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DATECTO	/10°US	SUSPENSE

plehrman@westerngas.com

e-mail Address

# NEW MEXICO OIL CONSERVATION DIVISION Engineering Bureau -

- Engineering Bureau -1220 South St. Francis Drive, Santa Fe, NM 87505



		ADMINISTRATIVE APP	LICATION CHECKLIS	T
-	THIS CHECKLIST IS M	ANDATORY FOR ALL ADMINISTRATIVE APPLI WHICH REQUIRE PROCESSING A	CATIONS FOR EXCEPTIONS TO DIVISION RUI	ES AND REGULATIONS
Appli	[DHC-Dow [PC-Po	ndard Location] [NSP-Non-Standard nhole Commingling] [CTB-Lease ( pol Commingling] [OLS - Off-Lease [WFX-Waterflood Expansion] [PM	Commingling] [PLC-Pool/Lease Co Storage] [OLM-Off-Lease Measu X-Pressure Maintenance Expansion PI-Injection Pressure Increase]	ommingling] rement] n]
[1]	TYPE OF A	PPLICATION - Check Those Which	Apply for [A]	
L-J	[A]	Location - Spacing Unit - Simultan NSL NSP SD		
	Check	One Only for [B] or [C]		
	[B]	Commingling - Storage - Measuren  DHC CTB PLC	nent DC OLS OLM	<b>5</b> 0
	[C]	Injection - Disposal - Pressure Incre WFX PMX SWD		0962E
	[D]	Other: Specify		18
[2]	NOTIFICAT [A]	ION REQUIRED TO: - Check Tho:  Working, Royalty or Overriding		
	[B]	Offset Operators, Leaseholder	s or Surface Owner	E.
	[C]	Application is One Which Rec	uires Published Legal Notice	
	[D]	Notification and/or Concurren U.S. Bureau of Land Management - Commission		
	[E]	For all of the above, Proof of I	Notification or Publication is Attache	d, and/or,
	[F]	☐ Waivers are Attached		
[3]		CURATE AND COMPLETE INFOATION INDICATED ABOVE.	ORMATION REQUIRED TO PRO	OCESS THE TYPE
	oval is <b>accurate</b> a	TION: I hereby certify that the information and complete to the best of my knowled quired information and notifications a	edge. I also understand that no action	
	Note	: Statement must be completed by an indivi	dual with managerial and/or supervisory ca	pacity.
Paul Lei		lal	Sr. Landman	2/14/05
Print	or Type Name	Signature	Title	Date

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

# Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

FORM C-108 Revised June 10, 2003

# **APPLICATION FOR AUTHORIZATION TO INJECT**

I.	PURPOSE: Secondary Recovery Pressure Maintenance XX Disposal Storage Application qualifies for administrative approval? XX Yes No
II.	OPERATOR: Lance 0il & Gas Company, Inc.
	ADDRESS: Box 70, Kirtland, New Mexico 87417
	CONTACT PARTY: Paul Lehrman PHONE: 598-5601 Ext. 57
Ш.	WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  Additional sheets may be attached if necessary.
IV.	Is this an expansion of an existing project? Yes XX No  If yes, give the Division order number authorizing the project:
V.	Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
VI.	Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
VII.	Attach data on the proposed operation, including:
	<ol> <li>Proposed average and maximum daily rate and volume of fluids to be injected;</li> <li>Whether the system is open or closed;</li> <li>Proposed average and maximum injection pressure;</li> <li>Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,</li> <li>If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).</li> </ol>
*VIII.	Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
IX.	Describe the proposed stimulation program, if any.
*X.	Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted)
*XI.	Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
XII.	Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
XIII.	Applicants must complete the "Proof of Notice" section on the reverse side of this form.
XIV.	Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
	NAME: Paul Lehrman TITLE: Sr. Landman
	SIGNATURE: DATE: 2-14-05
*	E-MAIL ADDRESS: phrman@westerngas.com  If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:

### III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
  - (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
  - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
  - (3) A description of the tubing to be used including its size, lining material, and setting depth.
  - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
  - (1) The name of the injection formation and, if applicable, the field or pool name.
  - (2) The injection interval and whether it is perforated or open-hole.
  - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
  - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
  - (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

# XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

OPERATOR:

# INJECTION WELL DATA SHEET

Lance Oil & Gas Company, Inc.

	29 North 14 West	TOWNSHIP	WELL CONSTRUCTION DATA Surface Casing	Casing Size: 8 5/8"	300 ft <sup>3</sup>	Method Determined:	Casing	Casing Size:	orfi³	Method Determined:	asing	5 1/2" Casing Size:	or 1552 ft <sup>3</sup>	Method Determined: Visual		<u>terval</u>	toto
	16	SECTION	WELL CONSTR Surface Casing	12 1/4"	255 Class B sx.	Surface	Intermediate Casing	N/A	SX.		Production Casing	7/8"	1057 sx.	Surface	,0069	Injection Interval	feet
	<b>89</b>	UNIT LETTER		Hole Size:	Cemented with:	Top of Cement:		Hole Size:	Cemented with:	Top of Cement:		7 Hole Size:	Cemented with:	Top of Cement:	Total Depth:		6625
WELL NAME & NUMBER: Salty Dog #5	WELL LOCATION: 1030' FNL & 1365' FEL	FOOTAGE LOCATION	WELL BORE SCHEMATIC	See attached													

(Perforated or Open Hole; indicate which)

# INJECTION WELL DATA SHEET

Tub	Tubing Size:	2 7/8" Lining Material:	nterial: Plastic
Tyr	Type of Packer:	Baker Full Bore Tension with On/Off Tool	on/Off Tool
Pac	Packer Setting Depth: _	6550'	
Oth	er Type of Tubing/(	Other Type of Tubing/Casing Seal (if applicable):	
		Additional Data	
-:	Is this a new well o	Is this a new well drilled for injection?	XX Yes No
	If no, for what pur	If no, for what purpose was the well originally drilled?	
2	Name of the Injection Formation:	tion Formation: Entrada	
3.	Name of Field or F	Name of Field or Pool (if applicable):	Pool code 96436
4.	Has the well ever be intervals and give	Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.	V List all such perforated No or plug(s) used.
5.	Give the name and depths of injection zone in this area:	of an	y oil or gas zones underlying or overlying the proposed Fruitland Coal 636', Pictured Cliffs 656',
,	Cliff House/N	Menefee /Pt Lookout 2165' - 350	Cliff House/Menefee /Pt Lookout 2165' - 3500', Gallup 4530', Dakota 5360'.
	No known proc	No known producton below dakota	
		, section of the sect	

# FORM C-108 APPLICATION FOR AUTHORIZATION TO INJECT CONTINUED

Lance Oil & Gas Company, Inc.
Salty Dog #5 SWD Disposal Well
1030' FNL & 1365' FEL
Section 16, T29N, R14W, NMPM
San Juan County, New Mexico

# III. Injection Well Data: See also attached sheet.

Salty Dog #5 SWD (State Oil & Gas Lease B-11242) 1030' FSL & 1365' FWL Section 16, T29N, R14W, NMPM San Juan County, New Mexico

### **ESTIMATED FORMATION TOPS:**

GL Depth	KB Depth	Subsea Elevation
Surface	5,213'	+5,213'
530'	542'	+4,683'
636'	648'	+4,577'
656'	668'	+4,557'
875'	887'	+4,338'
2,165'	2,177'	+3.048'
2,615'	2,627'	+2,598'
3,285'	3,297'	+1,928'
3,824'	3,836'	+1,389'
4,530'	4,362'	+ 683'
5,275'	5,287'	+ 62'
5,340'	5,352'	- 127'
5,360'	5,312'	- 147'
5,600'	5,612'	- 387'
6,375'	6,387'	-1,162'
6,500'	6,512'	-1,287'
6,575'	6,587'	-1,362'
6,625'	6,637'	-1,412'
6,750'	6,762'	-1,537'
6,900'	6,912'	-1,687'
	Surface 530' 636' 656' 875' 2,165' 2,615' 3,285' 3,824' 4,530' 5,275' 5,340' 5,360' 5,600' 6,375' 6,500' 6,575' 6,625' 6,750'	Surface       5,213'         530'       542'         636'       648'         656'       668'         875'       887'         2,165'       2,177'         2,615'       2,627'         3,285'       3,297'         3,824'       3,836'         4,530'       4,362'         5,275'       5,287'         5,340'       5,352'         5,360'       5,312'         5,600'       5,612'         6,375'       6,387'         6,500'       6,512'         6,575'       6,587'         6,625'       6,637'         6,750'       6,762'

<sup>\*</sup>All elevations reflect the ungraded ground level of 5,213'

Formation Tops determined by correlative log from the McWhorter Duncan well, which was a Dakota completion. Location of this well is 1565' FSL & 1820' FWL-Section 10-T29N-R14W and the Salty Dog #3 SWD well, which is located 850' FNL & 770' FEL-Section 28-T29N-R14W, San Juan County, NM.

# **CASING AND CEMENTING PROGRAM:**

Hole Size	<u>O.D.</u>	Weight (lb/ft)	<u>Grade</u>	<u>Age</u>	GL Setting Depth
12 ¼ "	8 5/8"	24	J-55	New	420'
7 7/8"	5 1/2"	15.5	J-55	New	6900'

Surface casing will be cemented to surface with  $\approx 300$  cu.ft. ( $\approx 255$  sx) Class B containing  $\frac{1}{4}$ /sk cello flake + 2% CaCl. Yield = 1.18 cu. ft/sk; slurry weight = 15.6 ppg. Volume is based on 100% excess. WOC = 12 hours. Pressure test surface casing to 600 psi for 30 minutes.

# FORM C-108 APPLICATION FOR AUTHORIZATION TO INJECT CONTINUED

Lance Oil & Gas Company, Inc.
Salty Dog #5 SWD Disposal Well
1030' FNL & 1365' FEL
Section 16, T29N, R14W, NMPM
San Juan County, New Mexico

Production casing hole will first be cleaned by circulating at least 150% of hole volume with drilling fluid to surface. Preceed cement with 50 bbl's of Poz slurry with 2% Kcl. Lead with  $\approx$ 600 cu.ft. ( $\approx$ 306 sx) Halliburton light cement 65:35 Poz with 1/4#/sk cello flake, 5#/sx Gilsonite, 12.4 ppg, yield of 1.96. Tail in with  $\approx$ 992 cu.ft. ( $\approx$ 751 sx) 50:50 Poz with 2% CaCl, ¼#/sk cello flake, 5#/sx Gilsonite, 13.5 ppg, yield 1.32. Total cement volume is  $\approx$ 1552.ft. based on 30% excess and circulating to surface. Production casing will be cemented to surface.

A minimum of three centralizers on the Surface Casing. A minimum of 25 centralizers and 5 turbolizers will be ran on the production casing.

TUBING: 27/8" Plastic Lined (Internally Plastic Coated) Set @ 6625'.

# PACKER:

Baker Full bore with On/Off Tool set @ 6550'.

### INJECTION FORMATION INFORMATION:

# Entrada

Injection interval, Entrada (6625'-6750') will be perforated.

Approximate perforation intervals will be based on logs per well completion. The Salty Dog #5 will be open hole logged with an SP/Induction and cased hole logged prior to perforations, completion and authorization to inject.

