

DATE IN 1/24/2018	SUSPENSE	ENGINEER MAM	LOGGED IN 1/24/2018	TYPE SAD	APPROVAL PMM1802954235
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505



ED OCD

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

SAD 1716
 - Ray Westall
 Operating
 119305
 Well
 - Empire Deep
 24 Red #2
 30-015-32252

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners
 [B] ☒ Offset Operators, Leaseholders or Surface Owner
 [C] ☒ Application is One Which Requires Published Legal Notice
 [D] ☒ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
 [E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,
 [F] ☐ Waivers are Attached

POU
 - 520 Jcisco
 96019

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Ben Stone		Agent for Ray Westall Operating, Inc. 1/22/18	
Print or Type Name	Signature	Title	Date
		ben@sosconsulting.us	
		e-mail Address	



January 22, 2018

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

Attn: Oil Conservation Division, Director

Re: Application of Ray Westall Operating, Inc. to permit for salt water disposal the Empire Deep 29 Federal SWD Well No.2, API No.30-015-32252 located in Section 29, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

Dear Sir or Madam,

Please find enclosed form C-108 Application for Authority to Inject, supporting the above-referenced request to covert for disposal, the Empire Deep 29 Federal Well No.2.

Ray Westall Operating seeks to optimize efficiency, both economically and operationally, of its operations. Approval of this application is consistent with that goal as well as the NMOCD's mission of preventing waste and protection of correlative rights.

Published legal notice ran in the January 21, 2018 edition of the Artesia Daily Press and all offset operators and other interested parties have been notified individually. The legal notice affidavit will be forwarded when received. This application also includes wellbore schematics, area of review maps, leaseholder plats and other required information for a complete Form C-108. The well is located on federal land and minerals and a copy of this application has been submitted to the Bureau of Land Management, CFO Oil and Gas Division.

I respectfully request that the approval of this salt water disposal well proceed swiftly and if you or your staff requires additional information or has any questions, please do not hesitate to call or email me.

Best regards,

Ben Stone, Partner
SOS Consulting, LLC
Agent for Ray Westall Operating, Inc.

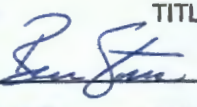
Cc: Application attachment and file

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: **Salt Water Disposal** and the application **qualifies** for administrative approval.
- II. OPERATOR: **Ray Westall Operating, Inc. Ogrid - 119305**
ADDRESS: **P.O. Box 4, Loco Hills, NM 88255**

CONTACT PARTY: **Donnie Mathews (575) 677-2372**
Agent: SOS Consulting, LLC – Ben Stone (903) 488-9850
- III. WELL DATA: **All well data and applicable wellbore diagrams are ATTACHED hereto.**
- IV. **This Is not an expansion of an existing project.**
- V. **A map is ATTACHED** 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. **A tabulation is ATTACHED** of data on all wells of public record within the area of review which penetrate the proposed injection zone. **(1 AOR well penetrates the subject interval – Active SWD.)** The data includes a description of each well's type, construction, date drilled, location, depth, and a schematic of any plugged well illustrating all plugging detail.
- VII. **The following data is ATTACHED** on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. 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.).
- *VIII. **Appropriate geologic data on the injection zone is ATTACHED** 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. **The well may be acidized to clean perforations and formation.**
- *X. **There is no applicable test data on the well however, any previous well logs have been filed with the Division and they need not be resubmitted. A log strip of subject interval is ATTACHED.**
- *XI. **State Engineer's records indicate there is 1 water well within one mile the proposed SWD.**
- XII. **An affirmative statement is ATTACHED that available geologic and engineering data has been examined and no evidence was found** of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. **"Proof of Notice" section on the next page of this form has been completed and ATTACHED.**
There are 6 offset and/or operators plus federal and state minerals within one mile - all have been noticed.
- 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: **Ben Stone** TITLE: **SOS Consulting, LLC agent / consultant for Ray Westall Operating, Inc.**

SIGNATURE:  DATE: **1/22/2018**

E-MAIL ADDRESS: **ben@sosconsulting.us**

* 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 -- *The following information and data is included and ATTACHED:*

- 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 *pursuant to the following criteria is ATTACHED.*

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.

