

District I
1625 N. French Dr., Hobbs, NM 88241
District II
1301 W. Grand Ave., Artesia, NM 88211
District III
1000 Rio Brazos Rd., Aztec, NM 87411
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

S OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL API NO.	30-015-26764
5. Indicate Type of Lease	STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Lease No.	
7. Lease Name or Unit Agreement Name	EAST LOVING SWD
8. Well Number	1
9. OGRID Number	147179
10. Pool name or Wildcat	EAST LOVING; DELAWARE

SUNDRY NOTICES AND REPORTS FROM 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.)

1. Type of Well: Oil Well ☐ Gas Well ☐ Other SWD

2. Name of Operator
Chesapeake Operating Inc.

3. Address of Operator
2010 Rankin Hwy
Midland, TX 79701

4. Well Location
Unit Letter A : 1157 feet from the NORTH line and 491 feet from the EAST line
Section 15 Township 23S Range 28E NMPM County EDDY

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
3001 GR

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____

Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: ☐

OTHER: PERFORMED STEP RATE TEST ☒

13. 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. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Chesapeake has performed a Step Rate Test on this well and we are requesting a permitted maximum surface pressure increase from 800 psi to 1150 psi. The Step Rate Test indicates no fracture is occurring down-hole until surface pressures reach 1200 psi.

Accepted for record
NMOCD
MAR 22 2007

copy sent to S.F.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☒.

SIGNATURE Shay Stricklin TITLE Regulatory Tech. DATE 03/13/2007

Type or print name Shay Stricklin E-mail address: sstricklin@chkenergy.com Telephone No. (432)687-2992
For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____
Conditions of Approval (if any): _____

Step Rate Test



Cardinal Surveys Company

February 26, 2007

Chesapeake Operating Inc.
Well: East Loving SWD # 1
Field: E. Loving
Eddy County, NM

