabilized for three-day test. Charts furnished for test.


AM
NOON
MIDNIGHT
6 PM
GRAPHIC CONTROLS CORPORATION
CHART NO. MC M-1500-H
METER
DISC NO.
TAKEN OFF TIME 9:00 A.M
CHART PUT ON TIME 9:00 AM DATE 4-23-02
DATE 4/24/02
LOCATION LPG Storage Unit #2
REMARKS 75° F
@ 9:00 am
PRESSURE LBS.
DIFF. IN. WATER
RECEIVED
MAY 2 9 2002
Environmental Bureau
Oil Conservation Division

Texas LPG Storage Company
Phone: 505-395-2632
Fax: 505-395-2260

Texas LPG Storage Company

Fax

To:	Wayne Price	**From:**	Ken Parker
Fax:	505-476-3462	**Pages:**	2 + cover sheet
Phone:	505-476-3487	**Date:**	10/23/02
Re:	Discharge Plan Renewal	**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

● **Comments:**

Wayne,

Check 6972 has not clearec the bank. Bob wants to know if the check is in processing or do we need to issue another . Let me knc w what Christie Gas needs to do.

Ken

CHRISTIE GAS CORPORATION

August 21, 2002

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: Roger Anderson

Re: Renewal of Discharge Plan GW-007 for Christie Gas Corporation

Dear Mr. Anderson:

Enclosed are an Original and one copy of my company's application for renewal of its discharge plan for the Jal 4 plant that my company operates in Lea County. I also enclose my company's check to pay the required $100.00 filing fee.

The original application for this discharge plan was submitted in April 1992. Since no changes have been made in the plan, we wish to resubmit our discharge plan in its original form for your approval.

A copy of this letter and the application for renewal are being sent to your District 1 office in Hobbs.

Thank you,

Joe Christie
President, Christie Gas Corporation

cc: District 1 Office

901 MOPAC SOUTH • BLDG. 2, SUITE 515 • AUSTIN, TX 78746 • (512) 327-9510 • (512) 327-5272 FAX

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised January 24, 2001

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES, GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

[ ] New [X] Renewal [ ] Modification

1. Type: GAS PLANT
2. Operator: CHRISTIE GAS CORP.
   Address: PO BOX 1345 JAL, NM 88252
   Contact Person: KEN PARKER Phone: 505-395-2632
3. Location: ____/4 ____/4 Section 31 Township 23 S Range 37 E
   Submit large scale topographic map showing exact location.
4. Attach the name, telephone number and address of the landowner of the facility site.
5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.
6. Attach a description of all materials stored or used at the facility.
7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.
8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.
9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.
10. Attach a routine inspection and maintenance plan to ensure permit compliance.
11. Attach a contingency plan for reporting and clean-up of spills or releases.
12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.
13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.
14. CERTIFICATION: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: JOE CHRISTIE Title: PRESIDENT

Signature: J Christie Date: 8/21/2002

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, KATHI BEARDEN

Publisher

of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period.

of 1

weeks.

Beginning with the issue dated

September 10 2002

and ending with the issue dated

September 10 2002

Kathi Bearden

Publisher

Sworn and subscribed to before me this 10th day of September 2002

Jodi Henson

Notary Public.

My Commission expires
October 18, 2004
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE
September 10, 2002
NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES
DEPARTMENT OIL CONSERVATION DIVISION

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

(GW-007) – Christie Gas Corporation, Mr. Joe Christie, P.O. Box 1345, Jal, New Mexico 88252, has submitted a discharge plan renewal application for their Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant wastewater will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.
A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 28th day of August, 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY, Director
(seal)
#19222

Approved 9/19/02

01100060000 02558833

State of New Mexico Oil &
1220 S. St. Francis
Santa Fe, NM 87505

Advertising Receipt

Hobbs Daily News-Sun
201 N Thorp
P O Box 850
Hobbs, NM 88241-0850
Phone: (505) 393-2123
Fax: (505) 397-0610

OIL CONSERVATION DIV
02 SEP 13 PM 1:

Ed Martin
State of New Mexico Oil &
Conservation Division *
1220 S. St. Francis
Santa Fe, NM 87505

Cust#: 01100060-000
Ad#: 02558833
Phone: (505)476-3492
Date: 09/05/02

Ad taker: Meg **Salesperson:** 08 **Classification:** 672

Description	Start	Stop	Ins.	Cost/Day	Surcharges	Total
07 07 Daily News-Sun	09/10/02	09/10/02	1	53.68		53.68
Affidavit for legals						2.00

Payment Reference:

Total:	55.68
Tax:	0.00
Net:	55.68
Prepaid:	0.00
Total Due	55.68

LEGAL NOTICE
September 10, 2002
NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

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

(GW-007) – Christie Gas Corporation, Mr. Joe Christie, P.O. Box 1345, Jal, New Mexico 88252, has submitted a discharge plan renewal application for their Jal #4 Gas Plant located in Section 31 and

THE SANTA FE
NEW MEXICAN
Founded 1849

02 SEP 12 PM 2:23 OIL CONSERVATION DIVISION

ATTN: ED MARTIN
NM OIL CONSERVATION DIVISION
ENVIRONMENTAL BUREAU
1220 S. ST. FRANCIS DR. AD NUMBER: 279901 ACCOUNT: 56639
SANTA FE, NM 87505 LEGAL NO: 72115 P.O.#: 0319900050
175 LINES 1 time(s) at $ 77.14
AFFIDAVITS: 5.25
TAX: 5.15
TOTAL: 87.54

NOTICE OF PUBLICATION

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan application has been submitted to the Director of the Oil Conservation Division; 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(GW-007) - Christie Gas Corporation, Mr. Joe Christie, P.O. Box 1345, Jal, New Mexico 88252, has submitted a discharge plan renewal application for their Jal #4 Gas Plant located in Section 31 and Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant wastewater will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by an accidental discharge is at a depth of 105 feet with a total dissolved solids concentration of 7500 mg/l. The discharge plan addresses how spill, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held.

A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 28th day of August, 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL
LORI WROTENBERY, Director
Legal #72115
Pub. Sept. 10, 2002

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE

I, K. Voorhees being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily newspaper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a Newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication #72115 a copy of which is hereto attached was published in said newspaper 1 day(s) between 09/10/2002 and 09/10/2002 and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 10 day of September, 2002 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ K. Voorhees
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 10 day of September A.D., 2002

Notary Laura S. Hardy

Commission Expires 4/23/03

Approved 9/12/02

CHRISTIE GAS CORPORATION

August 21, 2002

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Attention: ~~Roger Anderson~~ WAYNE PRICE

Re: Renewal of Discharge Plan GW-007 for Christie Gas Corporation

Dear ~~Mr. Anderson~~: MR. PRICE

Enclosed are an Original and one copy of my company's application for renewal of its discharge plan for the Jal 4 plant that my company operates in Lea County. I also enclose my company's check to pay the required $100.00 filing fee.

The original application for this discharge plan was submitted in April 1992. Since no changes have been made in the plan, we wish to resubmit our discharge plan in its original form for your approval.

A copy of this letter and the application for renewal are being sent to your District 1 office in Hobbs.

Thank you,

Joe Christie
President, Christie Gas Corporation

cc: District 1 Office

901 MOPAC SOUTH • BLDG. 2, SUITE 515 • AUSTIN, TX 78746 • (512) 327-9510 • (512) 327-5272 FAX

Joe:

This is all the information you will need for the Discharge Plan Renewal. Roger told me that the cover letter would need to address two issues. The date the original application was submitted, (April 1992) and the new 2002 Discharge Plan is to be submitted in its original form without changes. All we need is the cover letter; application form and $100.00 filing fee.

Roger Anderson (505) 476-3490
Environmental Bureau

Change of Address
State of New Mexico
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

RE: Discharge Plan Renewal GW-7 for Christie Gas Cooperation

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

2040 Pacheco St.
Santa Fe, NM 87505

WELL API NO.

5. Indicate Type of Lease STATE ☑ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: State LPG Storage Well

1. Type of Well: OIL WELL ☐ GAS WELL ☐ OTHER LPG Storage

2. Name of Operator: Christie Gas Corporation

8. Well No. 3

3. Address of Operator: P.O. Box 1345, Jal NM 88252

9. Pool name or Wildcat: Langlie Mattix

4. Well Location

Unit Letter M : 1000 Feet From The South Line and 530 Feet From The West Line

Section 32 Township 23S Range 37E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER: Mechanical Integrity Test	☑			OTHER:			☐

12. Describe Proposed or Completed Operations *(Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work)* SEE RULE 1103.

See Attachments

RECEIVED
MAY 29 2002
Environmental Bureau
Oil Conservation Division

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Ken Packer TITLE Manager DATE 5-16-02

TYPE OR PRINT NAME Ken Packer TELEPHONE NO. 505-395-2632

(This space for State Use)

APPROVED BY [signature] TITLE ENVL BUREAU DATE 6/28/02

CONDITIONS OF APPROVAL, IF ANY:

METERING & TESTING SERVICES, INC.
CALIBRATION REPORT

COMPANY: Metering & Testing	LEASE: Shop	DATE: 3-29-2002
COUNTY: Midland	STATE: TX.	LOCATION: Shop
PURCHASER:	PIPELINE CONNECTION:	STATION NUMBER:
MAKE OF METER: Metserco	SERIAL NUMBER: MFG 0521	GAS GRAVITY:
~~DIFF. RANGE:~~	STATIC RANGE: 1500# X 1500#	TEMP. RANGE:
AVERAGE DIFF:	AVERAGE STATIC:	AVERAGE TEMP:
LINE SIZE:	UPSTREAM:	DOWNSTREAM:
ORIFICE SIZE:	ORIFICE CONDITION:	SEAL CONDITION:
FLANGE OR PIPE TAP:	VANES:	CALC. BETA RATIO:
PEN ARC: O.K.	PEN DRAG: O.K.	CLOCK ROTATION: 24 HR.

METER CALIBRATION DATA

1500# X 1500#

~~DIFFERENTIAL~~ STATIC		STATIC		TEMPERATURE	
FOUND PK DIFF	LEFT PK DIFF	FOUND DW STATIC	LEFT DW STATIC	FOUND THERM. TEMP.	LEFT THERM. TEMP.
0-0	0-0	0-0	0-0		
300-300	100-100	300-300	100-100		
600-600	300-300	600-600	300-300		
900-900	600-600	900-900	600-600		
1200-1200	900-900	1200-1200	900-900		
1500-1500	1200-1200	1500-1500	1200-1200		
	1500-1500		1500-1500		
	1200-1205		1200-1205		
	900-905		900-905		
	600-605		600-605		
	300-305		300-305		
	100-100		100-100		
	0-0		0-0		

REMARKS: METER (WAS) / WAS NOT) IN CALIBRATION AS FOUND.

TESTER: B. Elliott

WITNESS:

WITNESS:

RECEIVED
MAY 29 2002
Environmental Bureau
Oil Conservation Division

Christie Gas Corporation
State LPG Storage Well No. 3

Cavern Capacity: 130,201 Barrels
Pressure Medium: Used 5, 862 gallons of propane to pressure test cavern.

March 22, 2002: Injected fresh water into tubing until brine water surfaced at the casing vent. Shut well in. Tubing pressure stabilized at 60 pounds. Casing pressure stabilized at 120 pounds.

April 24, 2002: A 1,500-pound dual pen recorder was connected to the tubing and casing.

April 25, 2002: Injected propane into casing pressure reached 970 pounds. Tubing pressure increased to 525 pounds. Well was blinded off for test.

April 26, 2002: Well stabilizing.
Casing Pressure: 945 @ 1:00 PM
Tubing Pressure: 505 @ 1:00 PM

April 27, 2002: Well stabilizing
Casing Pressure: 945 @ 1:00 PM
Tubing Pressure: 505 @ 1:00 PM

April 28, 2002: Well stabilizing
Casing Pressure: 940 @ 1:00 PM
Tubing Pressure: 500 @ 1:00 PM

April 29, 2002: Well stabilizing
Casing Pressure: 940 @ 1:00 PM
Tubing Pressure: 500 @ 1:00 PM

April 30, 2002: Well stabilizing
Casing Pressure: 940 @ 1:00 PM
Tubing Pressure: 500 @ 1:00 PM

May 1, 2002: Well stabilizing.
Casing Pressure: 935 @ 1:00 PM
Tubing Pressure: 490 @ 1:00 PM

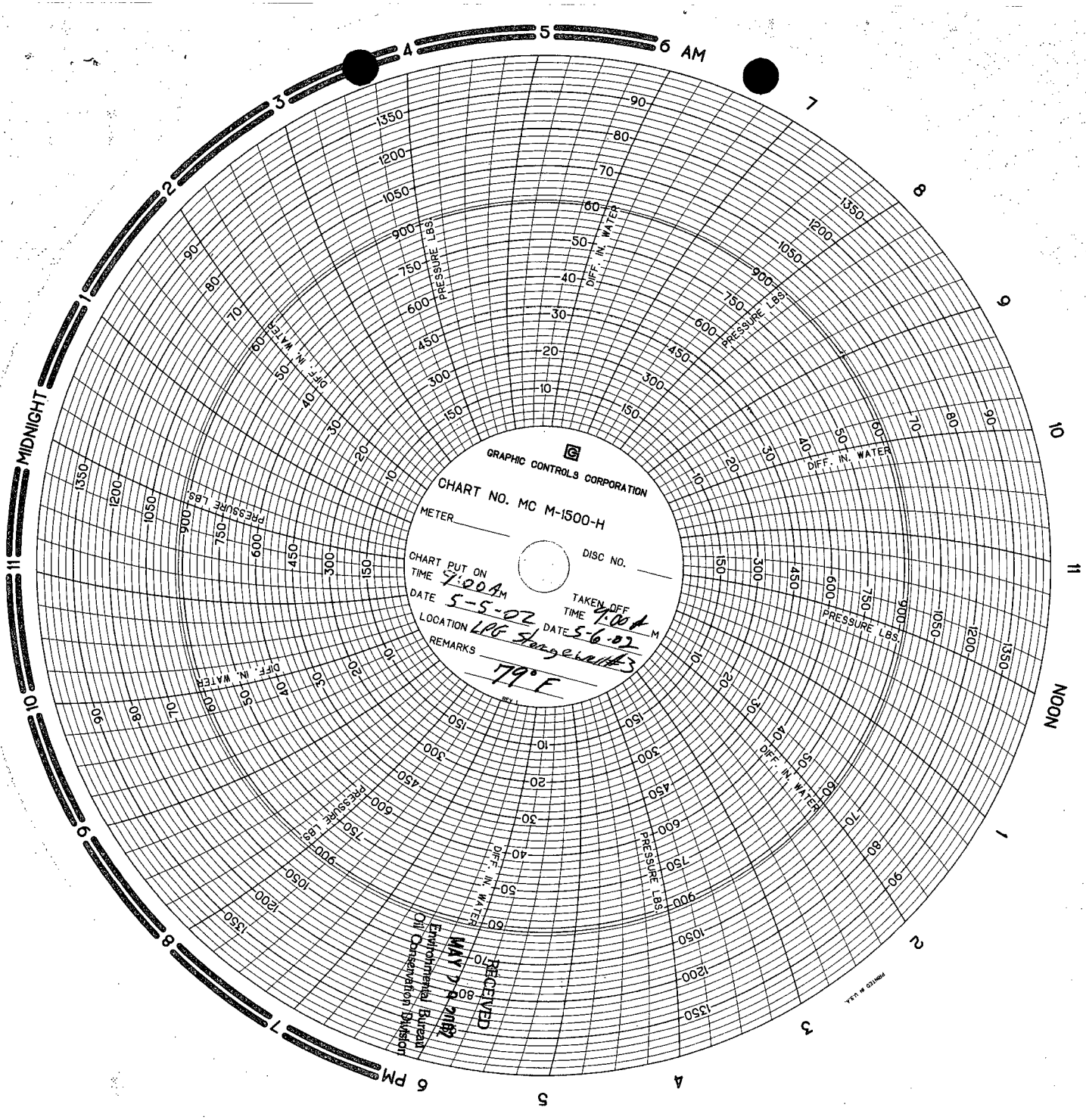
May 2, 2002: Well stabilizing.
Casing Pressure: 925 @ 1:00 PM
Tubing Pressure: 480 @ 1:00 PM

May 3, 2002: Well test.
Casing Pressure: 925 @ 1:00 PM
Tubing Pressure: 480 @ 1:00 PM

May 4, 2002: Well test.
Casing Pressure: 925 @ 1:00 PM
Tubing Pressure: 480 @ 1:00 PM

May 5, 2002: Well test.
Casing Pressure: 925 @ 1:00 PM
Tubing Pressure: 480 @ 1:00 PM

May 5, 2002: Well stabilized for three-day test. Charts furnished for test.


GRAPHIC CONTROLS CORPORATION
CHART NO. MC M-1500-H
METER
DISC NO.
CHART PUT ON
TIME 7:00 AM
DATE 5-5-02
TAKEN OFF
TIME 7:00 A M
DATE 5-6-02
LOCATION LNG Storage Well #3
REMARKS
79° F
MIDNIGHT
6 AM
NOON
6 PM
PRESSURE LBS.
DIFF. IN. WATER
RECEIVED
MAY 7 2002
Environmental Bureau
Oil Conservation Division

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION

2040 Pacheco St.
Santa Fe, NM 87505

WELL API NO.

5. Indicate Type of Lease STATE ☑ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name

1. Type of Well:
OIL WELL ☐ GAS WELL ☐ OTHER LPG Storage

2. Name of Operator
Christie Gas Corporation

8. Well No. 4

3. Address of Operator
P.O. Box 1345, Jal NM 88252

9. Pool name or Wildcat
Laughlin Mattix

4. Well Location
Unit Letter M : 1000 Feet From The South Line and 1230 Feet From The West Line

Section 32 Township 23S Range 37E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER: Mechanical Integrity test	☑			OTHER:			☐

12. Describe Proposed or Completed Operations *(Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work)* SEE RULE 1103.

See Attachment

RECEIVED
MAY 29 2002
Environmental Bureau
Oil Conservation Division

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Ken Parker TITLE Manager DATE 5-16-02

TYPE OR PRINT NAME Ken Parker TELEPHONE NO. 505-395-2632

(This space for State Use)

APPROVED BY W Price TITLE Envt Bureau DATE 6/28/02

CONDITIONS OF APPROVAL, IF ANY:

METERING & TESTING SERVICES, INC.
CALIBRATION REPORT

COMPANY: Metering & Testing	LEASE: Shop	DATE: 3-29-2002
COUNTY: Midland	STATE: Tx.	LOCATION: Shop
PURCHASER:	PIPELINE CONNECTION:	STATION NUMBER:
MAKE OF METER: Metserco	SERIAL NUMBER: MFG 0521	GAS GRAVITY:
~~DIFF. RANGE:~~	STATIC RANGE: 1500# X 1500#	TEMP. RANGE:
AVERAGE DIFF:	AVERAGE STATIC:	AVERAGE TEMP:
LINE SIZE:	UPSTREAM:	DOWNSTREAM:
ORIFICE SIZE:	ORIFICE CONDITION:	SEAL CONDITION:
FLANGE OR PIPE TAP:	VANES:	CALC. BETA RATIO:
PEN ARC: O.K.	PEN DRAG: O.K.	CLOCK ROTATION: 24 Hr.

METER CALIBRATION DATA

1500# X 1500#

~~DIFFERENTIAL~~ STATIC		STATIC		TEMPERATURE	
FOUND PK DIFF	LEFT PK DIFF	FOUND DW STATIC	LEFT DW STATIC	FOUND THERM. TEMP.	LEFT THERM. TEMP.
0-0	0-0	0-0	0-0		
300-300	100-100	300-300	100-100		
600-600	300-300	600-600	300-300		
900-900	600-600	900-900	600-600		
1200-1200	900-900	1200-1200	900-900		
1500-1500	1200-1200	1500-1500	1200-1200		
	1500-1500		1500-1500		
	1200-1205		1200-1205		
	900-905		900-905		
	600-605		600-605		
	300-305		300-305		
	100-100		100-100		
	0-0		0-0		

REMARKS: METER (WAS) / WAS NOT) IN CALIBRATION AS FOUND.

TESTER: B. Elliott

WITNESS:

WITNESS:

RECEIVED
MAY 29 2002
Environmental Bureau
Oil Conservation Division

Christie Gas Corporation
State LPG Storage Well No. 4

Cavern Capacity: 80,508 Barrels.
Pressure Medium: Used 6,800 gallons of propane to pressure test cavern.

March 22, 2002: Injected fresh water into the tubing until brine water surfaced at the casing vent. Casing pressure was 195 pounds. Tubing pressure was 60 pounds.

May 7, 2002: A 1,500-pound dual pen recorder was connected to the tubing and casing. Propane was injected into the casing until the pressure reached 990 pounds. The tubing pressure was reading 542 pounds.

May 8, 2002: Well stabilizing.
Casing Pressure: 950 @ 1:00 PM
Tubing Pressure: 520 @ 1:00 PM

May 9, 2002: Well stabilizing.
Casing Pressure: 940 @ 1:00 PM
Tubing Pressure: 510 @ 1:00 PM

May 10, 2002: Well stabilizing.
Casing Pressure: 930 @ 1:00 PM
Tubing Pressure: 510 @ 1:00 PM

May 11, 2002: Well test.
Casing Pressure: 930 @ 1:00 PM
Tubing Pressure: 508 @ 1:00 PM

May 12, 2002: Well test.
Casing Pressure: 930 @ 1:00 PM
Tubing Pressure: 508 @ 1:00 PM

May 13, 2002: Well test.
Casing Pressure: 930 @ 1:00 PM
Tubing Pressure: 508 @ 1:00 PM

May 13, 2002: Well stabilized for three-day test. Charts furnished for test.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SAXED 2/8/99

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 10:50 AM	Date 2/8/99

Originating Party	Other Parties
W PRICE - OCD	NANCY STEED - CHRISTIE
	512-327-9510 · FAX 512-327-5272

Subject: JAL GAS PLANT #4
GW-007

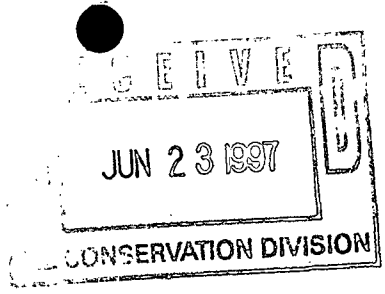
Discussion: DISCHARGE PLAN FEE 6 MO's PAST DUE!
PLEASE SUBMIT $1334.00 WITHIN 10 DAYS OR OCD WILL ISSUE NOTICE of VIOLATION (N.O.V)

Conclusions or Agreements

IF $1334.00 IS RECEIVED WITHIN 10 DAYS OCD WILL FORE go ANY N.O.V. - SEND TO ATT: R. ANDERSON - OCD

Distribution

Signed
W. PRICE



June 18, 1997

Mr. William J. LeMay
Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Dear Mr. LeMay:

Enclosed is a signed copy of the "Attachment to Discharge Plan GW-007" which you requested that our company return to you. Also enclosed is our company's check for $333.50 to pay the first installment of the flat fee. I have already sent a check for $50.00 for the filing fee on June 11, 1997 which could not have reached your office before you sent your letter.

Please let me know if I can be of any further assistance in this matter.

Sincerely,

Michael H. Cramer

CHRISTIE GAS CORPORATION

BARTON OAKS PLAZA TWO, SUITE 515
901 MOPAC EXPRESSWAY SOUTH
AUSTIN, TEXAS 78746

512 327-9510
512 327-5272 FAX

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan application and renewal applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-281) - Weatherford Enterra US, Ms. Lesa Griffin, (713)-693-4922, 515 Post Oak Bvld., Suite 600, Houston, TX, 77027, has submitted a Discharge Plan Application for their Farmington facility located in the SE/4 SW/4, Section 13, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 40 feet with a total dissolved solids concentration of approximately 1,000 to 2,000 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-123) - Yates Petroleum Corporation, Mr. John Brown, (505)-748-4219, 105 S. 4th Street, Artesia, NM, 88210, has submitted a Discharge Plan Renewal Application for their "Seven Rivers" compressor station located in the NW/4 NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 800 feet with a total dissolved solids concentration of approximately 2260 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-007) - Christie Gas Corporation, Mr. Mike Cramer, (512)-327-9510, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, TX, 78746, has submitted a Discharge Plan Renewal Application for their "Jal #4" gas plant located in Section 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant waste water will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

The Santa Fe New Mexican
Since 1849. We Read You.

NM OIL DIVISION
ATTN: SALLY MARTINEZ
2040 S. PACHECO ST.
SANTA FE, NM 87505

AD NUMBER: 629628 ACCOUNT: 56689
LEGAL NO: 61564 P.O. #: 96-199-002

252	LINES	ONCE	at $ 100.80
Affidavits:			5.25
Tax:			6.63
Total:			$ 112.68

RECEIVED
APR 28 1997
Environmental Bureau
Oil Conservation Division

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE

I, BETSY PERNER being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily news paper published in the English language, and having a general circulation in the Counties Santa Fe and Los Alamos, State of New Mexico and being a Ne paper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws o 1937; that the publication # 61564 a copy of which is hereto attached was published in said newspaper once each WEEK for ONE consecutive week(s) and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 21 day of APRIL 1997 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ Betsy Perner
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 21 day of APRIL A.D., 1997

Notary Candace C. Ruiz
Commission Expires 9/29/98

OFFICIAL SEAL
Candace C. Ruiz
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires:

NOTICE OF PUBLICATION

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan application and renewal applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico, 87505, Telephone (505) 827-7131:

(GW-281) - Weatherford Enterra US, Ms. Lesa Griffin, (713)-693-4922, 515 Post Oak Blvd., Suite 600, Houston, TX 77027, has submitted a Discharge Plan Application for their Farmington facility located in the SE/4 SW/4, Section 13, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 40 feet with a total dissolved solids concentration of approximately 1,000 to 2,000 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-123) - Yates Petroleum Corporation, Mr. John Brown, (505)-748-4219, 105 S. 4th Street, Artesia, NM, 88210, has submitted a Discharge Plan Renewal Application for their "Seven Rivers" compressor station located in the NW/4 NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Any potential discharge at the facility will be stored in a closed to receptacle. Grondwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 800 feet with a total dissolved solids concentration of approximately 2260 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-007) - Christie Gas Corporation, Mr. Mike Cramer, (512)-327-9510, Barton Oaks Plaza Two, Suite 515, 901 Mo-Pac Expressway South, Austin, TX, 78746, has submitted a Discharge Plan Renewal Application for their "Jal #4" gas plant located in Section 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant waste water will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. 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 there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on the information in the discharge plan application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 14th day of April 1997.

STATE OF NEW MEXICO
OIL CONSERVATION
DIVISION
WILLIAM J. LEMAY,
Director
Legal #61564
Pub. April 21, 1997

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

Notice of Publication

was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, for one(1) day, beginning with the issue of

April 18, 19 97

and ending with the issue of

April 18, 19 97

And that the cost of publishing said notice is the sum of $ 75.20

which sum has been (Paid) (Assessed) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 22nd day of April, 19 97

Jean Henson

Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 19 98

LEGAL NOTICE
NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan application and renewal applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505)827-7131:

(GW-281)-Weatherford Enterra US, Ms. Lesa Griffin, (713)-693-4922, 515 Post Oak Bvld., Suite 600, Houston, TX, 77027, has submitted a Discharge Plan Application for their Farmington facility located in the SE/4 SW/4, Section 13, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 40 feet with a total dissolved solids concentration of approximately 1,000 to 2,000 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-123) - Yates Petroleum Corporation, Mr. John Brown, (505)-748-4219, 105 S. 4th Street, Artesia, NM, 88210, has submitted a Discharge Plan Renewal Application for their "Seven Rivers" compressor station located in the NW/4 NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 800 feet with a total dissolved solids concentration of approximately 2260 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-007)-Christie Gas Corporation, Mr. Mike Cramer, (512)-327-9510, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, TX, 78746, has submitted a Discharge Plan Renewal Application for their "Jal #4" gas plant located in Section 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant waste water will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. 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 there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the discharge plan application and information submitted at the hearing.

GIVEN under the Seal of the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 14th day of April, 1997.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY,
Director
WJL/pws

(SEAL)

Published in the Lovington Daily Leader April 18, 1997.

RECEIVED
APR 28 1997
Environmental Bureau
Oil Conservation Division

Okay
DWG
4-28-97

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan application and renewal applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-281) - Weatherford Enterra US, Ms. Lesa Griffin, (713)-693-4922, 515 Post Oak Bvld., Suite 600, Houston, TX, 77027, has submitted a Discharge Plan Application for their Farmington facility located in the SE/4 SW/4, Section 13, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 40 feet with a total dissolved solids concentration of approximately 1,000 to 2,000 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-123) - Yates Petroleum Corporation, Mr. John Brown, (505)-748-4219, 105 S. 4th Street, Artesia, NM, 88210, has submitted a Discharge Plan Renewal Application for their "Seven Rivers" compressor station located in the NW/4 NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Any potential discharge at the facility will be stored in a closed top receptacle. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 800 feet with a total dissolved solids concentration of approximately 2260 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-007) - Christie Gas Corporation, Mr. Mike Cramer, (512)-327-9510, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, TX, 78746, has submitted a Discharge Plan Renewal Application for their "Jal #4" gas plant located in Section 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Plant waste water will be disposed of offsite in an OCD permitted injection well. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. 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 there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the discharge plan application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 14th day of April, 1997.

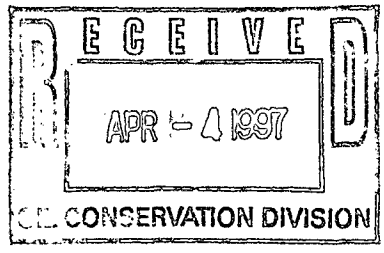
STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L

WILLIAM J. LEMAY, Director

WJL/pws

<File Copy>



April 3, 1997

RECEIVED
APR 04 1997
Environmental Bureau
Oil Conservation Division

Mr. William J. Lemay
Director
State of New Mexico
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Discharge Plan Application for Christie Gas Corporation's Jal 4 Facility

Dear Mr. Lemay:

Enclosed are three copies of Christie Gas Corporation's Jal 4 Facility discharge plan application for April 1997.

I trust that everything is in order but if you or your staff have any questions concerning this plan, please contact me at our Austin office.

Thank you for your attention to this matter.

Sincerely,

Michael H. Cramer
Controller

MHC:sw

encl. Discharge Plan Application

CHRISTIE GAS CORPORATION
BARTON OAKS PLAZA TWO, SUITE 515
901 MOPAC EXPRESSWAY SOUTH
AUSTIN, TEXAS 78746

512 327-9510
512 327-5272 FAX

CHRISTIE GAS CORPORATION

JAL NATURAL GAS PROCESSING PLANT

DISCHARGE PLAN APPLICATION

April, 1997

RECEIVED
APR 04 1997
Environmental Bureau
Oil Conservation Division

Christie Gas Corporation

Jal Natural Gas Processing Plant

Discharge Plan Application

Background Information

The site of Christie Gas Corporation's ("CGC") Jal Natural Gas Processing Plant is located in Section 31 and 32, T-23-S, R-37-E, Lea County, N.M. The CGC plant is a portion of the El Paso Natural Gas Company's ("EPNG") Jal No. 4 natural gas processing plant. The original EPNG plant was constructed in 1952 and consisted of a gasoline plant, a purification plant, a dehydration plant, and compression facilities. The plant treated, compressed, and transported natural gas to EPNG's main transmission pipeline for consumption further west. The plant was upgraded in 1959 with the addition of a new fractionating plant and underground propane storage wells. Other additions to the processes were added and deleted; however, the plant's function did not change appreciably until 1987 when plant operations were shutdown by EPNG.

In 1990, the gas compression facilities were sold to Sid Richardson Carbon and Gasoline Company. In 1991, the "B" gasoline plant, underground storage facilities, and wastewater disposal system were sold to CGC. In February, 1991, all facilities at the site that had not been sold to either CGC or Sid Richardson Carbon and Gasoline Company were demolished by EPNG. Since 1991, CGC has stored natural gas liquids in underground storage wells, loaded and unloaded trucks and railcars with natural gas liquids, and received natural gas liquids from pipelines owned by others.

The EPNG Jal No. 4 plant operated under a discharge plan that had been approved by the New Mexico Oil Conservation Division ("NMOCD") and identified as permit number GWR-7. This discharge plan application applies only to those facilities currently owned by CGC; however, some information required for this discharge plan will incorporate by reference information contained in EPNG's Jal No. 4 discharge plan. In addition, other agreements between the NMOCD and EPNG will be incorporated into this discharge plan application, if applicable.