C-108 - Items III, IV, V

Item III - Subject Well Data

Wellbore Schematic – PROPOSED

The well is currently a non-economic gas well producing <25mcf/d.

Item IV – Tabulation of AOR Wells

Tabulation includes all construction data for all wells within a one-half mile Radius of the subject well and which penetrate the proposed interval.

There is only one well completion which penetrates the proposed disposal interval; it is a SWD completed in the Strawn formation.

Item V – Area of Review Maps

1. Two Mile AOR Map with One-Mile Fresh Water Well Radius
2. One-Half Mile AOR Map

All Above Exhibits follow this page.



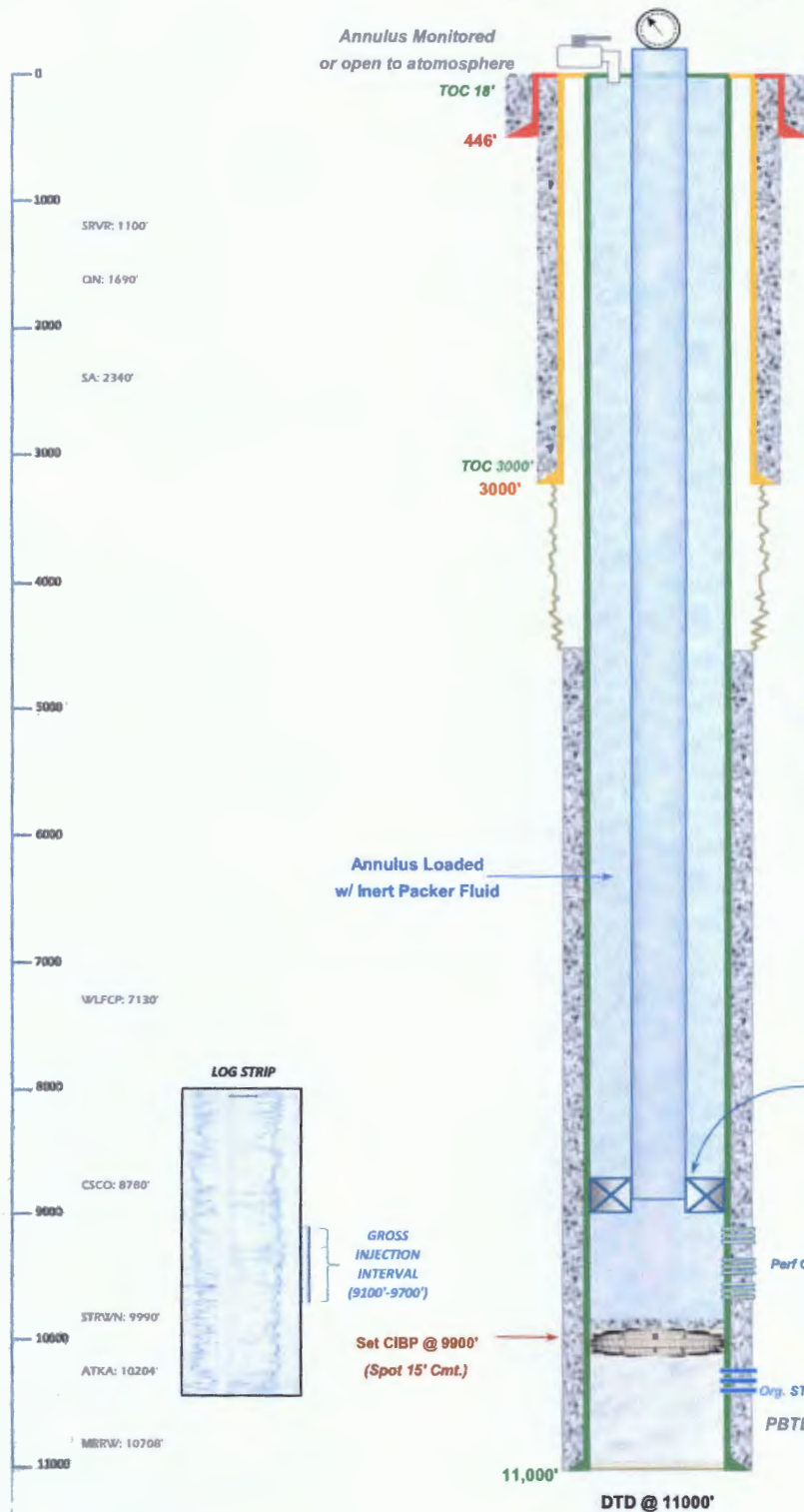
WELL SCHEMATIC - PROPOSED Empire Deep 29 Federal Well No.2 SWD