Fracture @ 2975 BPD,
3151 BHP PSIA, 1200
Surf PSIA

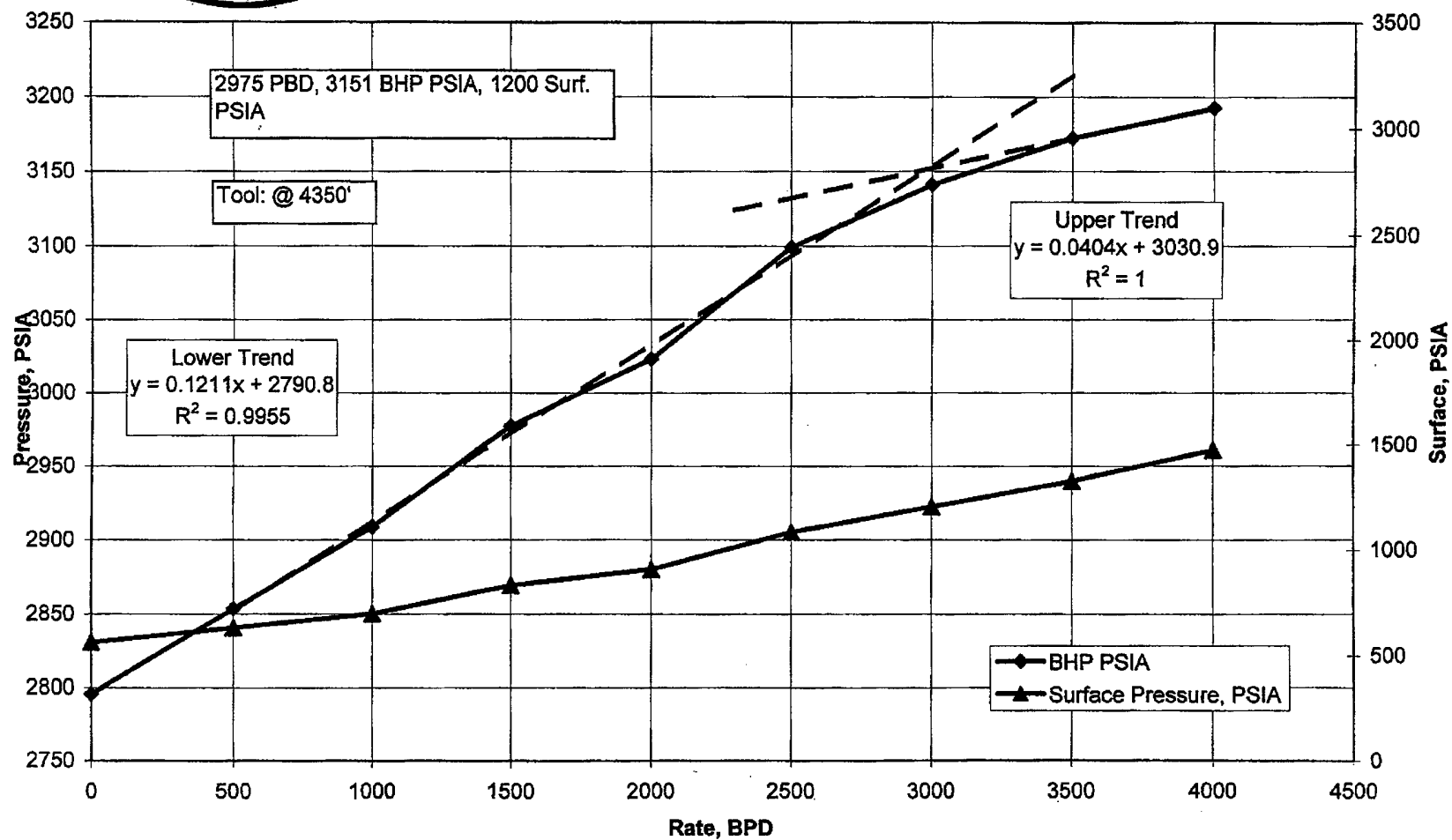
SC 56003

Downhole PSI Tool Ser. No. 71262
Surface PSI Gauge Ser. No. 10332
Tool @ 4600

	Start Time	End Time	Rate BPD	Comments
1	8:45 AM	9:00 AM	0	
2	9:00 AM	9:30 AM	500	
3	9:30 AM	10:00 AM	1000	
4	10:00 AM	10:30 AM	1500	
5	10:30 AM	11:00 AM	2000	
		11:15 AM		Tool Shorted
		1:15 PM		Restart Pump
8	1:15 PM	1:45 PM	2500	
9	1:45 PM	2:15 PM	3000	
10	2:15 PM	2:45 PM	3500	
11	2:45 PM	3:15 PM	4000	
12	3:15 PM	3:30 PM	0	