I. General Information

A. Name of Discharger or Legally Responsible Party:

Christie Gas Corporation
Joe Christie, President
Barton Oaks Plaza Two, Suite 515
901 MoPac Expressway South
Austin, Tx 78746
Phone: 512/327-9510

B. Name of Local Representative or Contact Person:

Ken Parker
P.O. Box 1345
Jal, N.M. 88252
Phone: 505/395-2632

C. Location of Discharge:

CGC's Jal Natural Gas Processing Plant is located in Sections 31 and 32, T-23-S, R-37-E, Lea County, N.M. As mentioned previously, CGC's facilities incorporate portions of EPNG's Jal No. 4 Natural Gas Processing Plant. Tab "1" in CGC's January 1992 Discharge Plan Application contains an aerial photograph depicting those areas under ownership by CGC, EPNG, and Sid Richardson Carbon and Gasoline Company. Equipment and facilities relevant to CGC's discharge plan are also identified on this photograph. Tab "2" in CGC's January 1992 Discharge Plan Application contains a survey plat indicating land ownership relevant to the area of interest.

D. Type of Natural Gas Operation:

CGC's Jal Natural Gas Processing Plant consists of three major natural gas operations:

- Fractionating natural gas liquids; i.e., separating a stream of natural gas liquids into one or more of its components: butanes, ethane, propane and natural gasoline. A schematic diagram of the treating process is included in Tab "3" in CGC's January 1992 Discharge Plan Application and labeled in the aerial photograph included in Tab "1" in CGC's January 1992 Discharge Plan Application.

- Truck and railcar loading of natural gas liquids. The loading areas are identified in the aerial photograph included in Tab "1" in CGC's January 1992 Discharge Plan Application.

- Natural gas liquids storage through the use of underground storage domes. The location of the injection wells used for the storage wells are identified in the aerial photograph included in Tab "1" in CGC's January 1992 Discharge Plan Application.

Of the four major natural gas operations occurring at facility, only railcar loading truck loading and the underground storage of natural gas liquids are currently underway. There is no near-term plan for the operation of the treating facility;

however, CGC wishes to incorporate this operation in this application should a need to commence operation of this facility arise on short notice.

E. Affirmation

I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true and accurate and complete to the best of my knowledge and belief.

Joe Christie, President

4-3-97
Date

II Plant Processes

A. Sources and Quantities of Effluent and Process Fluids.

As mentioned previously, the four major natural gas operations that may be conducted at the facility are:

Natural gas liquids processing.

Railcar loading and off-loading of natural gas liquids.

Truck loading and off-loading of natural gas liquids.

Natural gas liquids storage through the use of underground storage domes.

Of the four operations, only the railcar loading, truck loading and underground storage operations are currently being utilized and no plans for use of the treating plant or fractionator are anticipated in the near future. It is CGC's intent however, to include all four operations within the context of this discharge plan application. The following narrative describes the four operations and the quantities and characteristics of effluent expected to be generated by each operation.

Natural Gas Liquids Processing-

The natural gas liquids treating and fractionating plant is designed to separate propane, butane, natural gasolines and other impurities from each other. A process flow sheet illustrating the major components of this system is included in Tab "3" in CGC's January 1992 Discharge Plan Application. With respect to the release of effluents from this process, all process equipment is connected to the facility's drain system which flows by gravity to a classifier which in turn separates insoluble hydrocarbon liquids from the wastewater. The insoluble hydrocarbon-bearing liquids are pumped to a storage tank and the wastewater is pumped to a nearby injection well for disposal. The disposal system will be discussed in greater detail in Part III of this application. **Because this facility is not currently in operation, it is not possible at this time to estimate the quantity of effluent that is expected to be generated by this operation; however, CGC will make this information available to the NMOCD as soon as it becomes available.**

Railcar Loading and Off-Loading of Natural Gas Liquids-

Natural gas liquids are loaded onto railcars via a loading rack. The liquids are pumped to the loading rack from either above-ground storage tanks, liquids pipelines owned by others, trucks, or underground storage facilities. The liquids being loaded onto railcars are delivered to CGC via truck, railcar and/or pipelines owned by others. No effluents are produced in this operation. Railcar off-loading is accomplished in the reverse order as described above.

Truck Loading and Off-Loading of Natural Gas Liquids

The liquids being loaded into trucks are delivered to CGC via pipeline owned by others. The liquids being off-loaded from trucks are injected into above-ground storage tanks or underground storage domes. No effluents are produced in either truck loading or off-loading.

Natural Gas Liquids Storage-

The facility includes four underground storage domes for the storage of propane and butane. Well integrity will be tested every three years by pressure testing each well. During the three years between scheduled tests if there is any indication that a well has lost product, it will be tested as soon as practical for integrity. A brine solution is used for removing the gas liquids from the dome; brine is pumped into the domes via injection wells and propane or butane is displaced from the domes. Brine is removed from the domes when butane or propane is injected into the domes; the displaced brine is stored in large double-lined ponds with leak detection systems. A new liner was installed in South pond in 1991 and in the North pond in 1992 to correct this problem. No liquid effluent is generated as a result of this operation.

B. Quality Characteristics

Because liquid wastes are not currently generated at the facility, it is not possible to provide data relative to the chemical characteristics of the waste streams that will be generated at the facility. Upon commencement of operations, CGC will collect samples and provide analytical data relative to the waste streams to the NMOCD. Unless otherwise required by the NMOCD, CGC proposes to collect samples from the classifier and waste oil tank to meet the requirements of waste stream characterization. In addition, samples from the brine storage ponds will be collected and analyzed should the ponds be put into use.

C. Transfer and Storage of Process Fluids and Effluents

The majority of process fluids and effluents generated at the facility will be from the natural gas treating and fractionating plant. The effluents generated will included primarily boiler blowdown water mixed with small quantities of produced water. The produced water will be generated as a result of the natural gas processing operation. As mentioned previously, the exact volume and chemical characteristic of this effluent stream cannot be quantified at this time; however, upon commencement of operations, samples will be collected and waste volumes will be measured to comply with NMOCD requirements.

The effluent stream from the processing and fractionating plant will be transported to a classifier via subsurface drain piping from the processing area. The classifier functions as a gravity separator where any hydrocarbon waste liquids are separated from the effluent. The lighter hydrocarbon waste liquids are conveyed from the classifier to a storage tank where the liquid is periodically removed from the tank and shipped to a waste oil reclamation facility. Because the plant is not currently operating, no contract has been executed with a waste oil reclamation facility; however, specific information relative to the reclamation operator will be provided to the NMOCD upon commencement of plant operations. The aqueous phase of the waste fluid in the classifier is conveyed first to an above ground surge tank and then pumped to a permitted disposal well which is located at the north end of the plant

site. Any solids that collect in the classifier will be periodically removed and disposed of in an environmentally acceptable manner. Tab "4" in CGC's January 1992 Discharge Plan Application contains a diagram illustrating the wastewater collection system for the natural gas processing plant.

Because the plant drain system is underground, CGC will test all drain lines prior to commencement of plant operations. CGC will utilize the same line testing methodology proposed by EPNG and accepted by the NMOCD in EPNG's Jal No. 4 discharge plan application (GWR-7). A copy of the EPNG drain line testing procedure is included in Tab "5" in CGC's January 1992 Discharge Plan Application. Drawings illustrating the drain piping locations are also included in Tab "5" in CGC's January 1992 Discharge Plan Application. Pending the results of the drain line tests, any necessary repairs will be made, or if repairs prove to be uneconomical, new drain lines will be installed.

The underground butane and propane storage facilities use a dense (25 lb.) brine solution for the removal of the butane or propane from the underground storage domes. The brine is pumped down into the storage domes to remove the product and when product is injected into the storage domes, the brine is displaced to the surface and stored in two double-lined storage ponds. Inspection of the ponds' leak detection monitor wells has revealed the possibility of leaks in both brine ponds at the time CGC purchased the property. The South pond has been repaired by installing a new liner and is currently in operation. The North pond has been repaired by installing a new liner and is currently in operation. The repair of both ponds have been conducted in the manner proposed by CGC and approved by NMOCD. Copies of the appropriate EPNG/NMOCD correspondence relative to pond repair are included in Tab "6" in CGC's January 1992 Discharge Plan Application.

Domestic sewage at the facility is contained within a septic tank system.

D. Spill/Leak Prevention and Housekeeping Procedures

In the event of a spill at the facility, CGC personnel will immediately take measures to contain the spilled materials and clean-up activities will be implemented in an expeditious manner. In addition, CGC will comply with all necessary spill reporting requirements as outlined in Rule 116 of the NMOCD's rules and regulations. CGC will comply with all applicable federal, state, or local regulations relative to spills not specifically mentioned in NMOCD Rule 116.

If in the event of normal plant operations, liquid effluents are generated as a result of vessel cleaning, such effluents will be conveyed to the classifier via the plant drainage system.

Because the classifier installation is partially below grade, the classifier and any other below-grade open-top tanks will be visually inspected annually to assure that the integrity of the vessel is intact.

As the brine storage ponds are placed into operation, the leak detection monitor wells will be inspected weekly to assure against any undetected leaks in the primary liner.

Should the need arise to shut-in the disposal well for a short period of time for repairs, CGC is confident that the 200-barrel classifier provides ample storage space for contingency storage of waste fluids. If, upon commencement of operations of the natural gas treating and fractionation plant, it is determined that the generation of waste liquids is more than expected, the need for additional contingency wastewater

storage tanks will be evaluated. In the event of extended disposal well downtime, additional storage tanks will be rented or purchased to contain the wastewater; if such an activity is impractical or uneconomical, an overall plant shut-down will be implemented if necessary.

III Effluent Disposal

As mentioned previously, with the exception of hydrocarbon-bearing waste liquids, all liquid effluent will be disposed of via a NMOCD permitted disposal well. Waste oil and hydrocarbon-bearing waste liquids will be disposed of by a waste oil recycler/reclaimer. The disposal well is checked annually for leaks by conducting a radioactive tracer survey on the well.

Currently no industrial solid waste is generated on-site. Should industrial solid waste be generated in the future, the waste will be characterized and disposed of in an environmentally acceptable manner.

IV Site Characteristics

Information relative to the hydrology and geology of the site was submitted to the NMOCD in EPNG's Jal No. 4 discharge plan application (GWR-7). CGC incorporates this information by reference.

With respect to groundwater quality beneath the site, the purchase agreement between CGC and EPNG relative to the sale of this facility held CGC harmless with respect to pre-existing conditions at the site. It is CGC's understanding that EPNG is currently engaged in a groundwater investigation at the site and that EPNG is committed to working with the NMOCD to mitigate any groundwater problems that are the direct result of plant operations while under EPNG ownership.

Pat Sanchez

From: Pat Sanchez
Sent: Wednesday, May 01, 1996 2:04 PM
To: Wayne Price
Cc: David Catanach; Roger Anderson
Subject: RE: Christie Gas GW-07 Storage Well
Importance: High
Sensitivity: Confidential

Wayne, I received your E-Mail regarding the Jal #4 storage well (#1 Storage Well) for the Christie Gas GW-07 discharge plan facility. I am putting your E-Mail in the File (GW-07) along with this response and forwarding to Roger Anderson and David Catanach. Thanks!!!!

From: Wayne Price
Sent: Tuesday, April 30, 1996 3:59 PM
To: Pat Sanchez
Cc: Gary Wink; Jerry Sexton
Subject: Christie Gas GW-07 Storage Well

Dear Pat,

For your info, the #1 Storage Well has been reported to have a hole in tubing. Gary Wink indicated they are pulling & replacing tubing.

Let me know if you require any other info.

Thanks!

Pat Sanchez

From: Wayne Price
Sent: Tuesday, April 30, 1996 3:59 PM
To: Pat Sanchez
Cc: Gary Wink; Jerry Sexton
Subject: Christie Gas GW-07 Storage Well

Dear Pat,

For your info, the #1 Storage Well has been reported to have a hole in tubing. Gary Wink indicated they are pulling & replacing tubing.

Let me know if you require any other info.

Thanks!

Pat Sanchez

From: System Administrator
Sent: Wednesday, May 01, 1996 2:04 PM
To: Wayne Price
Cc: David Catanach; Roger Anderson
Subject: Delivered: RE: Christie Gas GW-07 Storage Well
Importance: High

Your message

To: Wayne Price
Cc: David Catanach; Roger Anderson
Subject: RE: Christie Gas GW-07 Storage Well
Sent: 5/1/96 2:04:16 PM

was delivered to the following recipient(s):

Wayne Price on 5/1/96 2:04:18 PM
David Catanach on 5/1/96 2:04:18 PM
Roger Anderson on 5/1/96 2:04:18 PM

Pat Sanchez

From: Roger Anderson
Sent: Wednesday, May 01, 1996 3:13 PM
To: Pat Sanchez
Subject: Read: RE: Christie Gas GW-07 Storage Well
Importance: High

Your message

To: Wayne Price
Cc: David Catanach; Roger Anderson
Subject: RE: Christie Gas GW-07 Storage Well
Sent: 5/1/96 2:04:00 PM

was read on 5/1/96 3:13:00 PM

Pat Sanchez

From: David Catanach
Sent: Wednesday, May 01, 1996 2:41 PM
To: Pat Sanchez
Subject: Registered: David Catanach

Your message

To: David Catanach
Subject: RE: Christie Gas GW-07 Storage Well
Sent: 5/1/96 2:04:00 PM

was read on 5/1/96 2:41:00 PM

Memo

From
CHRIS E. EUSTICE
Geologist

To Water injected
8-31-93
until
10-1-93

but not continuous

Maybe increased storage capacity 4,000 on the #3 well

PERMIAN BRINE SALES, INC.
24-HOUR SERVICE/TEXAS - OKLAHOMA BRINE - FRESHWATER - DISPOSAL
6067 W. TENTH ST. • ODESSA, TEXAS 79763
(915) 381-0531 (915) 563-4730 FAX (915) 381-9310

April 29, 1993

Ms. Kathy Brown
E M & M R Department
Oil Conservation Division
PO Box 2088
Santa Fe, NM 87504-2088

Attn: Mr. Michael E. Stogner

RE: Modification of Discharge Plan GW
Christie Gas Corporation Jol #4
Lea County, New Mexico

Dear Mr. Stogner:

I am representing Christie Gas in the subject plan.

The wells to be expanded are wells:

No. 2 -	Order No. LPG 9	July 5, 1956
No. 3 -	Order No. LPG 10	April 25, 1960
No. 4 -	Order No. LPG 11	April 25, 1960

The brine sales are only temporary. It is planned to wash caverns from their present 50,000 barrel capacity to about 100,000 ls. This will require the sale or disposal of 1,500,000 barrels rine.

This enlargement will only increase the present average diameter from 16 feet to 26 feet. You can thus see that the long slender caverns (approximately 700 feet in depth) will only be slightly enlarged.

The enlargement is being accomplished by injecting some fresh water into the brine being used for propane removal. This metho assures that all the enlargement will be done in the lower part of the cavern - below the hydrocarbon interface. This will make the caverns slightly bell shaped, which is the ideal shape for underground storage caverns.

The berm around the two 350 barrel brine tanks is 42 feet X 126 feet X 2 feet, thus having a capacity of over 1500 barrels as compared to the 700 barrels of brine storage.

There has been no brine spillage in the loading area. The two buried plastic barrels under the hose connection fitting has adequately caught all dripping caused when disconnecting hoses. The barrels are kept empty by use of the one inch fitting installed for that purpose. There should thus be no requirement for secondary containment.

The $50 modification filing fee was mailed with our letter dated April 13, 1993. It is hereby respectfully requested that $1667.50 fee for Gas Processing Plants be waived by the Director.

If you have any questions, please call me at 915-381-0531.

Very truly yours,

PERMIAN BRINE SALES, INC.

A.L. Hickerson
CEO

CC: Joe Christie
Ken Parker
Jerry Sexton

A.L. Hickerson
Prof. Engr. 11830-K

OFFICE
915/381-0531
915/683-4730
Direct Ln 915/381-8420

RESIDENCE
915/362-4814
3218 Bainbridge Dr
Odessa, Texas 79762

505-827-8177

To. Chris Eustice
From Joe Shepard
Christie Gas.

PERMIAN BRINE SALES, INC.
24-HOUR SERVICE/TEXAS - OKLAHOMA BRINE - FRESHWATER - DISPOSAL
6067 W. TENTH ST. • ODESSA, TEXAS 79763
(915) 381-0531 (915) 563-4730 FAX (915) 381-9316

April 13, 1993

Mr. Michael E. Stogner
Oil Conservation Commission
PO Box 2088
Santa Fe, New Mexico 87501

RE: Filing Fee for Christie Gas
Application for Discharge Plan Modification

Dear Mr. Stogner:

Attached is subject check for modificaion under WQCC Regulation 3-114.

Thank you for the forms you sent for completion. It will be necessary that I visit the Jal Plant, your New Mexico office in Hobbs and the Christie office in Austin, in order to obtain all the information required.

I will proceed in this preparation.

Very truly yours,

PERMIAN BRINE SALES, INC.

A.L. Hickerson
CEO

ALH/rdw

CC: Christie Gas Corporation - Austin - Jal

STATE OF NEW MEXICO
ENVIRONMENT DEPARTMENT

April 7, 1993

Mr. Joe Christie, President
Christie Gas Corporation
Barton Oaks Plaza Two, Suite 515
901 MoPac Expressway South
Austin, TX 78746

Dear Mr. Christie:

The Groundwater Section (GWS) of the New Mexico Environment Department (NMED) has received and reviewed your request dated March 30, 1993, to discharge 58,000 gallons of L.P.G pipeline hydrostatic test water. This water will be purchased from Texaco, pumped into respective lines, and then discharged to Texaco's lined blow down pit at the Eunice No. 1 Plant site.

Based on the information provided in your letter, NMED will not require a discharge permit for this one-time discharge because the water will be released to a lined pit permitted by the Oil Conservation Division. However, you must comply with the following requirements for this discharge:

1. Texaco must notify the Oil Conservation Division prior to accepting this discharge so that their permit can be modified to allow acceptance of this water.

2. Water from this test must not be discharged to a Class 2 well, either directly, or from the Texaco pit.

3. No water will be discharged to the ground surface or directly to ground or surface water.

4. Test water must not affect adjacent properties.

Although a discharge plan is not being required for this discharge, you are not relieved of liability should your operation result in actual pollution of surface or ground waters. Further, this decision by the NMED does not relieve you of your responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements, plumbing codes and nuisance ordinances.

Harold Runnels Building
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502
(505) 827-2850
FAX (505) 827-2836

If at some time in the future you intend to change the amount, the character, or location of your discharge so that it will not be as described, or if observation or monitoring shows that the discharge is not as described, you must file a new request for exemption with the Ground Water Section.

If you have any questions, please contact the Program Manager of the Ground Water Section at 827-2900.

Sincerely,

Steven J. Cary, Chief
Ground Water Protection &
Remediation Bureau

xc: Gary McCaslin, District Manager, NMED Dist. 4
Chris Eustice, Oil Conservation Division

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

March 31, 1993

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-241-955

Mr. Joe Christie, President
Christie Gas Corporation
Barton Oaks Plaza Two, Suite 515
901 MoPac Expressway South
Austin, Texas 78746

RE: Modification of Discharge Plan GW-7
Christie Gas Corporation Jal #4 Gas Processing Plant
Lea County, New Mexico

Dear Mr. Christie:

The New Mexico Oil Conservation Division (OCD) has received and is in the process of reviewing the January 21, 1993 request, submitted by Permian Brine Sales, Inc. on your behalf, to modify the Christie Gas Corporation discharge plan GW-7 for the Jal #4 Gas Processing Plant located in the Sections 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. The modification is to enlarge the Liquified Petroleum Gas (LPG) underground storage caverns and to sell part of the resulting surplus brine. The following comments and requests for additional information are based on review of the application:

1. LPG Cavern Enlargement: To enlarge the LPG caverns you must file an application to amend the applicable orders issued for each LPG injection well pursuant to OCD Rules 701 B. and G. Please submit a listing of the wells for expansion and the corresponding Order numbers. Include all of the information required in accordance with OCD Rule 701. Should you have any questions or comments concerning this portion of the application, please contact Michael E. Stogner in Santa Fe at (505) 827-5811.

2. Brine Sales: The production and sale of brine from insitu mining is regulated by the OCD under the UIC Program (Class 3 well requirements) and Part 5 of the Water Quality Control Commission (WQCC) Regulations which requires a discharge plan. If brine production and sells is to become a permanent part of your operations, then a discharge plan under WQCC Part 5 will be required. If brine production and sells is intended to be a temporary operation then a modification of the discharge plan GW-7 will be suffice. What is the estimated length of time that you propose to sale surplus brine resulting from enlargement of the LPG storage caverns? What is the estimated volume that you plan to produce and sell?

3. Tank Berming: Your proposed modification includes the installation of the two brine storage tanks surrounded by a dirt berm. The OCD requires all tanks which contain fluids other than fresh water to be bermed to contain one and one-third the volume of the largest tank or all interconnected tanks. What is the holding capacity of the two brine storage tanks? What is the holding capacity of the berm you propose to construct around the brine storage tanks?

4. Brine Containment: The diagram submitted in the discharge plan modification application shows two buried plastic barrels located on either side of the brine storage tanks. How will spillage from the adjacent truck loading area and beneath the loading valves be directed to the drip barrels? All below-grade tanks or sumps which are designed to contain fluids continually must have secondary containment and leak detection incorporated into their design. Will the drip barrels have fluids in them continually and if so, will they have secondary containment and leak detection? Because of the present investigation of groundwater contamination at this facility, the OCD requires that the brine storage area be designed so that no brine is allowed to reach the ground surface. Please submit a detailed description on how you plan to accomplish this.

The application for a discharge plan modification is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan modification will be assessed a fee equal to the filing fee of fifty dollars ($50) plus one-half of the flat fee or one-thousand, six-hundred and sixty seven and fifty cents ($1667.50) for gas processing plants.

The $50 filing fee has not been received by the OCD and is due upon receipt of this letter. The flat fee for an approved discharge plan modification may be waived by the Director at the time of approval of the modification.

Please make all checks out to the **NMED - Water Quality Management** and send to the OCD Santa Fe Office.

If you have any questions do not hesitate to contact me at (505) 827-5884.

Sincerely,

Kathy M. Brown

Kathy M. Brown
Geologist

xc: Michael E. Stogner, OCD Santa Fe Office
Jerry Sexton, OCD Hobbs Office

PERMIAN BRINE SALES, INC.

24-HOUR SERVICE/TEXAS - OKLAHOMA BRINE - FRESHWATER - DISPOSAL

6067 W. TENTH ST. • ODESSA, TEXAS 79763
(915) 381-0531 (915) 563-4730 FAX (915) 381-9316

January 21, 1993

Energy Minerals and Natural Resources Dept.
Oil Conservation Division
PO Box 2088
Santa Fe, NM 87504-2088

RE: Modification of plan for LPG Storage Wells of Ritchie Gas Corporation in Section 32-T23S-R37E, Lea County, New Mexico

Attn: Kathy M. Brown

Dear Ms. Brown:

Christie
Wants 21

Ritchie Gas proposes to enlarge their underground storage caverns and to sell part of the resulting surplus brine. The brine sales will be handled and made by Permian Brine Sales, Inc.

By partially diluting the displacement brine with fresh water the enlargement of the caverns will be made in the lower part of the caverns, resulting in more pear shaped caverns. This shape is generally considered to result in less possible sloughing of the anhydrite ledges in the caverns.

Ritchie's displacement brine is presently stored in permitted large lined pits. We propose to install two welded steel tanks from which transport trucks will load brine for delivery to nearby wells for use as a drilling fluid. The steel tanks will be re-filled with brine transferred from the large lined pit as brine is removed from the two tanks.

We propose to install the brine tanks and loading area in a manner to prevent any possible spillage of brine on the ground. Normally this surplus brine is pumped to Ritchie's disposal well. This proposal will simply convert some of the brine to a useful purpose.

Attached are sketches of the planned installation. Your approval will be appreciated.

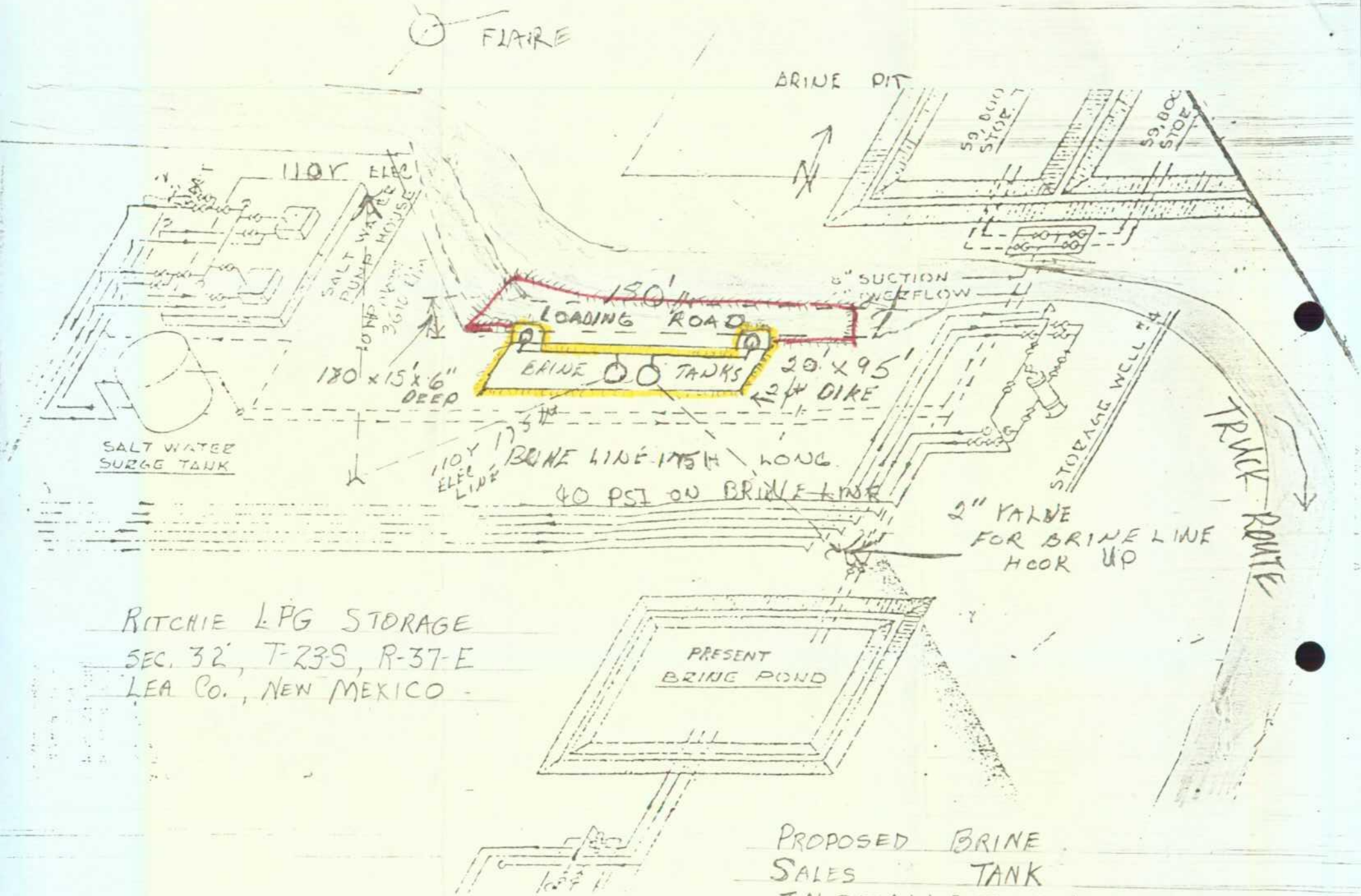
Very truly yours,

PERMIAN BRINE SALES, INC.

A. L. Hickerson

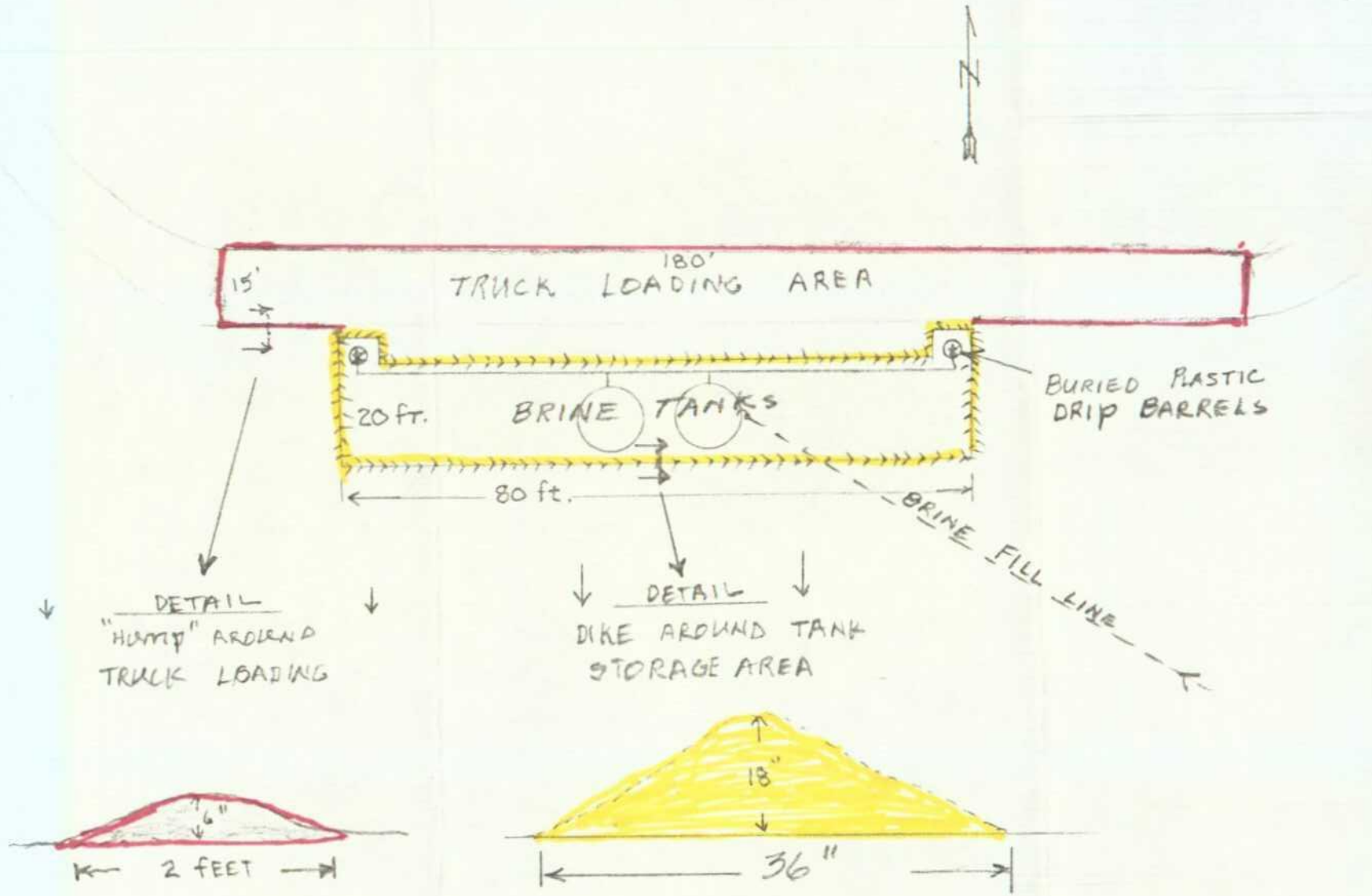
A.L. Hickerson
CEO

ALH/rdw



RITCHIE LPG STORAGE
SEC. 32, T-23S, R-37-E
LEA CO., NEW MEXICO

PROPOSED BRINE SALES TANK INSTALLATION



BRINE TANK AREA DETAIL

AT RITCHIE LPG STORAGE

Christie

(Nat. Gas liquids - ethane (C_2), propane (C_3), butane (C_4))

Loading area @ truck & railcar - containment

Storage in underground domes via injection wells

Only Activity { 1) Railcar loading/unloading of nat. gas liq.
2) Underground storage of nat. gas liq. in domes

Also permit for future use { 3) Truck loading/unloading of nat. gas liq.
4) Nat. gas liq. treating & fractionating

Process Area (Not in Use)

Effluents collected in drain system to a classifier where seperated { wastewater → injection well
hide-bearing liq.s → tank

Railcar Loading (~~IR use~~)/Unloading (In use)

Load liquids transported via truck & pipelines (owned by others)

Truck Loading/Unloading (In use)

Load & Unload via pipelines owned by others

Storage Domes

4 storing propane & butane. Use brine to displace

Brine is stored in ~~2~~ 3 double lined ponds w/ leak detection. Suspect N & S ponds are leaking

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

M E M O R A N D U M

TO: Jerry Sexton

FROM: Prentiss Childs

SUBJECT: Jal #4 Plant

DATE: May 18, 1992

FYI: (You may know all this already) A gentleman who works for Christie Gas Corporation at the Jal #4 plant (phone 395-2632) says they bought the plant from El Paso last July. So far they are just using it for storage and mixing of liquids and for shipping. I believe Ken Parker is the plant manager.