SWD; Cisco (96099)

API 30-015-32252

660' FSL & 660' FWL, SEC. 29-T17S-R29E
EDDY COUNTY, NEW MEXICO

Spud Date: 3/28/2002
Config SWD Dt (Est): ~4/15/2



Injection Pressure Regulated
and Volumes Reported
1830 psi Max. Surface (0.2 psi/ft)

Surface Casing

13.375", 48.0# H-40 STC Csg. (17.5" Hole) @ 446'
491 sx - Circulated to Surface

Intermediate Casing

9.625", 40.0# J-55 Csg. (11.0" Hole) @ 3000'
1025 sx - Circulate to Surface

RAY WESTALL OPERATING, INC.

Convert to SWD: Pull Existing Production Equipment.

Set CIBP @ 9900 w/ 50' Cmt Cap.

Perforate Specific Intervals TBD.

Run PC Tubing and PKR - Conduct MIT.

Commence Disposal Operations.

2.875" IC Tubing (or smaller)

PKR ~9000'

Note: PKR Set 100' Above Final Uppermost Perf Interval.

Specific Perf Intervals To Be Determined

Between Max Top 8066' and Max Bottom 8271'

Perf CISO (9100'-9700')

Production Casing

5.5", 17.0# P-110 Csg. (8.75" Hole) @ 11,000'
1905 sx - TOC @ 4500' by Calc.

Org. STRWN Perfs: 10124-10142'

PBTD 10,485'