Well is being drilled specifically for injection of fluids.

There are no perforations as this is a new well.

Next highest production is from is the Dakota Formation (Basin Dakota (Oil/Gas) top which is @ approximately 5360'. Next Lower production in non-existent in the San Juan Basin.

IV. Is this an expansion of an existing project: No

V. Lease/Well Map: Attached hereto.

VI. Tabulation attached for wells which penetrate the proposed zone:

None

# FORM C-108 APPLICATION FOR AUTHORIZATION TO INJECT CONTINUED

Lance Oil & Gas Company, Inc. Salty Dog #5 SWD Disposal Well 1030' FNL & 1365' FEL Section 16, T29N, R14W, NMPM San Juan County, New Mexico

## VII. Operating Data:

- 1) Average Daily volume rate is expected to be approximately 2500 bbls/day. Maximum daily rate is expected to be approximately 3500 bbls/day.
- 2) The system is closed.
- 3) The average injection pressure will be 1000 psi. Maximum pressure of 1325 psi will be requested with option for additional pressure increase with approved step rate test.
- 4) Injected water will be produced from the Pictured Cliffs (Harper Hill Fruitland Sand PC) and Fruitland Coal (Basin Fruitland Coal) formations from four State of New Mexico wells (Ropco State 16-1, 16-2, 16-3, 16-4) and two Federal wells (WF Federal 9-4 and 9-3). All of these wells are currently producing. The produced water will be re-injected into the Entrada formation.

An analysis of water from several Lance Oil & Gas Company, Inc. wells is attached hereto. This water is representative of what Lance expects from the proposed wells in the Harper Hill PC and Basin Fruitland Coal formations.

5) Injected water is for disposal purposes. Analysis of Entrada water will be obtained. Lance will swab in and take a sample of the Entrada water and test to assure compatibility. Fruitland Coal/PC water is representative of what Lance expects from proposed future wells in the vicinity and may be injected in this well bore.

# VIII. Geological Information:

Injection will be in the Entrada formation. Top of the Entrada is @ 6625' with a total thickness of approximately 125'. The Fruitland Coal/Pictured Cliffs is a source of water being @ 636' and below but is not a source of drinking water. These formations will be located behind casing and cemented. There are no known sources of drinking water below the proposed injection formation.

### IX. Stimulation Program:

If after completion, logging and well analysis, well may be acidized or fracture stimulated as deemed appropriate.

# X. Logs:

This well is in the proposal stage and therefore not drilled or logged. The log from the McWhorter Duncan well, which was a Dakota completion (currently producing), was used for correlative purposes and is attached hereto. Location of this well is 1565' FSL & 1820' FWL-Section 10-T29N-R14W). The log from the Richardson (now Lance Salty Dog #3 well, which was a Entrada SWD completion (currently used for injection), was also used for correlative purposes and is attached hereto. Location of this well is 850' FSL & 770' FEL-Section 28-T30N-R14W).

# FORM C-108 APPLICATION FOR AUTHORIZATION TO INJECT CONTINUED

Lance Oil & Gas Company, Inc. Salty Dog #5 SWD Disposal Well 1030' FNL & 1365' FEL Section 16, T29N, R14W, NMPM San Juan County, New Mexico

# XI. Fresh Water Analysis:

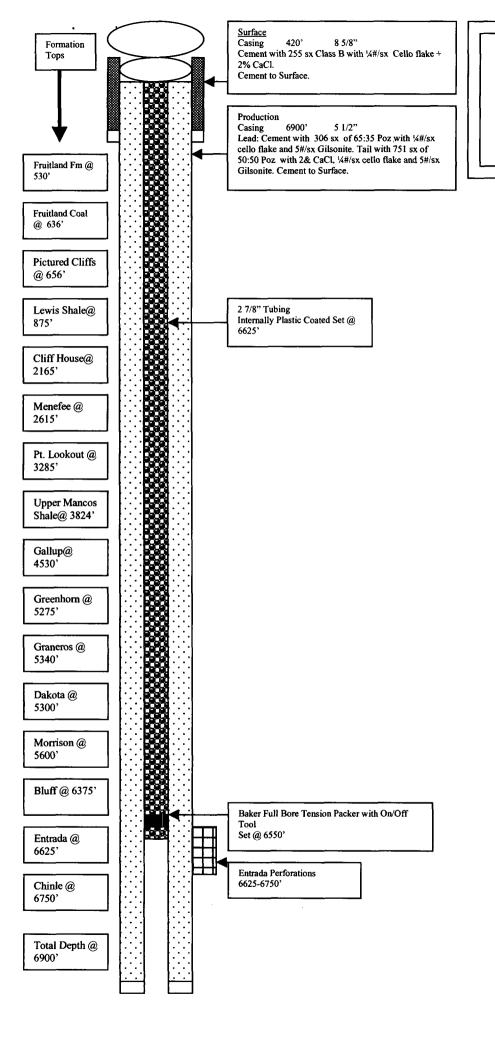
A search of the State Engineer's office in Aztec, New Mexico revealed that there are no fresh water wells within a one mile radius of the proposed disposal well.

# XII.

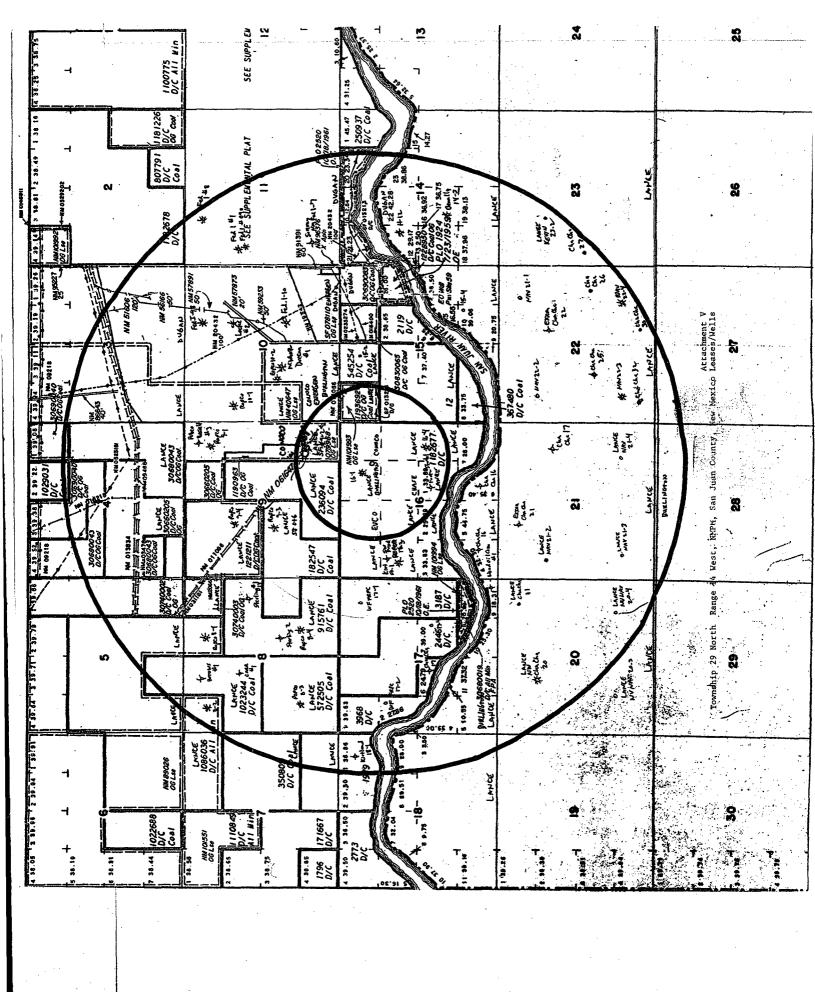
Lance Oil & Gas Company, Inc. has examined the available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the proposed disposal well and underground sources of drinking water.

# XIV. Proof of Notice:

Attached are copies of Certified Mail Receipts along with letters notifying the surface owner, offset operators and leaseholders and a copy of the proof of publication.

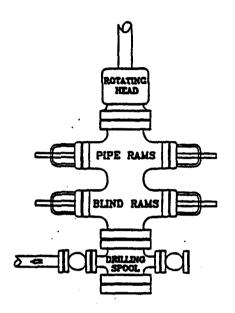


Attachment III Continued
Injection Well Data Sheet
Well bore Diagram
Richardson Operating Company
Salty Dog #5
1030' FNL & 1365' FEL
Section 16, T29N, R14W, NMPM
San Juan County, New Mexico

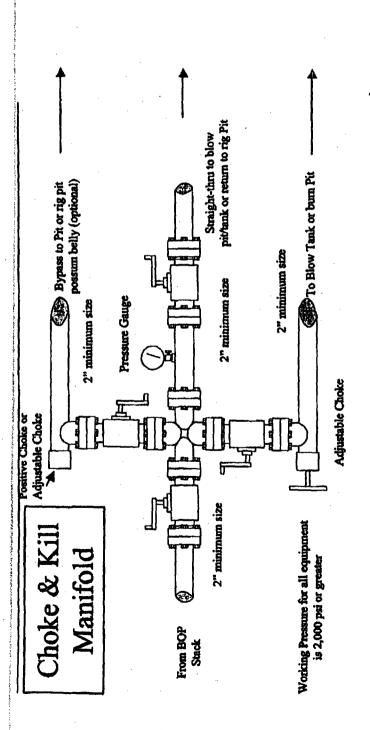


# PRESSURE CONTROL

# **BOP ASSEMBLY**



Preventer and Spool to have a 7 1/6" Bore or larger and a 3000 PSI or higher Pressure Rating



04-Jan-05

Date Sampled: **Date Received: Date Reported:**  20-Dec-04 23-Dec-04 04-Jan-05

Lance Oil & Gas

**Farmington** 

Field: San Juan Basin

Lease: Ropcos

Location: Ropco 16-01

Sample Point: wellhead

Salesman: Clay Bingham

Analyst: Karen Hawkins Allen

cc3:

cc2:

Attention: Doug Barone

cc1 : Doug Zentz

Comments:

CATIONS

NM

ANIONS

960 mg/l Calcium:

49 mg/l

Carbonate:

38,260 mg/l

Magnesium: Barium:

mg/l

Chloride:

0 mg/l

Strontium:

mg/l

Bicarbonate:

854 mg/l

Iron:

32.0 mg/l

Sulfate:

5,435 mg/l mg/l mg/l

Manganese:

mg/l 26542 mg/l

Sodium: pH (field):

1.21

Barite (BaSO4) SI:

Celestite (SrSO4) SI:

**Specific Gravity:** 

1.030 grams/ml

Temperature:

6.50

**Total Dissolved Solids:** 

72,132 ppm

85 degrees F

CO2 in Water:

44 mg/l

Ionic Strength:

CO2 in Gas:

Barite PTB:

Celestite PTB:

0.03 mole %

Resistivity:

ohm/meters

**H2S in Water:** 

2.0 mg/l

N/A

N/A

Ammonia:

ppm

**Dissolved Oxygen:** 

ppm

SI calculations based on Tomson-Oddo parameters

	Oz Calcalación Dasca Ott	TOTTOOT CAGE PATAINICES	
Calcite (CaCO3) SI:	-0.01	Calcite PTB :	N/A
Calcite (CaCO3) SI @ 100 F:	0.15	Calcite PTB @ 100 F:	61.3
Calcite (CaCO3) SI @ 120 F:	0.36	Calcite PTB @ 120 F:	138.0
Calcite (CaCO3) SI @ 140 F:	0.58	Calcite PTB @ 140 F:	203.1
Calcite (CaCO3) SI @ 160 F:	08.0	Calcite PTB @ 160 F:	256.7
Calcite (CaCO3) SI @ 180 F:	1.03	Calcite PTB @ 180 F:	302.7
Calcite (CaCO3) SI @ 200 F:	1.27	Calcite PTB @ 200 F :	343.0
Gypsum (CaSO4) SI:	-0.27	Gypsum PTB:	N/A

N/A

N/A

04-Jan-05 20-Dec-04 Date Sampled: **Date Received:** 23-Dec-04 Date Reported: 04-Jan-05

Lance Oil & Gas

Field: San Juan Basin

Lease: Ropcos

**Farmington** 

NM

Location: Ropco 16-02

Attention: Doug Barone

Sample Point: wellhead

cc1: Doug Zentz

cc2:

cc3:

Salesman: Clay Bingham

Analyst: Karen Hawkins Allen

Comments:

CATIONS

<u>ANIONS</u>

Calcium: Magnesium: 840 mg/l

Chloride:

59,380 mg/l

107 mg/l

Carbonate:

0 mg/l

Barium:

mg/l

Bicarbonate:

Strontium: Iron:

mg/l 95.0 mg/l

Sulfate:

1,222 mg/l 2,718 mg/l

mg/l mg/l

Manganese: Sodium: mg/l

39104 mg/l

pH (field):

8.30

Specific Gravity:

1.035 grams/ml

Temperature:

85 degrees F

**Total Dissolved Solids:** 

103,466 ppm

CO2 in Water:

44 mg/l

Ionic Strength: 1.75

CO2 in Gas:

0.03 mole %

Resistivity:

ohm/meters

**H2S in Water:** 

2.0 mg/l

Ammonia:

ppm

**Dissolved Oxygen:** 

Calcite PTB @ 160 F:

ppm

SI calculations based on Tomson-Oddo parameters

Calcite (CaCO3) SI:

0.23 Calcite PTB: 114.8

Calcite (CaCO3) SI @ 100 F: Calcite (CaCO3) SI @ 120 F: Calcite (CaCO3) SI @ 140 F:

0.38 0.59 0.81 Calcite PTB @ 140 F:

Calcite PTB @ 100 F: Calcite PTB @ 120 F:

180.8 258.2 330.0 390.2

Calcite (CaCO3) SI @ 180 F: Calcite (CaCO3) SI @ 200 F: Gypsum (CaSO4) SI:

Calcite (CaCO3) SI @ 160 F:

1.27 1.50 -0.68

1.03

Calcite PTB @ 180 F: Calcite PTB @ 200 F: Gypsum PTB: 443.3 486.3 N/A

Barite (BaSO4) SI: Celestite (SrSO4) SI:

N/A N/A

Celestite PTB:

Barite PTB:

N/A N/A

04-Jan-05 20-Dec-04

Date Sampled: Date Received:

23-Dec-04 Date Reported: 04-Jan-05

Lance Oil & Gas

Field: San Juan Basin

Lease: Ropcos

**Farmington** 

NM

Location: Ropco 16-04

Attention: Doug Barone

cc1: Doug Zentz

Sample Point: wellhead

cc2:

Salesman: Clay Bingham

cc3:

Analyst: Karen Hawkins Allen

Comments:

CATIONS

ANIONS

Calcium:

1,120 mg/l

Chloride:

37,640 mg/l

Magnesium:

97 mg/l

Carbonate:

0 mg/l

Barium:

mg/i

Bicarbonate:

Strontium: Iron:

mg/l 124.0 mg/l

Sulfate:

793 mg/l

Manganese:

mg/l

6.50

1.13

2,445 mg/l

mg/l mg/l

Sodium:

pH (field):

24411 mg/l

Specific Gravity:

1.050 grams/ml

Temperature:

85 degrees F

**Total Dissolved Solids:** 

66,630 ppm

Ionic Strength:

CO2 in Water:

44 mg/l

ohm/meters

CO2 in Gas: **H2S in Water:** 

0.03 mole %

Resistivity: Ammonia:

**Dissolved Oxygen:** 

2.0 mg/l

ppm

Calcite PTB @ 120 F:

Calcite PTB @ 140 F:

Calcite PTB @ 160 F:

ppm

SI calculations based on Tomson-Oddo parameters

Calcite (CaCO3) SI: Calcite (CaCO3) SI @ 100 F: Calcite (CaCO3) SI @ 120 F: Calcite (CaCO3) SI @ 140 F:

0.01 0.17 0.38 0.60

Calcite PTB: Calcite PTB @ 100 F:

3.6 67.6 138.8

Calcite (CaCO3) SI @ 160 F: Calcite (CaCO3) SI @ 180 F: Calcite (CaCO3) SI @ 200 F:

1.05 1.29 -0.52

0.82

Calcite PTB @ 180 F: Calcite PTB @ 200 F: Gypsum PTB: 249.1 293.6 329.1 N/A

199.3

Gypsum (CaSO4) SI: Barite (BaSO4) SI: Celestite (SrSO4) SI:

N/A N/A

Barite PTB: Celestite PTB: N/A N/A

04-Jan-05 Date Sampled: 20-Dec-04 **Date Received:** 23-Dec-04 04-Jan-05

**Date Reported:** 

Lance Oil & Gas

Field: San Juan Basin

Lease: Ropcos

**Farmington** 

NM

Location: Ropco 09-04

Attention: Doug Barone

Sample Point: wellihead

cc1: Doug Zentz

Salesman: Clay Bingham

cc2:

cc3:

Analyst: Karen Hawkins Allen

Comments:

CATIONS

ANIONS

Calcium:

200 mg/l

Chloride:

16,680 mg/l

Magnesium:

122 mg/l

Carbonate:

0 mg/l

Barium: Strontium: mg/l

Bicarbonate:

610 mg/l

Iron:

mg/l 95.0 mg/l

Sulfate:

1,325 mg/l

mg/l mg/l

Manganese:

mg/l

11221 mg/l Sodium:

**Specific Gravity:** 

pH (field):

6.50

**Total Dissolved Solids:** 

1.020 grams/ml

Temperature:

85 degrees F

CO2 in Water:

30,253 ppm

Ionic Strength:

0.51

CO2 in Gas:

44 mg/l 0.03 mole %

Resistivity:

ohm/meters

**H2S in Water:** 

1.0 mg/l

Ammonia:

**Dissolved Oxygen:** 

ppm

ppm

SI calculations based on Tomson-Oddo parameters

Calcite (CaCO3) SI: Calcite (CaCO3) SI @ 100 F: -0.62-0.47 Calcite PTB:

Calcite PTB @ 180 F:

N/A

Calcite (CaCO3) SI @ 120 F: Calcite (CaCO3) SI @ 140 F: Calcite (CaCO3) SI @ 160 F: Calcite (CaCO3) SI @ 180 F:

Calcite PTB @ 100 F: -0.25Calcite PTB @ 120 F: -0.04 Calcite PTB @ 140 F: 0.19 Calcite PTB @ 160 F:

N/A N/A N/A 35.5

Calcite (CaCO3) SI @ 200 F: Gypsum (CaSO4) SI:

0.66 -1.32

0.42

Calcite PTB @ 200 F: Gypsum PTB:

Barite PTB:

99.7 N/A

71.0

N/A

Barite (BaSO4) SI: Celestite (SrSO4) SI: N/A N/A

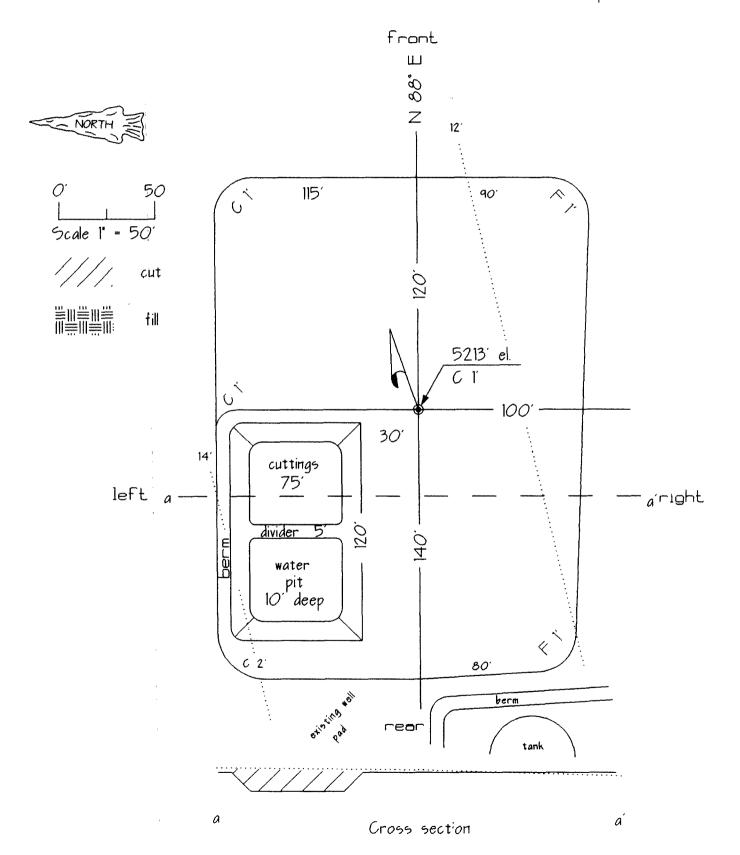
Celestite PTB:

N/A

# State of New Mexico Energy. Minerals & Mining Resources Department OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe. NM 87505

MENDED REPORT

		•	WEL	L LOC	ATION AN	D ACRE	AGE [	EDICATION	PLAT	
A	PA Numb	er,	T	Pool C					Pool Name	е
30-04	<b>15</b> –			96	5436		SWD H	Intrada		1
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OGRID N	э.					or Name		D.I.O.		Elevation
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UL or Lot	Sec.	Twp.	Rge.	Lot k	1	ļ		Feet from>	East/West	County
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									or	tes of actual surveys made by me under my supervision, and that the ne is true and correct to the best
									son	ne is true and correct to the best my belief.
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# **AFFIDAVIT OF PUBLICATION**

Ad No. 51178

# STATE OF NEW MEXICO County of San Juan:

CONNIE PRUITT, being duly sworn says: That she is the CLASSIFIED MANAGER of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said 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 publication and appeared in the Internet at The Daily Times web site on the following day(s):

Thursday, February 10, 2005.

And the cost of the publication is \$40.88.

ON 2/11/05 CONNIE PRUITT appeared before me, whom I know personally to be the person who signed the above document.

My Complission Expires November 17, 2008.