Sometime later this year, they expect to begin buying liquids and breaking them down into other fractions. They will never process any gas.

I have no idea whether they are considered to be under our jurisdiction or not, or whether or not they would have to file any of our reports.

The man I talked to invited us to come by for a visit.

PC:ma

cc: Roger Anderson

1. Need analyses of fluids from classified waste oil tank. CGC proposes to collect samples & analyze when start up

2. Solids from classifier disposed of in an environmentally acceptable manner. Need to specify OCD approved facility. Exempt?

3. Addressed the drain lines – same test EPNG proposed

4. Ponds have been addressed 1 fixed, 1 to be fixed Spring 1992

AFFIDAVIT OF PUBLICATION

No. 28867

STATE OF NEW MEXICO,
County of San Juan:

CHRISTINE HILL being duly sworn, says: "That she is the NATIONAL AD MANAGER of The Farmington Daily Times, a daily newspaper of general circulation published in English in Farmington, said county and state, and that the hereto attached LEGAL NOTICE

was published in a regular and entire issue of the said Farmington Daily Times, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for ONE consecutive (days) (/////) on the same day as follows:

First Publication WEDNESDAY, JANUARY 29, 1992

Second Publication

Third Publication

Fourth Publication

and that payment therefore in the amount of $ 47.99 has been made.

Christine Hill

Subscribed and sworn to before me this 31st day of JANUARY, 1992.

Connie Andrae

Notary Public, San Juan County, New Mexico

My Comm expires: JULY 3, 1993

COPY OF PUBLICATI

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-7) - Christie Gas Corporation, Joe Christie, President, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, Texas 78746, has submitted a discharge plan renewal application for their Jal #4 Gas Processing Plant located in Sections 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. The plant is not in operation at this time. On start-up of the plant, wastewater will be transported via pipeline to an offsite OCD approved Class II disposal well. The volume and quality of the wastewater will be determined after plant start-up. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-71) - El Paso Natural Gas Company, Larry R. Tarver, Vice President, North Region, 304 Texas Street, El Paso, Texas, 79901, has submitted a discharge plan renewal application for their Kutz Compressor Station located in Section 15, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico. Approximately 100 gallons per day of process waste water is discharged to a double lined wastewater evaporation pond equipped with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 33 feet with a total dissolved solids concentration of approximately 774 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 5:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan

published in the Farmington Daily Times, Farmington, New Mexico on Wednesday, January 29, 1992.

published in the Farmington Daily Times, Farmington, New Mexico on Wednesday, January 29, 1992.

OIL CONSER[illegible]N DIVISION
RE[illegible]ED

'92 FEB 10 AM 9 20

STATE OF NEW MEXICO
County of Bernalillo ss

Thomas J. Smithson being duly sworn declares and says that he is National Advertising manager of the **Albuquerque Journal** , and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made or assessed as court costs; that the notice, a copy of which is hereto attached, was published in said paper in the regular daily edition,

for 1 times, the first publication being on the 6 day

of Feb., 1992, and the subsequent consecutive

publications on ....., 1992.

Thomas J. Smithson

OFFICIAL SEAL
Bernadette Ortiz
BERNADETTE ORTIZ
NOTARY PUBLIC-NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
My Commission Expires 12-18-93

Sworn and subscribed to before me, a Notary Public in and for the County of Bernalillo and State of New Mexico, this 6 day of Feb., 1992.

PRICE $ NO Charge

Statement to come at end of month.

CLA-22-A (R-12/92)

ACCOUNT NUMBER C31184

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPT.
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-7) - Christie Gas Corporation, Joe Christie, President, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, Texas 78746, has submitted a discharge plan renewal application for their Jal #4 Gas Processing Plant located in Sections 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. The plant is not in operation at this time. On start-up of the plant, wastewater will be transported via pipeline to an offsite OCD approved Class II disposal well. The volume and quality of the wastewater will be determined after plant start-up. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-71) - El Paso Natural Gas Company, Larry R. Tarver, Vice President, North Region, 304 Texas Street, El Paso, Texas, 79901, has submitted a discharge plan renewal application for their Kutz Compressor Station located in Section 15, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico. Approximately 100 gallons per day of process waste water is discharged to a double lined wastewater evaporation pond equipped with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 33 feet with a total dissolved solids concentration of approximately 774 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 5:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 4th day of December, 1991.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
s/William J. Lemay
Director

Journal: February 6, 1992

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is **Adv. Director** of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Notice Of Publication

and numbered ..... in the

..... Court of Lea County, New Mexico, was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, ~~once each week on the same day of the week~~, for **one (1)** day ~~consecutive weeks~~, beginning with the issue of

January 29, 19**92**

and ending with the issue of

January 29, 19**92**

And that the cost of publishing said notice is the sum of $**34.92**

which sum has been (Paid) (~~Assessed~~) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this **29th** day of **January**, 19**92**

Mrs. Jean Jenner

Notary Public, Lea County, New Mexico

My Commission Expires **Sept. 28**, 19**94**

LEGAL NOTICE
NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND
NATURAL RESOURCES
DEPARTMENT
OIL CONSERVATION
DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-7) - Christie Gas Corporation, Joe Christie, President, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, Texas 78746, has submitted a discharge plan renewal application for their Jal #4 Gas Processing Plant located in Sections 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. The plant is not in operation at this time. On start-up of the plant, wastewater will be transported via pipeline to an offsite OCD approved Class II disposal well. The volume and quality of the wastewater will be determined after plant start-up. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/1. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-71) - El Paso Natural Gas Company, Larry R. Tarver, Vice President, North Region, 304 Texas Street, El Paso, Texas, 79901, has submitted a discharge plan renewal application for their Kutz Compressor Station located in Section 15, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico. Approximately 100 gallons per day of process waste water is discharged to a double lined wastewater evaporation pond equipped with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 33 feet with a total dissolved solids concentration of approximately 774 mg/1. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 5:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 4th day of December, 1991.

STATE OF NEW MEXICO
OIL CONSERVATION
DIVISION
WILLIAM J. LEMAY,
Director

SEAL

Published in the Lovington Daily Leader January 29, 1992.

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-7) - Christie Gas Corporation, Joe Christie, President, Barton Oaks Plaza Two, Suite 515, 901 MoPac Expressway South, Austin, Texas 78746, has submitted a discharge plan renewal application for their Jal #4 Gas Processing Plant located in Sections 31 and 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. The plant is not in operation at this time. On start-up of the plant, wastewater will be transported via pipeline to an offsite OCD approved Class II disposal well. The volume and quality of the wastewater will be determined after plant start-up. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 105 feet with a total dissolved solids concentration of approximately 7500 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-71) - El Paso Natural Gas Company, Larry R. Tarver, Vice President, North Region, 304 Texas Street, El Paso, Texas, 79901, has submitted a discharge plan renewal application for their Kutz Compressor Station located in Section 15, Township 29 North, Range 12 West, NMPM, San Juan County, New Mexico. Approximately 100 gallons per day of process waste water is discharged to a double lined wastewater evaporation pond equipped with leak detection. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 33 feet with a total dissolved solids concentration of approximately 774 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

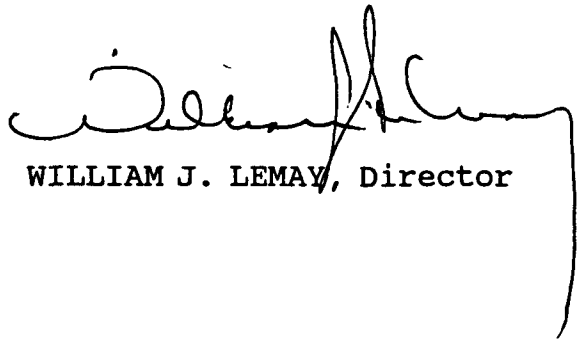
Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 aa.m. and 5:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing

may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 4th day of December, 1991.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



S E A L

WILLIAM J. LEMAY, Director

January 3, 1992

RECEIVED
JAN 9 1992
OIL CONSERVATION DIVISION

Mr. William J. Lemay
Director
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Room 206, Land Office Bldg.
Santa Fe, New Mexico 87503

RE: Discharge Plan for Christie Gas Corporation's Jal 4 Facility

Dear Mr. Lemay:

Enclosed are three copies of my company's discharge plan for those facilities that were recently sold to Christie Gas by El Paso Natural Gas and which were formerly referred to as EPNG's Jal No. 4 plant.

The discharge plan was prepared using the format outlined in New Mexico Oil Conservation Division's, "Guidelines for the Preparation of Groundwater Discharge Plans at Natural Gas Processing Plants", dated April, 1988.

I trust that everything is in order but if you or your staff have any questions concerning this plan, please contact me at our Austin office.

Thank you for your attention to this matter.

Sincerely,

Joe Christie
President

JC:sw

jc\002\92

CHRISTIE GAS CORPORATION
BARTON OAKS PLAZA TWO, SUITE 515
901 MOPAC EXPRESSWAY SOUTH
AUSTIN, TEXAS 78746

512 327-9510
512 327-5272 FAX

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

OIL CONSERVATION DIVISION
RECEIVED
91 AUG 22 AM 9 36

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

August 20, 1991

Christie Gas Corp.
2500 Hwy. 377 South
Brownwood, TX 76801

Attn: Joe Shepard

RE: Jal Plant State LPG Storage Well's
#2 M S32-T23S-R37E, 100-FSL/280-FWL
#3 M S32-T23S-R37E, 1000-FSL/530-FWL
#4 M S32-T23S-R37E, 1000-FSL/1230-FWL

Dear Mr. Shepard:

The Oil Conservation Division has examined the mechanical integrity tests run on the above referenced wells. The Division concurs that the storage caverns in these wells do have closure.

Approval to use the above wells for storage of LPG for 5 years or until July 1, 1996 is hereby granted. At that time new mechanical integrity tests will then need to be submitted to the Division for continued use of these LPG wells.

If at any time evidence shows that the caverns in the storage wells do not have closure, immediate notification to the OCD office is required.

Yours very truly,

Jerry Sexton

JERRY SEXTON
District I Supervisor

JS/sad

cc: Dave Boyer

MECHANICAL INTEGRITY TEST
JULY, 1991

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 2
JAL PLANT NO. 4
UNIT M SECTION 32 T-23-S R-37-E
LEA COUNTY, NEW MEXICO

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 2
JAL PLANT NO. 4
UNIT M SECTION 32 T-23-S R-37-E
LEA COUNTY, NEW MEXICO

MECHANICAL INTEGRITY TEST
JULY, 1991

CERTIFICATION:

I, WilliamJ. Cates, do hereby certify that the Mechanical Integrity Test of Christie Gas Corporation's State LPG Storage Well No. 2 was conducted under my supervision from July 12 thru July 26, 1991 and that all facts, test data, and statements are true and correct to the best of my knowledge.

William J. Cates

Oil Conservation Witness: Eddie W. Seay

PERTINENT DATA:

Casing ---------- 7" 20# J-55 set at 1672'
Liner ---------- 5 1/2" 15.50# J-55 set at 1656'
Tubing ---------- 2 7/8" 6.5# J-55 set at 1954'
Well head and valves --------- 600 Series - 2,000 psi WOG
Lithostatic Fracture Gradient ---------- 0.86 psi/ft.
Maximum Allowable pressure gradient to casing seat -- 0.75 psi/ft.
Minimum proposed pressure gradient to casing seat --- 0.70 psi/ft.
Maximum allowable pressure at casing seat of 1672' -- 1,254 psi.
Minimum test pressure at casing seat of 1672' ------- 1,170 psi.
Maximum surface pressure with 10# brine ------------ 384 psi.

CHRONOLOGICAL LOG OF TEST PROCEDURE:

This well has been out of service since 1986. On November 5, 1990 the casing pressure was 540 psi and the tubing pressure was 45 psi.

On July 12, 1991 the well head was blinded-off and the casing pressure was 535 psi and the tubing pressure was 70 psi. Pumped 140 bbls. 10# brine down the tubing and casing pressure was 876 psi and tubing pressure was 402 psi. CAVERN COMPRESSIBILITY FACTOR = 140 bbls/(402 - 70)psi = 0.422 bbls/psi. A sample of the LPG was sent to a laboratory for analysis and the results showed that the product was mostly butane with a specific gravity of 0.573. A calculation for the product/brine interface is (876 - 402)/(1.2 - .573).433 = 1749'. The product/brine interface is below the casing seat.

Daily test gauge pressures were recorded:

7/12/91 -	Casing Pressure	876 psi	--	Tubing Pressure	402 psi
7/13/91	" "	840		" "	383
7/14/91	" "	840		" "	376
7/15/91	" "	836		" "	372
7/16/91	" "	825		" "	368
7/17/91	" "	820		" "	362

Cavern pressure has stabilized for test.

July 19, 1991 a dual pen pressure recorder was connected to the well head. A 0 to 500 psi to the tubing and a 0 to 2000 psi to the casing. Valves and fittings were installed on the tubing and casing for connecting a deadweight tester. A deadweight tester with measurement capability of from 5 to 2,000 psi in increments of 0.1 psi was used for the test.

7:10 P.M. started pumping nitrogen down the casing at 300 SCF/ minute.
7:50 P.M. had pumped 11,200 SCF of N_2. Nitrogen/LPG interface below the casing seat as indicated by the N_2 injection pressure leveling off. Pumped 3,000 SCF of N_2 below the casing seat. Total volumne of nitrogen pumped was 14,200 SCF. ΔT = 0 at 8:00 P.M. 7/19/91.

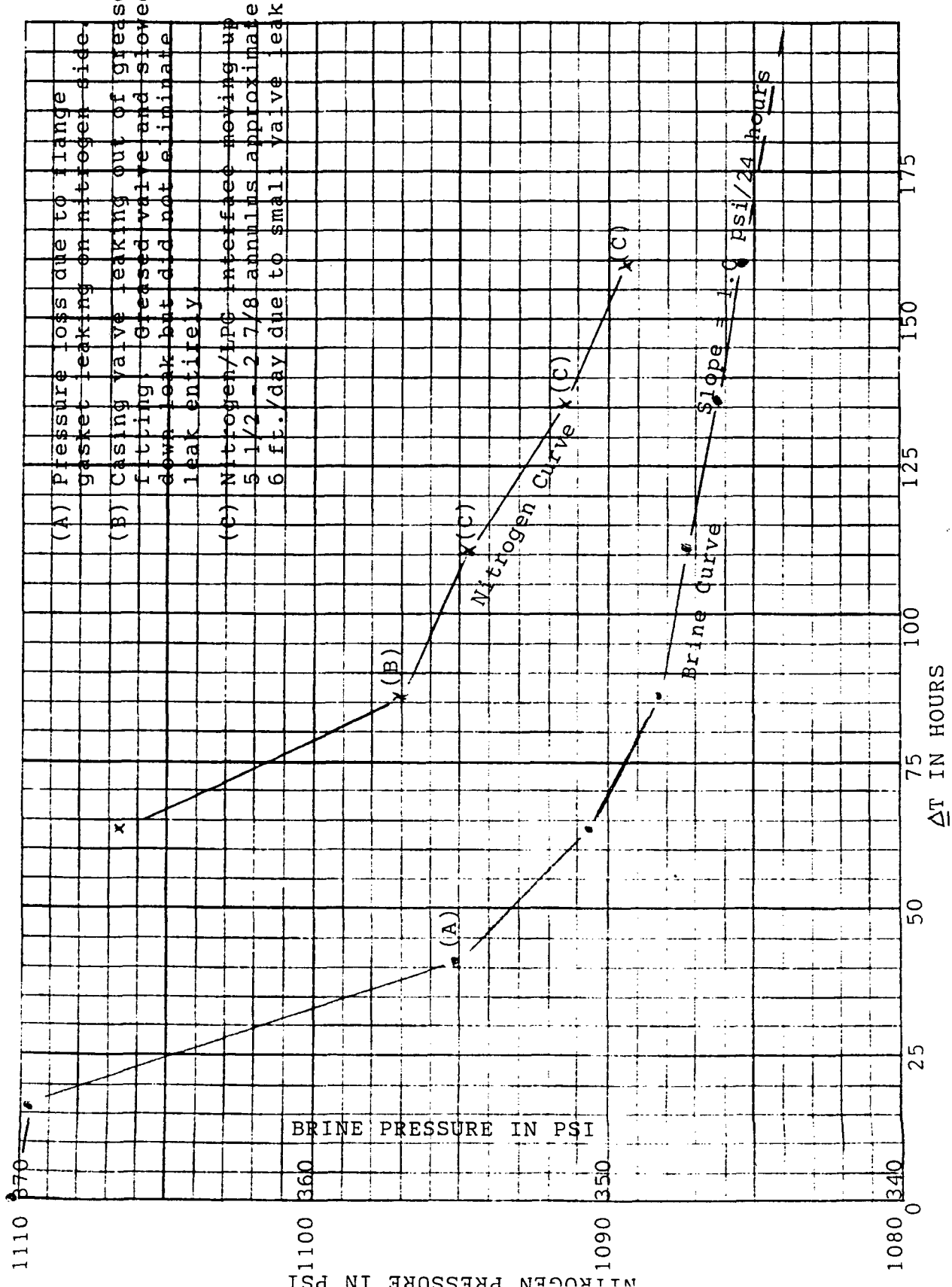
Date - Real Time	- ΔT	- Casing Pressure	- Tubing Pressure	- ΔP_c	- ΔP_t
7/19/91 8:00 P.M.	0	1171.0	370.5		
7/20/91 12:30 P.M.	16.5	1168.4	369.8	-0.7	-2.6
Flange on nitrogen side started large leak. Shut well in and repaired leak.					
7/21/91 12:45 P.M.	40.75	1115.2	355.1	-14.7	-53.2
The much larger drop in the casing pressure as compared to the drop in the tubing pressure indicates that the loss of the nitrogen due to the leak caused the nitrogen/LPG interface to move above the casing seat. Now testing casing seat with LPG which is still a valid test.					
7/22/91 11:00 A.M.	63.0	1106.7	350.7	-4.4	-8.5
7/23/91 10:45 A.M.	86.75	1097.0	348.2	-2.5	-9.7
Found a casing valve leaking out the stem and grease fitting. Greased valve and stopped the stem leak but still leaking out grease fitting.					
7/24/91 11:10 A.M.	111.15	1094.8	347.5	-0.7	-2.2
7/25/91 12:50 P.M.	136.8	1091.5	346.3	-1.2	-3.3
7/26/91 12:00 (noon)	159.8	1089.3	345.5	-0.8	-2.2
The larger ΔP_c to ΔP_t indicates that a small nitrogen leak is allowing the nitrogen/LPG interface to move up annulus approximately 6 ft/day. The brine pressure is true well pressure.					

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 2

MECHANICAL INTEGRITY TEST
JULY, 1991

Nitrogen Pressure vs ΔT in Hours

Brine Pressure vs ΔT in Hours



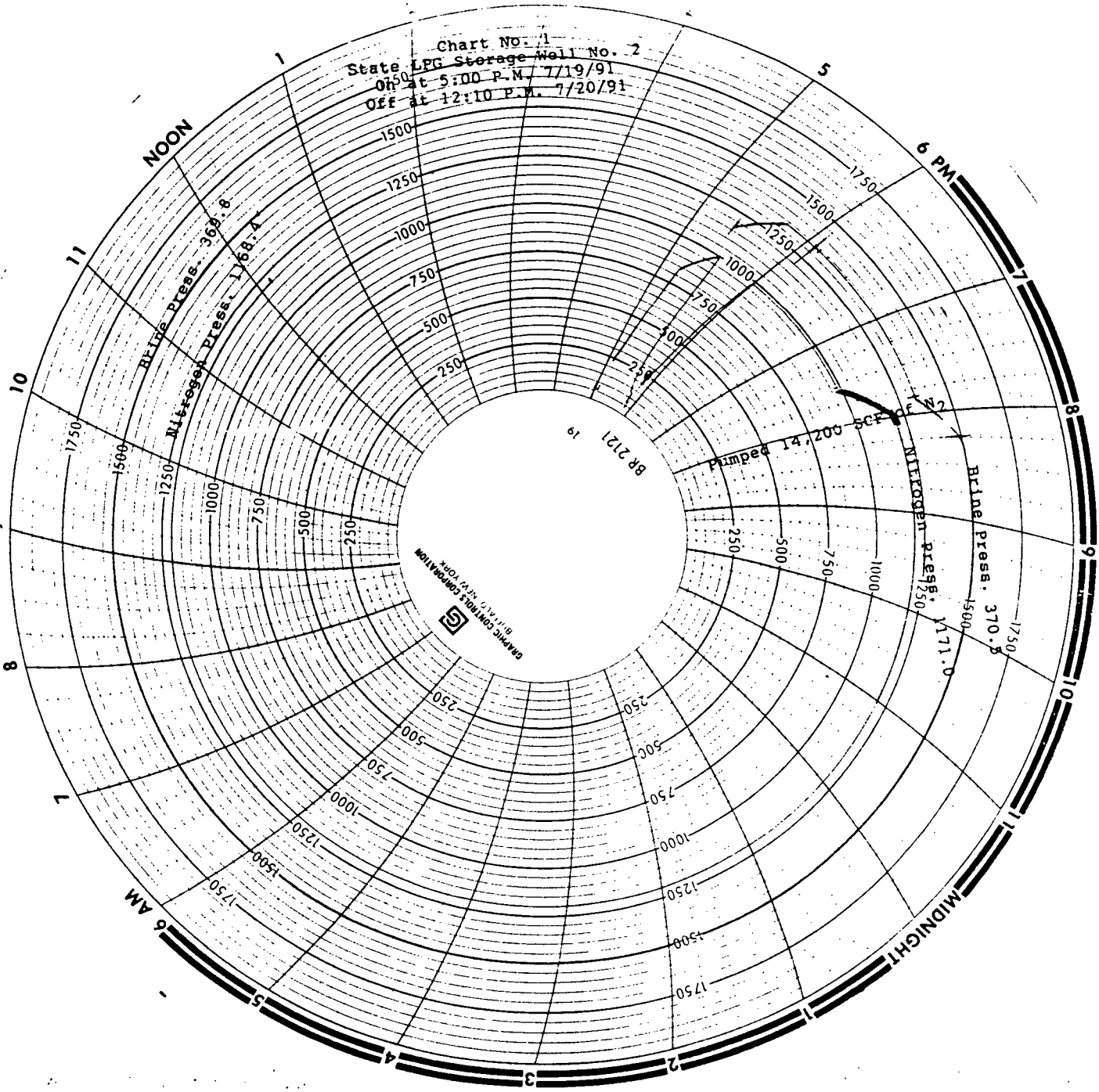
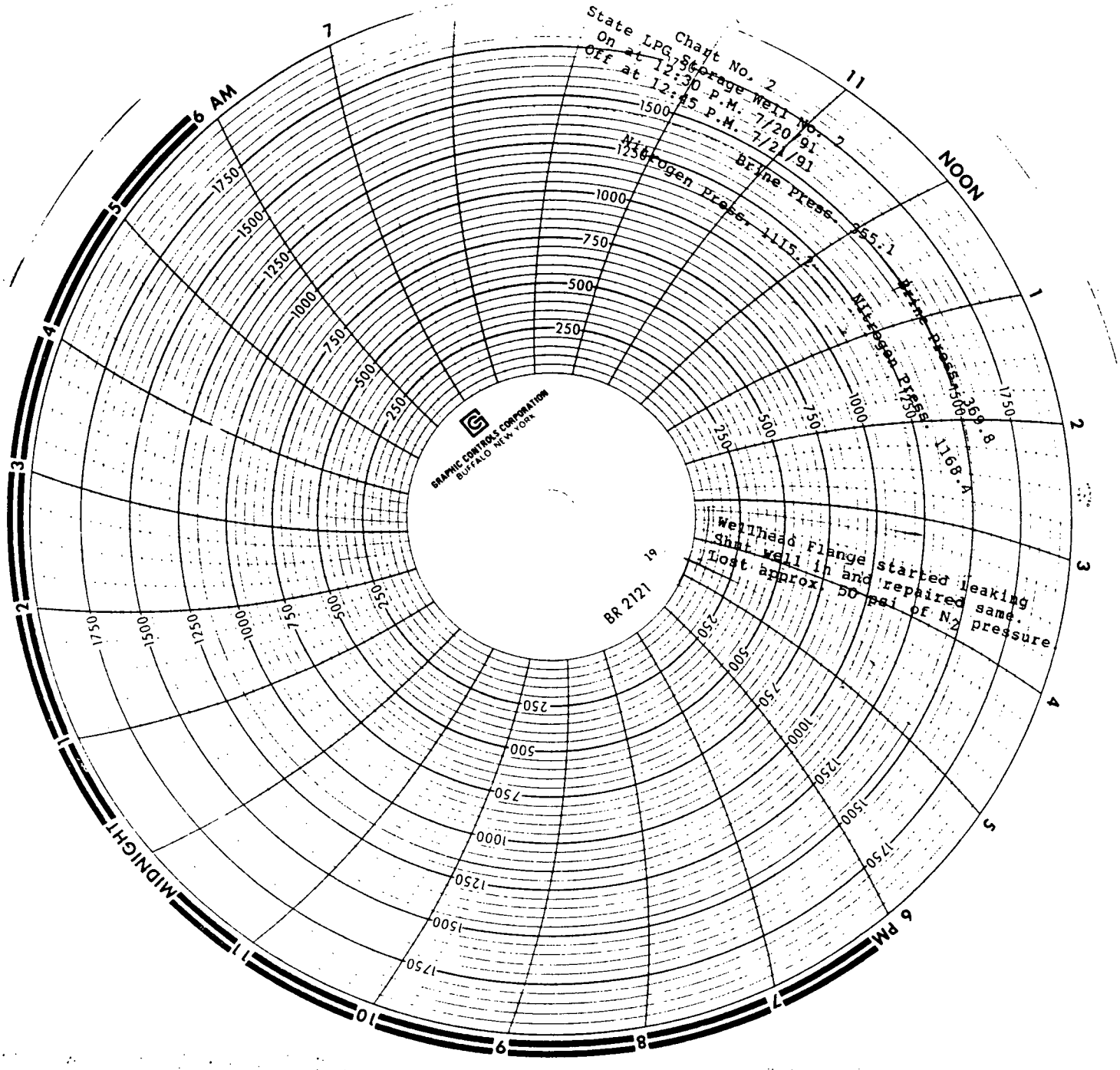


Chart No. 1
State LPG Storage Well No. 2
On at 5:00 P.M. 7/19/91
Off at 12:10 P.M. 7/20/91
NOON
1
5
6 PM
7
8
9
10
11
MIDNIGHT
1
2
3
4
5
6 AM
7
8
9
10
11
Brine Press. 369.8
Nitrogen Press. 1168.4
Pumped 14,200 SCF of N2
Nitrogen Press. 1171.0
Brine Press. 370.8
250
500
750
1000
1250
1500
1750
BR 2121 19
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK


State LPG Storage Well No. 2
Chart No. 2
On at 12:30 P.M. 7/20/91
Off at 12:45 P.M. 7/2/91
Nitrogen Press. 1115.2
Brine Press. 355.1
Nitrogen Press. 1168.4
Brine Press. 369.8
Wellhead Flange started leaking
Shut well in and repaired same.
Lost approx. 50 psi of N2 pressure
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
19
6 AM
NOON
6 PM
MIDNIGHT
250
500
750
1000
1250
1500
1750

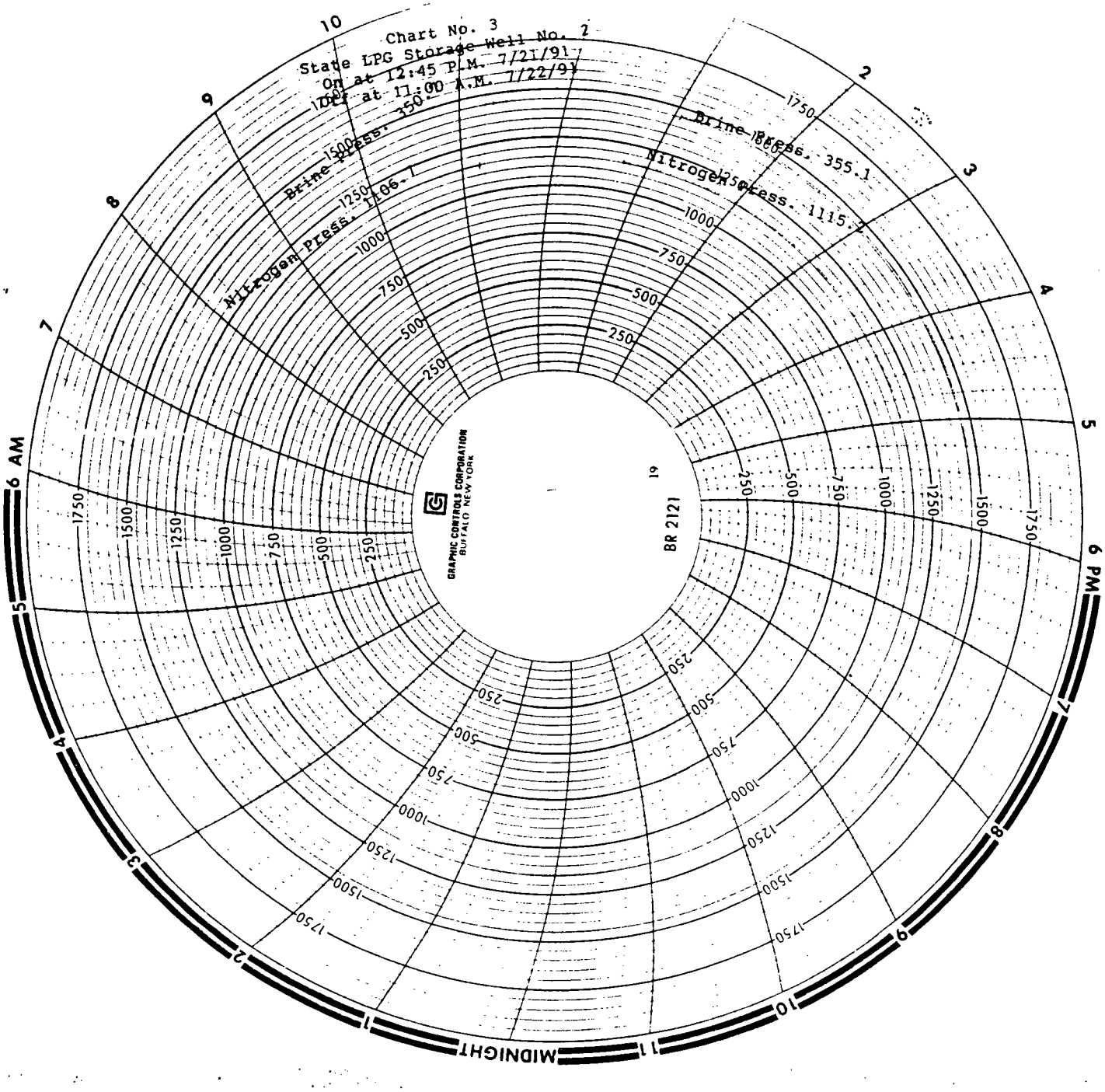


Chart No. 3
State LPG Storage Well No. 2
On at 12:45 P.M. 7/21/91
Off at 11:00 A.M. 7/22/91
Brine Press. 350
Nitrogen Press. 1106.1
Brine Press. 355.1
Nitrogen Press. 1115.1
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
MIDNIGHT
6 AM
6 PM