East Loving SWD # 1
Step Rate Test 02-26-07



Step Rate Test

Chesapeake Operating Inc.
East Loving SWD # 1
Field: East Loving
Eddy County, NM

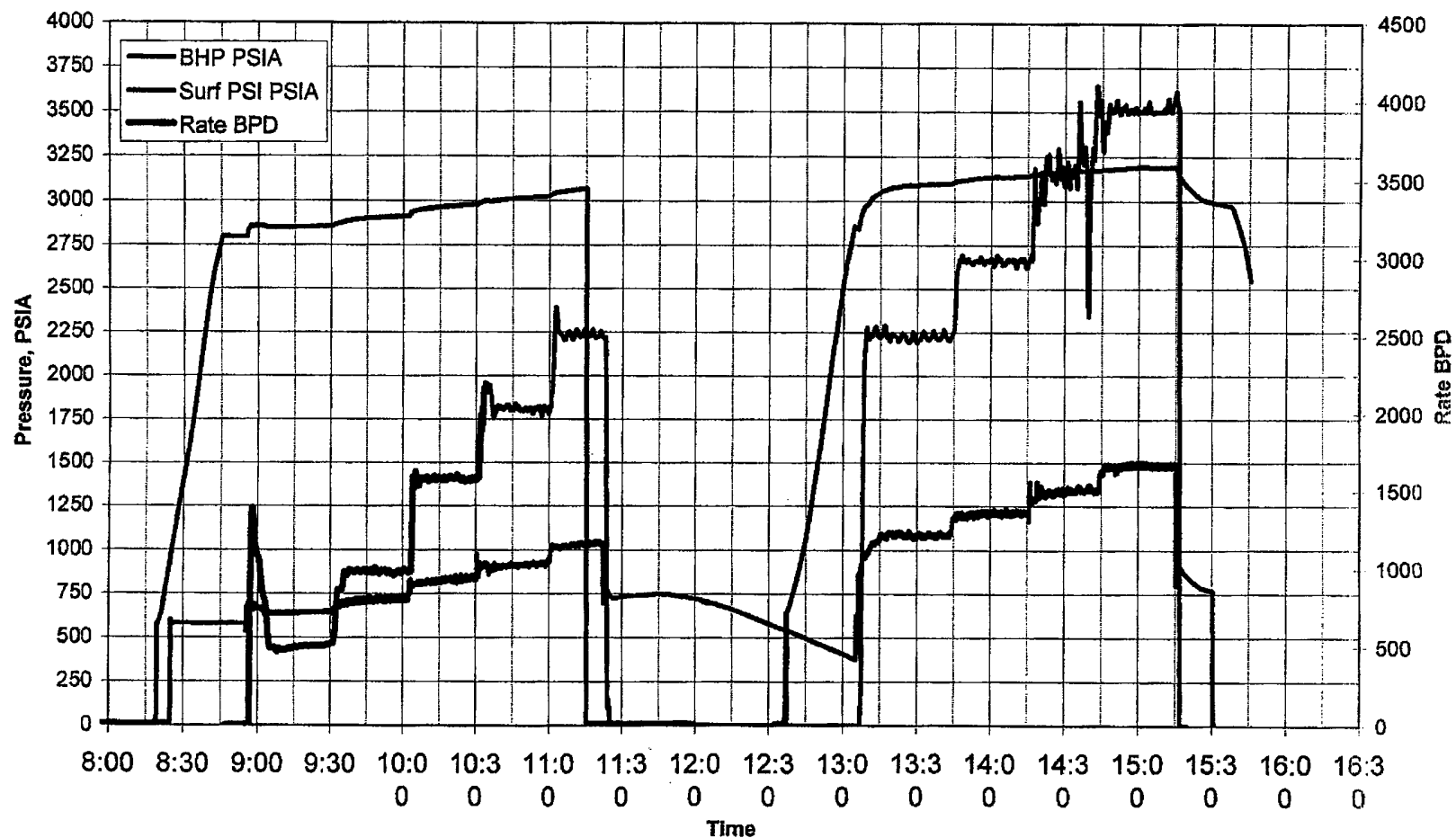


	S Time	E Time	D Time	Last Rate	Step	B. H. Pressure	Surf	Cum	Delta	Lower	Upper
			Min	BPD	BPD	PSIA	PSIA	BBL	BBL	Trend	Trend
1	8:45 AM	9:00 AM	15	0	0	2795.7	564.5	0	0		
2	9:00 AM	9:30 AM	30	500	500	2853.5	634.3	14.2	14.2	2853.5	
3	9:30 AM	10:00 AM	30	1000	500	2909	700.4	34.2	20	2909	
4	10:00 AM	10:30 AM	30	1500	500	2977.4	836.1	65	30.8	2977.4	
5	10:30 AM	11:00 AM	30	2000	500	3023.1	911.3	106.1	41.1	3023.1	
8	1:15 PM	1:45 PM	30	2500	500	3099.1	1087.7	211	104.9	3099.1	
9	1:45 PM	2:15 PM	30	3000	500	3140.9	1208.1	275.3	64.3		
10	2:15 PM	2:45 PM	30	3500	500	3172.3	1328.6	343.7	68.4		3172.3
11	2:45 PM	3:15 PM	30	4000	500	3192.5	1477.1	428	84.3		3192.5
12	3:15 PM	3:30 PM	15	0	-4000	2998.2	756.7	428	0		