# **COPY OF PUBLICATION**

Notice of Intent Dirill Salt Water Disposal well and Inject Produced Water

Contact Party: Lance Oil & Gas Company, Inc. Post Office Box 70 Kirtland, New Mexico 87417 Attn. Paul Lehrman (505)598-5601, Ext. 57

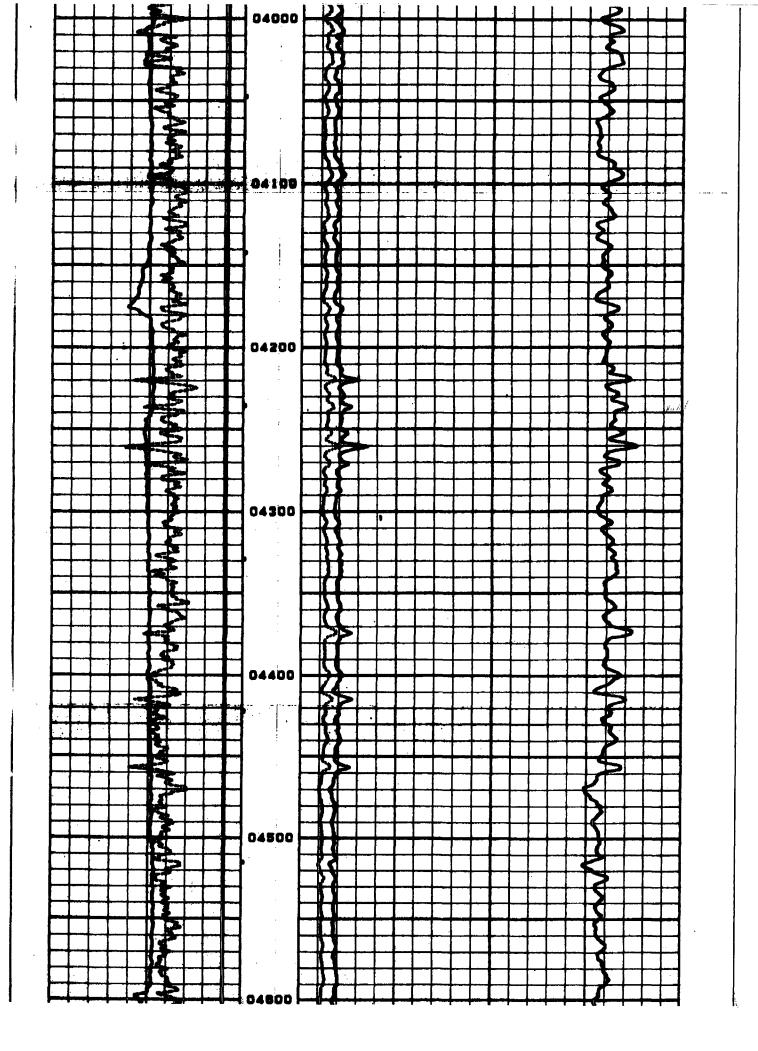
Well Name and Legal Description: Salty Dog #5 SWD 1030' FNL & 1365' FEL Section 16, Township 29 North, Range 14 West, NMPM San Juan County, New Mexico

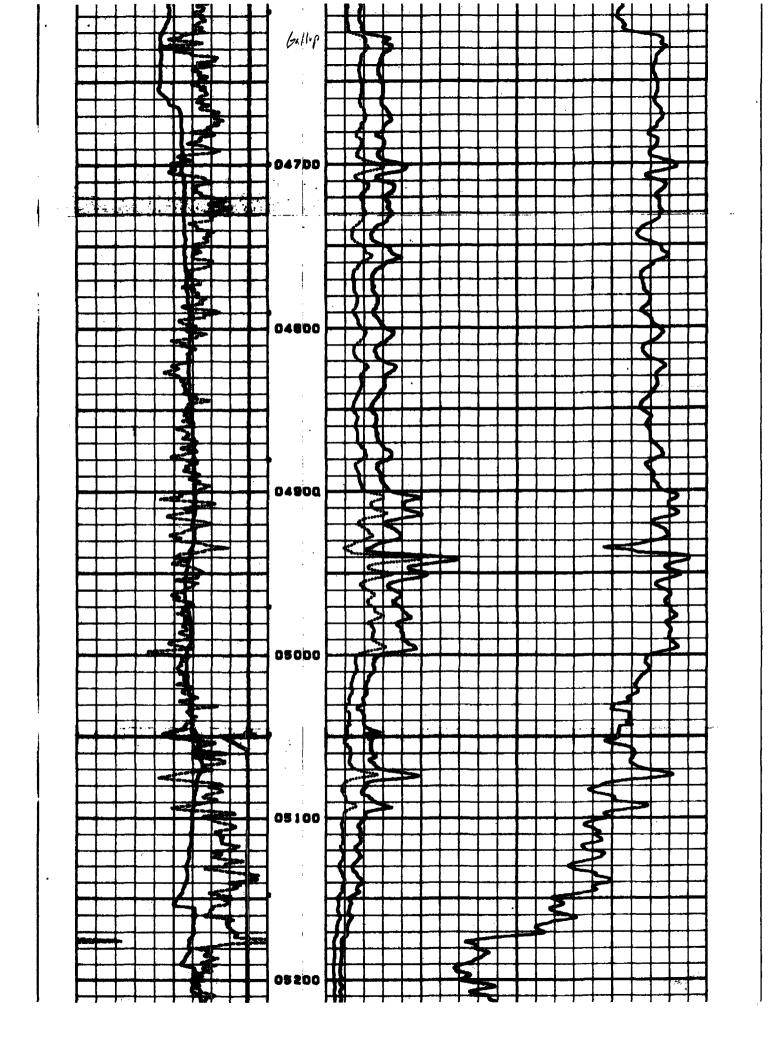
Action of the control 
egal: No. 51178 pubirined: in The Daily fines: Farmington, New Mexication, Thuisday, February, 10, 2005

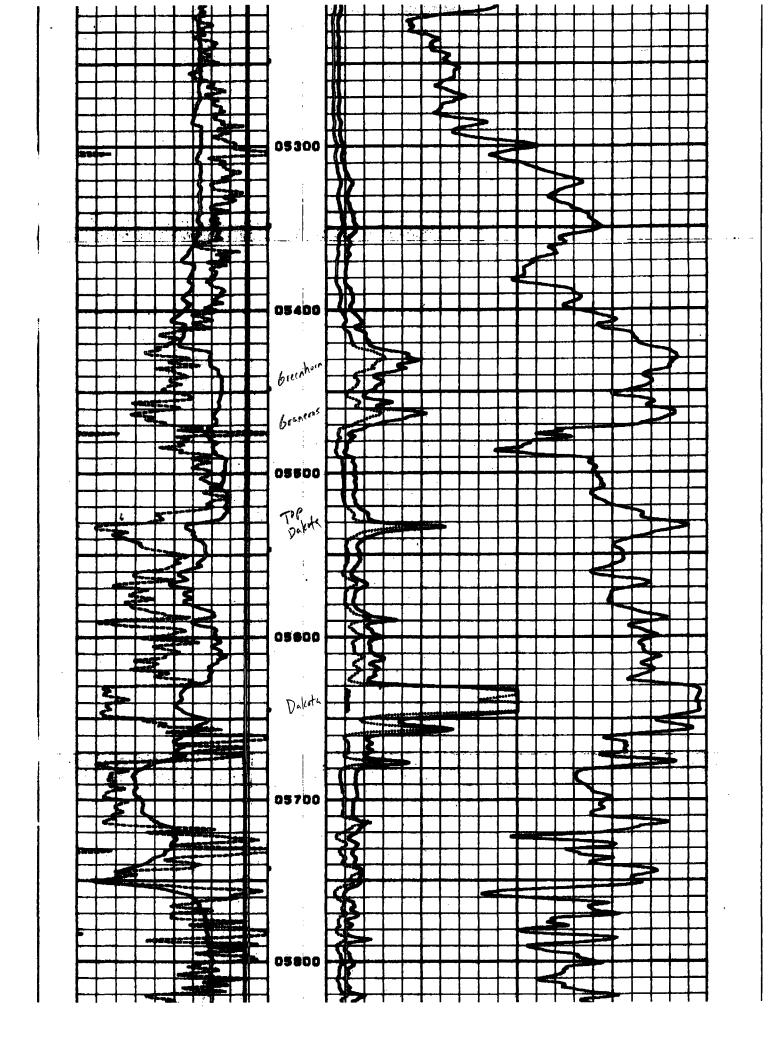
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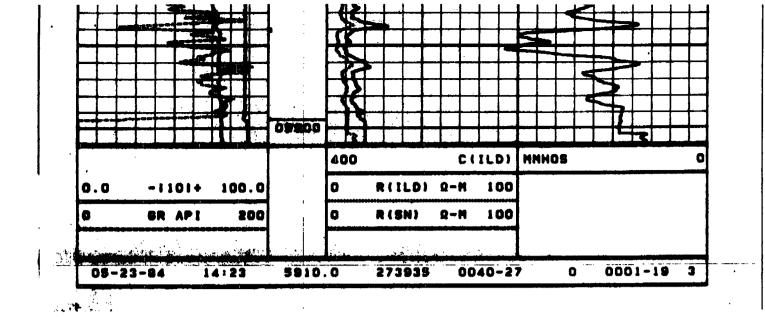
INDUCTION ELECTRICAL LOG

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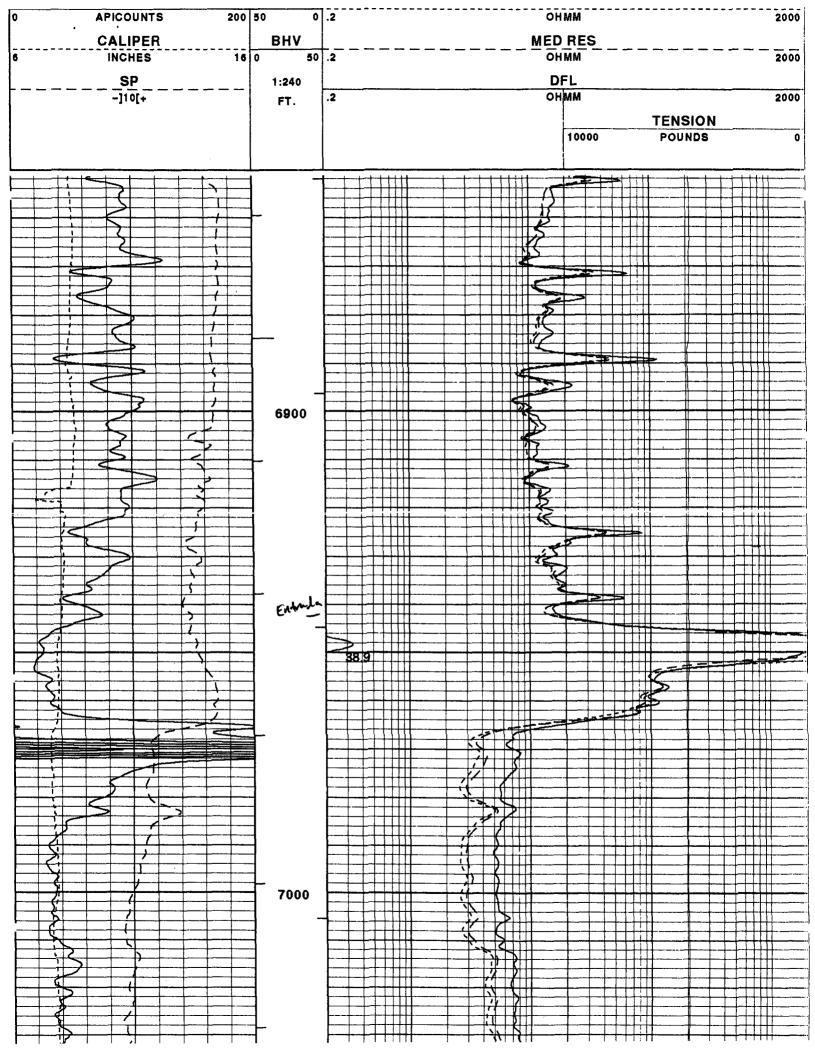