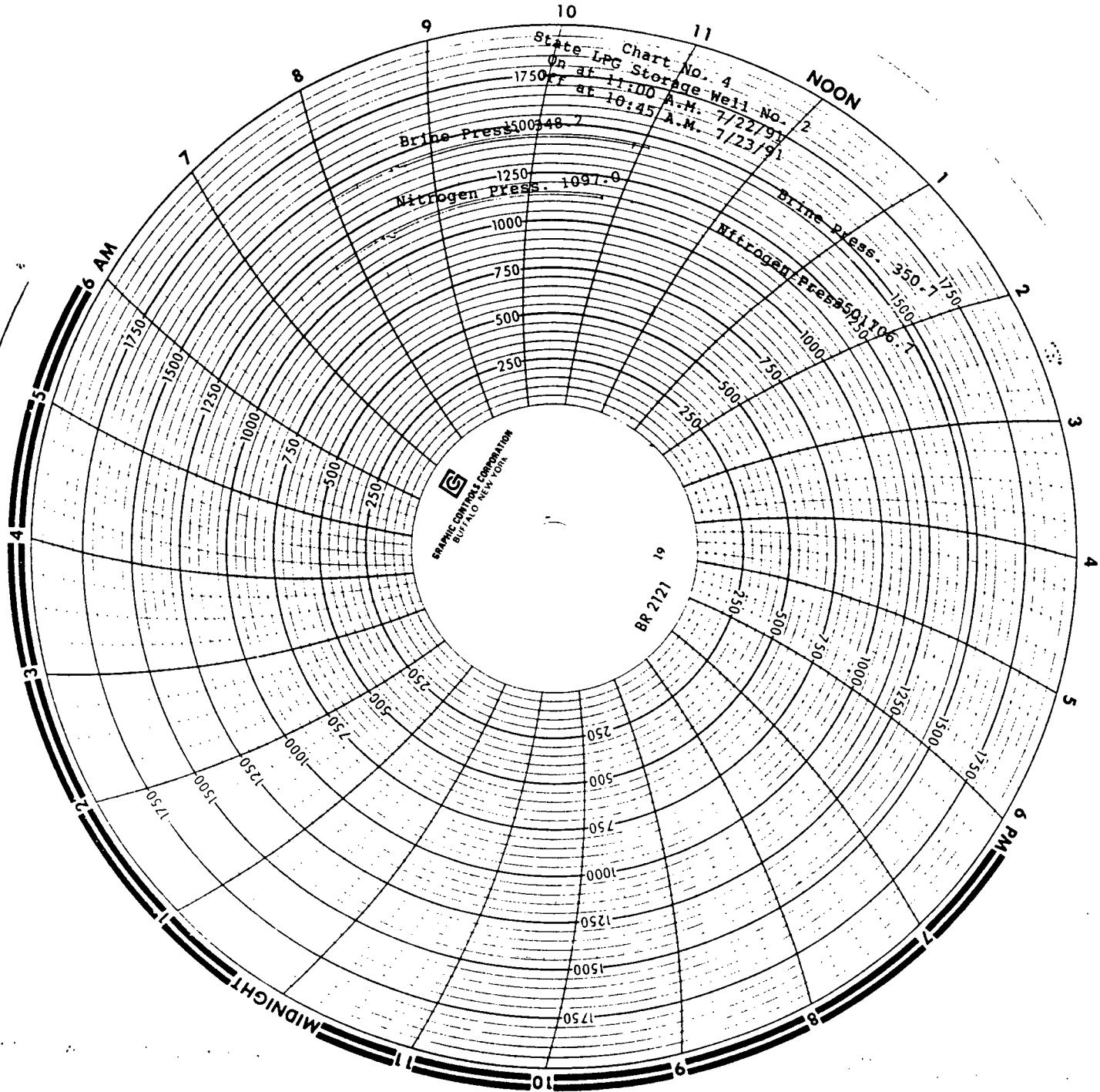


Chart No. 4
State LPG Storage Well No. 2
On at 11:00 A.M. 7/22/91
Off at 10:45 A.M. 7/23/91
Brine Press. 1500 348.7
Nitrogen Press. 1097.0
Brine Press. 350.7
Nitrogen Press. 1106.7
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
1°
NOON
6 AM
MIDNIGHT
6 PM

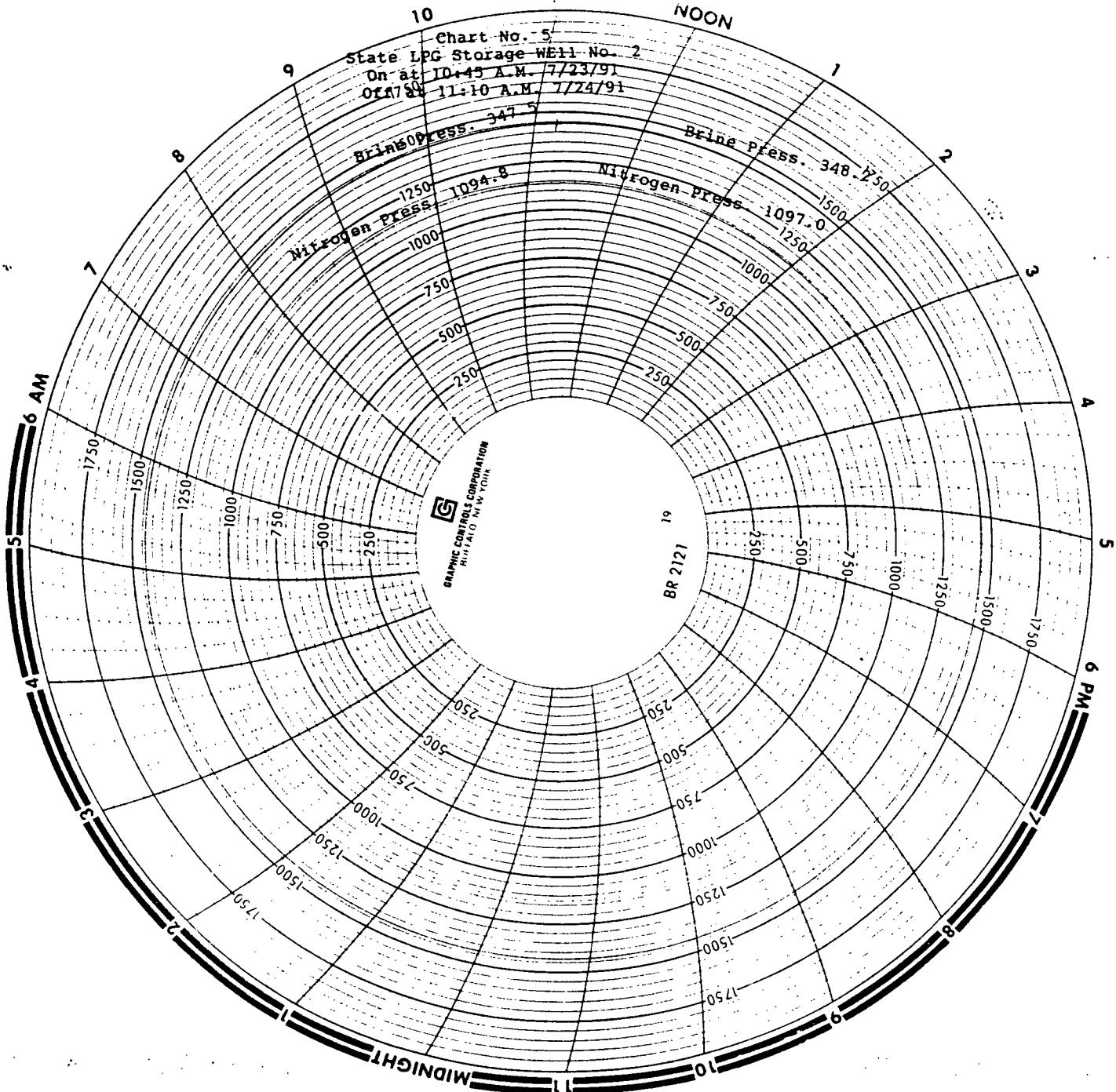
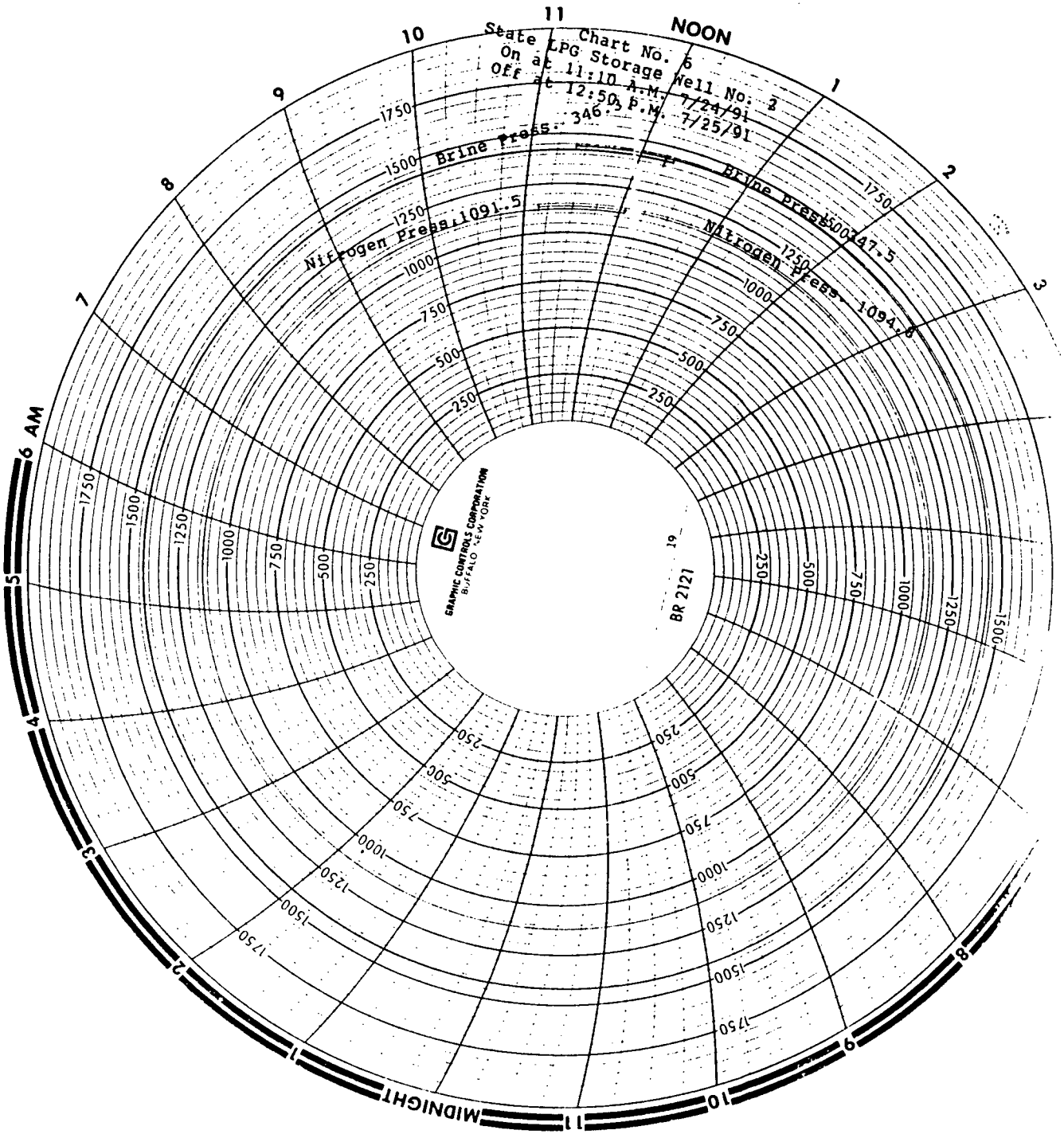
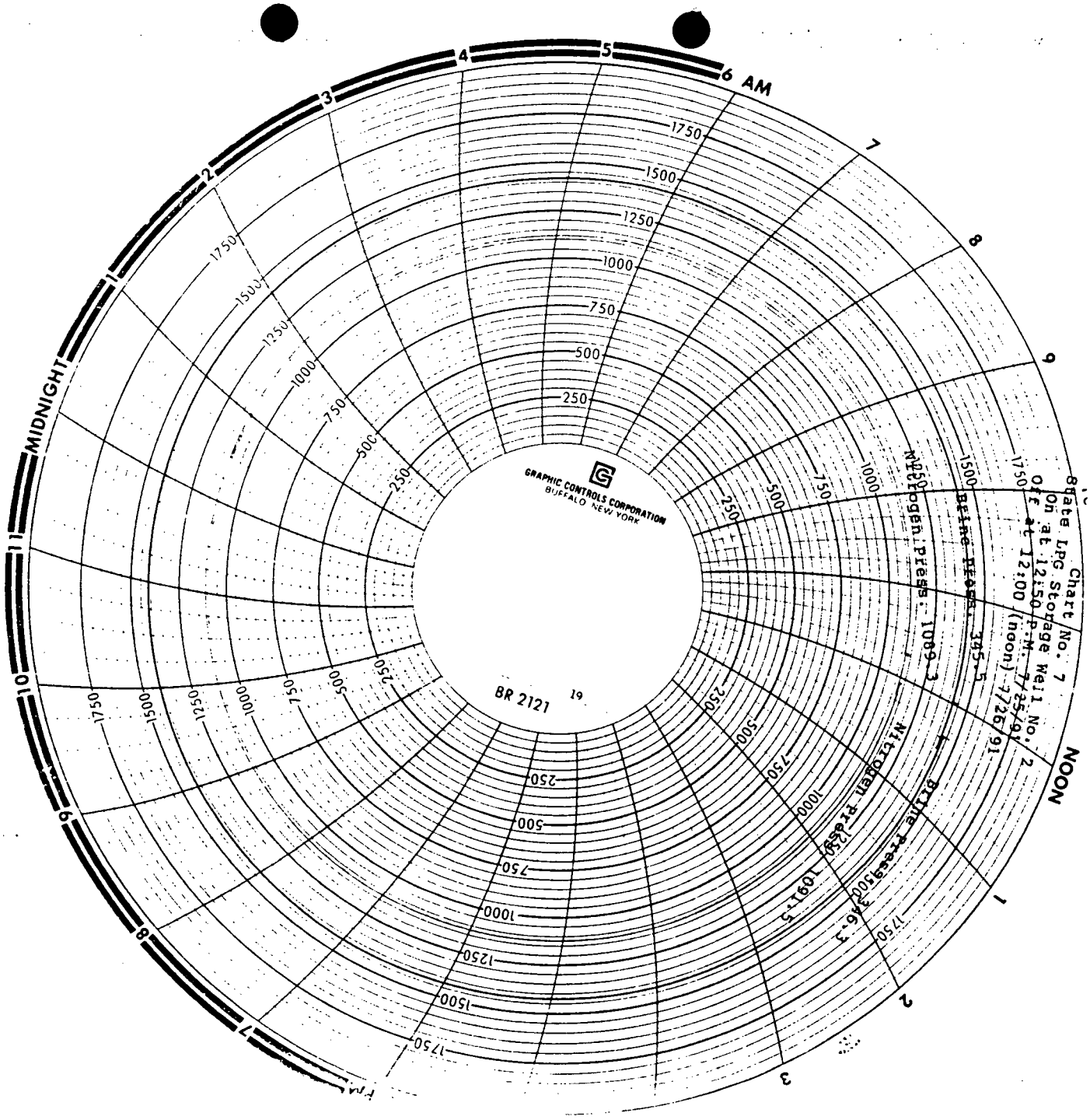


Chart No. 5
State LPG Storage WELL No. 2
On at 10:45 A.M. 7/23/91
Off at 11:10 A.M. 7/24/91
Brine Press. 347.5
Nitrogen Press. 1094.8
Brine Press. 348.2
Nitrogen Press. 1097.0
NOON
MIDNIGHT
6 AM
6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121


State LPG Storage Well No. 2
Chart No. 6
On at 11:10 A.M. 7/24/91
Off at 12:50 P.M. 7/25/91
Brine Press. 346
Nitrogen Press. 1091.5
Brine Press. 347.5
Nitrogen Press. 1094.8
NOON
MIDNIGHT
6 AM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121


MIDNIGHT
6 AM
NOON
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
Chart No. 7
State LPG Storage Well No. 2
On at 12:50 P.M. 7/25/91
Off at 12:00 (noon) 7/26/91
Nitrogen press. 1089-3
Brine press. 395-5
Nitrogen press. 1250
Brine press. 3100
1091-5
346-3

MECHANICAL INTEGRITY TEST
JULY, 1991

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 3
JAL PLANT NO. 4
UNIT M SECTION 32 T-23-S R-37-E
LEA COUNTY, NEW MEXICO

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 3
JAL PLANT NO. 4
UNIT M SECTION 32 T-23-S R-37-E
LEA COUNTY, NEW MEXICO

MECHANICAL INTEGRITY TEST
JULY, 1991

CERTIFICATION:

I, William J. Cates, do hereby certify that the Mechanical Integrity Test of Christie Gas Corporation's State LPG Storage Well No. 3 was conducted under my supervision fron July 12 thru July 25, 1991 and that all facts, test data, and statements are true and correct to the best of my knowledge.

William J. Cates

Oil Conservation Witness: Eddie W. Seay

PERTINENT DATA:

Casing ---------- 9 5/8" 36# J-55 Set at 1666'
Tubing ---------- 4 1/2" 16.60# FHDP set at 2489'
Well Head and Valves ------- 600 Series - 2,000 psi WOG
Lithostatic Fracture Gradient ---------- 0.86 psi/ft.
Maximum allowable pressure gradient to casing seat- 0.75 psi/ft.
Minimum proposed pressure gradient to casing seat - 0.70 psi/ft.
Maximum allowable pressure at casing seat of 1666' - 1,250 psi
Minimum test pressure at casing seat of 1666' ------ 1,166 psi.
Maximum surface pressure with 10# brine ---------- 384 psi.

CHRONOLOGICAL LOG OF TEST PROCEDURE:

This well has been out of service since 1986. On November 5, 1990 the casing and tubing pressures were 340 psi each. There was evidence that a 12" flange on the casing side of the well head had been leaking but was salted off and there was no LPG left in the well.

On July12, 1991 the leaking 12" well head flange was tighten up and sealant was pumped in the flange at 4,000 psi. The well head was blinded-off and the casing and tubing pressure was 357 psi. The increase in the pressures from November, 1990 indicated that cavern closure (salt creep) was still occurring with good mechanical integrity to brine.

Pumped 5 bbls. of 10# brine down the tubing to obtain the Cavern Compressibility Factor. Casing and tubing pressure were both 376 psi. CAVERN COMPRESSIBILITY FACTOR = 5 bbls./ (376 - 357) = 5 bbls./19 psi = 0.263 bbls./psi.

Daily test guage pressures were recorded:

7/12/91 -	Casing pressure	376 psi	-- Tubing pressure	-	376 psi
7/13/91	"	376			374
7/14/91	"	376	"	"	374
7/15/91	"	374	"	"	374
7/16/91	"	374	"	"	374
7/17/91	"	374	"	"	374

Cavern pressure had stabilized for test..

July 19, 1991 a dual pen pressure recorder was connected to the well head. A 0 to 500 psi to the tubing and a 0 to 2000 psi to the casing. Valves and fittings were also installed on the tubing and casing for connecting a deadweight tester. A deadweight tester with measurement capability of from 5 psi to 2000 psi in increments of 0.1 psi was used for the test.

1:10 P.M. started pumping nitrogen down casing at 300 SCF/Min. 3:45 P.M. had pumped 48,000 SCF of N_2. Nitrogen/brine interface below casing seat as indicated by N_2 injection pressure leveling off. Pumped additional 4,500 SCF of N_2 below casing seat. Total volumne of nitrogen pumped was 52,500 SCF. ΔT = 0 at 4:00 P.M. 7/19/91.

Date -	Real Time -	ΔT -	Casing Pressure -	Tubing Pressure -	ΔP_c -	ΔP_t
7/19/91	4:00 P.M.	0	1184.8	381.6		
7/20/91	11:30 A.M.	19.5	1183.9	380.0	-0.9	-1.6
7/21/91	12:30 P.M.	44.5	1182.0	380.2	-1.9	0.2
7/22/91	11:30 A.M.	67.5	1180.7	377.5	-1.3	-2.7
7/23/91	11:15 A.M.	91.25	1180.0	377.1	-0.7	-0.4
7/24/91	11:30 A.M.	115.5	1178.7	376.6	-1.3	-0.5
7/25/91	12:15 P.M.	140.5	1177.8	375.9	-0.9	-0.7

Test Concluded.

TEST DISCUSSION:

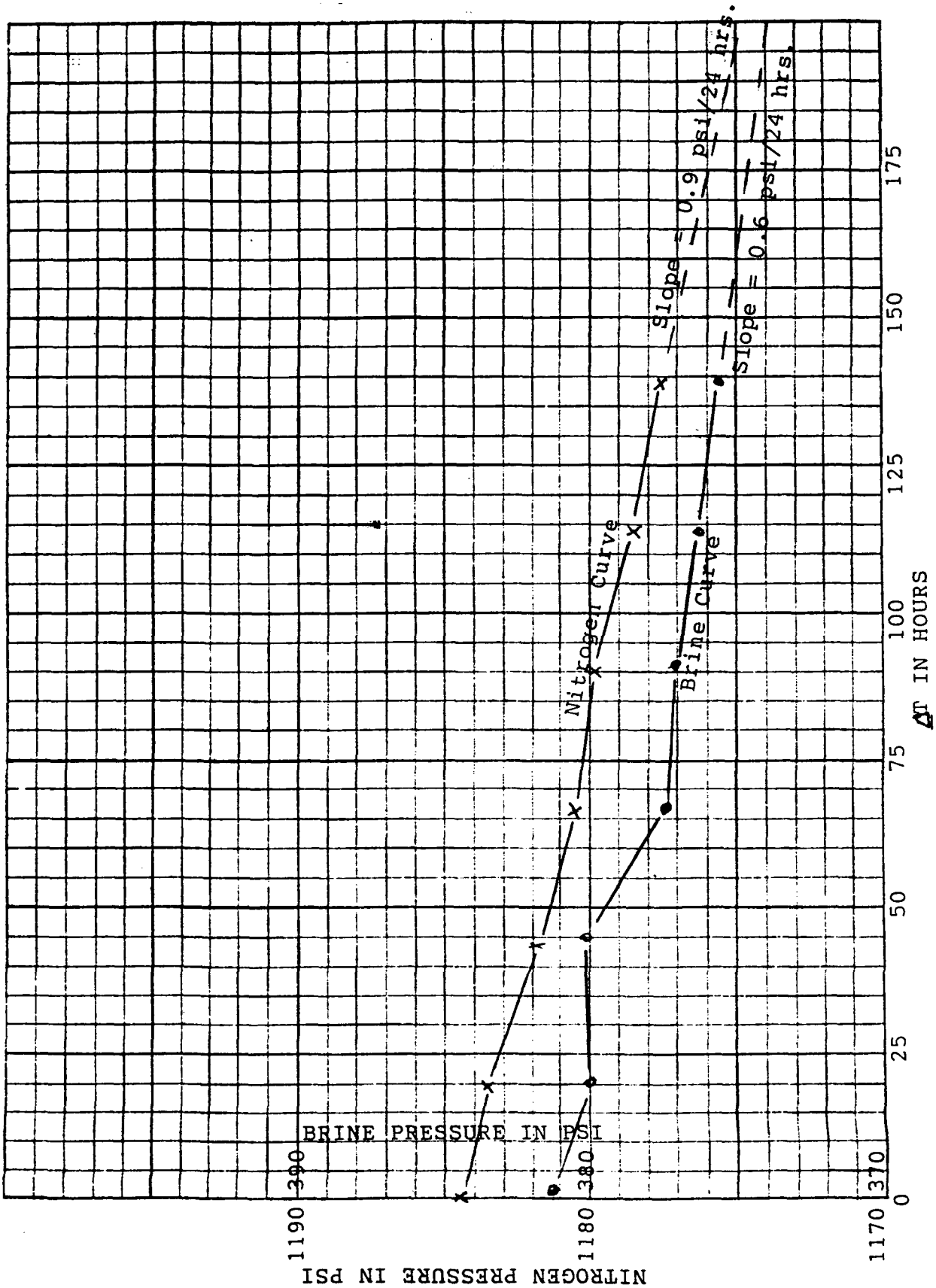
The slope of the brine pressure curve during the last 48 hrs. of the test is 0.6 psi/day. The slope of the nitrogen pressure curve is 0.9 psi/day. The yearly loss using the higher nitrogen slope is: 0.9 psi/day X 0.263 bbls./psi X 365 days/ year = 86.4 bbls./year. This is not a significant loss without using the accepted ratio of nitrogrn to LPG leakage rate of 10/1. The well has Mechanical Integrity with no significant loss.

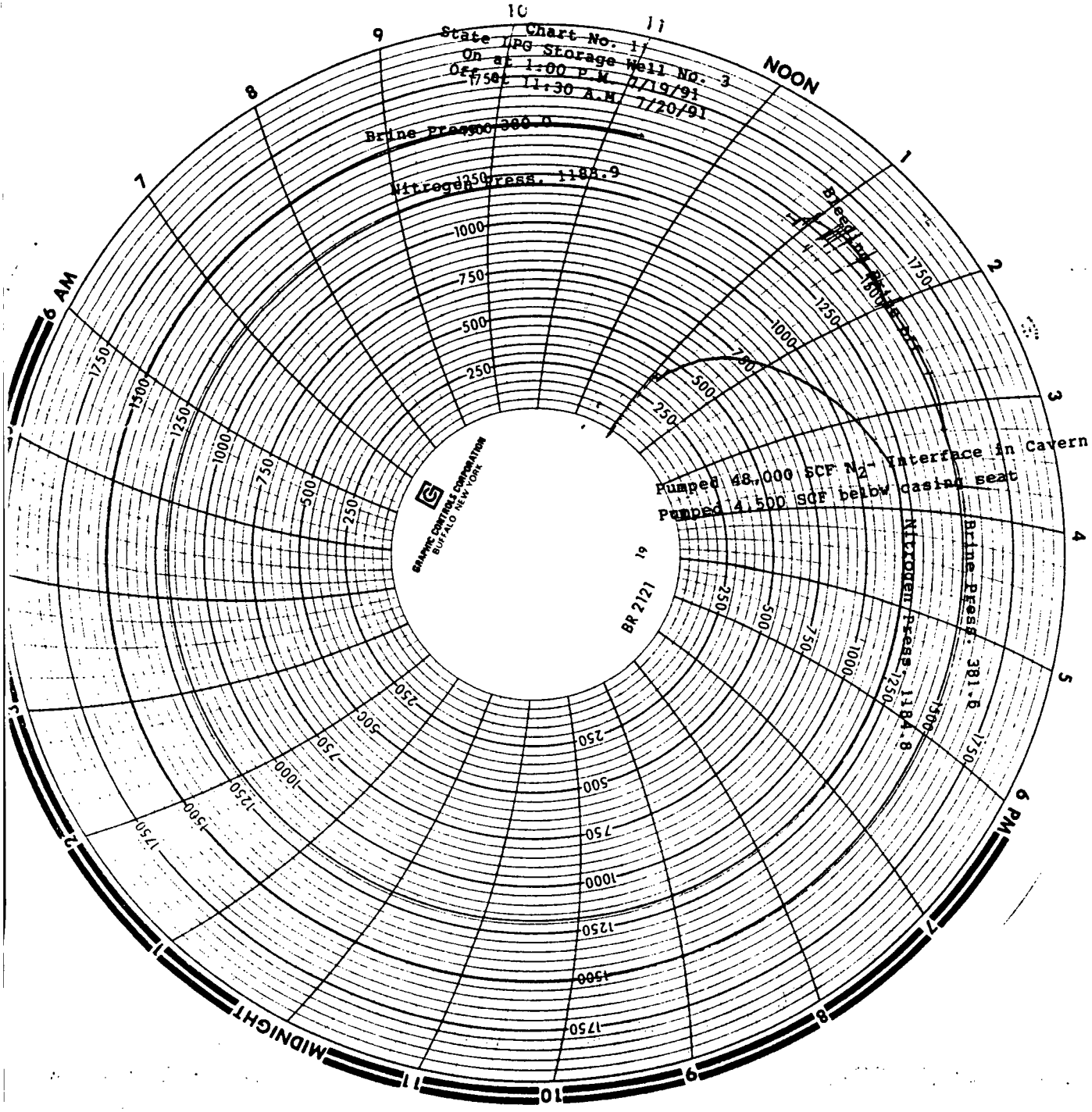
CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 3

MECHANICAL INTEGRITY TEST
JULY, 1991

Nitrogen Pressure vs ΔT in Hours

Brine Pressure vs ΔT in Hours




State LPG Storage Well No. 3
Chart No. 11
On at 1:00 P.M. 7/19/91
Off at 11:30 A.M. 7/20/91
Brine Press. 300.0
Nitrogen Press. 1188.9
Bleed to Brine Pit
Pumped 48,000 SCF N2- Interface in Cavern
Pumped 4,500 SCF below casing seat
Nitrogen press. 1184.8
Brine press. 381.6
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
NOON
1
2
3
4
5
6 PM
7
8
9
10
11
MIDNIGHT
1
2
3
4
5
6 AM
7
8
9
10
11
250
500
750
1000
1250
1500
1750

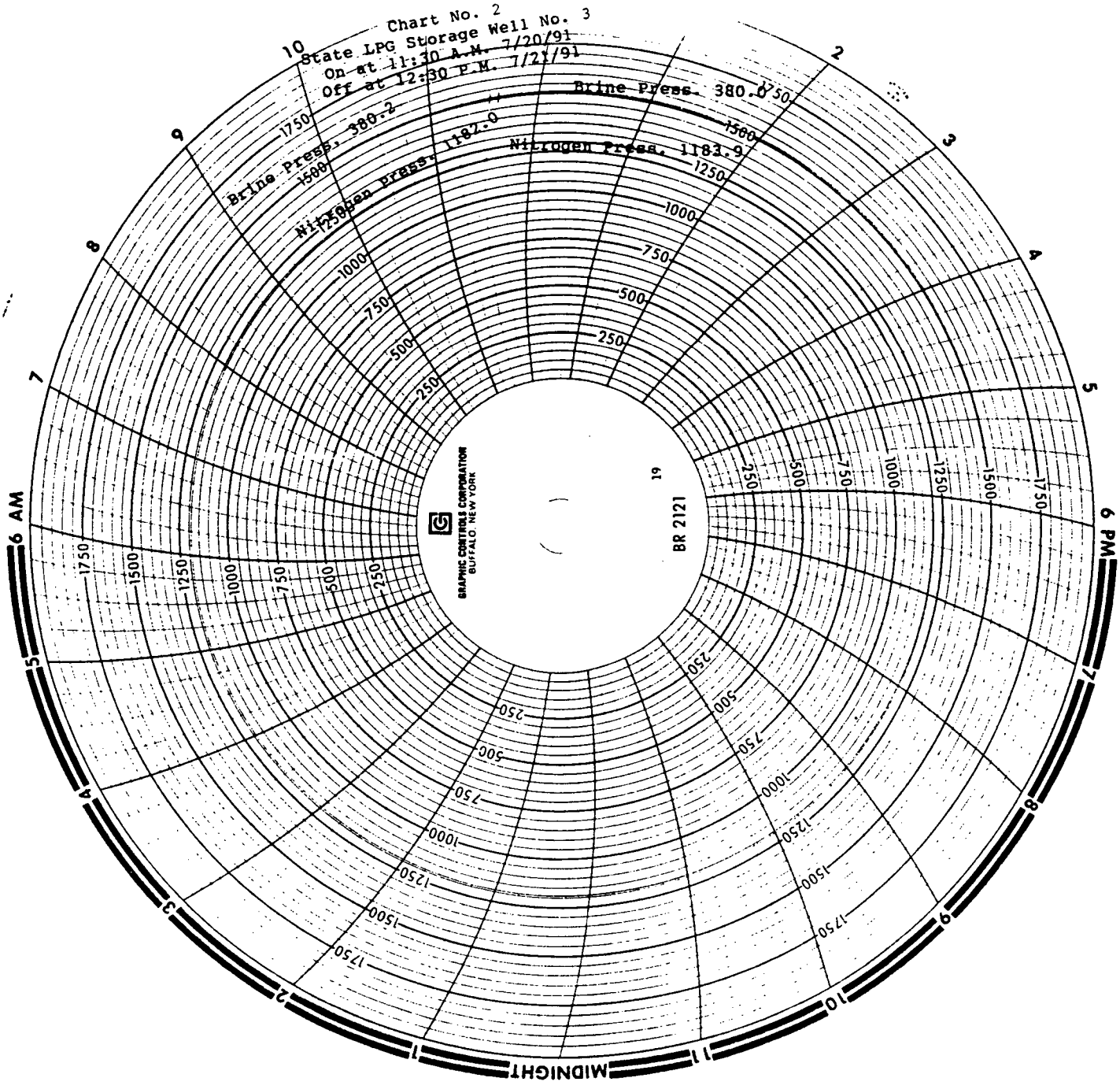


Chart No. 2
State LPG Storage Well No. 3
On at 11:30 A.M. 7/20/91
Off at 12:30 P.M. 7/21/91
Brine Press. 380.0
Brine Press. 380.2
Nitrogen Press. 1183.9
Nitrogen Press. 1182.0
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
BR 2121
MIDNIGHT
6 AM
6 PM