0.1211 2790.8
0.0404 3030.9
Int Point: 2975 BPD
3151.0988 Pressure

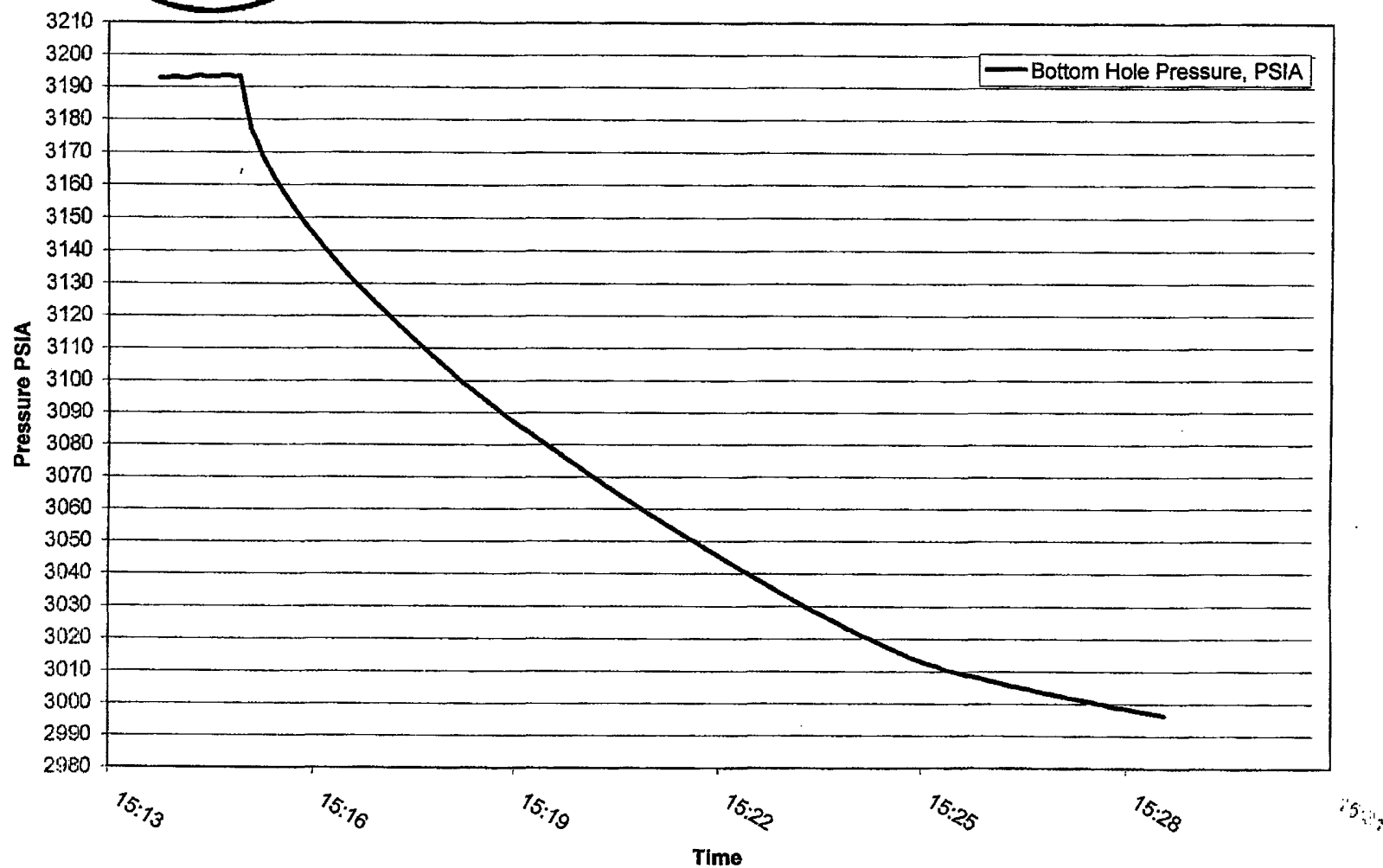


Chesapeake Operating Inc. East Loving SWD # 1
Step Rate Test 02-26-07





Chesapeake Operating Inc. East Loving SWD # 1
Fall Off Test 02-26-07



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

**IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:**

**CASE NO. 10307
Order No. R-9509**

**APPLICATION OF BIRD CREEK RESOURCES,
INC. FOR SALT WATER DISPOSAL, EDDY
COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on May 16, 1991, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 22nd day of May, 1991, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Bird Creek Resources, Inc., seeks authority to dispose of produced salt water into the East Loving-Delaware Pool in the perforated interval from approximately 4,000 feet to 4,450 feet in its proposed East Loving SWD Well No. 1 to be drilled 1157 feet from the North line and 491 feet from the East line (Unit A) of Section 15, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) According to evidence presented by the applicant, injection into the Cherry Canyon member of the Delaware formation should have no detrimental effect on wells producing from the Brushy Canyon member of the Delaware formation within the subject pool.