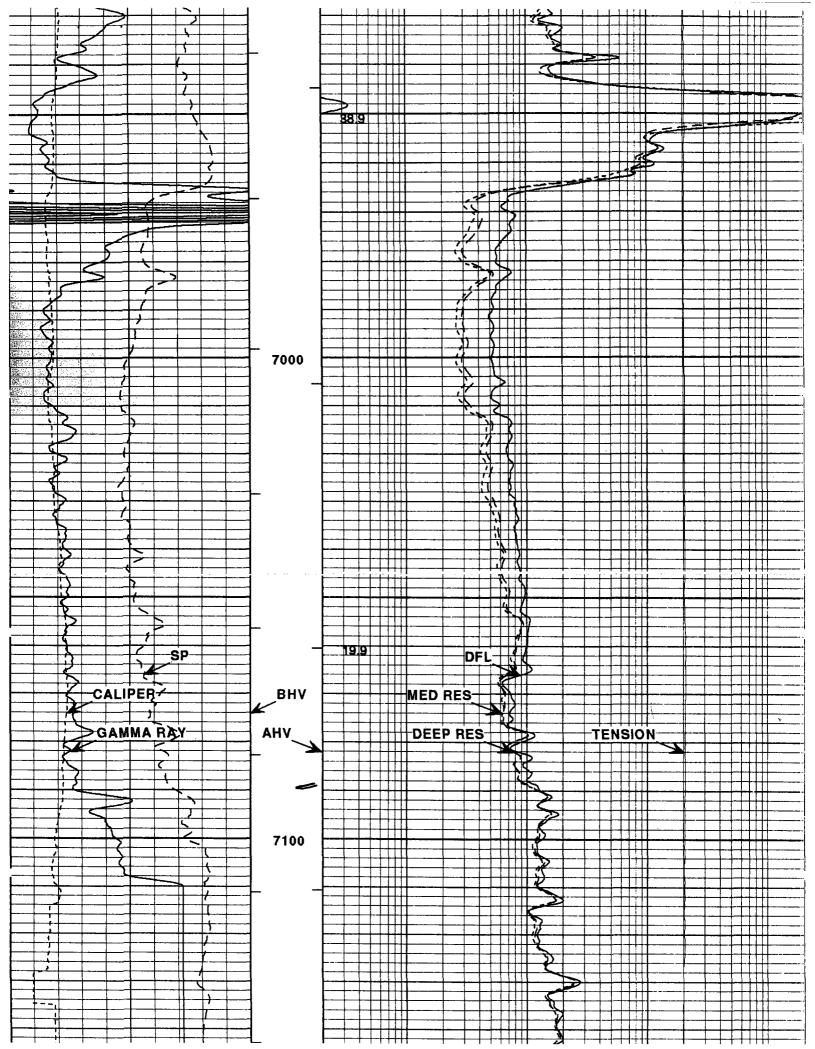
# **HALLIBURTON**

# HIGH RESOLUTION INDUCTION LOG

EXCELL+

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TING CO	اڄم		STATE_N	WEL	WELL SALTY DOG SWD #3-R									
OPERA	SWD #3-		ST.	FIEL	D									
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Permanent Datum GROUND LEVEL Elev						5572'		Elev. :	K.B.	5584'				
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Drillin	ng mea	sured fro	m	KELLY E	USHING						G.L.	5572'		
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Botto	om – Lo	ogged Inte	erval	7156'		_			<u> </u>					
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Certified Mail Return Receipt Requested Article No. 7002 3150 0002 0908 6333

Mr. Ron Lanning Chase Oil Corporation P.O. Box 1767 Artesia. New Mexico 88211

RE:

C-108 Authorization to Inject Application Proposed Lance Salty Dog #5 SWD Well Township 29 North, Range 14 West, NMPM

1030' FNL & 1365' FEL

Section 16: NE/4

San Juan County, New Mexico

Dear Mr. Lanning:

As required by New Mexico Oil Conservation Division (NMOCD) Rules, this letter will serve to notify you of the following application (C-108/Authorization to Inject) for a salt water disposal well. This letter is a notice only. No action is required on your part unless you have objections or would like to request a hearing. Any objections or hearing requests must be filed in writing within 15 days of receipt of the application by the NMOCD.

Lance Oil & Gas Company, Inc. is applying to the NMOCD for a C-108/Authorization to Inject) for its proposed Lance Oil & Gas Company, Inc.'s Salty Dog #5 SWD well in the Entrada formation.

Well Name:

Salty Dog #5

Proposed Injection Zone:

Entrada

Location:

1030' FNL & 1365' FEL

Section 16, T29N, R14W, NMPM, San Juan Co., NM

Applicant's Name:
Applicant's Address:

Box 70, Kirtland, NM 87417

Lance Oil & Gas Company, Inc.

Applicant's Phone No:

505/598-5601, Ext. 57

Submittal Information:

Application for a C-108/Authorization to Inject) for a salt water disposal well will be filed with the NMOCD. If they determine the application complies with the regulations, it will be approved. Any questions can be submitted to the New Mexico Oil Conservation Division, whose address is 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. Their phone number is 505/476-3440.

Thank you for your consideration in this matter.

Please call me at 505/598-5601, Ext. 57 (Lance's Land Office) if you have any questions.

aul Lehrman

Enclosures

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	
Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.  Print your name and address on the reverse	! X	Agent Addressee
so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.	B. Received by (Printed Name) C. Date	e of Delivery
1. Article Addressed to:	D. 10 Convey accress emercial near near 1	l Yes l No
Ron Lanning Chaze Dil Gorp		
Chece Dil Gorp		
Box 1767 arksia, MM 88211	3. Service Type  Certified Mail  Express Mail  Registered  Return Receipt for M  C.O.D.	<i>flerchandise</i>
	4. Restricted Delivery? (Extra Fee)	] Yes
2. Article Number (Transfer from service label) 7002 31	50 0002 0908 6333	
PS Form 3811, August 2001 Domestic Reti	urn Receipt 2A0	CPRI-03-Z-0985



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Certified Mail
Return Receipt Requested
Article No. 7002 3150 0002 0908 6326

Mr. Frank Schilling Burlington Resources Oil and Gas Corp. P.O. Box 4289 Farmington, New Mexico 87499

RE:

C-108 Authorization to Inject Application Proposed Lance Salty Dog #5 SWD Well Township 29 North, Range 14 West, NMPM

1030' FNL & 1365' FEL

Section 16: NE/4

San Juan County, New Mexico

Dear Mr. Schilling:

As required by New Mexico Oil Conservation Division (NMOCD) Rules, this letter will serve to notify you of the following application (C-108/Authorization to Inject) for a salt water disposal well. This letter is a notice only. No action is required on your part unless you have objections or would like to request a hearing. Any objections or hearing requests must be filed in writing within 15 days of receipt of the application by the NMOCD.

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Well Name:

Salty Dog #5

Proposed Injection Zone:

Entrada

Location:

1030' FNL & 1365' FEL

Section 16, T29N, R14W, NMPM, San Juan Co., NM Lance Oil & Gas Company, Inc.

Applicant's Name: Applicant's Address:

Box 70, Kirtland, NM 87417

Applicant's Phone No:

505/598-5601, Ext. 57

Submittal Information:

Application for a C-108/Authorization to Inject) for a salt water disposal well will be filed with the NMOCD. If they determine the application complies with the regulations, it will be approved. Any questions can be submitted to the New Mexico Oil Conservation Division, whose address is 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. Their phone number is 505/476-3440.

Thank you for your consideration in this matter.

Please call me at 505/598-5601, Ext. 57 (Lance's Land Office) if you have any questions.

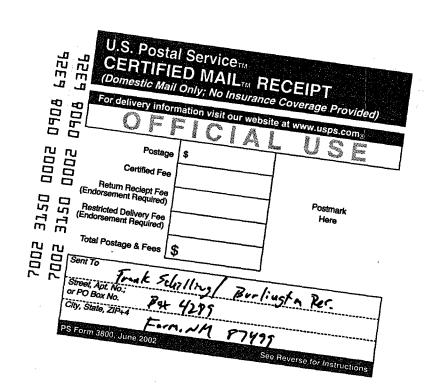
Sincerely,

aul Lehrman

Enclosures

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY		
<ul> <li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>Print your name and address on the reverse</li> </ul>	A. Signature  X   Agent  Addressee		
so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.	B. Received by (Printed Name) C. Date of Delivery		
1. Article Addressed to:	D. Is delivery address different from item 1?		
Mr. Frank Schilling Burlington Resources			
Box 4289 Farmington, NM 87499	3. Service Type Certified Mail		
	4. Restricted Delivery? (Extra Fee)		
2. Article Number 7002 3150	0002 0908 6326		
PS Form 3811, August 2001 Domestic R	eturn Receipt 2ACPRI-03-Z-098		







Certified Mail Return Receipt Requested Article No. 7002 3150 0002 0908 6340

Ms. Judith Barr Evco Development Co. P.O. Box 245 Sausalito, CA 94966

RE:

C-108 Authorization to Inject Application Proposed Lance Salty Dog #5 SWD Well Township 29 North, Range 14 West, NMPM

1030' FNL & 1365' FEL

Section 16: NE/4

San Juan County, New Mexico

Dear Ms. Barr:

As required by New Mexico Oil Conservation Division (NMOCD) Rules, this letter will serve to notify you of the following application (C-108/Authorization to Inject) for a salt water disposal well. This letter is a notice only. No action is required on your part unless you have objections or would like to request a hearing. Any objections or hearing requests must be filed in writing within 15 days of receipt of the application by the NMOCD.

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Well Name:

Salty Dog #5

Proposed Injection Zone:

Entrada

Location:

1030' FNL & 1365' FEL

Section 16, T29N, R14W, NMPM, San Juan Co., NM

Applicant's Name: Applicant's Address:

Box 70, Kirtland, NM 87417

Lance Oil & Gas Company, Inc.

Applicant's Phone No:

505/598-5601, Ext. 57

**Submittal Information:** 

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Thank you for your consideration in this matter.