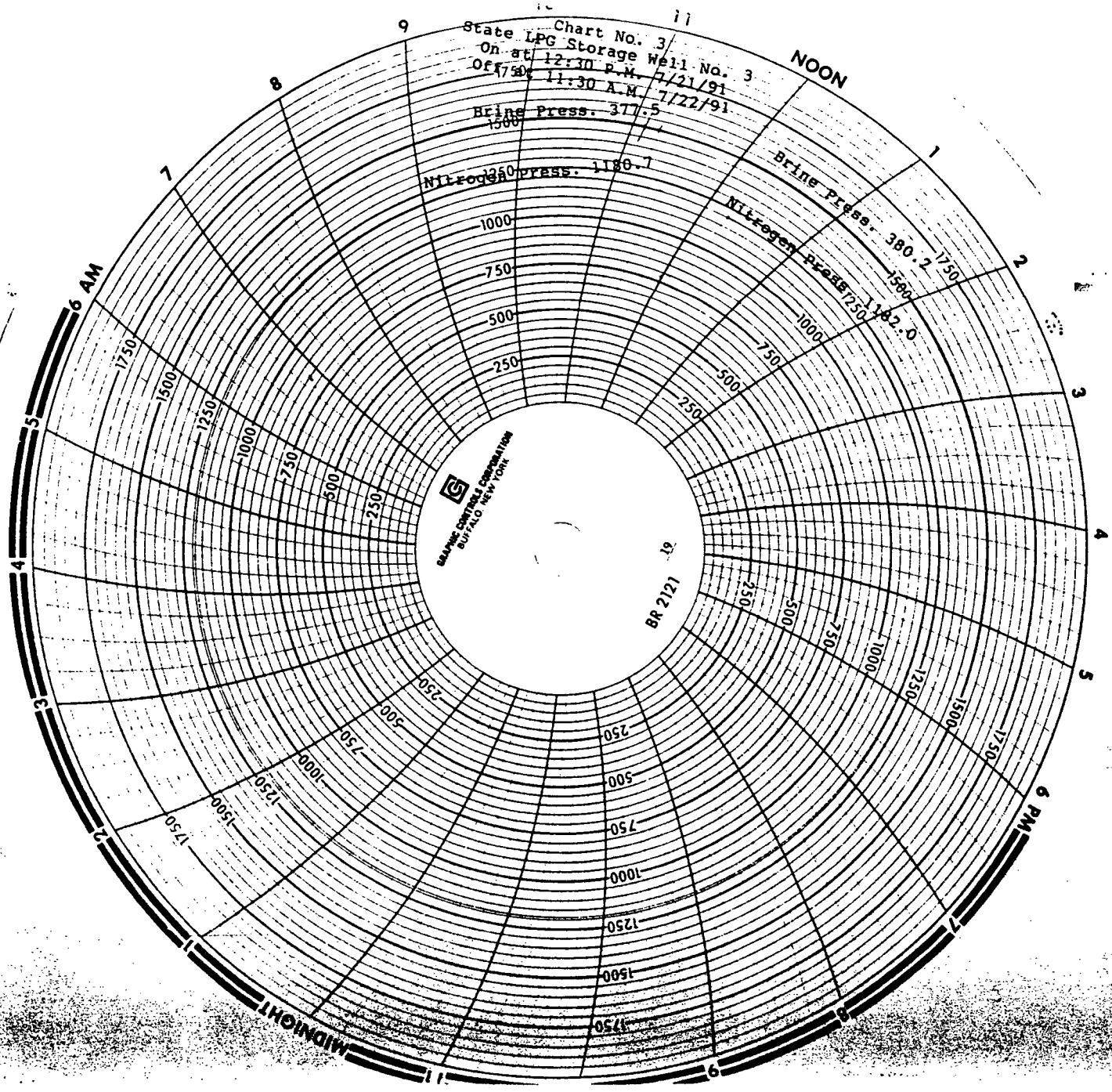


Chart No. 3
State LPG Storage Well No. 3
On at 12:30 P.M. 7/21/91
Off at 11:30 A.M. 7/22/91
Brine Press. 377.5
Nitrogen press. 1180.7
Brine Press. 380.2
Nitrogen press. 1182.0
NOON
MIDNIGHT
6 AM
6 PM
BARNES CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121

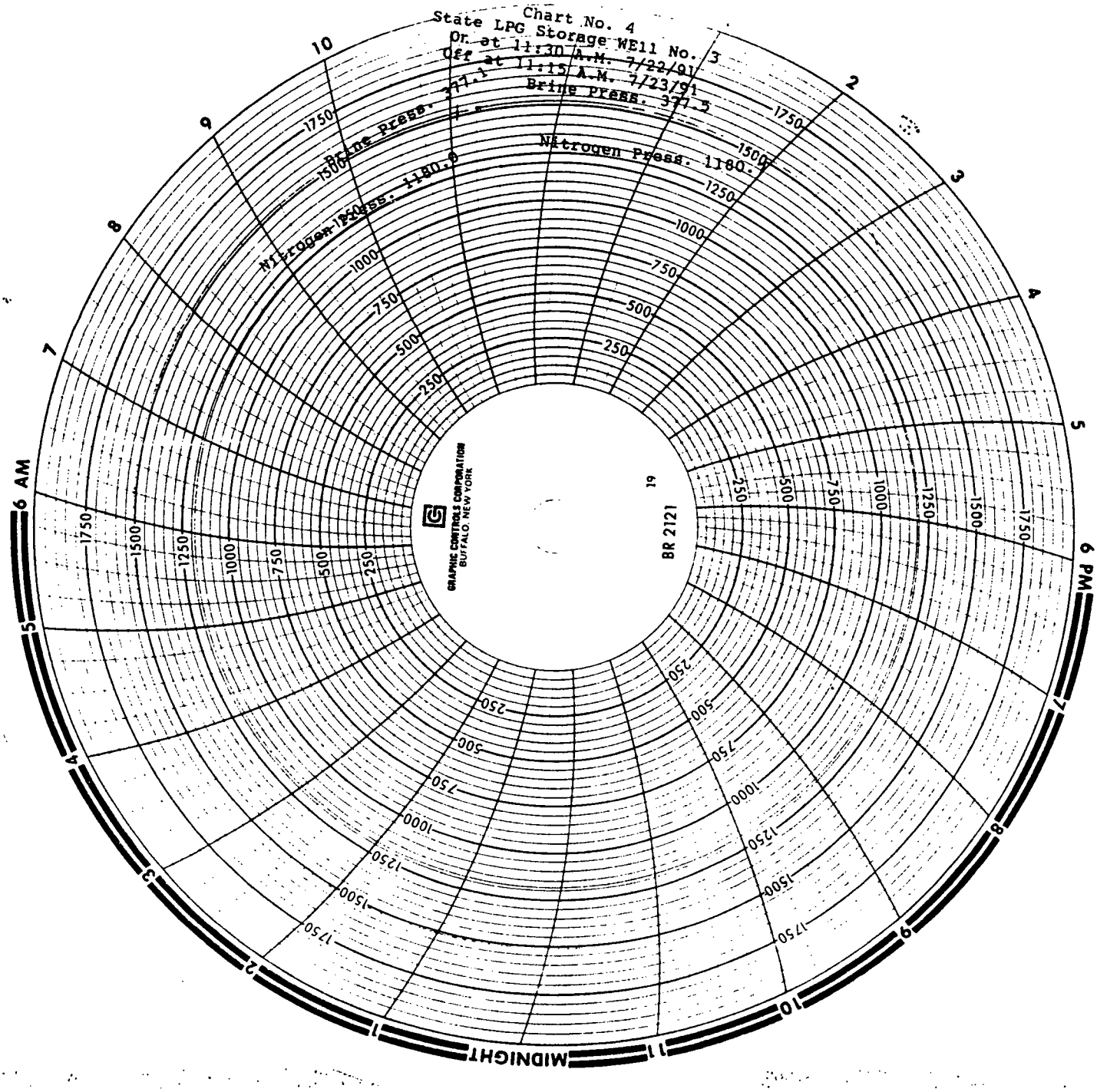


Chart No. 4
State LPG Storage WE11 No. 3
On at 11:30 A.M. 7/22/91
Off at 11:15 A.M. 7/23/91
Brine Press. 377.5
Nitrogen Press. 1180.0
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
BR 2121
MIDNIGHT
6 AM
6 PM

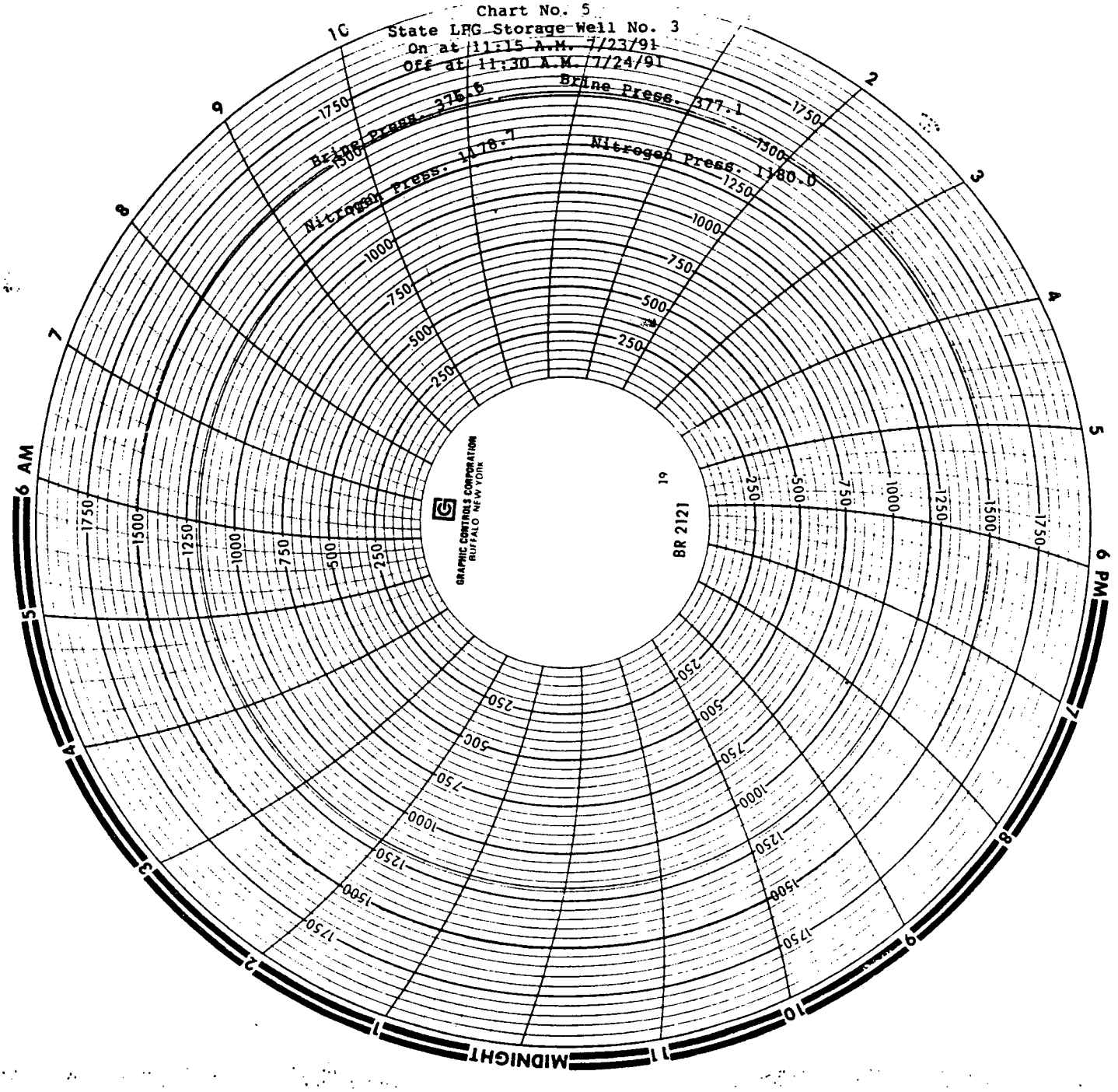


Chart No. 5
State LPG Storage Well No. 3
On at 11:15 A.M. 7/23/91
Off at 11:30 A.M. 7/24/91
Brine Press. 377.1
Nitrogen Press. 1180.0
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
6 AM
6 PM
MIDNIGHT

MECHANICAL INTEGRITY TEST
JULY, 1991

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 4
JAL PLANT NO. 4
UNIT M SECTION 32 T-23-S R-37-E
LEA COUNTY, NEW MEXICO

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 4
JAL PLANT NO. 4
UNIT M SECTION 32 T-23-S R-37-E
LEA COUNTY, NEW MEXICO

MECHANICAL INTEGRITY TEST
JULY, 1991

CERTIFICATION:

I, William J. Cates, do hereby certify that the Mechanical Integrity Test of Christie Gas Corporation's State LPG Storage Well No. 4 was conducted under my supervision from July 12 thru July 25, 1991 and that all facts, test data, and statements are true and correct to the best of my knowledge.

William J. Cates

Oil Conservation Division Witness: Eddie W. Seay

PERTINENT DATA:

Casing ---------- 9 5/8" 36# J-55 set at 1666'
Tubing ---------- 4 1/2" 16.60# FHDP set at 2645'.
Well Head and Valves-------- 600 Series - 2,000 psi WOG
Lithostatic Fracture Gradient ---------- 0.86 psi/ft.
Maximum allowable pressure gradient to casing seat-0.75 psi/ft.
Minimum proposed pressure gradient to casing seat -0.70 psi/ft.
Maximum allowable pressure at casing seat of 1666'- 1,250 psi.
Minimum test pressure at casing seat of 1666' ----- 1,166 psi.
Maximum surface pressure with 10# brine ---------- 384 psi.

CHRONOLOGICAL LOG OF TEST PROCEDURE:

This well has been out of service since 1986. On November 5, 1990 the casing pressure was 120 psi and the tubing pressure was 180 psi.

On July 12, 1991 the well head was blinded-off and the casing pressure was 175 psi and the tubing pressure was 235 psi. The tubing pressure being above the casing pressure indicates that the brine in the tubing was less than saturated. The increase in the pressures from November, 1990 indicated that cavern closure (salt creep) was occurring with good mechanical integrity to brine.

Pumped 60 bbls. of 10# brine down tubing to displace the unsaturated brine. Casing pressure was 354 psi and tubing pressure was 352 psi this indicated little LPG left in well.

Pumped 6 bbls. of 10# brine down the tubing to obtain the Cavern Compressibility Factor. Casing pressure was 375 psi and the tubing pressure was 370 psi. CAVERN COMPRESSIBILITY FACTOR = 6 bbls./(370 - 352)psi = 6 bbls./18 psi = 0.333 bbls./psi.

Daily test guage pressures were recorded:

7/12/91 -	Casing Pressure	375 psi	-- Tubing	Pressure -	370 psi.
7/13/91	"	368	"	"	362
7/14/91	"	364	"	"	362
7/15/91	"	362	"	"	358
7/16/91	"	362	"	"	358
7/17/91	"	360	"	"	358

Cavern pressure had stablized for test.

July 19, 1991 a dual pen pressure recorder was connected to the well head. A 0 to 500 psi to the tubing and a 0 to 2000 psi to the casing. Valves and fitting were also installed on the tubing and casing for connecting a deadweight tester. A deadweight tester with measurement capability of from 5 psi to 2,000 psi in increments of 0.1 psi was used for the test.

8:50 A.M. started pumping nitrogen down casing at 300 SCF/min.
11:30 A.M. - Nitrogen/brine interface in cavern below casing seat as indicated by nitrogen injection pressure leveling off. Bled brine out of tubing to prevent over-pressuring the well while injecting nitrogen. Transport had 96 bbls. of bled off brine which is the capacity of the 9 5/8" - 4 1/2" annulus.
11:45 A.M. - Pumped 4,500 SCF of nitrogen below 9 5/8" casing seat. Total volumne of nitrogen pumped was 52,800 SCF.
ΔT = 0 at 12:10 P.M. 7/19/91.

Date -	Real Time -	ΔT -	Casing Pressure -	Tubing Pressure -	ΔP_c -	ΔP_t
7/19/91	12:10 P.M.	0	1189.9	389.7		
7/20/91	11:00 A.M.	22.9	1186.2	386.2	-3.9	-3.5
7/21/91	11:30 A.M.	47.4	1184.7	384.1	-1.5	-2.1
7/22/91	12:00 (noon)	71.9	1183.7	384.1	-1.0	-0
7/23/91	11:45 A.M.	95.65	1182.5	381.0	-1.2	-3.1
7/24/91	11:50 A.M.	119.8	1182.2	380.8	-0.3	-0.2
7/25/91	12:40 P.M.	144.3	1181.7	380.4	-0.5	-0.4

Test Concluded.

TEST DISCUSSION:

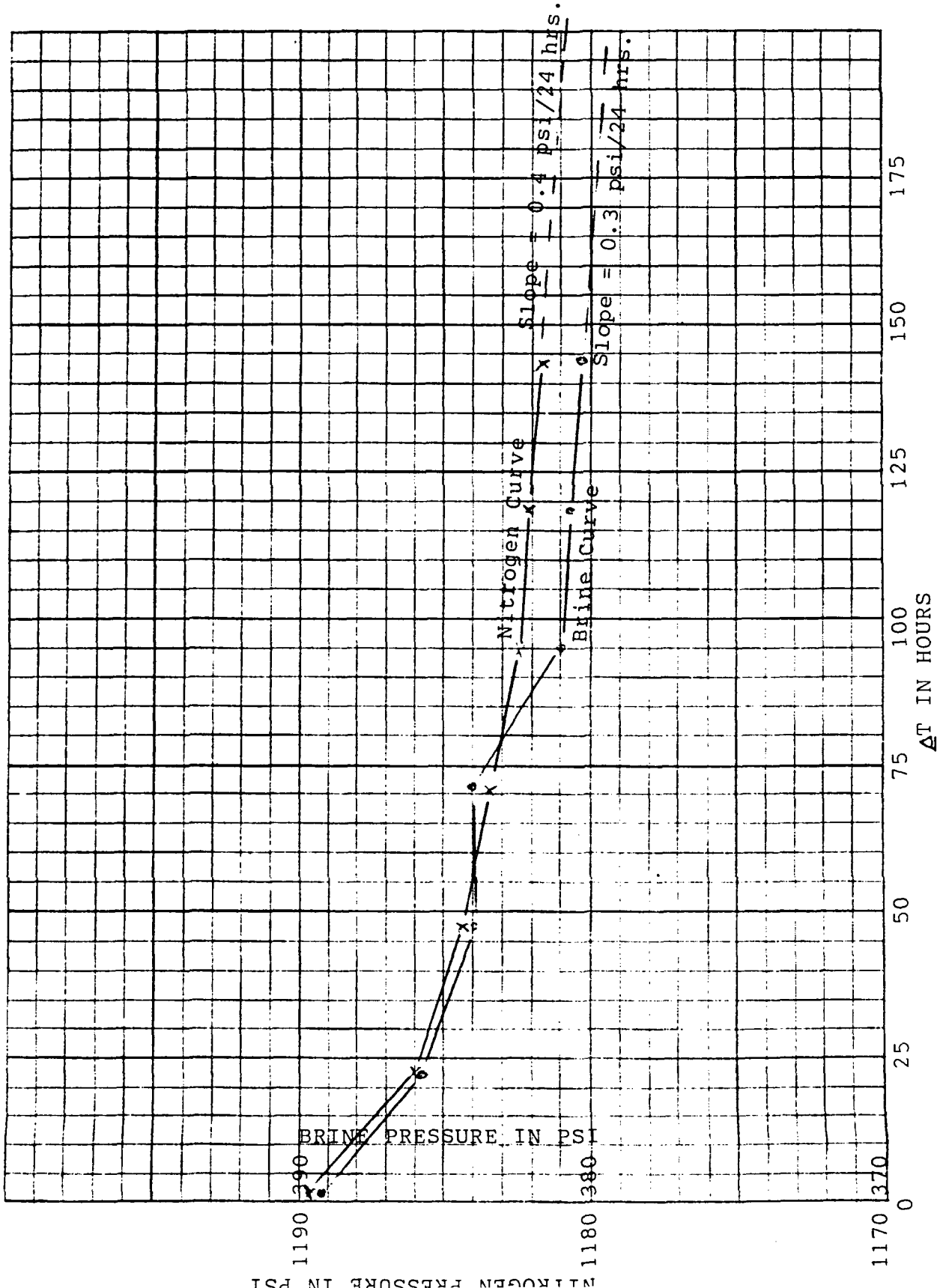
The slope of the brine pressure curve during the last 48 hrs. of the test os 0.3 psi/day. The slope of the nitrogen pressure curve is 0.4 psi/day. The yearly loss using the higher nitrogen slope is: 0.4 psi/day X 0.33 bbls/psi X 365 days/year = 48.18 bbls. This is not a significant loss without using the accepted ratio of nitrogen to LPG leakage rate of 10/1. The well has Mechanical Integrity with no significant loss.

CHRISTIE GAS CORPORATION
STATE LPG STORAGE WELL NO. 4

MECHANICAL INTEGRITY TEST
JULY, 1991

Nitrogen Pressure vs ΔT in Hours

Brine Pressure vs ΔT in Hours



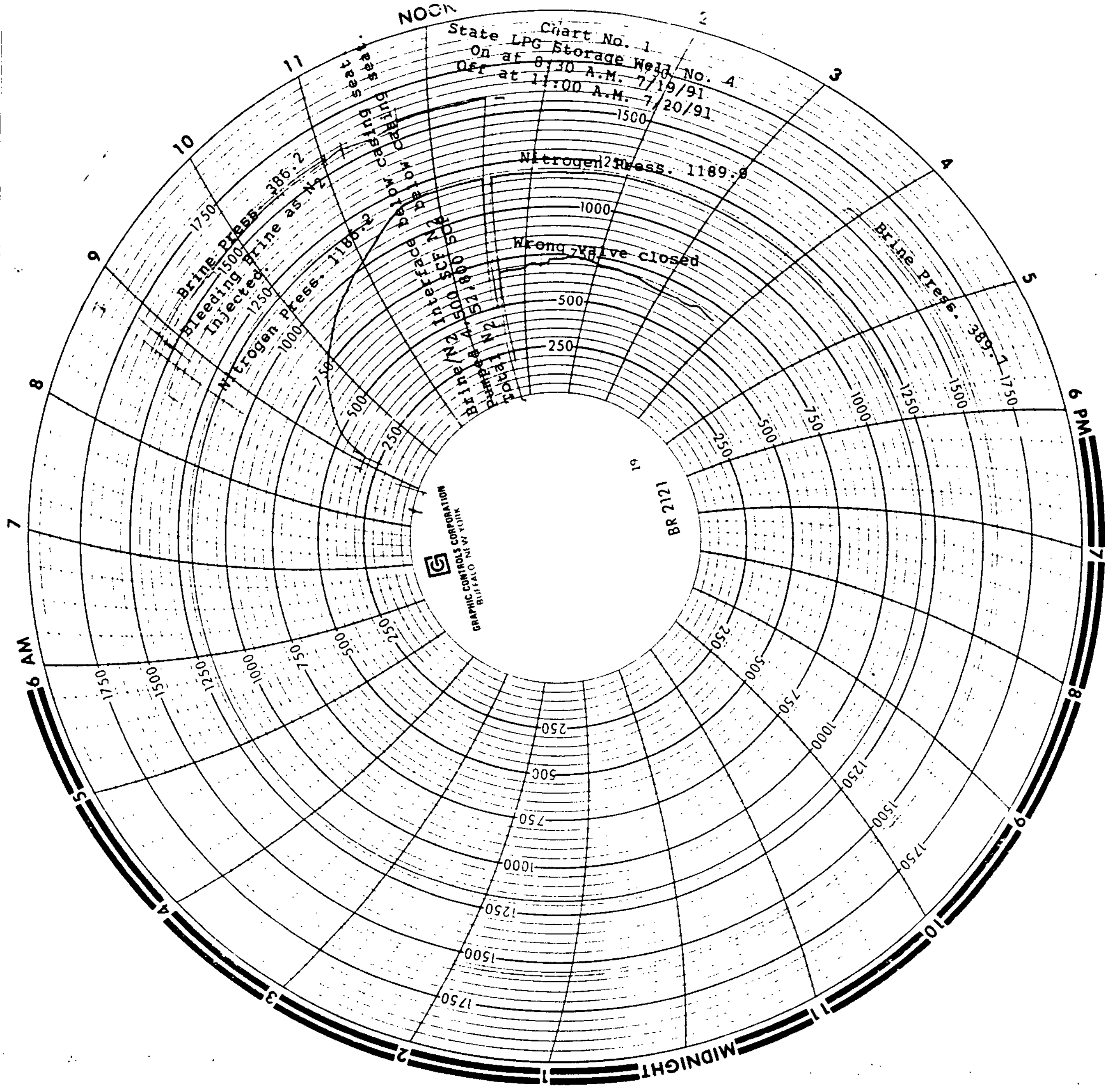


Chart No. 1
State LPG Storage Well No. 4
On at 8:30 A.M. 7/19/91
Off at 11:00 A.M. 7/20/91
Nitrogen Press. 1189.0
Wrong Valve closed
Brine Press. 389.1
Brine Press. 386.2
Bleeding Brine as N2 Injected.
Nitrogen Press. 1186.2
Interface below casing seat.
Total N2
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
MIDNIGHT
NOON
6 AM
6 PM

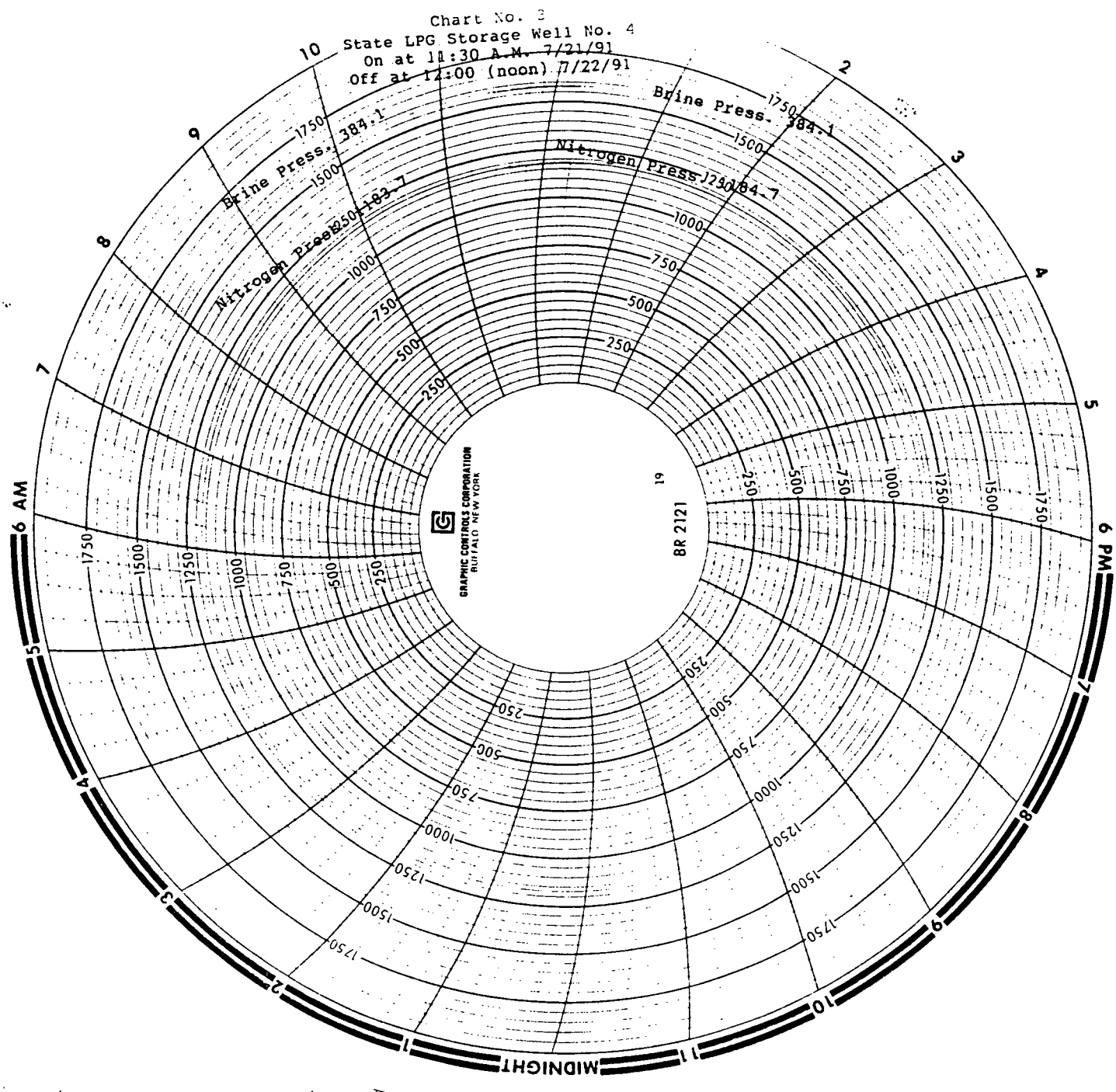
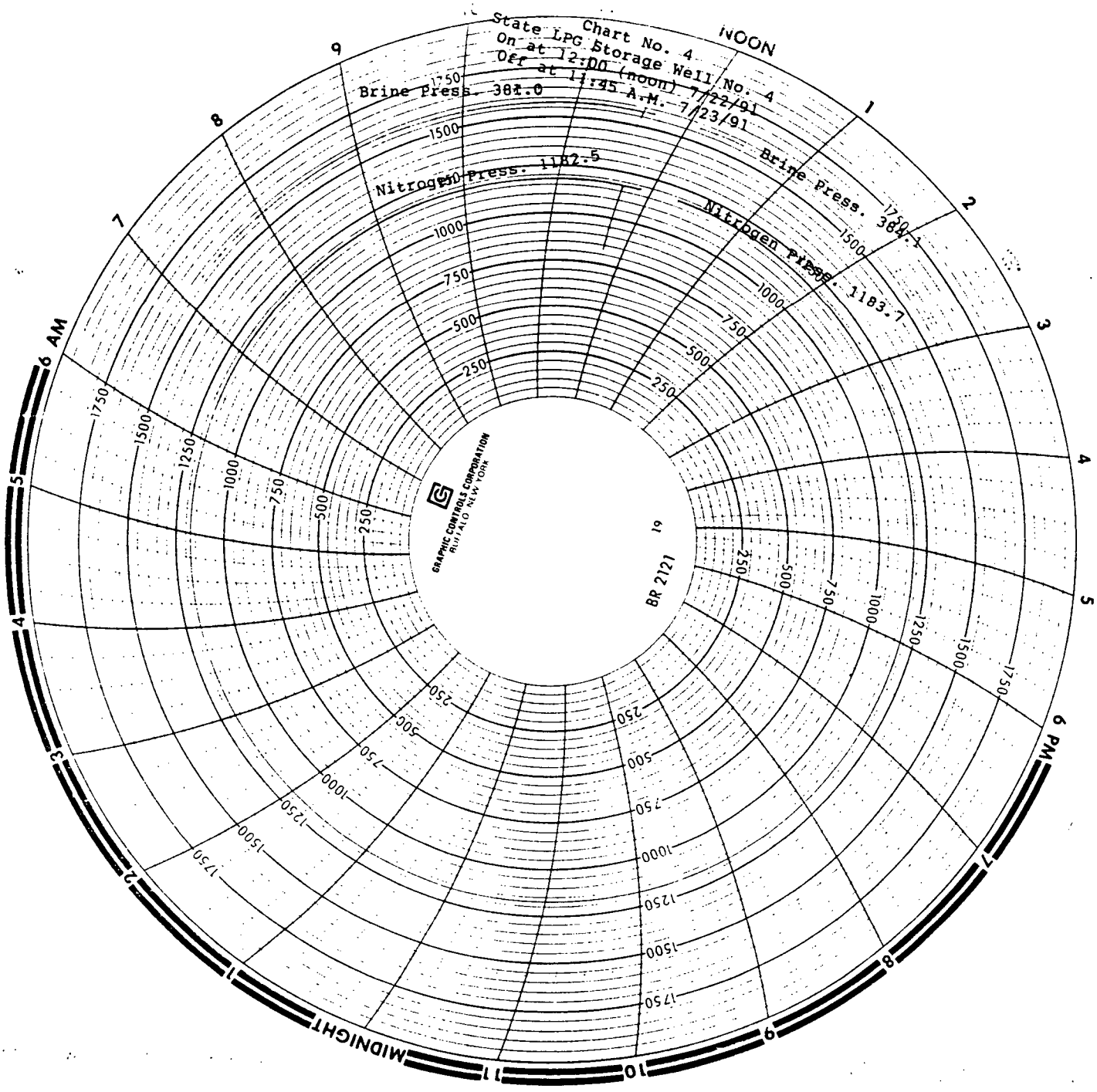
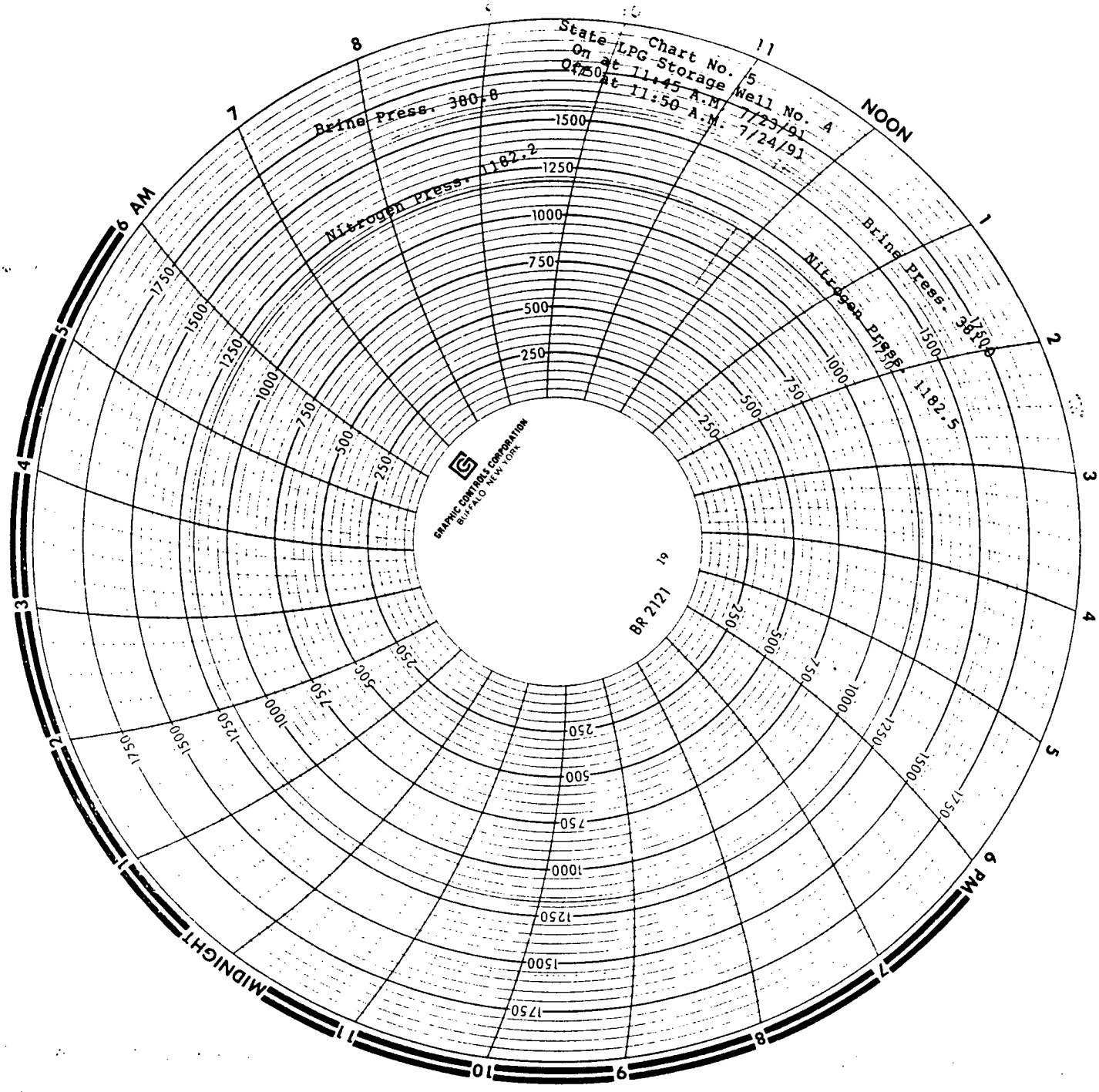