(4) Although the Division received two objections to the application from various landowners prior to the hearing, none appeared at the hearing and presented evidence and testimony.

- (5) No offset operator appeared and/or objected to the application.
- (6) Injection should be accomplished through 2 7/8-inch fiberglass tubing installed in a packer located at approximately 3,950 feet; the casing-tubing annulus should be filled with an inert fluid; and a pressure gauge or approved leak detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.
- (7) Prior to commencing injection operations, the casing in the subject well should be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.
- (8) The injection well or system should be equipped with a pressure limiting switch or other acceptable device which will limit the surface pressure on the injection well to no more than 800 psi.
- (9) The Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected fluid from the Cherry Canyon member of the Delaware formation.
- (10) The operator should notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment and of the mechanical integrity-pressure test in order that the same may be witnessed.
- (11) The operator should 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.
- (12) Approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED THAT:

- (1) The applicant, Bird Creek Resources, Inc., is hereby authorized to drill and utilize its East Loving SWD Well No. 1 located 1157 feet from the North line and 491 feet from the East line (Unit A) of Section 15, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico, to dispose of produced salt water into the East Loving-Delaware Pool, injection to be accomplished through 2 7/8-inch fiberglass tubing installed in a packer set at approximately 3,950 feet, with injection into the perforated interval from approximately 4,000 feet to 4,450 feet.

PROVIDED HOWEVER THAT, the casing-tubing annulus shall be filled with an inert fluid and a pressure gauge or approved leak detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

PROVIDED FURTHER THAT, prior to commencing injection operations, the casing in the subject well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(2) The injection well or system shall be equipped with a pressure limiting switch or other acceptable device which will limit the surface pressure on the injection well to no more than 800 psi.

(3) The Director of the Division shall be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected fluid from the Cherry Canyon member of the Delaware formation.

(4) The operator shall notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment and of the mechanical integrity pressure test in order that the same may be witnessed.

(5) 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.

(6) The operator shall immediately notify the supervisor of the Division's Artesia 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 and necessary to correct such failure or leakage.

(7) The applicant shall conduct disposal operations and submit monthly reports in accordance with Rules 702 through 706, 708 and 1120 of the Division Rules and Regulations.

(8) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

CASE NO. 10307
Order No. R-9509
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DONE at Santa Fe, New Mexico, on the day and year hereinabove
designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

S E A L

Current Wellbore Schematic

EAST LOVING SWD 1

Field: East Loving
County: EDDY
State: NEW MEXICO
Location: SEC 15-23S-28E, 1157 FNL & 491 FEL
Elevation: GL 3,001.00 KB 3,014.00
KB Height: 13.00

Spud Date: 6/24/1991
API #: 3001526764
CHK Property #: 891227
1st Prod Date: 7/11/1991
PBSD: Original Hole - 4556.0
TD: 4,600.0