Please call me at 505/598-5601, Ext. 57 (Lance's Land Office) if you have any questions.

aul Lehrman

Enclosures

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SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DEL	IVERY		
Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.	A. Signature	[TiAnana		
■ Print your name and address on the reverse	X	☐ Agent☐ Addressee		
so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.	B. Received by (Printed Name)	C. Date of Delivery		
Article Addressed to:	D. Is delivery address different from item 1?			
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ath: Trdite Borr				
PO 84 243	3. Service Type			
Evco Development  a thi: Trdit Borr  po But 245  Sausalito, CA  94966	☐ Registered ☐ Return Reci ☐ Insured Mail ☐ C.O.D.	il eipt for Merchandise		
	4. Restricted Delivery? (Extra Fee)	☐ Yes		
2. Article Number 7002 31.50	0002 0908 6340			
PS Form 3811, August 2001 Domestic Ret	um Receipt	2ACPRI-03-Z-0985		



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005	Sent To Judih	Box 245 Savsalifo, CA	Dovelop.
\[ \cdot \c	Street, Apt. No.; or PO Box No.	Box 245	,
	City, State, ZIP+4	Sausalito, CA	94966
,	PS Form 3800, June 200		See Reverse for Instructions



Certified Mail Return Receipt Requested Article No. 7002 3150 0002 0908 6357

Mr. Harry Nowak Conoco Inc. 3070 WL Post Office Box 2197 Houston, Texas 77252

RE:

C-108 Authorization to Inject Application Proposed Lance Salty Dog #5 SWD Well Township 29 North, Range 14 West, NMPM

3 1030' FNL & 1365' FEL Section 16: NE/4 San Juan County, New Mexico

## Dear Mr. Nowak:

As required by New Mexico Oil Conservation Division (NMOCD) Rules, this letter will serve to notify you of the following application (C-108/Authorization to Inject) for a salt water disposal well. This letter is a notice only. No action is required on your part unless you have objections or would like to request a hearing. Any objections or hearing requests must be filed in writing within 15 days of receipt of the application by the NMOCD.

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Well Name:

Salty Dog #5

Proposed Injection Zone:

Entrada

Location:

1030' FNL & 1365' FEL

Section 16, T29N, R14W, NMPM, San Juan Co., NM Lance Oil & Gas Company, Inc.

Applicant's Name: Applicant's Address: Applicant's Phone No:

Box 70, Kirtland, NM 87417

505/598-5601, Ext. 57

Submittal Information:

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Thank you for your consideration in this matter.

Please call me at 505/598-5601, Ext. 57 (Lance's Land Office) if you have any questions.

Singerely, L Paul Lehrman

SENDER: COMPLETE THIS SECT	ON	COMPLETE THIS SECTION ON DEL	IVERY	
<ul> <li>Complete items 1, 2, and 3. Also item 4 if Restricted Delivery is des</li> <li>Print your name and address on the so that we can return the card to the Attach this card to the back of the or on the front if space permits.</li> </ul>	ired. ne reverse /ou.	A. Signature  X  B. Received by (Printed Name)	Agent Addressee C. Date of Delivery	
1. Article Addressed to:  Mr. Havry Nowak  Conoco, Inc.  3070 WL  Box 2197  Houston, TX 77252		D. is delivery address different from item 1? ☐ Yes if YES, enter delivery address below: ☐ No		
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February 14, 2005

Certified Mail Return Receipt Requested Article No. 7002 3150 0002 0908 6364

Mr. Dave Poage Energen Resources Corp. 2198 Bloomfield Hwy Farmington, NM 87401

RE:

C-108 Authorization to Inject Application Proposed Lance Salty Dog #5 SWD Well Township 29 North, Range 14 West, NMPM 1030' FNL & 1365' FEL

Section 16: NE/4

San Juan County, New Mexico

Dear Mr. Poage:

As required by New Mexico Oil Conservation Division (NMOCD) Rules, this letter will serve to notify you of the following application (C-108/Authorization to Inject) for a salt water disposal well. This letter is a notice only. No action is required on your part unless you have objections or would like to request a hearing. Any objections or hearing requests must be filed in writing within 15 days of receipt of the application by the NMOCD.

Lance Oil & Gas Company, Inc. is applying to the NMOCD for a C-108/Authorization to Inject) for its proposed Lance Oil & Gas Company, Inc.'s Salty Dog #5 SWD well in the Entrada formation.

Well Name:

Salty Dog #5

Proposed Injection Zone:

Entrada

Location:

1030' FNL & 1365' FEL

Section 16, T29N, R14W, NMPM, San Juan Co., NM

Applicant's Name: Applicant's Address: Lance Oil & Gas Company, Inc.

Applicant's Address.

Box 70, Kirtland, NM 87417

Applicant's Phone No:

505/598-5601, Ext. 57

Submittal Information:

Application for a C-108/Authorization to Inject) for a salt water disposal well will be filed with the NMOCD. If they determine the application complies with the regulations, it will be approved. Any questions can be submitted to the New Mexico Oil Conservation Division, whose address is 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. Their phone number is 505/476-3440.

Thank you for your consideration in this matter.

Please call me at 505/598-5601, Ext. 57 (Lance's Land Office) if you have any questions.

faul Lehrman

Enclosures

I.					
SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY				
<ul> <li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> </ul>	A. Signature  X				
Attach this card to the back of the mailpiece, or on the front if space permits.	B. Received by (Printed Name) C. Date of Delivery				
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Farm. NA 87401	3. Service Type Contified Mail				
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PATRICK H. LYONS COMMISSIONER

# State of New Mexico Commissioner of Public Lands

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

**COMMISSIONER'S OFFICE** 

Phone (505) 827-5760 Fax (505) 827-5766 www.nmstatelands.org

20 January 2005

Mr. Paul Lehrman Lance Oil & Gas Co. P.O. Box 70 Kirtland, New Mexico 87417 COPY

Re:

Salty Dog #5 Well Survey; ARMS NMCRIS Project Activity No. 91062; Western Archaeological Services (WAS) Report No. WAS 0470

Dear Mr. Lehrman:

I have reviewed the captioned report submitted by Mr. Patrick Harden of Western Archaeological Services (WAS) on behalf of Lance Oil & Gas Co. (Lance) of Kirtland, New Mexico. The report concerns the survey for a proposed well pad on State Trust land near Kirtland, in San Juan County, New Mexico.

WAS' survey of the area encountered no cultural resources in the course of the fieldwork. WAS' report documents the apparent absence of eligible cultural properties on New Mexico State Trust land within the project's probable area of effect. Given this absence, there apparently will be no effect on known cultural properties located on State Trust land from Lance's proposed well pad. Therefore, I recommended a finding of no effect for this undertaking, and the State Historic Preservation Officer (SHPO) has indicated concurrence with this recommendation by stamp and signature on the consultation letter.

Having fulfilled its obligations to protect cultural resources that may have been affected by its actions, Lance is free to proceed with this undertaking. As always, should any unanticipated cultural materials be noted during construction, ground disturbance in their vicinity should cease and the SLO and SHPO should be notified. The SLO greatly appreciates Lance's efforts to identify, preserve, and protect the cultural resource assets of the Trust. If you have any questions or require additional information regarding this undertaking, please do not hesitate to contact me.

Sincerely,

David C. Eck

Trust Land Archaeologist

Xc: Compliance File 04DE243cl

(505) 827-5857 deck@slo.state.nm.us

LANCE OIL & GAS COMPANY, INC.
PO Box 70 Kirtland, New Mexico 87417

TO:

MR. WILLIAM JONES/NMOCD

FROM:

PAUL LEHRMAN/LANCE OIL & GAS COMPANY, INC.

SUBJECT:

SALTY DOG #5 SLO NOTIFICATION

DATE:

2/17/2005

CC:

Mr. Jones- attached is the copy of the Certified Letter, etc. going out to Mr. Martinez today.

Thanks for the time on the phone and the help!!!!

If needed, my phone is 505/598-5601, Ext. 57. E-Mail is plehrman@westerngas.com

Thanksagain!!!!



February 17, 2005

Certified Mail Return Receipt Requested Article No. 7002 3150 0002 0907 1032

Mr. Pete Martinez New Mexico State Land Office Post Office Box 1148 Santa Fe, NM 87504-1148

RE:

C-108 Authorization to Inject Application Proposed Lance Salty Dog #5 SWD Well Township 29 North, Range 14 West, NMPM 1030' FNL & 1365' FEL

Section 16: NE/4

San Juan County, New Mexico

Dear Mr. Martinez:

As required by New Mexico Oil Conservation Division (NMOCD) Rules, this letter will serve to notify you of the following application (C-108/Authorization to Inject) for a salt water disposal well. This letter is a notice only. No action is required on your part unless you have objections or would like to request a hearing. Any objections or hearing requests must be filed in writing within 15 days of receipt of the application by the NMOCD.

Lance Oil & Gas Company, Inc. is applying to the NMOCD for a C-108/Authorization to Inject) for its proposed Lance Oil & Gas Company, Inc.'s Salty Dog #5 SWD well in the Entrada formation.

Well Name:

Salty Dog #5

Proposed Injection Zone:

Entrada

Location:

1030' FNL & 1365' FEL

Section 16, T29N, R14W, NMPM, San Juan Co., NM Lance Oil & Gas Company, Inc.

Applicant's Name:
Applicant's Address:
Applicant's Phone No:

Box 70, Kirtland, NM 87417

505/598-5601, Ext. 57

Submittal Information:

Application for a C-108/Authorization to Inject) for a salt water disposal well will be filed with the NMOCD. If they determine the application complies with the regulations, it will be approved. Any questions can be submitted to the New Mexico Oil Conservation Division, whose address is 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. Their phone number is 505/476-3440.

Once the C-108 is approved, Lance will submit paperwork to the State Land Office for a "Salt Water Disposal Easement". Thank you for your consideration in this matter.

Please call me at 505/598-5601, Ext. 57 (Lance's Land Office) if you have any questions.

Haul Lehrman

Sincerely

Actosures

SENDER: COMPLETE THIS SECTIO	N	COMPLETE THIS SECTION	ON DELIVE	ERY	
Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.  Print your name and address on the reverse so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.		A. Signature X		.□ Agent □ Addressee	
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LANCE OIL & GAS COMPANY, INC.
PO Box 70 Kirtland, New Mexico 87417

FAY 505/476-3462

TO:

MR. WILLIAM JONES/NMOCD

FROM:

PAUL LEHRMAN/LANCE OIL & GAS COMPANY, INC.

SUBJECT:

ARCH REPORT FOR SALTY DOG #5

DATE:

2/17/2005

CC:

Mr. Jones- attached is complete Arch report for this project. Hope this helps.

Also attached is questionnaire for Disposal Easement

If needed, my phone is 505/598-5601, Ext. 57. E-Mail is plehrman@westerngas.com

Thanks!