Chart No. 3
State LPG Storage Well No. 4
On at 11:30 A.M. 7/21/91
Off at 12:00 (noon) 7/22/91
Brine Press. 384.1
Nitrogen Press. 184.7
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
MIDNIGHT
6 AM
6 PM


State LPG Storage Well No. 4
Chart No. 4
On at 12:00 (noon) 7/22/91
Off at 11:45 A.M. 7/23/91
Brine Press. 381.0
Nitrogen Press. 1182.5
Brine Press. 384.1
Nitrogen Press. 1183.7
NOON
MIDNIGHT
6 AM
6 PM
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121


State 1 Chart No. 5
LPG Storage Well No. 4
On at 11:45 A.M. 7/23/91
Off at 11:50 A.M. 7/24/91
Brine Press. 380.8
Nitrogen Press. 1182.2
Brine Press. 380.8
Nitrogen Press. 1182.5
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
BR 2121
NOON
1
2
3
4
5
6 PM
7
8
9
10
11
MIDNIGHT
1
2
3
4
5
6 AM
7
8
250
500
750
1000
1250
1500
1750

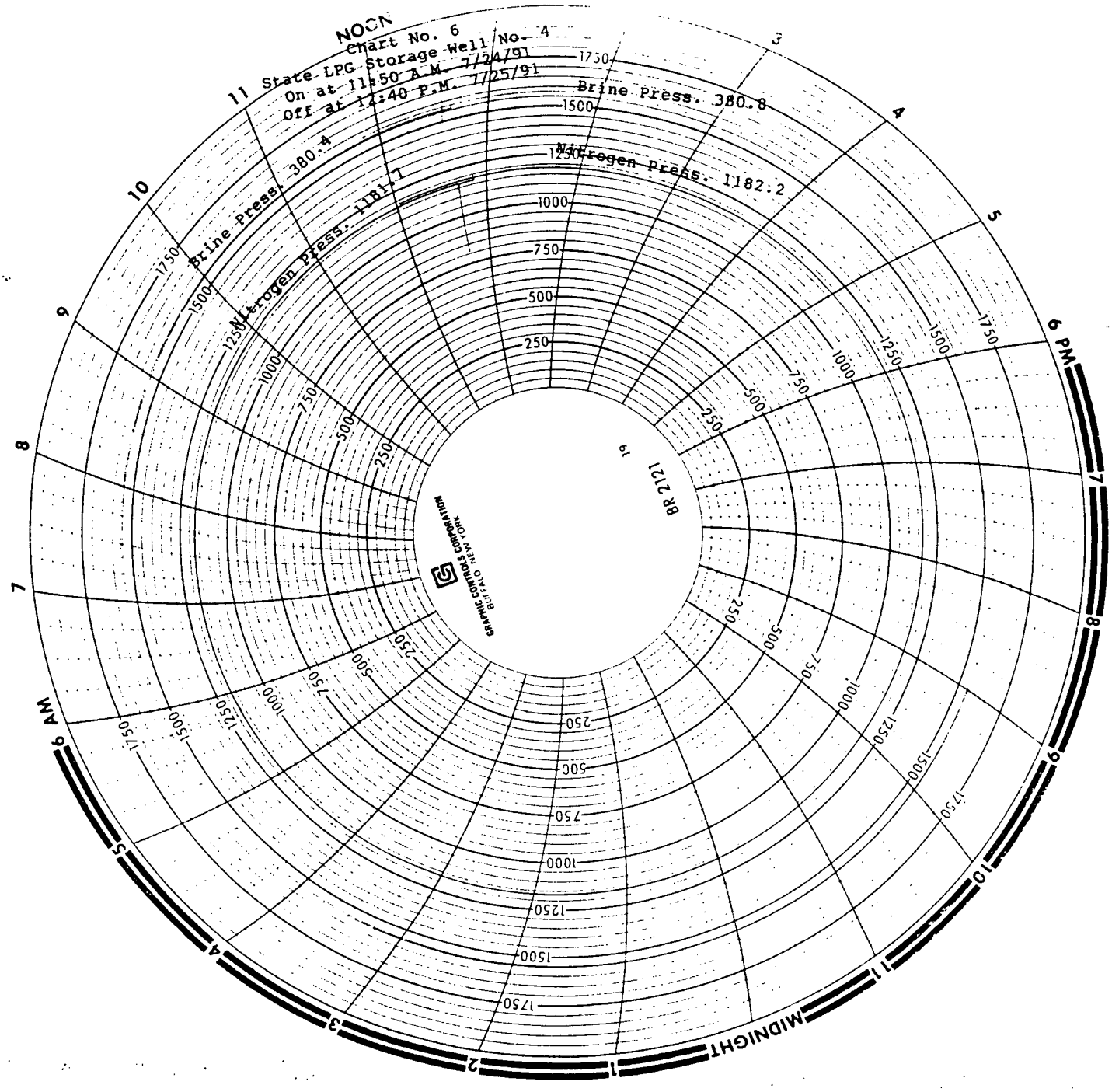


Chart No. 6
State LPG Storage Well No. 4
On at 11:50 A.M. 7/24/91
Off at 14:40 P.M. 7/25/91
Brine Press. 380.4
Nitrogen Press. 1181.1
Brine Press. 380.8
Nitrogen Press. 1182.2
NOON
11
10
9
8
7
6 AM
5
4
3
2
1
MIDNIGHT
11
10
9
8
7
6 PM
5
4
3
2
1
250
500
750
1000
1250
1500
1750
BR 2121
GRAPHIC CONTROLS CORP.
BUFFALO NEW YORK

VIA FAX
505/827-5741

July 17, 1991

Mr. David G. Boyer, Hydrogeologist
Environmental Bureau Chief
New Mexico Oil Conservation Division
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504

Subject: Request for Approval of Proposed Procedures to Test and Repair Two Brine Storage Ponds at Christie Gas's Jal #4 Plant

Dear Mr. Boyer:

My company requests your department's approval for Christie Gas to commence testing to locate leaks in the two brine storage ponds we recently purchased from El Paso Natural Gas Company at the Jal #4 Plant in Lea County, New Mexico. After the location of any leak(s) we will take immediate steps to repair those leaks in order to put the storage ponds back in service.

As you suggested, we will provide the necessary equipment during the testing to insure that the sump wells are kept as dry as possible and that no overflow of the sump wells occurs.

Along with this letter I am also sending the following:

1) A letter from Southwest Research Institute describing the procedure we will use to detect the leak(s) in the South pond.

2) A copy of a brochure published by Southwest Research Institute which describes their methodology.

Please note on the second page of the brochure a description of the method used to detect side-slope leaks. This is the procedure we will use on the North brine pond. Obviously, this will require that we fill the North brine pond above the level where the leak is presently occurring. During this time, we will be especially watchful at the North pond sump to make sure that it is continuously pumped as dry as possible.

After the leaks in both ponds are located, the level of the ponds will be lowered enough to expose the area of leak so that it can be repaired. The ponds will then be refilled and monitored to insure that future leaks, if any, are quickly detected and repaired.

I hope this procedure meets your approval and I respectfully request that we be allowed to proceed as described.

Sincerely,

Joe Christie
President

JC:sw

encl.

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, USA 78228-0510 • (512) 684-5111 • TELEX 244846

RECEIVED
MAY 2[illegible] 1991

May 21, 1991

Joe Christie, President
Christie Gas Corporation
901 MoPac Expressway South, Suite 515
Austin, TX 78746

Reference: Leak Location Survey of Jal No. 4 South Brine Pond

Dear Mr. Christie:

I appreciate your call about leak location services for geomembrane liners of landfills and impoundments. The sensitive electrical leak location method we developed is the only known method to locate geomembrane leaks under a protective cover, without removing the soil cover. We are confident that our electrical leak location method is the best technology for locating leaks in geomembrane liners.

We have recently completed a survey of a brine pit similar to the Jal No. 4 South Brine Pond. It had two steel pipe penetrations and sediment. The pipe penetrations conducted most of the electrical current for the leak location survey, which made the leak detection sensitivity poor. The conductivity of the brine also decreased the sensitivity. We found that the only practical way to perform the survey was to clean and drain the pond and cover the pipe penetrations with a sealed geomembrane liner. The pond was then filled with brine and the survey proceeded routinely. Thirty-four leaks were found in the [illegible]-acre pond.

After reviewing the drawings you sent, we recommend this approach [illegible] No. 4 South Brine Pond. If necessary, some sediment left in the pond is acceptable, [illegible] it will allow a 1-inch-diameter probe to be moved freely through it. I made copies [illegible] drawings that I will retain for future reference. Enclosed are the drawings you sent, with extra copies that you may need.

Southwest Research Institute does not repair the leaks in the liners. This is best done by a lining contractor who installs Hypalon (chlorosulfonated polyethylene). This contractor can also seal the pipe penetrations. I have enclosed a geomembrane [illegible] selection chart

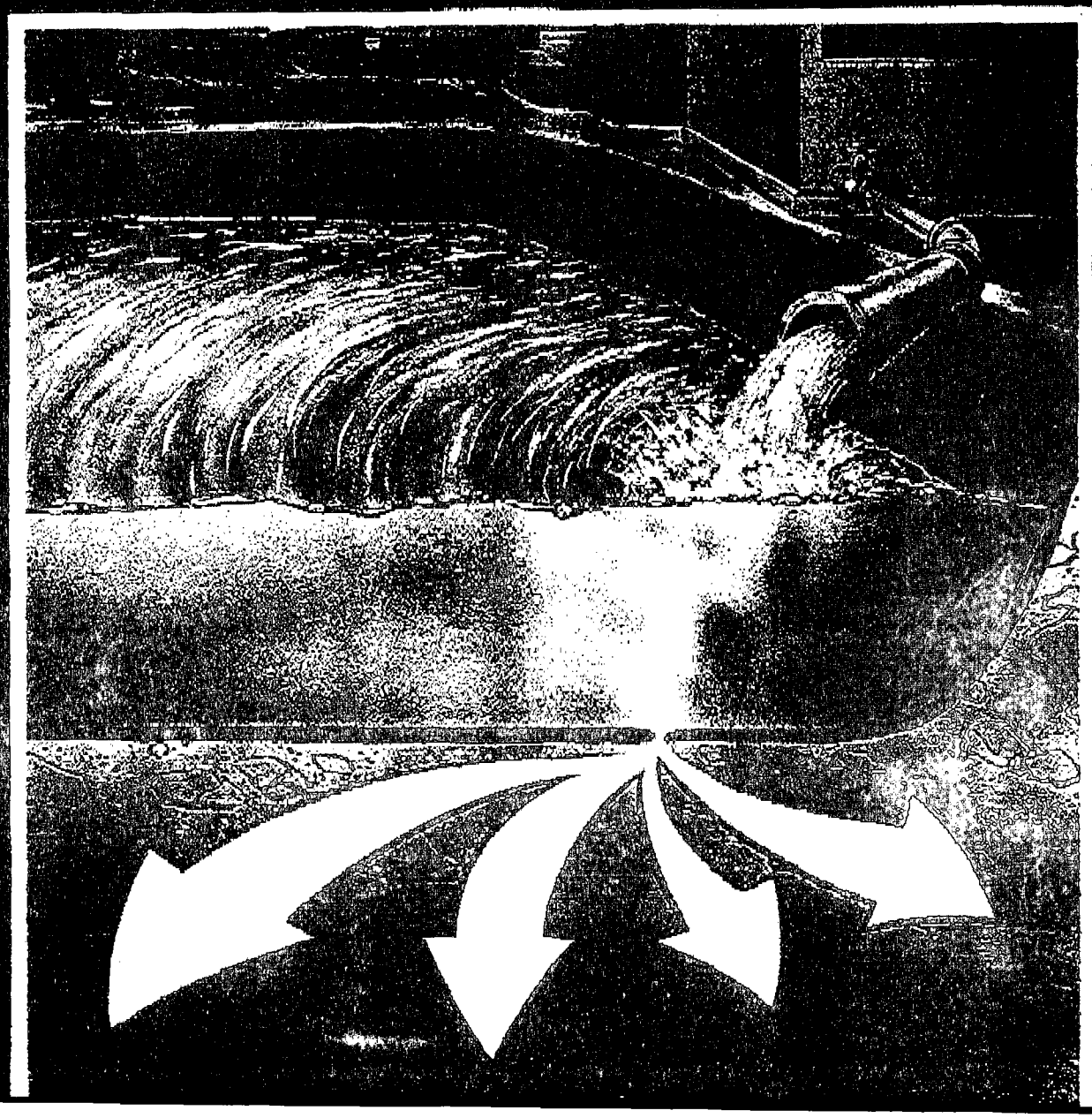
I have enclosed some technical papers and other materials describing the electrical leak location surveys and services. If you have any questions please contact me at (512) 522-2725 or Mr. Daren Laine, Senior Research Scientist at (512) 522-3274. We look forward to the opportunity to be of assistance to Christie Gas Corporation on this service requirement.

Very truly yours,

Glenn T. Darilek, Manager
Environmental and
Geophysical Applications

GTD/dl

Geomembrane Leak Location



The electrical leak location method has become a highly successful means of locating leaks in the liners of landfills and surface impoundments built to hold hazardous and municipal wastes. Southwest Research Institute (SwRI) has investigated the integrity and performance of these geomembrane liners for environmental protection and safety since 1980. The Institute developed the electrical leak location method and other systems now extensively used for commercial surveys. Several of our innovative electrical leak location systems and methods have been awarded U.S. and foreign patents, and several additional patents are pending. Southwest Research Institute can assist clients in the design, installation, quality assurance, and remediation of any geomembrane-lined facility.

Leak Location Surveys

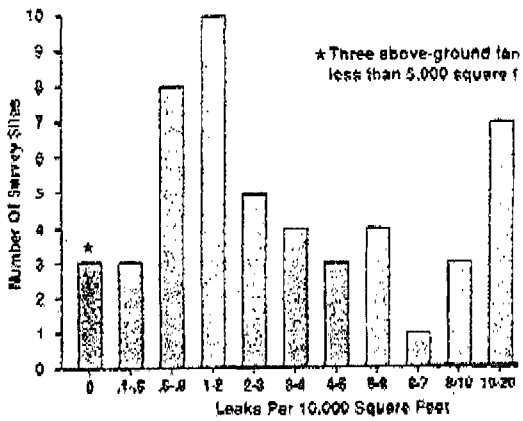
Commercial leak location surveys are provided to accurately locate leaks in geomembrane liners for repair to prevent contamination of the surrounding environment. A systematic scan of the entire submersed liner is performed using highly sensitive equipment. Any leaks found are marked on the liner or with weights attached to floats. Reports detail the location of each leak.

Important features and capabilities of the electrical leak location surveys include:

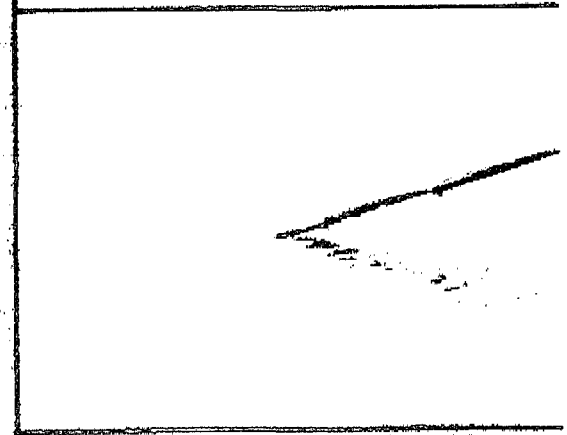
- ❑ Inspection of the parent material, and factory and field seams
- ❑ Locating leaks with an accuracy of 0.5 inch
- ❑ Detecting leaks as small as 0.001 square inches
- ❑ Survey speed of approximately 50,000 square feet per day with two-man crew
- ❑ Double-checking seams and patches
- ❑ Test of liner under hydrostatic loading
- ❑ Cost effective, most reliable leak location method

Types of surveys include:

- ❑ Pre-service inspections of landfills, impoundments, and lined tanks
- ❑ In-service inspections of impoundments and tanks with non-hazardous liquids
- ❑ Bottom and side-slope surveys
- ❑ Primary and secondary liners
- ❑ Surveys of soil-covered liners and landfill caps
- ❑ Small, remote-controlled boat for surveys of deep or hazardous impoundments
- ❑ Multi-channel system for large landfills and impoundments
- ❑ Third-party quality control inspections



Typical number of leaks found is from 0.5 to 40 l 10,000 square feet.



Surveys of side slopes are conducted using sensor probes with long handles.

Special leak loc impoundments

Sensitive leak location equipment consisting of a detector probe and indicator unit are used for pre-service inspection of landfill and impoundment liners.

...on surveys are used for deep impoundments or ...h moderately hazardous liquids.

Electrical Leak Location Method

The electrical leak location technique takes advantage of the electrical insulating properties of the geomembrane material and the conductivity of the impounded liquid and the ground beneath the liner. The system includes an electrode placed in the liquid, another electrode in the ground outside the impoundment, an electric power supply connected to the electrodes, and a leak locater probe consisting of a rod with two measurement electrodes connected to a sensitive voltage detector unit. The probe detects the small voltage potential caused by electric current flowing through a leak. The detector signal level increases as the probe is moved toward a leak, enabling precise location of leaks as small as pinholes in acres of liner material.

Geomembrane Failure Mode Testing

SwRI also developed hydrostatic failure mode testing methods for polymer and polymer composite materials under simulated field subgrade conditions. A dedicated laboratory and a one-acre geomembrane-lined surface test impoundment on the Institute grounds are used to evaluate new geomembrane testing technologies. The SwRI Geomembrane Test Facility is equipped with 36 pressure test vessels for testing geomembrane specimens to 20 inches in diameter. The vessels are used to test geomembranes subjected to combinations of environmental conditions that include:

- Hydrostatic loading to 35 feet of head
- High, low, and/or fluctuating temperature
- Exposure to hazardous, toxic, and radioactive materials
- Subgrades that approximate field applications
- Seam and material stressing from tension or load points
- Transient and impact loading

Other Capabilities

The Institute is also experienced in environmental investigations, including:

- Advanced geophysical surveys
- Chemical sampling and analysis (EPA Contract Laboratory Program and Corps of Engineers MRD Certification)
- Hazardous material evaluations, including explosives and ordnance
- Environmental and regulatory assessments
- Remediation planning, investigation, and recommendations

CHRISTIE GAS CORPORATION

Barton Oaks Plaza II, Suite 515
901 South Mopac Expressway
Austin, Texas 78746

Fax: (512) 327-5272
Telephone: (512) 327-9510

DELIVER TO: Laura Bryan

FIRM: _____

TELECOPY NUMBER: 505-827-5741

FROM: _____

PERSON SENDING: Joe Christie

DATE: July 17 1991

THIS TELECOMMUNICATION CONSISTS OF ONE COVER PAGE AND 7 ADDITIONAL PAGE(S).

IF YOU HAVE ANY PROBLEMS RECEIVING, PLEASE CALL (512) 327-9510.

****

CHRISTIE GAS CORPORATION
BARTON OAKS PLAZA TWO, SUITE 515
901 MOPAC EXPRESSWAY SOUTH
AUSTIN, TEXAS 78746

512 327-9510
512 327-5272 FAX

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

July 18, 1991

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-757-737-754

Mr. Joe Christie, President
Christie Gas Corporation
Barton Oaks Plaza Two
Suite 515
901 MoPac Expressway South
Austin, Texas 78746

RE: Request for Approval of Proposed Test and Repair Procedures for Brine Storage Ponds at Christie Gas Jal #4 Plant

Dear Mr. Christie:

The Oil Conservation Division (OCD) has received your fax letter dated July 14, 1991 requesting approval to test and repair the two brine storage ponds at your Jal #4 Plant.

The proposal is generally acceptable except I am concerned that by testing only the upper sides of the North pond, any leaks lower in the pond would be missed necessitating repair at a later date. Accordingly, I recommend that you have the entire North pond tested at this time unless you are sure no leaks exist in the lower pond area.

Based on information provided with your letter, the request is approved with the following conditions:

1. Fluids for testing the south pond shall be stored in frac tanks or in the north pond at a level below the known major leak.

2. Sumps for both ponds will be monitored during the test and pumped to keep drained and dry as much as possible.

3. Prior to completion of the test submit for OCD approval plans for disposal of fluids at test completion. If salt currently in the pond is not to be dissolved and used as the test fluid, provide information on the proposed storage or disposal method.

4. If fluids are to be kept in the pond after the test and prior to discharge plan approval, submit a proposed sump monitoring and recordkeeping schedule for our review and approval.

5. Within 30 days of completion of repairs, provide a summary report on test results and repairs made.

If you have any questions, please contact me at (505) 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist
Environmental Bureau Chief

DGB/sl

cc: OCD Hobbs Office

CHRISTIE GAS CORPORATION
2500 HWY. 377 SOUTH
BROWNWOOD, TEXAS 76801
915 643-1971
MOBILE 915 646-3159

JOE SHEPARD
VICE PRESIDENT

817 842 7272

DISCHARGE PLAN

FOR

CHRISTIE GAS CORPORATION'S

JAL 4 FACILITIES

CHRISTIE GAS CORPORATION

BARTON OAKS PLAZA TWO, SUITE 515
901 MOPAC EXPRESSWAY SOUTH
AUSTIN, TEXAS 78746

512 327-9510
512 327-5272 FAX

CHRISTIE GAS CORPORATION

JAL NATURAL GAS PROCESSING PLANT

DISCHARGE PLAN APPLICATION

January, 1992

RECEIVED
JAN 09 1992
OIL CONSERVATION DIV.
SANTA FE

Christie Gas Corporation

Jal Natural Gas Processing Plant

Discharge Plan Application

Background Information

The site of Christie Gas Corporation's ("CGC") Jal Natural Gas Processing Plant is located in Section 31 and 32, T-23-S, R-37-E, Lea County, N.M. The CGC plant is a portion of the El Paso Natural Gas Company's ("EPNG") Jal No. 4 natural gas processing plant. The original EPNG plant was constructed in 1952 and consisted of a gasoline plant, a purification plant, a dehydration plant, and compression facilities. The plant treated, compressed, and transported natural gas to EPNG's main transmission pipeline for consumption further west. The plant was upgraded in 1959 with the addition of a new fractionating plant and underground propane storage wells. Other additions to the processes were added and deleted; however, the plant's function did not change appreciably until 1987 when plant operations were shutdown by EPNG.

In 1990, the gas compression facilities were sold to Sid Richardson Carbon and Gasoline Company. In 1991, the "B" gasoline plant, underground storage facilities, and wastewater disposal system were sold to CGC. In February, 1991, all facilities at the site that had not been sold to either CGC or Sid Richardson Carbon and Gasoline Company were demolished by EPNG.

The EPNG Jal No. 4 plant operated under a discharge plan that had been approved by the New Mexico Oil Conservation Division ("NMOCD") and identified as permit number GWR-7. This discharge plan application applies only to those facilities currently owned by CGC; however, some information required for this discharge plan will incorporate by reference information contained in EPNG's Jal No. 4 discharge plan. In addition, other agreements between the NMOCD and EPNG will be incorporated into this discharge plan application, if applicable.

I. General Information

A. Name of Discharger or Legally Responsible Party:

Christie Gas Corporation
Joe Christie, President
Barton Oaks Plaza Two, Suite 515
901 MoPac Expressway South
Austin, Tx 78746
Phone: 512/327-9510

B. Name of Local Representative or Contact Person:

Ken Parker
P.O. Box 1345
Jal, N.M. 88252
Phone: 505/395-2632

C. Location of Discharge:

CGC's Jal Natural Gas Processing Plant is located in Sections 31 and 32, T-23-S, R-37-E, Lea County, N.M. As mentioned previously, CGC's facilities incorporate portions of EPNG's Jal No. 4 Natural Gas Processing Plant. Tab "1" contains an aerial photograph depicting those ares under ownership by CGC, EPNG, and Sid Richardson Carbon and Gasoline Company. Equipment and facilities relevant to CGC's discharge plan are also identified on this photograph. Tab "2" contains a survey plat indicating land ownership relevant to the area of interest.

D. Type of Natural Gas Operation:

CGC's Jal Natural Gas Processing Plant consists of three major natural gas operations:

- Fractionating natural gas liquids, i.e., seperating a stream of natural gas liquids into one or more or its components: butanes, ethane, propane and natural gasoline. A schematic diagram of the treating process is included in Tab "3" and labeled in the aerial photograph included in Tab "1".

- Truck and railcar loading of natural gas liquids. The loading areas are identified in the aerial photograph included in Tab "1".

- Natural gas liquids storage through the use of underground storage domes. The location of the injection wells used for the storage wells are identified in the aerial photograph included in Tab "1".

Of the three major natural gas liquids operations at facility, only railcar loading and the underground storage of natural gas liquids is currently underway. There are no near-term plans for the operation of the treating facilities or fractionating facilities; however, CGC wishes to incorporate those operations in this application should a need to commence operation of these facilities on short notice arises.

E. Affirmation

I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true and accurate and complete to the best of my knowledge and belief.

Joe Christie, President

1-3-92
Date

II Plant Processes

A. Sources and Quantities of Effluent and Process Fluids.

As mentioned previously, the four major natural gas operations that may be conducted at the facility are:

- Natural gas liquids treating and fractionating.

- Truck loading and off-loading of natural gas liquids.

- Railcar loading and off-loading of natural gas liquids.

- Natural gas liquids storage through the use of underground storage domes.

Of the four operations, only the railcar loading and underground storage operations are currently being utilized and no plans for use of the treating plant or fractionator are anticipated in the near future. It is CGC's intent however, to include all four operations within the context of this discharge plan application. The following narrative describes the three operations and the quantities and characteristics of effluent expected to be generated by each operation.

Natural Gas Liquids Processing-

The natural gas liquids treating and fractionating plant is designed to separate propane, butane, natural gasolines and other impurities from each other. A process flow sheet illustrating the major components of this system is included in Tab "3". With respect to the release of effluents from this process, all process equipment is connected to the facility's drain system which flows by gravity to a classifier which in turn separates insoluble hydrocarbon liquids from the wastewater. The insoluble hydrocarbon-bearing liquids are pumped to a storage tank and the wastewater is pumped to a nearby injection well for disposal. The disposal system will be discussed in greater detail in Part III of this application. **Because this facility is not currently in operation, it is not possible at this time to estimate the quantity of effluent that is expected to be generated by this operation; however, CGC will make this information available to the NMOCD as soon as it becomes available.**

Railcar Loading and Off-Loading of Natural Gas Liquids-

Natural gas liquids are loaded onto railcars via a loading rack. The liquids are pumped to the loading rack from either above-ground storage tanks, liquids pipelines owned by others, trucks, or underground storage facilities. To date, this

this facility and the underground storage facility are the only operations that CGC is currently involved in at the facility. The liquids being loaded onto railcars are delivered to CGC via truck and/or pipelines owned by others. No effluents are produced in this operation. Railcar off-loading is accomplished in the reverse order as described above.

Truck Loading and Off-Loading of Natural Gas Liquids

The liquids being loaded into trucks are delivered to CGC via pipeline owned by others. The liquids being off-loaded from trucks are injected into pipelines owned by others. No effluents are produced in either truck loading or off-loading.

Natural Gas Liquids Storage-

The facility includes four underground storage domes for the storage of propane and butane. A brine solution is used for removing the gas liquids from the dome; brine is pumped into the domes via a injection wells and propane or butane is displaced from the domes. Brine is removed from the domes when butane or propane is injected into the domes; the displaced brine is stored in large double-lined ponds with leak detection systems. It was suspected that both the North and South brine ponds were subject to leakage at the time the property was purchased by CGC. CGC's plan to correct this problem is discussed in detail in Part III of this application. No liquid effluent is generated as a result of this operation.

B. Quality Characteristics

Because liquid wastes are not currently generated at the facility, it is not possible to provide data relative to the chemical characteristics of the waste streams that will be generated at the facility. Upon commencement of operations, CGC will collect samples and provide analytical data relative to the waste streams to the NMOCD. Unless otherwise required by the NMOCD, CGC proposes to collect samples from the classifier and waste oil tank to meet the requirements of waste stream characterization.

C. Transfer and Storage of Process Fluids and Effluents

The majority of process fluids and effluents generated at the facility will be from the natural gas treating and fractionating plant. The effluents generated will include primarily boiler blowdown water mixed with small quantities of produced water. The produced water will be generated as a result of the natural gas liquids processing operation. As mentioned previously, the exact volume and chemical characteristic of this effluent stream cannot be quantified at this time; however, upon commencement of operations, samples will be collected and waste volumes will be measured to comply with NMOCD requirements.