Well Config: - Original Hole, 2/21/2007 9:56:49 AM				Date	Event			
ftKB (MD)	Schematic - Actual		Column List - Actual					
			Date	Top (MD)	Btm (MD)			
13	<div>OD:14 3/4, Top (MD):13, Btm (MD):425</div> <div>Des:Surface Casing Cement, Top (MD):13, Btm (MD):425</div> <div>Des:Surface, OD:10 3/4in, Wt.:40.50lbs/ft, Grd:K-55, Depth (MD):13-425 ftKB</div> <div>OD:9 1/2, Top (MD):425, Btm (MD):4,600</div> <div>Tubing, 2 7/8, 4,048</div> <div>On-Off Tool, 3 1/2, 4,050</div> <div>Packer, 3 1/2, 4,053</div> <div>PBTD, 4,556</div> <div>Des:Production Casing Cement, Top (MD):13, Btm (MD):4,600</div> <div>Des:Production, OD:7in, Wt.:23.00lbs/ft, Depth (MD):13-4,600 ftKB</div> <div>TD, 4,600, 6/29/1991</div>				7/13/1991	Acidz with 5000.0 gal of 15% NeFe, Acid. Interval: 4,407.0 ftKB- 4,537.0 ftKB. ISIP - 900.0 psi; PST - 775.0 psi; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?> Acidization		
424					9/13/1991	Acidz with 4000.0 gal of 15% NeFe, Acid. Interval: 4,216.0 ftKB- 4,537.0 ftKB. ISIP - <ISIP?>; PST - <Final Shut-in Pressure?>; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?> Acidization		
425					9/13/1991	Frac with 31500.0 gal of 40# X Link Gel, Gelled Acid. Interval: 4,216.0 ftKB - 4,399.0 ftKB. ISIP - 1,220.0 psi; PST - <Final Shut-in Pressure?>; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?>. Total prop amt: Proppant Bulk Sand 108000 lb		
4,048					9/13/1991	Frac with 39000.0 gal of 40# X Link Gel, Gelled Acid. Interval: 4,216.0 ftKB - 4,399.0 ftKB. ISIP - 1,220.0 psi; PST - <Final Shut-in Pressure?>; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?>. Total prop amt: Proppant Bulk Sand 108000 lb		
4,050				9/13/1991	4,216	4,230	6/26/1992	Acidz with 3000.0 gal of 15% HCl, Acid. Interval: 4,216.0 ftKB- 4,537.0 ftKB. ISIP - <ISIP?>; PST - <Final Shut-in Pressure?>; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?> Acidization
4,053							7/5/1993	Acidz with 1000.0 gal of 15% HCl, Acid. Interval: 4,216.0 ftKB- 4,537.0 ftKB. ISIP - <ISIP?>; PST - <Final Shut-in Pressure?>; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?> Acidization
4,216				9/13/1991	4,280	4,298	7/13/1993	Tubing - Production set at 4,053.0ftKB on 7/13/1993 00:00
4,230							11/13/2003	Acidz with 2000.0 gal of 15% HCl, Acid. Interval: 4,216.0 ftKB- 4,537.0 ftKB. ISIP - 1,100.0 psi; PST - 200.0 psi; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?> Acidization
4,280				9/13/1991	4,327	4,352	12/10/2004	Acidz with 2000.0 gal of 15% HCl, Acid. Interval: 4,216.0 ftKB- 4,537.0 ftKB. ISIP - 1,350.0 psi; PST - 150.0 psi; Max - <Max Treat Pressure?>; Avg - <Avg Treat Pressure?> Acidization
4,298							8/13/2005	Acidz with 4000.0 gal of 20% HCl, Acid. Interval: 4,216.0 ftKB- 4,537.0 ftKB. ISIP - 825.0 psi; PST - 775.0 psi; Max - 2,011.0 psi; Avg - 1,600.0 psi Acidization
4,327				9/13/1991	4,377	4,399		
4,352				7/12/1991	4,407	4,415		
4,377				7/12/1991	4,428	4,454		
4,399				7/12/1991	4,462	4,470		
4,407				7/12/1991	4,482	4,496		
4,415				7/12/1991	4,503	4,512		
4,428				7/12/1991	4,517	4,537		
4,454								
4,462								
4,470								
4,482								
4,496								
4,503								
4,512								
4,517								
4,537								
4,556								
4,599								
4,600								

Cement

Start Date	String	Wellbore	Stg No.	Fluid	Amount (sacks)	Class	Yield (ft ³ /sack)	Density (lb/gal)	Comment
6/25/1991	Surface, 425.0ftKB	Original Hole			350	C			2% CaCl
7/1/1991	Production, 4,600.0ftKB	Original Hole		Lead	1,100	C			1/4 pps flocele, 18% NaCl
7/1/1991	Production, 4,600.0ftKB	Original Hole		Tail	200	C			1/4 pps flocele, 10% NaCl