Paul



## NEW MEXICO STATE LAND OFFICE

# QUESTIONAIRE TO BE COMPLETED IN CONNECTION WITH SALT WATER DISPOSAL WELL EASEMENT

1.	What is the oil and gas mineral ownership of the land from which the salt water will be produced?
	Private 10 z, State 60 z, Federal 30 z.
2.	What is the approximate number of barrels of salt water that will be injected into the well per day?  2500
3.	What is the formation into which the salt water will be injected?
4.	Have you enclosed consent of the oil and gas lessee for the use as a salt water disposal well? N/A
5;	From which well(s) is the salt water being produced and to be injected? (Give complete description of oil
	Wells.) Ropco 16-1/16-2/16-3/16-4 located in Sec. 16-T29N-R14W
	WF Federal 9-3/9-4 location in Sec. 9-T29N-R14W
6.	What is your O.C.C. Order No.
7.	What reaction have the adjacent wells reflected from the injected water? (Answer only if this is a renewal application.)
8.	What is estimated reservoir of oil still to be recovered from wells which are the source of the salt water?  N/A
9.	What is the estimated time that it will take to deplete the well or wells?
	Signed by: Paul Lehrman
	Address: Lance Oil & Gas Company, Inc.
	Box 70, Kirtland, NM 87417
	FOR OFFICE USE ONLY
Appro	oved by 0.C.C.:

22491 Road D6, Cortez, Colorado 81321 Tele. (970) 564-9278 FAX 564-5819

December 10, 2004

Mr. David Eck N.M. State Lands Office P.O. Box 1148 Santa Fe, New Mexico 87504

Mr. Eck:

It seems I was confused about the name for the report for Lance Oil & Gas Co.'s Salty Dog well located in San Juan County. I told you the well name had been changed from the #5 to the #7 - this was in error and the well name should be the Salty Dog #5. If you could change the numeration on the report it would be appreciated. Sorry for any inconvenience or confusion.

Sincerely,

Patrick Harden

22491 Road D6, Cortez, Colorado 81321 Tele. (970) 564-9278 FAX 564-5819

December 9, 2004

Mr. Jim Copeland
San Juan District Archeologist
Bureau of Land Management
1235 La Plata Hwy.
Farmington, New Mexico 87401

Mr. Copeland:

Please find enclosed two copies of the archeological survey report for Lance Oil & Gas Co.'s Salty Dog #7 well site located in San Juan County, N.M. Archeological clearance is recommended.

Sincerely,

Patrick Harden

Should be Salty Dood #5

Copy To:

Lance Oil & Gas Co. N.M. State Lands Office

22491 Road D6, Cortez, Colorado 81321 Tele. (970) 564-9278 FAX 564-5819

December 9, 2004

Mr. David Eck N.M. State Lands Office P.O. Box 1148 Santa Fe, New Mexico 87504

Mr. Eck:

Please find enclosed a copy of the archeological survey report for Lance Oil & Gas Co.'s Salty Dog #7 well site in San Juan County, N.M. The notification of the survey sent to you earlier listed the project as the Salty Dog #5 well, but this was changed to the #7. Archeological clearance is recommended.

Sincerely,

Patrick Harden

shorld ke #5
Salty Dob #5
Not #7.

### **NEGATIVE SURVEY AND MONITORING REPORT**

1. BLM Report No.

2. BLM Review: (initial & date) 3. NMCRIS No.

91062

4. Title of Report: Lance Oil & Gas Co.'s Salty Dog #5 Well Site

Author: Patrick Harden

5. Fieldwork Dates: 10/25 & 11/18/04

6. Report Date: 12/9/04

7. Consultant Name & Address

Field Supervisor: Patrick Harden

Org. Name: Western Archeological Services
Org. Address: 22491 Road D6, Cortez, Colo. 81321
Phone No.: 970-564-9278

Western Archeological Services
9. Consultant Rpt. No.
WAS 0470

8. Permit No.:

100-2920-03-P

11. Sponsor Project No.

10. Sponsor Name and Address

Ind. Responsible: Mr. Paul Lehrman Org. Name: Lance Oil & Gas Co.

Org. Address: P.O. Box 70 Kirtland, N.M. 87417

Phone No.: 505-598-5601

12. Area of Effect 1.2 ac. BLM 0 ac. Other State 1.2 ac.

Area Surveyed 6.5ac. BLM 0 ac. Other State 1.2 ac.

13. Location (Map Attached)

a. State: New Mexico

c. Field Office: Farmington

b. County: San Juan

d. Land Status: BLM

e. Area: T 29N R 14W Sec. 16

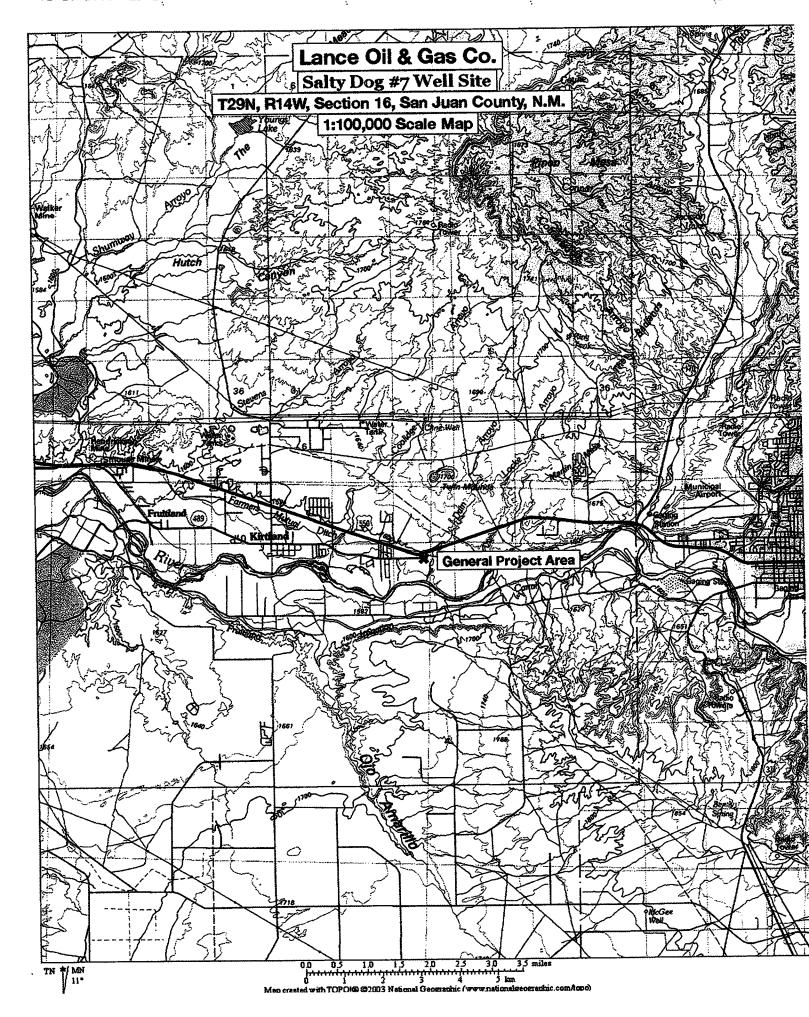
SE 1/4 NW 1/4 NE 1/4

f. Footages:

1030 FNL 1365 FEL g. 7.5" Map Name: Kirtland, N.M.

14. a. Description of Undertaking: one well pad 205 x 260' in size, plus a 50' construction zone around the pad

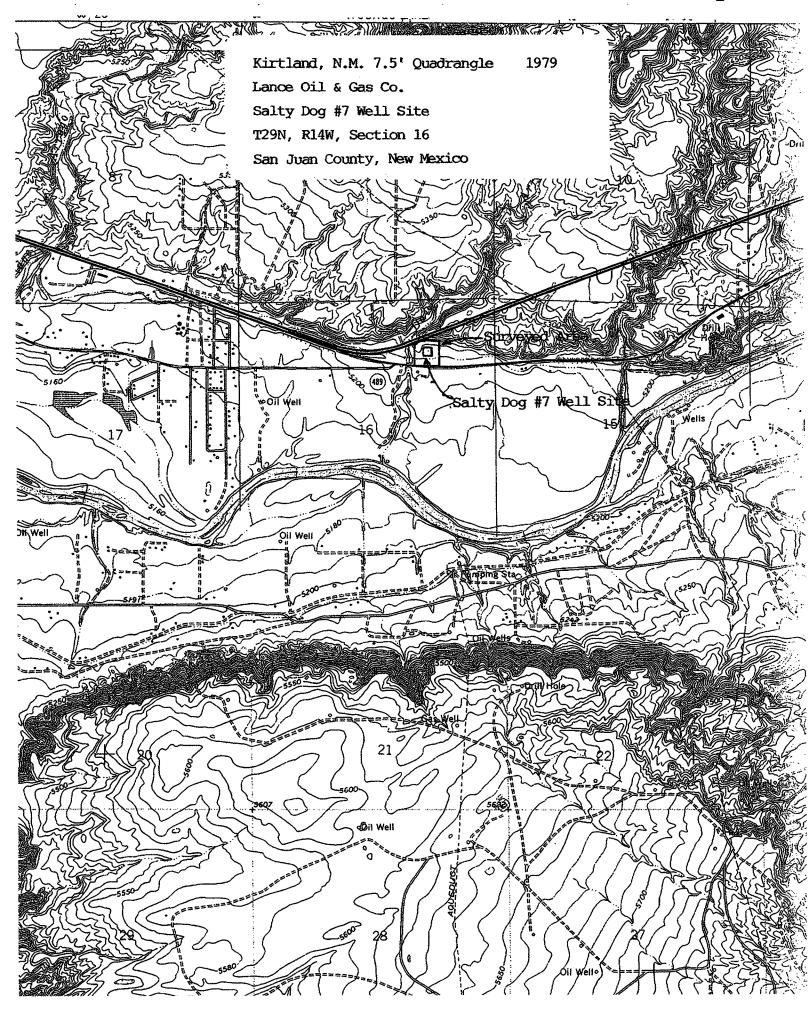
- b. Existing Data Review: files at the BLM office in Farmington and ARMS records were checked. No archeological sites have been recorded within 1000' of the project area.
- c. Area Environmental / Cultural Setting: The well pad is located in flat terrain on the second terrace above the San Juan River and ca. 1/2 mile north of the river. Hwy. 550 is along the north side of the surveyed area, a county road is along the south side, and an existing well pad is along the west side. Virtually all of the area has been disturbed from hwy, and road construction, an irrigation ditch, and the well pad. Vegetation consists of greasewood, saltbush, rabbitbrush, knapweed, grasses. Russian thistle, tamarisk, and willows. Sediments are alluvial sand and gravels and cobbles.



The cultural resources in the general project vicinity vary and may include small habitations to special use type sites with periods of occupation ranging from Archaic to Historic (including Navajo sites), although most sites are affiliated with an Anasazi occupation (ca. 500-1200 A.D.), which are primarily manifested by lithic and sherd scatters with or without use features. Site density is relatively low.