The effluent stream from the processing and fractionating plant will be transported to a classifier via subsurface drain piping from the processing area. The classifier functions as a gravity separator where any hydrocarbon waste liquids are separated from the effluent. The lighter hydrocarbon waste liquids are conveyed from the classifier to a storage tank where the liquid is periodically removed from the tank and shipped to a waste oil reclamation facility. Because the plant is not currently operating, no contract has been executed with a waste oil reclamation facility; however, specific information relative to the reclamation operator will be provided to the NMOCD upon commencement of plant operations. The aqueous phase of the waste fluid in the classifier is conveyed first to an above ground surge tank and then pumped to a permitted disposal well which is located at the north end of the plant site. Any solids that collect in the classifier will be periodically removed and disposed of in an environmentally acceptable manner. Tab "4" contains a diagram illustrating the wastewater collection system for the natural gas processing plant.

Because the plant drain system is underground, CGC will test all drain lines prior to commencement of plant operations. CGC will utilize the same line testing methodology proposed by EPNG and accepted by the NMOCD in EPNG's Jal No. 4 discharge plan application (GWR-7). A copy of the EPNG drain line testing procedure is included in Tab "5". Drawings illustrating the drain piping locations are also included in Tab "5". Pending the results of the drain line tests, any necessary repairs will be made, or if repairs prove to be uneconomical, new drain lines will be installed.

The underground butane and propane storage facilities use a dense (25 lb.) brine solution for the removal of the butane or propane from the underground storage domes. The brine is pumped down into the storage domes to remove the product and when product is injected into the storage domes, the brine is displaced to the surface and stored in either the North or South double-lined storage ponds. Inspection of the ponds' leak detection monitor wells revealed the possibility of leaks in both brine ponds at the time CGC purchased the property. The South pond has been repaired by installing a new liner and is currently in operation. The North pond is scheduled to be repaired in early Spring, 1992. The repair of both ponds has been conducted in the manner proposed by CGC and approved by NMOCD. Copies of the appropriate CGC/NMOCD correspondence relative to pond repair are included in Tab "6".

Domestic sewage at the facility is contained within a septic tank system.

D. Spill/Leak Prevention and Housekeeping Procedures

In the event of a spill at the facility, CGC personnel will immediately take measures to contain the spilled materials and clean-up activities will be implemented in an expeditious manner. In addition, CGC will comply with all necessary spill reporting requirements as outlined in Rule 116 of the NMOCD's rules and regulations. CGC will comply with all applicable federal, state, or local regulations relative to spills not specifically mentioned in NMOCD Rule 116.

If in the event of normal plant operations, liquid effluents are generated as a result of vessel cleaning, such effluents will be conveyed to the classifier via the plant drainage system.

Because the classifier installation is partially below grade, the classifier and any other below-grade open-top tanks will be visually inspected annually to assure that the integrity of the vessel is intact.

As the brine storage ponds are placed into operation, the leak detection monitor wells will be inspected weekly to assure against any undetected leaks in the primary liner.

Should the need arise to shut-in the disposal well for a short period of time for repairs, CGC is confident that the 200-barrel classifier provides ample storage space for contingency storage of waste fluids. If, upon commencement of operations of the natural gas treating and fractionation plant, it is determined that the generation of waste liquids is more than expected, the need for additional contingency wastewater storage tanks will be evaluated. In the event of extended disposal well downtime, additional storage tanks will be rented or purchased to contain the wastewater. If such an activity is impractical or uneconomical, an overall plant shut-down will be implemented if necessary.

III Effluent Disposal

As mentioned previously, with the exception of hydrocarbon-bearing waste liquids, all liquid effluent will be disposed of via a NMOCD permitted disposal well. Waste oil and hydrocarbon-bearing waste liquids will be disposed of by a waste oil recycler/reclaimer. The disposal well is checked annually for leaks by conducting a radioactive tracer survey on the well.

Currently no industrial solid waste is generated on-site. Should industrial solid waste be generated in the future, the waste will be characterized and disposed of in an environmentally acceptable manner.

IV Site Characteristics

Information relative to the hydrology and geology of the site was submitted to the NMOCD in EPNG's Jal No. 4 discharge plan application (GWR-7). CGC incorporates this information by reference.

With respect to groundwater quality beneath the site, the purchase agreement between CGC and EPNG relative to the sale of this facility held CGC harmless with respect to pre-existing conditions at the site. It is CGC's understanding that EPNG is currently engaged in a groundwater investigation at the site and that EPNG is committed to working with the NMOCD to mitigate any groundwater problems that are the direct result of plant operations while under EPNG ownership.

PROPERTY LINE

CATTLE GUARD 3310.95

SID RICHARDSON GASOLINE & CARBON

INJECTION WELLS & SURGE TANK

CONTINGENCY TANK

WASTE OIL STORAGE

CLASSIFIER

BRINE STORAGE PONDS

3310

3300

DEMOLISHED BY EPNG

CGC NATURAL GAS PROCESSING PLANT

SID RICHARDSON GAS & CARBON

RAIL CAR LOADING

TRUCK LOADING

FENCE CORNER 3317.60

CATTLE GUARD 3301.55

ENGINEERING RECORD	
DRAWN BY	Aero-Graphics
TRACED BY	
CHECKED BY	
APPROVED	
DATE	
PHOTO DATE	9-8-84
CONTOUR INTERVAL	2'

0 100 200 300
SCALE IN FEET

El Paso Natural Gas Company
PIPELINE SERVICES DIVISION

TOPOGRAPHIC PLAN

JAL NO. 4 PLANT

SEC. 31, TWS. 23-S, RANGE 37-E
LEA COUNTY, NEW MEXICO

RECEIVED
JAN 09 1992
OIL CONSERVATION DIV.
SANTA FE

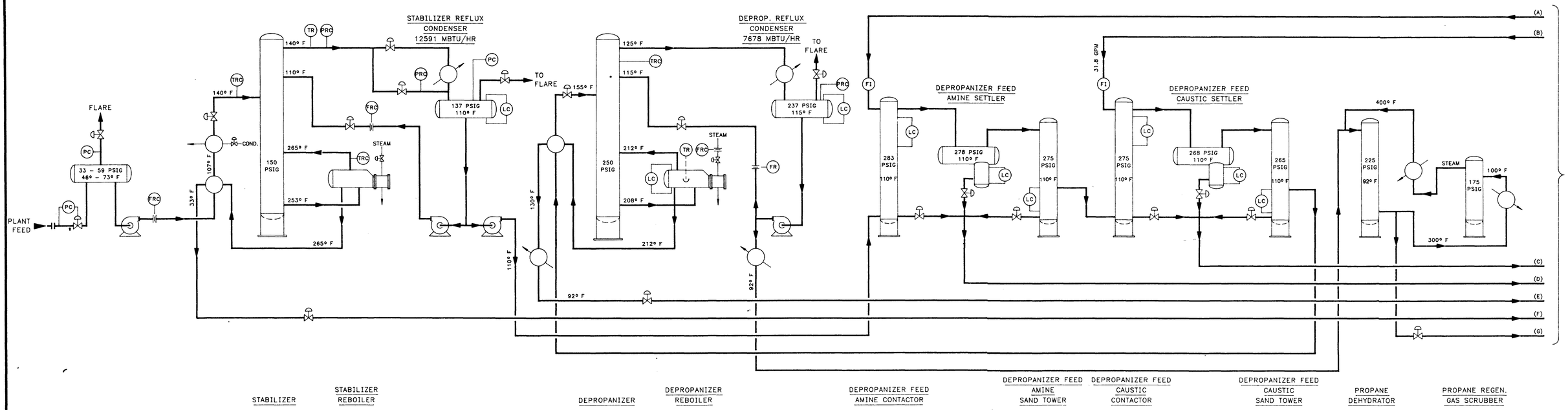
DWG. NO. 5004.19-8

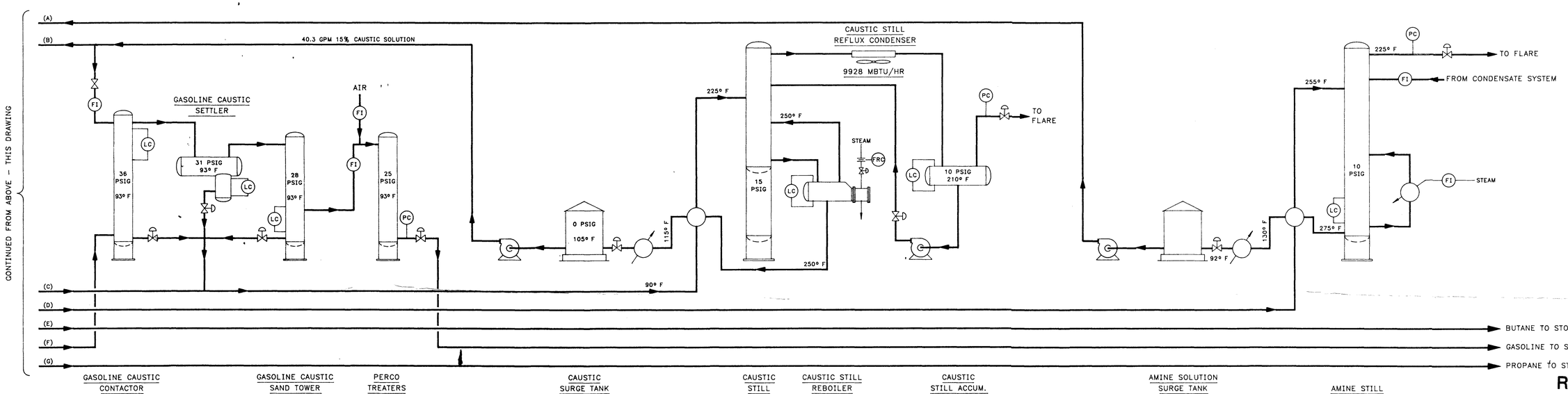
SHEET 1 OF 1

REV.

REPRODUCTION BY aero-graphics

Contour Lines Have Been Adjusted To Match Rectified Photo Base





SOLD TO CHRISTIE GAS CORPORATION

El Paso NATURAL GAS COMPANY

JAL 4B FRACTIONATING PLANT

PROCESS FLOW DIAGRAM

ENG. RECORD		DATE
DRAFTING DESIGN		11/91
COMPUTER AIDED DRAFTING	EG	11/5/91
CHECKED		
PROJECT APPROVAL		
DESIGN APPROVAL		
COMPUTER SAVE NAME	SP3230	

SCALE: NONE
W.O.: X-47903
DWG. NO.
REV.

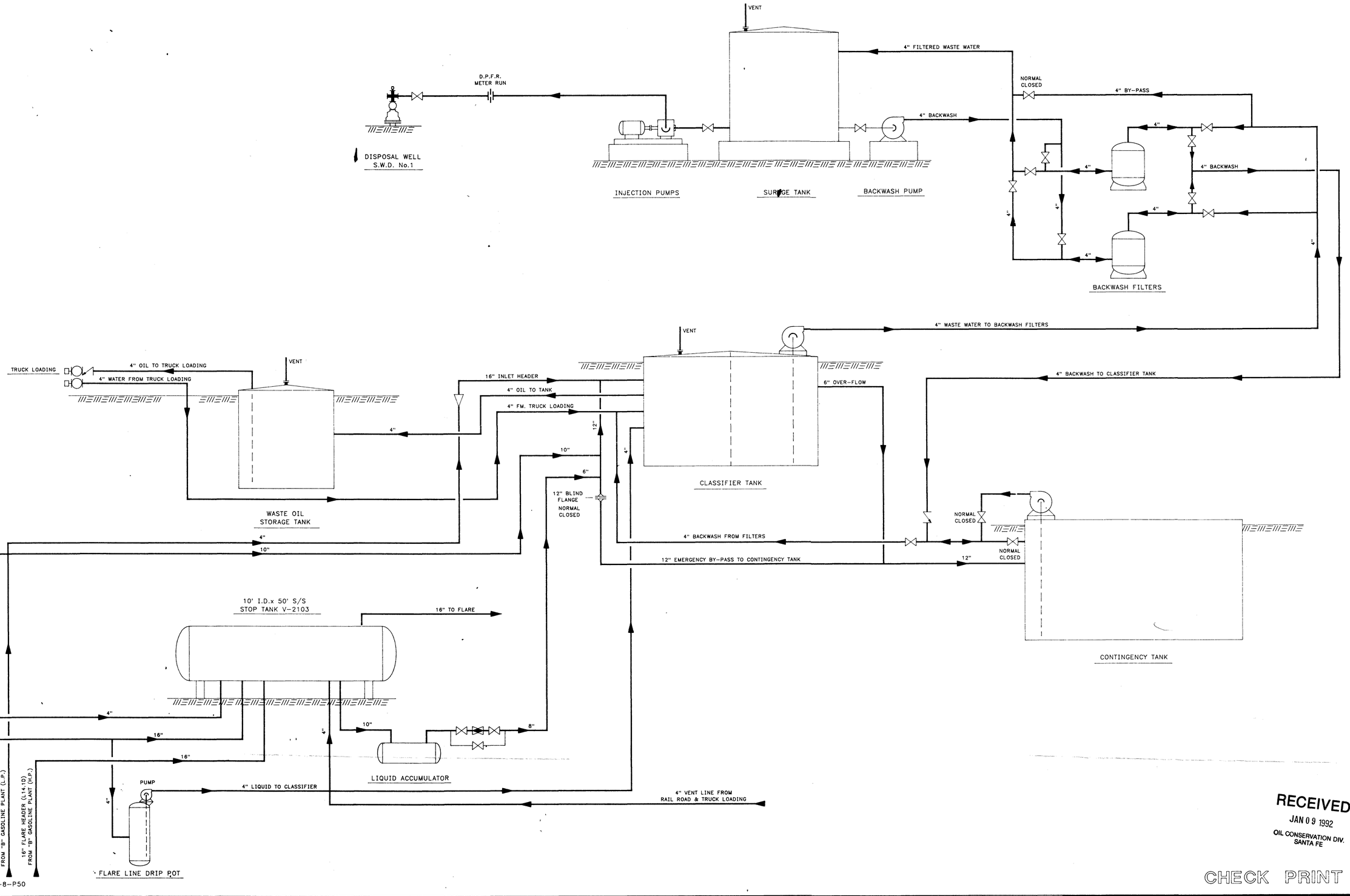
FMB (Rev. 3/12/91) — LEGEND

DWG. NO. | TITLE — REFERENCE DRAWINGS

NO. | DATE | BY | DESCRIPTION | W.O. | APP. — REVISIONS

PRT. | SEP. | DATE | TO | W.O. — PRINT RECORD

11/14/91



FOR CONT. SEE DWG. 1J4-8-P50

RECEIVED
JAN 09 1992
OIL CONSERVATION DIV.
SANTA FE

CHECK PRINT

ENG. RECORD		DATE
DRAFTING DESIGN	LG	11/18/91
COMPUTER AIDED DRAFTING	LG	11/20/91
CHECKED		
PROJECT APPROVAL		
DESIGN APPROVAL		
COMPUTER SAVE NAME	SP3132	

El Paso NATURAL GAS COMPANY

JAL No.4 "B" GASOLINE PLANT

WASTE WATER SYSTEM & CLASSIFIER AREA
MECHANICAL FLOW DIAGRAM

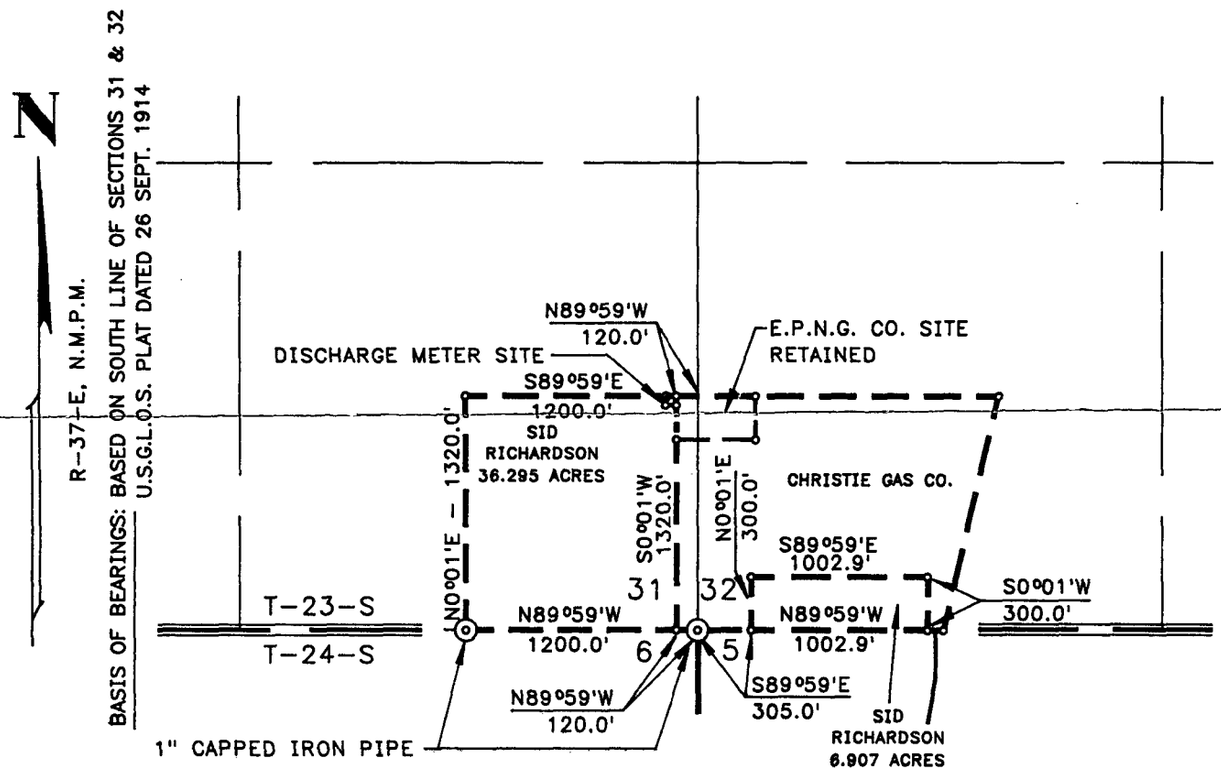
SCALE: NONE | DWG. NO. PRELIMINARY | REV.
W.O.: X-47903

FWG (Rev. 3/12/91) LEGEND

DWG. NO.	TITLE
REFERENCE DRAWINGS	

NO.	DATE	BY	DESCRIPTION	W.O.	APP.	PRT.	SEP.	DATE	TO	W.O.
REVISIONS						PRINT RECORD				

11/21/91



PLAN

SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	ACRES
	SID RICHARDSON CARBON & GASOLINE CO.		6.907
	SID RICHARDSON CARBON & GASOLINE CO.		36.295

REF. DWG.: 3092.9-X-2
3092.9-X-1, R/W NO. 890447
5004.1-X-23, R/W NO. 900256
5004.1-X-13, R/W NO. 510068, 510069

REVISIONS

NO.	DATE	TO	W.O.
1	REVISED FOR SALE TO CHRISTIE GAS CO. (FB 4/1/91)		
2	4-25-91	FILE	
3	4-25-91	O.G.C.	
3	11/14/90	SO REGION DIST	
4	11/14/90	SO REGION ENGR	
6	11/14/90	R/W(E.O.N.)	

PRINT RECORD

ENG. REC.		DATE
DRAWN	FB	1/11/90
CHECKED	MLG	1/12/90
CHECKED		
PROJ. APP.		
SURVEYED		12/9/89
CGC NO.		GEN190
R/W NO.		890029
W.O.		

El Paso NATURAL GAS COMPANY

JAL NO.4 PLANT
PROPERTY SOLD TO SID RICHARDSON
SECTION 31 & 32, T-23-S, R-37-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SCALE	DWG. NO.	REV.
NOTED	5004.1-X-22	1

M92 (Rev. 8/89)

Drain Line Testing Procedures For The Jal Plant

Introduction

The following procedures are arranged to allow testing of various sections of the drain system with the plant in operation. Some sections will require a plant shutdown to permit testing.

If the total system is to be tested during a plant shutdown, the test sequence should be arranged so water from one section can be routed into the next section to be tested where possible. This should shorten filling time and provide more economical use of water.

Water used in testing will be raw water from the plant water system. Use of fire hydrants and hoses will be required in some locations to provide sufficient volume and pressure for filling and testing. In most cases, test pressures will be below normal line pressure in plant water mains making use of hydrostatic test pump unnecessary. The higher pressures will require a pump.

The test pressures and duration used in this procedure exceed those specified for drainage and vent systems as set forth in the 1979 ICBO Code, Sections 1004 (A) 1 and 1005. The international Conference of Building Officials (ICBO) Plumbing Code of the Uniform Plumbing Code describes the procedures to be utilized in this testing procedure. The pressures and duration required in the ICBO Code are 4.3 psi and 15 minutes, respectively.

General Instructions

1. Before attempting to test any section of drain line, verify the sources of effluent and vapors entering the line. Any line which will contain significant amounts of Hydrogen Sulfide (H_2S) will be opened and tested observing all prescribed safety precautions and procedures.

2. All drain and block valves which are lubricated plug valves, should be lubricated in the closed position to minimize possibility of leakage.

3. Before installing expandable plugs, clean the interior portion of the pipe where plug seal will contact pipe wall to assure proper sealing.

4. Use new gaskets when installing blind plates in flange unions and tighten flange bolts evenly to prevent tilting of flange faces and leakage.

5. Filling a test section should always be from the lowest tap, venting at the higher taps to displace as much air or gas from

the line as possible. Air or gas in the line, especially large amounts, may cause instability in pressure readings.

6. Test procedures given for each section to be tested are 10 p.s.i. above the maximum recorded pressure for that section of line. Test pressure should be applied only after system pressure is stabilized at some lower pressure.

7. After test pressure has been applied and stabilized, system will be isolated and test will last for (1) one hour. This is to be a static pressure test. Introduction of additional pressure will void previous time intervals and will require restarting test.

8. If a section will not maintain the static test pressure for the required time, provided there is no valve, fitting or flange leakage, this section of drain line will be considered faulty. At this point it may be necessary to isolate smaller sections of the line or expose the entire line until the leaking portion can be located and replaced or repaired.

    a. It should be noted that leakage can occur around the plug of a valve unless a sealing type grease is used to lubricate the valve in the closed position.

    b. Leakage will occur around the seal of an expandable plug unless the inside pipe surfaces are thoroughly cleaned prior to inserting the plug.

    c. Improper tightening of flange unions or faulty, used, or dirty gasket will cause leakage at the blind plate installations.

    d. Other points to check for system leakage are: loose screwed fittings and valves, stem packing (or bonnet) leakage on gate or globe valves, work seating surfaces in ball valves, unseated gate or globe valves, and faulty resilient seats in butterfly valves.

9. Test pressures will be recorded on a chart which will be retained as a permanent record.

10. At the end of testing interval, remove the chart from the recorder before unscrewing the unit from the pressure tap to prevent irrelevant pen markings, ink spillage, or other chart damage.

11. Each chart will have the following information recorded on the back:

    a. Date
    b. Tap Location
    c. Line Description
    d. Initials of Person Changing Chart
    e. Signature of Person Supervising Testing

    These charts will be retained at the plant office for referenced and inspection as required.

12. When the integrity of the drain system, or a section of the system, has been verified, the system, or section, will be returned to normal service.

13. Because the classifier tank is to be operated at atmospheric pressure any pressure or vacuum testing of this tank can cause damage to the tank and/or coating system. Therefore, the only possible method of testing the classifier tank will involve filling the tank with water and gauging any drop in level over an 8 hour period. This test will be performed annually.

14. The classifier tank will be filled with water and gauged to verify the maintenance of a constant level for a 4 hour period.

FOR CONT. SEE DWG. 1J4-1-P27

4" C.T. BLOW-DN DRAIN FM. "A&B" - TO CONOCO
4" H.P. DRAIN FM. STORAGE AREA - (257C-4")
10" DRAIN FM. OIL SEPARATOR "A" GA50. (280C-10")
6" WASTE DRAIN (L.P.) FM. "A" GA50. PLT. (261C-6")

16" FLARE HEADER FM. "B" GA50. (L14.1D)
4" CAUSTIC DRAIN FM. "B" GA50. (L14.13D)
8" VAPOR TO FLARE FM. "B" GA50. (L14.17D)
10" BACK-WASH DRAIN FM. "B" GA50. (L14.37D)
3" CONDENSATE BLOW-DN. FM. "B" GA50. (L14.3D)

RESTRICTED AREA

PROCESS PUMP HOUSE SLAB EL. 85'-6

PIPE RACK

3" DRAIN FM. BOILER FDN. DEP. V-7) SEE 1J4-5-M13

APRON DRAIN

COOLING TOWER

4" C.T. BACK-WASH

CAUSTIC STOR.

CAUSTIC PUMP HSE SLAB EL. 85'-6 1J4-8-P25

OIL SEPARATOR 1J4-8-P37 & P41

PIPE SLEEPERS

"NOTE"
FOR DRAIN PIPING IN THIS AREA - SEE DWG. 1J4-8-P31 & 8-MG1

FF-2 FF-1

FOR DRAIN DTL'S THIS AREA SEE 1J4-8-P74

SEE 1J4-8-P74

4" C.T. BLOW-DN. TO CONOCO

SEE 1J4-8-P79

BACK-WASH

4" COOLING TOWER BLOW-DN.

APRON DRAIN

FOR CONT SEE DWG. 1J4-8-P39

COOLING TOWER

FOR DETAILS & LOCATIONS OF PIPING SEE 1J4-8-P40 & P41

LAB

BUTANE STORAGE WELL 1J#1

RESTRICTED AREA

RAMP

"NOTE"
FOR DRAIN PIPING IN THIS AREA - SEE 1J4-8-P32

LEAN OIL STORAGE

PUMP HOUSE SLAB - EL. 83'-8"

FOR DRAIN DTLS SEE 1J4-8-P31

"NOTE"
FOR DRAIN PIPING IN THIS AREA - SEE 1J4-8-P31

3" COND. BLOW-DN (L14.3D)
BACK-WASH DR. (L14.37D)
8" VAPORS TO FLARE (L14.17D)
4" CAUSTIC DRAIN (L14.13D)
16" FLARE HEADER (L14.1D)

"B" GASOLINE PUMP HOUSE

N-6+00 N-5+00 N-4+00 N-3+00 N-2+00 N-1+00

E-12+00 E-13+00 E-14+00 E-15+00 E-16+00 E-17+00 E-18+00 E-19+00 E-20+00 E-21+00 E-22+00

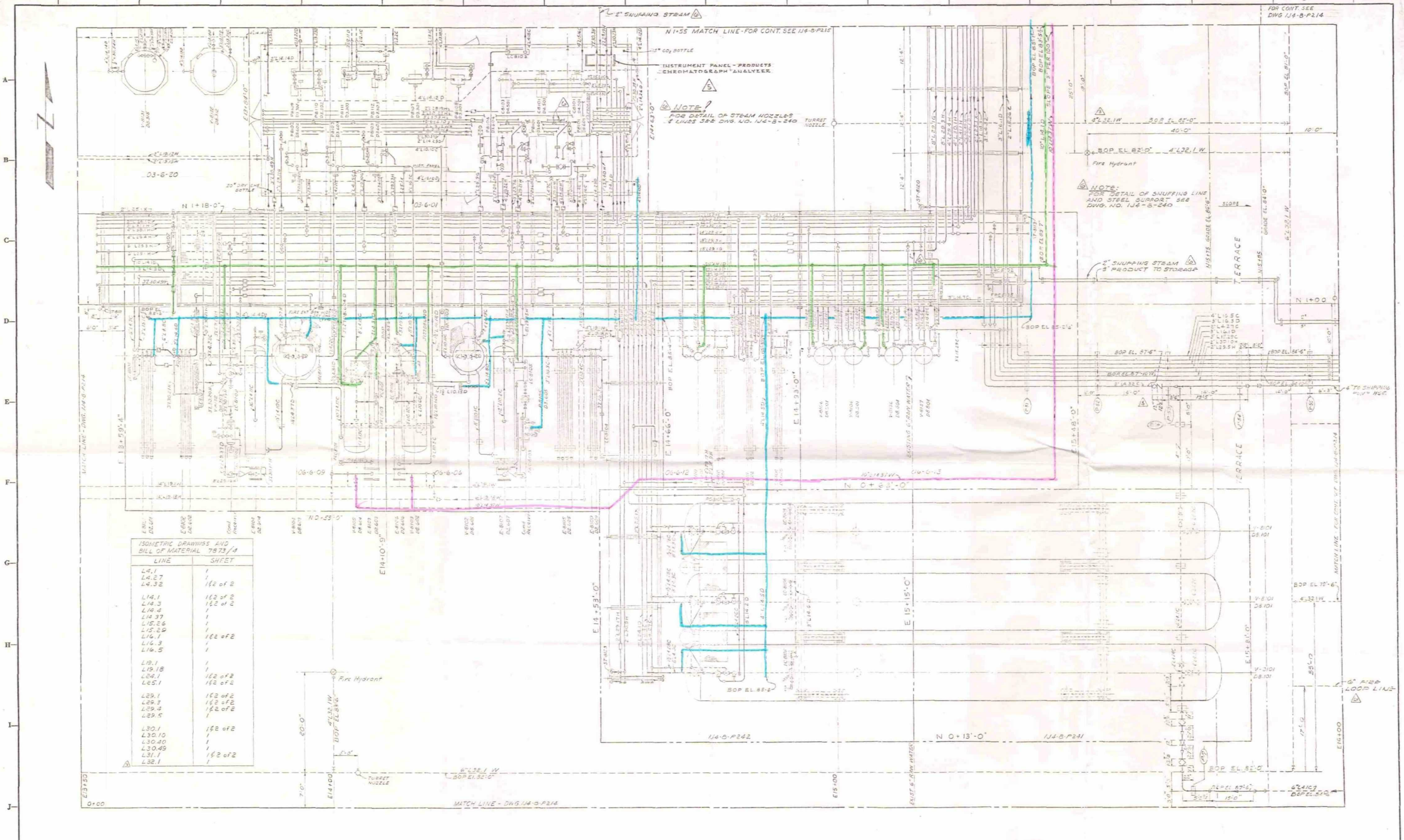
1J4-8-P32 SEWER PIPING SHEET 3 OF 3
1J4-8-P31 SEWER PIPING SHEET 2 OF 3

NO.	DATE	BY	DESCRIPTION
2	1-25-82	JS	ADD APRON DRAINS
1	11-12-82	JS	REVISED & REDRAWN

LEGEND | REFERENCE DRAWINGS | REVISIONS | PRINT RECORD

JAL 1J4 GASOLINE PLANT
(UNDER GROUND DRAIN LINES)
SEWER PIPING - SHT. 1 of 3
SCALE 1"=30'-0" DWG. 1J4-8-P30
W.O. NO. 6355 NO. 2
4-555

RECEIVED
JAN 09 1992
OIL CONSERVATION DIV.
SANTA FE



ISOMETRIC DRAWINGS AND BILL OF MATERIAL 7873/4	
LINE	SHEET
L4.1	1
L4.27	1
L4.32	1&2 of 2
L14.1	1&2 of 2
L14.3	1&2 of 2
L14.4	1
L14 37	1
L15.26	1
L15.29	1
L16.1	1&2 of 2
L16.3	1
L16.5	1
L19.1	1
L19.18	1
L24.1	1&2 of 2
L25.1	1&2 of 2
L29.1	1&2 of 2
L29.3	1&2 of 2
L29.4	1&2 of 2
L29.5	1
L30.1	1&2 of 2
L30.10	1
L30.40	1
L30.49	1
L31.1	1&2 of 2
L32.1	1

11-8-16-61. - Perm. Div. Oper.

NO.	REVISIONS	DATE	BY	CK'D	APP'D
1	ADDED 2" L29.17H & 2" L30.9H				
2	ADDED 10" L14.37W				
3	CHANGED 3" L32.1 TO 4" L32.1				
4	REV. AS PER MARKED PRINT	3-4-60	JA		
5	ADDED INST. PANEL - PRODUCTS CHRO. ANALYZER - W.O. 34250				
6	REV. AS FIELD MK'D PRINTS W.O. K-2718				

REFERENCE DRAWINGS	
1J4-1-P19	NORTH PLOT PLAN
1J4-3-M2C	FRACT. AREA FNDN. LOCATION PLAN
1J4-5-P214	NORTH GENERAL PIPING
00-7-01	ELECTRICAL DISTRIBUTION PLAN

PRINT RECORD ISSUED	REV. NO.				
D.M. SCHNEIDER	3	3	4	4	4
C.C. SELLY	2	2	2	2	2
W. STUART	2	2	2	2	2
A.A. JOHN	1	1	1	1	1
J.B. STEWART	2	2	2	2	2
BOWDEN	3	3	3	3	3
E.C.P. DRAFTING	1	1	1	1	1

ENG. RECORD		
DRAWN	1-9-59	G.R.S.
CHECKED	PALMER	5-13-60
MECH. CK.		
STRUCT. CK.		
PIPING CK.		
ELECT. CK.		
APPROVED		
APPROVED		

Stearns-Roger
THE STEARNS-ROGER MFG. CO. DENVER, COLORADO

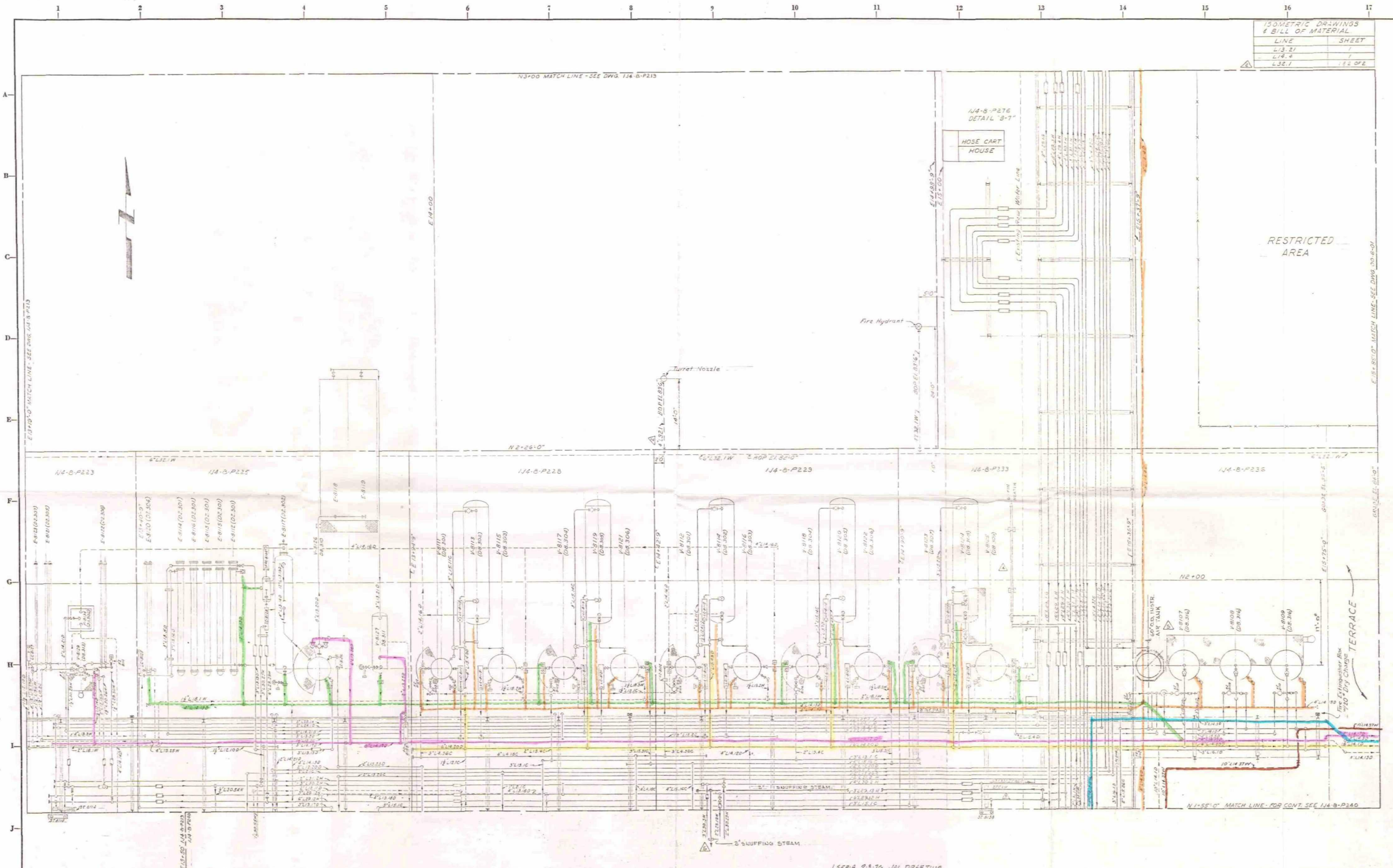
FRACTIONATION AREA
GENERAL PIPING PLAN
JAL 4 "B" FRACTIONATING PLANT
EL PASO NATURAL GAS CO. JAL, NEW MEXICO

SCALE 1/8" = 1'-0" ORDER NO. B-18900 M.L. NO.

DWG. NO. 1J4-6-
SHEET NO. P240
REV. 5

1-8-76 - 1SEP AS BUILT

S-R DWG. Nº 19554 00-6-03



1 SEPIA 2-3-76 JAL DRAFTING

NO.	REVISIONS	DATE	BY	CK'D	APP'D
1	ADDED 10" L14.37W	6-30-59	C.R.S.		
2	CHANGED 3" L32.1 TO 4" L32.1	8-7-59	F.L.B.		
3	REV. AS PER MARKED PRINT	3-10-60	JA		
4	Added G-Fin Heater On Disch. Side V-8125	4/28/60	C.S.D.		
5	ADD INSTR. AIR TANK & 2" SNUFFING STEAM LINE AS PER FIELD MK. PRINTS W/O K-1956	1-20-76	McCann		

REFERENCE DRAWINGS	
1J4-1-P18	NORTH PLOT PLAN
00-3-02	TREATING AREA - FNDN. LOCATION PLAN
1J4-8-P214	NORTH GENERAL PIPING PLAN
00-7-01	PLANT AREA - ELECTRICAL DISTRIBUTION PLAN #1
1J4-1-P1006	STEARNS LINE INDEX

PRINT RECORD

ISSUED / REV. NO.				
D.M. SCHNEIDER	3	3	4	4
C.C. SELLY	2	2	2	2
W. STUART	2	2	2	2
A.A. COHN	1	1	1	1
J.B. STEWART	2	2	2	2
BOWDEN	3	3	3	3
F.C.P. DRAFTING	6	6	6	6

ENG. RECORD

DRAWN	R. Bittle	3-17-59
CHECKED	PALMER	5-11-59
MECH. CK.		
STRUCT. CK.	[illegible]	5-11-59
PIPING CK.	De Boer	5-11-59
ELECT. CK.	[illegible]	5/11/59
APPROVED	[illegible]	5/11/59
APPROVED	[illegible]	5-11-59

Stearns-Roger
THE STEARNS - ROGER MFG. CO. DENVER COLORADO

TREATING AREA
GENERAL PIPING PLAN
JAL 4B FRACTIONATING PLANT

EL PASO NATURAL GAS CO. JAL, NEW MEXICO

SCALE 1/8" = 1'-0" ORDER NO. B-18900 M. L. NO.

DWG. NO. 1J4-8 SHEET NO. P215 REV. 5

S. R. DWG. NO. 19554-00-6-04

NORTH AND SOUTH BRINE POND REPAIR

Discussion

At the time the property was purchased by CGC from EPNG, both the North and South brine ponds were inactive due to suspected leakage.

Since both of the ponds were necessary to enable CGC to operate all four underground storage wells at their capacity, CGC immediately commenced work on liner repair and/or replacement.

Prior to commencing this repair work, CGC outlined its planned procedure to NMOCD via letter dated July 17, 1991. NMOCD approved, with some modification, the planned procedure by letter dated July 18, 1991. (Both letters attached hereto.)

After cleaning and emptying the South pond, it was determined that a new liner should be installed and in December, 1991 the Midessa Company installed a new liner. The pond was then filled with brine water. The monitor wells are being observed on a daily basis for evidence of leakage. To date, no leaks have been detected.

While the work on the South pond was progressing, Southwest Research Institute conducted a leak survey on the North pond was unable to locate any leaks. This conclusion was confirmed by the absence of any brine water in either of the North pond monitor wells.

In early Fall, 1992, CGC plans to empty the North pond and either repair or replace the liner in the North pond in order to ensure that no leakage occurs.

VIA FAX
505/827-5741

July 17, 1991

Mr. David G. Boyer, Hydrogeologist
Environmental Bureau Chief
New Mexico Oil Conservation Division
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504

Subject: Request for Approval of Proposed Procedures to Test and Repair Two Brine Storage Ponds at Christie Gas's Jal #4 Plant

Dear Mr. Boyer:

My company requests your department's approval for Christie Gas to commence testing to locate leaks in the two brine storage ponds we recently purchased from El Paso Natural Gas Company at the Jal #4 Plant in Lea County, New Mexico. After the location of any leak(s) we will take immediate steps to repair those leaks in order to put the storage ponds back in service.

As you suggested, we will provide the necessary equipment during these tests to insure that the sump wells are kept as dry as possible and that no overflow of the sump wells occurs.

Along with this letter I am also sending the following:

1) A letter from Southwest Research Institute describing the procedure we will use to detect the leak(s) in the South pond.

2) A copy of a brochure published by Southwest Research Institute which describes their methodology.

CHRISTIE GAS CORPORATION

BARTON OAKS PLAZA TWO, SUITE 515
901 MOPAC EXPRESSWAY SOUTH
AUSTIN, TEXAS 78746

512 327-9510
512 327-5272 FAX

Please note on the second page of the brochure a description of the method used to detect side-slope leaks. This is the procedure we will use on the North brine pond. Obviously, this will require that we fill the North brine pond above the level where the leak is presently occurring. During this time, we will be especially watchful at the North pond sump to make sure that it is continuously pumped as dry as possible.

After the leaks in both ponds are located, the level of the ponds will be lowered enough to expose the area of leak so that it can be repaired. The ponds will then be refilled and monitored to insure that future leaks, if any, are quickly detected and repaired.

I hope this procedure meets your approval and I respectfully request that we be allowed to proceed as described.

Sincerely,

Joe Christie
President

JC:sw

encl.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

July 18, 1991

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-757-737-754

Mr. Joe Christie, President
Christie Gas Corporation
Barton Oaks Plaza Two
Suite 515
901 MoPac Expressway South
Austin, Texas 78746

RE: Request for Approval of Proposed Test and Repair Procedures for Brine Storage Ponds at Christie Gas Jal #4 Plant

Dear Mr. Christie:

The Oil Conservation Division (OCD) has received your fax letter dated July 14, 1991 requesting approval to test and repair the two brine storage ponds at your Jal #4 Plant.

The proposal is generally acceptable except I am concerned that by testing only the upper sides of the North pond, any leaks lower in the pond would be missed necessitating repair at a later date. Accordingly, I recommend that you have the entire North pond tested at this time unless you are sure no leaks exist in the lower pond area.

Based on information provided with your letter, the request is approved with the following conditions:

1. Fluids for testing the south pond shall be stored in frac tanks or in the north pond at a level below the known major leak.

2. Sumps for both ponds will be monitored during the test and pumped to keep drained and dry as much as possible.

3. Prior to completion of the test submit for OCD approval plans for disposal of fluids at test completion. If salt currently in the pond is not to be dissolved and used as the test fluid, provide information on the proposed storage or disposal method.

4. If fluids are to be kept in the pond after the test and prior to discharge plan approval, submit a proposed sump monitoring and recordkeeping schedule for our review and approval.

5. Within 30 days of completion of repairs, provide a summary report on test results and repairs made.

If you have any questions, please contact me at (505) 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist
Environmental Bureau Chief

DGB/sl

cc: OCD Hobbs Office

El Paso Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978

PHONE: 915-543-2600

Jal #4 Step rate test

February 7, 1983

Mr. Oscar Simpson, III
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: El Paso Natural Gas Company's SWD-214
Injection Well Step-Rate Test Report

Dear Mr. Simpson:

Attached is one copy of the report presenting results of a step-rate test performed February 1, 1983 on the subject well located near El Paso Natural Gas Company's Jal No. 4 Plant, Lea County, New Mexico. The Form C-103 report describing work performed on the well, and the Tracer Log, which was run on February 2, 1983, are being submitted under separate cover by Davis Services, Inc.

The results of this recent test indicate that El Paso will be able to operate well below the allowable surface pressure of 750 psig which was established by previous step-rate tests.

Your patience and cooperation in achieving this operating capability are appreciated.

Sincerely,

D. N. Bigbie

D. N. Bigbie
Assistant Division Superintendent

DNB/mts
Attachments

Note: By OAS
Never received from Davis Services any information

El Paso
Natural Gas Company

TWO PETROLEUM CENTER / SUITE 200
NORTH "A" AT WADLEY
MIDLAND, TEXAS 79701

PHONE: 915-684-5701

June 1, 1982

Mr. Joe Ramey
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Request for Variance From Allowable
Injection Pressure for SWD Well -
Order No. SWD-214

Dear Mr. Ramey:

El Paso Natural Gas Company (EPNG) received authorization from the State of New Mexico Oil Conservation Division under Order No. SWD-214 to complete for purposes of salt water injection its Shell State No. 13 well located in Unit "L" of Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico. Under said Order, the well injection pressure was limited to 785 pounds per square inch.

Step-rate tests were conducted following initial completion of the well, at which time the breakdown pressure of the formation was determined to be 2000 pounds per square inch. This information is noted on the enclosed copy of the Halliburton Job Log dated November 20, 1979. A second step-rate test was conducted on the well July 21, 1981, with results of injection rates versus injection pressures essentially the same as those of the initial test. A copy of the second job log is being forwarded to your attention directly from our El Paso office.

Due to required future injection rates which could result in injection pressures in excess of the maximum pressure allowable under Order No. SWD-214, El Paso does hereby request that the injection pressure allowed under said Order be increased from the presently stipulated 785 pounds per square inch to a pressure of approximately 1500 pounds per square inch. This requested pressure is well below the formation breakdown pressure and high enough to enable El Paso to operate its three positive displacement injection pumps at rated capacity of approximately 5.5 barrels per minute. Operation at the maximum injection rate could be necessary in the future to enable El Paso to recover from a system upset while injecting the normal plant discharge volumes.

Your consideration of El Paso's request for variance from the allowable injection pressure of 785 pounds per square inch under Order No. SWD-214 is appreciated.

Sincerely,

EL PASO NATURAL GAS COMPANY

D. N. Bigbie

D. N. Bigbie
Administrative Assistant to
Division Superintendent

DNB:dc
Encl.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

September 15, 1982

El Paso Natural Gas Company
Two Petroleum Center - Suite 200
North "A" at Wadley
Midland, Texas 79701

ATTENTION: D. R. Bigbee

RE: Request Increase in
Pressure Limit in
Shell State No. 13
(SWD-214)

Dear Sir:

Pursuant to your letter of June 1, 1982, requesting the pressure limit in Shell State No. 13 under Order No. SWD-214 to be increased from 783 to 1500 pounds per square inch, your request is hereby denied.

The information you submitted supporting your request was reviewed by myself and our District III Engineer and in our opinion, the data is not conclusive to support your request. The step-rate tests were not performed in a suitable manner to verify the formation breakdown pressure.

If you have any questions regarding this matter, please do not hesitate to contact me at (505) 827-2534.

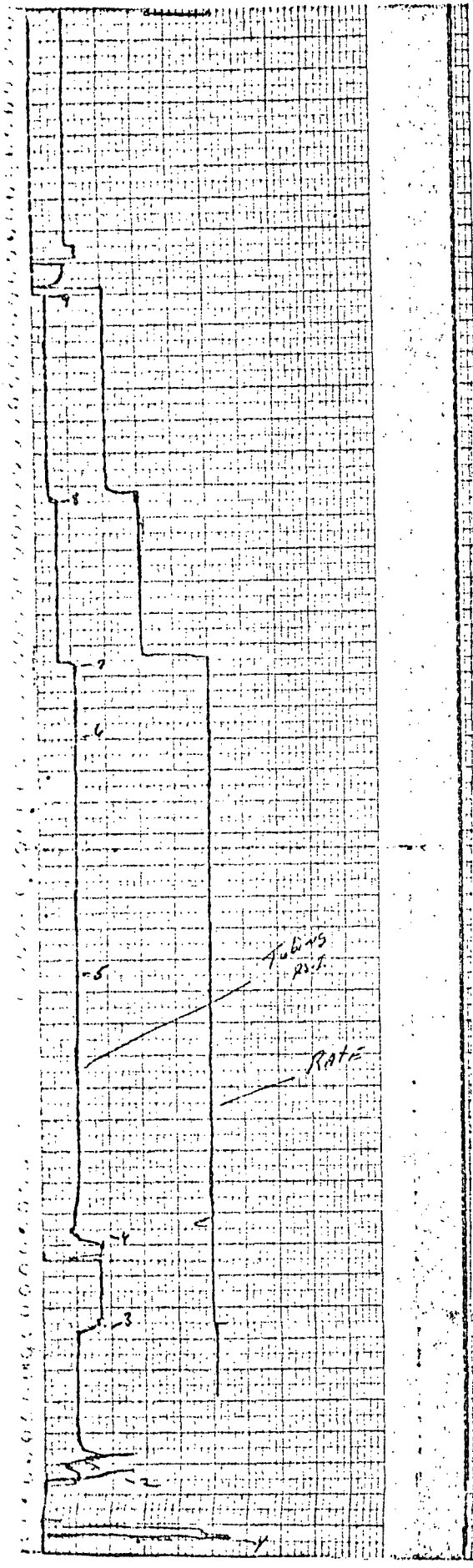
Sincerely,

Oscar A. Simpson

Oscar A. Simpson
Water Resource Specialist

OAS/dp

cc: Hobbs District Office
P.O. Box 1980
Hobbs, NM 88240



HALLIBURTON SERVICES
JOB LOG

WELL NO. #1 LEASE JAL #4 PLANT SWD TICKET NO. 715978
CUSTOMER EL PASO NATURAL PAGE NO. 1
JOB TYPE injection DATE 11/20/79

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
								safety meeting
1	17:55					5300		test lines
2	17:58	5.0	2140			1100		breakdown (2000 PSI)
3	18:08	7.9	1000			1700		increase rate
4	18:14	5.0				990		decrease rate
5	18:31	5.0				1100		
6	18:46	5.0				1090		
7	18:51	3.0	7610			600		decrease rate
8	19:01	2.0	1320			360		decrease rate
9	19:14		1160			0		shutdown ISIP
								total load 341 barrels water

HALLIBURTON SERVICES
JOB SUMMARY

HALLIBURTON DIVISION Midland
HALLIBURTON LOCATION Hobbs BILLED ON TICKET NO. 715978

WELL DATA

FIELD N. of Jal SEC. TWP. RNG. COUNTY Lea STATE N.M.
FORMATION NAME Grayburg TYPE
FORMATION THICKNESS FROM TO
INITIAL PROD: OIL BPD, WATER BPD, GAS MCFD
PRESENT PROD: OIL BPD, WATER BPD, GAS MCFD
COMPLETION DATE MUD TYPE MUD WT.
PACKER TYPE Latch Down Plug SET AT
BOTTOM HOLE TEMP. PRESSURE
MISC. DATA TOTAL DEPTH

	NEW/USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING			5½	0	Fd	
LINER						
TUBING			2 7/8	0	3987	
OPEN HOLE						SHOTS/FT.
PERFORATIONS				3866	3982	
PERFORATIONS						
PERFORATIONS						

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
FLOAT COLLAR		
FLOAT SHOE		
GUIDE SHOE		
CENTRALIZERS		
BOTTOM PLUG		
TOP PLUG		
HEAD		
PACKER		
OTHER		

MATERIALS

TREAT. FLUID fresh water DENSITY LB/GAL. °API
DISPL. FLUID DENSITY LB/GAL. °API
PROP. TYPE SIZE LB.
PROP. TYPE SIZE LB.
ACID TYPE GAL. %
ACID TYPE GAL. %
ACID TYPE GAL. %
SURFACTANT TYPE GAL. IN
NE AGENT TYPE GAL. IN
FLUID LOSS ADD. TYPE GAL./LB. IN
GELLING AGENT TYPE GAL./LB. IN
FRIC. RED. AGENT TYPE GAL./LB. IN
BREAKER TYPE GAL./LB. IN
BLOCKING AGENT TYPE GAL./LB.
PERFPAC BALLS TYPE QTY.
OTHER
OTHER

JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 11/20/79	DATE 11/20/79	DATE 11/20/79	DATE 11/20/79
TIME 11:30	TIME 13:00	TIME 17:55	TIME 19:14

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
H. Dority	treater	Hobbs
L. Stonecam		
J. Crawford		
Burgess		

DEPARTMENT
DESCRIPTION OF JOB
JOB DONE THRU: TUBING ☐ CASING ☐ ANNULUS ☐ TBG./ANN. ☐
CUSTOMER REPRESENTATIVE X Mr. Kelly
HALLIBURTON OPERATOR Dority COPIES REQUESTED

CEMENT DATA

STAGE	NUMBER OF SACKS	TYPE	API CLASS	BRAND	BULK/SACKED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.

PRESSURES IN PSI

CIRCULATING DISPLACEMENT 2400
BREAKDOWN 2000 MAXIMUM
AVERAGE 991 FRACTURE GRADIENT
SHUT-IN: INSTANT 0 5-MIN. 15-MIN.

HYDRAULIC HORSEPOWER

ORDERED AVAILABLE USED min

AVERAGE RATES IN BPM

TREATING DISPL. OVERALL 4.7

CEMENT LEFT IN PIPE

FEET REASON

SUMMARY

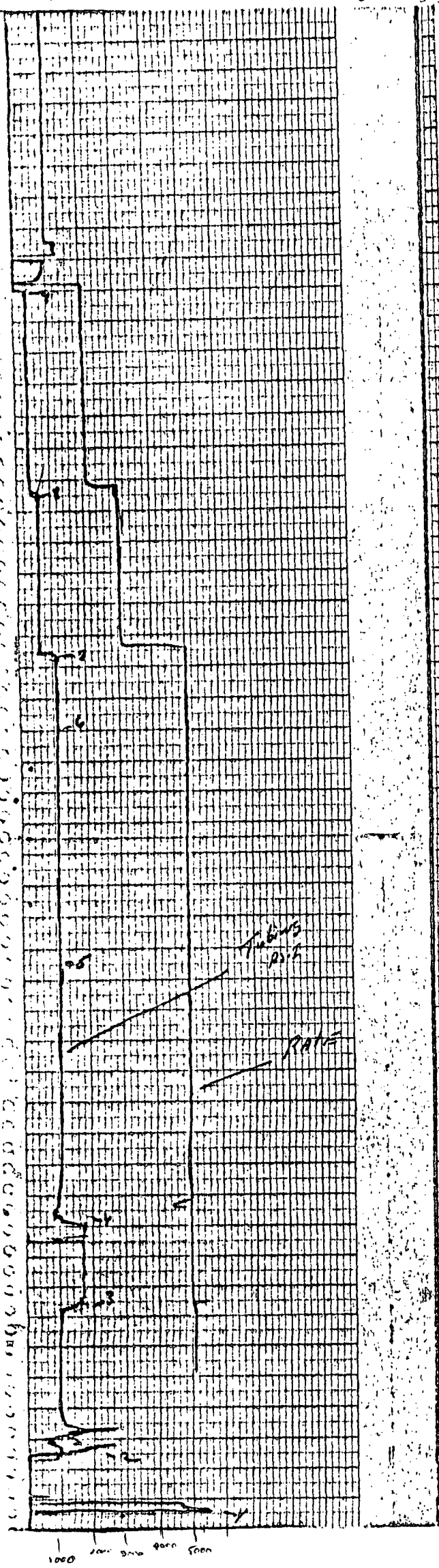
VOLUMES

PRESLUSH: BBL./GAL. TYPE
LOAD & BKDN: BBL./GAL. PAD: BBL./GAL.
TREATMENT: BBL./GAL. 341 DISPL: BBL./GAL.
CEMENT SLURRY: BBL./GAL.
TOTAL VOLUME: BBL./GAL. 341

REMARKS

Void
acid truck job

EL PASO NATURAL — JAL #4 PLANT SWD — 1 — acid injection — 11/20/79



HALLIBURTON SERVICES
JOB LOG

WELL NO. #1 LEASE JAL #4 PLANT SWD TICKET NO. 715978
CUSTOMER EL PASO NATURAL PAGE NO. 1
JOB TYPE injection DATE 11/20/79

FORM 2013 R-2

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
								safety meeting
1	17:55					5300		test lines
2	17:58	5.0	2140			1100		breakdown (2000 PSI)
3	18:08	7.9	1400			1700		increase rate
4	18:14	5.0				990		decrease rate
5	18:31	5.0				1100		
6	18:46	5.0				1090		
7	18:51	3.0	7610			600		decrease rate
8	19:01	2.0	1320			360		decrease rate
9	19:14		1160			0		shutdown ISIP
								total load 341 barrels water
								THANK YOU

HALLIBURTON SERVICES
JOB SUMMARY

FORM 2013 R-2

HALLIBURTON DIVISION Midland
HALLIBURTON LOCATION Hobbs BILLED ON TICKET NO. 715978

WELL DATA

FIELD N. of Jal SEC. TWP. RNG. COUNTY Lea STATE N.M.
FORMATION NAME Grayburg TYPE
FORMATION THICKNESS FROM TO
INITIAL PROD: OIL BPD, WATER BPD, GAS MCFD
PRESENT PROD: OIL BPD, WATER BPD, GAS MCFD
COMPLETION DATE MUD TYPE MUD WT.
PACKER TYPE Latch Down Plug SET AT
BOTTOM HOLE TEMP. PRESSURE
MISC. DATA TOTAL DEPTH

	NEW/USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING			5½	0	td	
LINER						
TUBING			2 7/8	0	3987	
OPEN HOLE						SHOTS/FT.
PERFORATIONS				3866	3982	
PERFORATIONS						
PERFORATIONS						

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
FLOAT COLLAR		
FLOAT SHOE		
GUIDE SHOE		
CENTRALIZERS		
BOTTOM PLUG		
TOP PLUG		
HEAD		
PACKER		
OTHER		

MATERIALS

TREAT. FLUID fresh water DENSITY LB/GAL/API
DISPL. FLUID DENSITY LB/GAL/API
PROP. TYPE SIZE LB.
PROP. TYPE SIZE LB.
ACID TYPE GAL. %
ACID TYPE GAL. %
ACID TYPE GAL. %
SURFACTANT TYPE GAL. IN
NE AGENT TYPE GAL. IN
FLUID LOSS ADD. TYPE GAL/LB. IN
GELLING AGENT TYPE GAL/LB. IN
FRIC. RED. AGENT TYPE GAL/LB. IN
BREAKER TYPE GAL/LB. IN
BLOCKING AGENT TYPE GAL/LB.
PERFPAC BALLS TYPE QTY.
OTHER
OTHER

JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 11/20/79	DATE 11/20/79	DATE 11/20/79	DATE 11/20/79
TIME 11:30	TIME 13:00	TIME 17:55	TIME 19:14

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
H. Dority	treater	Hobbs
L. Stoneman		
J. Crawford		
Burgess		

DEPARTMENT
DESCRIPTION OF JOB
JOB DOES THRU TUBING ☐ CASING ☐ ANNULUS ☐ TBG./ANN. ☐
CUSTOMER REPRESENTATIVE X Mr. Kelly
HALLIBURTON OPERATOR Dority COPIES REQUESTED

CEMENT DATA

STAGE	NUMBER OF SACKS	TYPE	API CLASS	BRAND	BULK SACKED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.

SUMMARY

PRESSURES IN PSI
CIRCULATING DISPLACEMENT
BREAKDOWN 2000 MAXIMUM 2460
AVERAGE 991 FRACTURE GRADIENT
SHUT-IN: INSTANT 0 5-MIN. 15-MIN.

HYDRAULIC HORSEPOWER
ORDERED AVAILABLE USED min

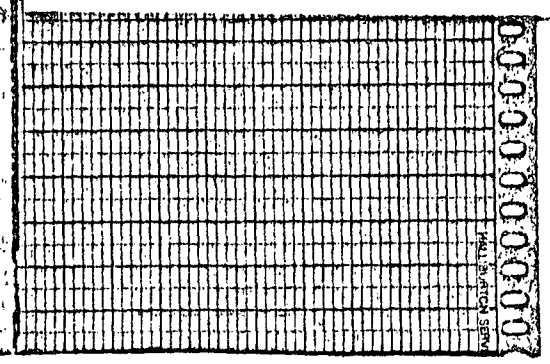
AVERAGE RATES IN BPM
TREATING DISPL. OVERALL 4.7

CEMENT LEFT IN PIPE
FEET REASON

VOLUMES
PRESLUSH: BBL./GAL. TYPE
LOAD & BKDN: BBL./GAL. PAD: BBL./GAL.
TREATMENT: BBL./GAL. 341 DISPL: BBL./GAL.
CEMENT SLURRY: BBL./GAL.
TOTAL VOLUME: BBL./GAL. 341

REMARKS

EL PASO NATURAL · JAL #4 PLANT SWD · 1 · acid injection · 11/20/79



SUBJECT: SALT WATER DISPOSAL WELL ORDER NO. SWD-214

THE APPLICATION OF EL PASO NATURAL GAS COMPANY FOR A SALT WATER DISPOSAL WELL.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701 (C), El Paso Natural Gas Company made application to the New Mexico Oil Conservation Division on September 27, 1979, for permission to complete for salt water disposal its Shell State No. 13 located in Unit L of Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico.

The Division Director finds:

(1) That application has been duly filed under the provisions of Rule 701 (C) of the Division Rules and Regulations;

(2) That satisfactory information has been provided that all offset operators and surface owners have been duly notified; and

(3) That the applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 (C) will be met.

(4) That no objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED:

That the applicant herein, El Paso Natural Gas Company, is hereby authorized to complete its Shell State No. 13 located in Unit L of Section 32, Township 23 South, Range 37 East, NMPM, Lea County, New Mexico, in such a manner as to permit the injection of salt water for disposal purposes into the Grayburg formation at approximately 3930 feet to approximately 3990 feet through 2 7/8 inch plastic lined tubing set in a packer located at least 500 feet below the top of the cement on the 4 1/2-inch casing string as determined by a cement bond log to be run on the well or a depth of 2750 feet, whichever is deeper.

IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the operator shall submit a copy of the cement bond log to both the Santa Fe and district office of the Division.

That the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilate detection of leakage in the casing, tubing, or packer.

That the injection pressure shall not exceed 785 pounds per square inch as measured at the surface.

That the operator shall notify the supervisor of the Division's Hobbs District Office before injection is commenced through said well;

ORDER No. SWD-214

That the operator shall immediately notify the Supervisor of the Division Hobbs District Office of the failure of the tubing, casing, or packer in said well or the leakage of water from or around said well and shall take such steps as may be timely or necessary to correct such failure or leakage.

PROVIDED FURTHER: That jurisdiction of this cause is hereby retained by the Division for such further order or orders as may seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of applicant to comply with any requirement of this order after notice and hearing, the Division may terminate the authority hereby granted in the interest of conservation. That applicant shall submit monthly reports of the disposal operations in accordance with Rule 704 and 1120 of the Division's Rules and Regulation.

APPROVED at Santa Fe, New Mexico, on this 23rd day of October, 1979.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Division Director

SEAL

El Paso NATURAL GAS COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978

PHONE: 915-543-2600

March 12, 1981

Energy and Minerals Department
Oil Conservation Division
Box 1980
Hobbs, New Mexico 88240

Attention: Jerry Sexton - Supervisor

Dear Mr. Sexton:

This is to inform you that our Salt Water Disposal Well at our Jal No. 4 Plant was put into service on March 7, 1981. Permission was granted under Administrative Order No. SWD214 approved on October 23, 1979.

Very truly yours,

John W. McCarthy

John W. McCarthy
Chief Water Resources &
Waste Disposal Engineer
Operations

JWM:rh

Shell State #13-L 32-23-37

letter 4-30-81

Casing inspection or tracer is to be run by El Paso yearly & copy sent to Hobbs OCD. No need to run bradenhead survey on this well.

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

August 20, 1981

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

august 26

915-541-5465

Mr. James B. Kelly
Operating Department
El Paso Natural Gas Company
P.O. Box 1492
El Paso, TX 79978

SUBJECT: Shell State SWD #13-L 32-23-37

Dear Mr. Kelly:

Since the above well was completed in a manner other than the one outlined in SWD-214, it is my understanding from our recent telephone conversation concerning the above disposal well that El Paso will run a tracer or an inspection log each year to verify that the water is going all the way down to the perforated interval at 3866 --2882 feet before leaving the wellbore.

We would appreciate your giving us a letter confirming the above. Also, you will need to furnish this office with a copy of each log or tracer run on the above well.

According to a letter dated March 12, 1981, from a Mr. John W. McCarthy with your firm, the above well was put into service on March 7, 1981, and as of this date we have received no monthly disposal reports, Form C-120A. After disposal is commenced, this form should be submitted monthly whether water is disposed into the well or not.

Very truly yours,

OIL CONSERVATION DIVISION

Jerry Sexton
Supervisor, District I

ed

cc: File