- **d. Field Methods:** A series of transects spaced 15m apart were walked across an area 505 x 560' surrounding the well center stake. The surveyed area includes a 50' wide construction zone and a 100' wide buffer zone around the well site. Access is via an existing road which goes to the Ropco 16 #1 well located along the west side of the proposed well. The well was staked and flagged prior to the survey.
  - e. Artifacts Collected? no
- 15. Cultural Resource Findings (isolates only)
  - a. Location / Identification of Each Resource:
  - b. Evaluation of Significance of Each Resource (above):
- 16. Management Summary (Recommendations):

archeological clearance recommended



APA Number

Pool Code

Ø001/001

# State of New Mexico Energy. Minerals & Mining Resources Department OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe. NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C - 102

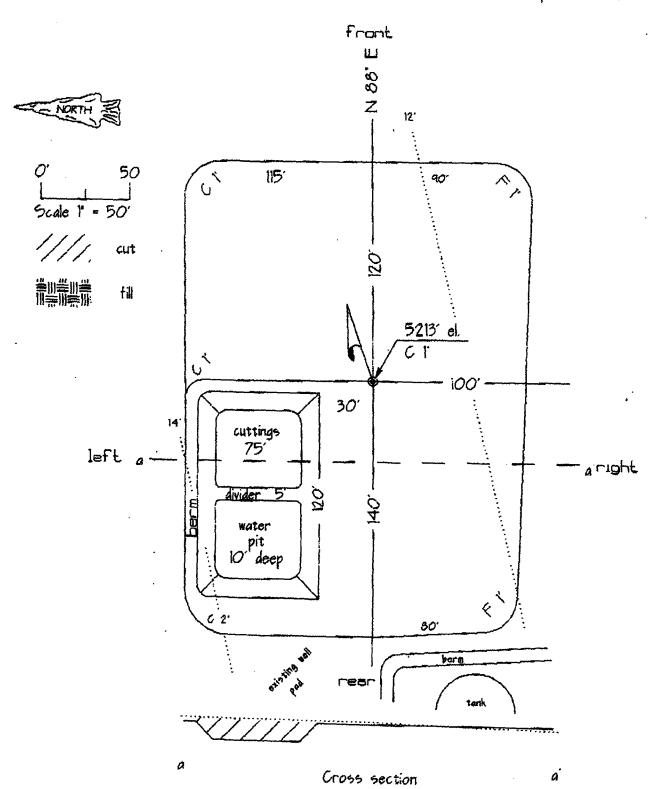
MENDED REPORT

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Fax:970-565-3330

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Salty Dog # 5
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22491 ROAD D6, CORTEZ, COLORADO 81321 TELE. (970) 564-9278 FAX 564-5819

December 15, 2004

Mr. Paul Lehrman Lance Oil & Gas Co. P.O. Box 70 Kirtland, New Mexico 87417

#### Mr. Lehrman:

Please find enclosed a copy of the archeological survey report requested by the N.M. State Lands Office for your Salty Dog #5 well. They received the negative report on the BLM survey form, but requested that the report be on their form and also a State NMCRIS activity form be completed. If you have any questions please give me a call.

Sincerely,

Patrick Harden

22491 Road D6, Cortez, Colorado 81321 Tele. (970) 564-9278 FAX 564-5819

December 15, 2004

Mr. David Eck N.M. State Lands Office P.O. Box 1148 Santa Fe, New Mexico 87504

Mr. Eck:

Please find enclosed two copies each of the archeological survey report for Lance Oil & Gas Co.'s Salty Dog #5 well located in San Juan County, New Mexico. Per your request the report has been done on the State Land Negative Survey Report Form. Also enclosed is the Laboratory of Anthropology Investigation Record. If you have any questions please give me a call.

Sincerely,

Patrick Harden

Copy To: Lance Oil & Gas Co.

### STATE LAND NEGATIVE SURVEY REPORT FORM

- 1. Type of project and brief description: well pad 205 x 260' in size
- 2. Agency Project Number:
- 3. Report Title: Salty Dog #5 Well Survey
- 4. Report Number: WAS 0470
- 5. Author: Patrick Harden
- 6. Cultural Resource Consultant:

a. Company: Western Archeological Services

b. Address: 22491 Rd. D6, Cortez, Colo. 81321

c. Phone Number: 970-564-9278d. Field Supervisor: Patrick Harden

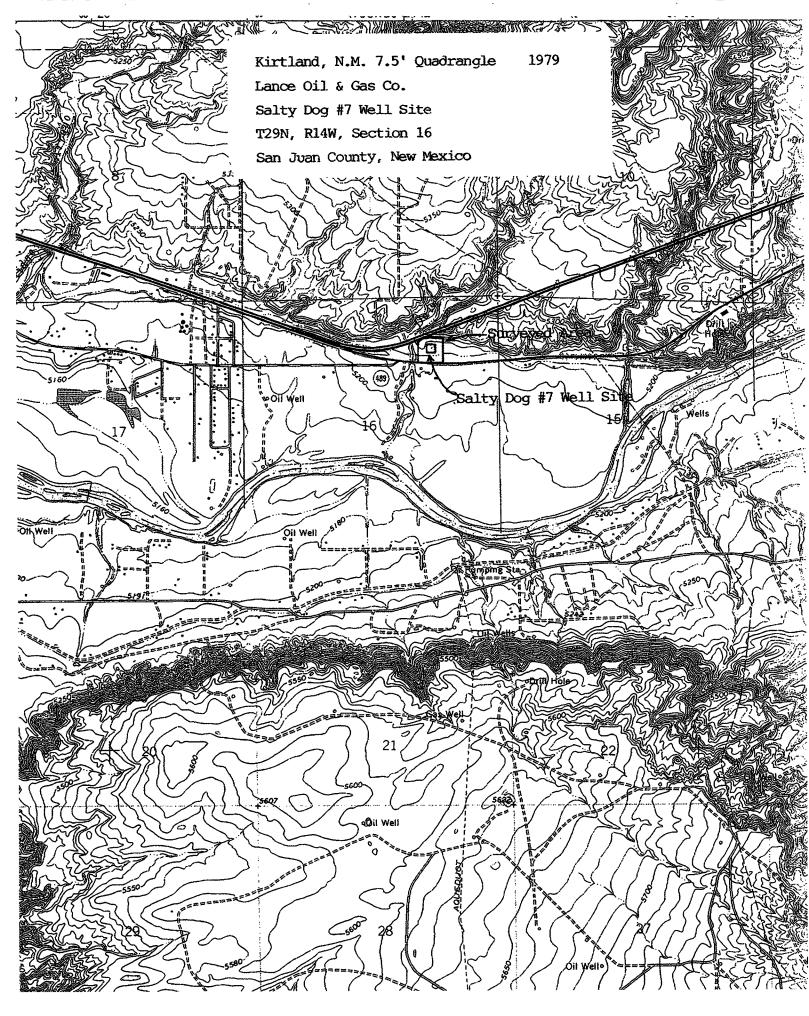
e. Field Personnel: same

- 7. Permit Number:
  - a. State Land No.: 04-059
  - b. Other Agency No.:
- 8. NMCRIS Project Number: 91062
- 9. Sponsor name, address, phone: Lance Oil & Gas, PO 70, Kirtland, NM
- 10. Acreage by Land Status:
  - a. Federal:
  - b. State: 6.5
  - c. Private:
  - d. Total Number Acres:
- 11. Location (Attach map):
  - a. County: San Juan
  - b. Nearest Town: Kirtland
  - c. Legal Description: T29N, R14W, Sec. 16 (NW NE)
  - d. 7.5' Map Name: Kirtland
  - e. Size of Survey Area (LxW): 505 x 560
- 12. Date of Records Search: 11/4/04
  - a. NMCRIS: 11/4/04; 12/15/04
  - b. Other Records: 11/4/04
- 13. LA# & Site Types Within 1 Mile of Project: LA8294: Anasazi Hab.; 31263: unknown prehistoric; 131468: Anasazi scatter with feature; 131469: unknown artifact scatter; 134927: Anasazi artifact scatter

- 14. Cultural Overview References & Recent Major Research: Gallegos Mesa Settlement and Subsistence: A Set of Explanatory Models for Cultural Resources on Blocks VIII, IX, and XI, Navajo Indian Irrigation Project, vol. I. Vogler, Gilpin, and Anderson, eds. (1982); Overview and Research Design for the Fruitland Coal Gas Development Area. Hogan, Elyea, & Eschman (1991). Archaeological Investigations in the Fruitland Project Area: Late Archaic, Basketmaker, Pueblo I, and Navajo Sites in Northwestern New Mexico, vol. II: The Late Archaic Sites. Hovezak and Sesler (2002).
- 15. Environmental Setting (note amount vegetation cover): The well site is located in flat terrain on the second terrace above the San Juan River and ca. 1/2 mile north of the river. Virtually all of the area has been disturbed from hwy. and road construction, an irrigation ditch, and an existing well pad. Vegetation consists of greasewood, saltbush, rabbitbrush, knapweed, grasses, Russian thistle, tamarisk, and willows. Ground exposure is ca. 50%.
- 16. Condition of Survey Area (grazed, bladed, undisturbed, etc.): 90-100% disturbed from above noted factors
- 17. Percent Ground Visibility: 50%
- 18. Field Methods:
  - a. Transect Interval: 15m
  - b. Crew Sitze: 1
  - c. Time in Field: 2 hrs.
- 19. Survey Results (include possible reasons for lack of sites): no cultural resources found
- 20. Attachments:
  - a. Location Map yes
  - b. Table of Isolated Occurrences n/a
  - c. Bridge Photos! (if older than 1971 and no effect) no
  - d. NMCRIS Project/Activity Form yes
  - e. Historic Cultural Properties Inventory Form, if applicable no
  - f. Cover Letter From Sponsoring Agency no

I certify that the information provided above is correct and accurate and meets all New Mexico State Land guidelines.

PI	Allente	12/15/04
	Signature	Date



## LABORATORY OF ANTHROPOLOGY INVESTIGATION RECORD

1. PROJECT AND	ACTIVITY DATA							
NMCRIS NO.:	91062							
Sponsoring Agency:	Lance Oil & Gas							
Project ID Number:	Project ID Number: Project Name: Salty Dog #5							
Description of Under	Description of Undertaking (optional):							
Other Permitting Ages	ncies:	•						
Performing Agency:	Performing Agency: Western Archeological Services							
Activity ID Number:	WAS 0470 Activit	y Name: Salty D	og #5					
Dates Of Investigation	n: 10/25, 11/18/04							
Investigation Type:	[] research design	[] excavations	[] monitoring/assessment					
•	[] overview	[x] survey	[] ethnographic study					
	[] test excavations	[] collections/nor	n-field studies					
	[] other							
Description of Invest	igation (optional):							
2. SURVEY DATA								
Total Area Surveyed:	6.5 acres Total	Activity Area (if<	100% coverage): acres					
Total Tribal Area:	acres							
Intensity:	[x]100% coverage	[] < 100%	6 coverage					
Configuration:	[x] block survey	[] linear survey	[] other survey					
Scope:	[x] non-selective (all s	ites recorded)	selective (selected sites recorded)					
Coverage Method:	[] systematic pedestri	ian []	other					
Survey Interval: 15	meters	Crew Siz	æ: 1					
Survey Person Hours: 2 Site Recording Person Hours:								
Source Graphics:								
[x] USGS 7.5 [] other topos [x] GPS Unit [] other source	maps Garmin 12 GPS A	[] unrecti	ed aerial photos ified aerial photos [x] 1-10m [] < 10m					

RV 010\019

Survey Results:

Sites Discovered and registered:

Previously Recorded Sites:

**Total Sites:** 

0

0

Total Isolated Occurrences:

0

Surveyed Land Ownership:

Owner Acres Surveyed

State Trust

6.5

Counties Surveyed: San Juan

Surveyed USGS Quadrangles

Quadrangle Name/Date

USGS Code

Kirtland, NM 1979

36108-F3