Drawn by: Ben Stone, 1/22/2018





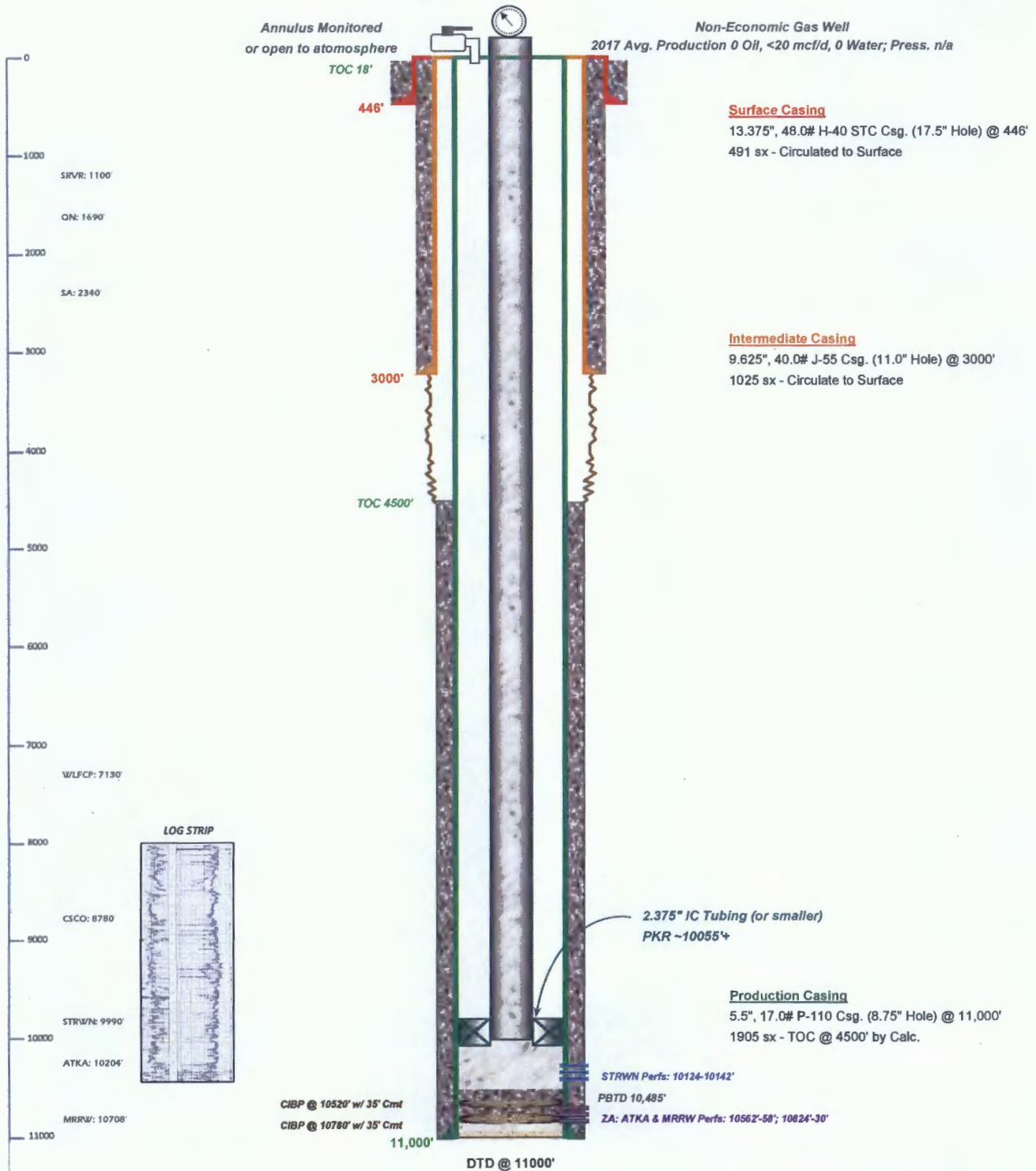
WELL SCHEMATIC - CURRENT Empire Deep 29 Federal Well No.2

Non-Economic Gas Well
API 30-015-32252

660' FSL & 660' FWL, SEC. 29-T17S-R29E
EDDY COUNTY, NEW MEXICO

Empire Morrow, South (76400)

Spud Date: 3/28/2002



Drawn by: Ben Stone, 1/30/2018



Form C-108 Item VI - Tabulation of AOR Wells

Top of Proposed CISCO Interval 9100'

One (1) Well Penetrates Proposed Interval.

API	Subject Well	Current Operator	Well Name	Well Number	Type	Lease	Status	ULSTR	Depth	Plugged On
30-015-32252		[119305] RAY WESTALL OPERATING, INC.	EMPIRE DEEP 29 FEDERAL	#002	Gas	Federal	Active	M-29-175-29E	11000	

See attached CURRENT and PROPOSED Wellbore Diagrams.

Section 29 Wells

30-015-03180	[873] APACHE CORP	EMPIRE ABO UNIT	#049	Injection	Federal	Active	E-29-175-29E	6300'
30-015-30302	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#005	Oil	Federal	Active	E-29-175-29E	5474'
30-015-32368	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#015	Oil	Federal	Active	E-29-175-29E	5840'
30-015-32134	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#011	Oil	Federal	Active	F-29-175-29E	4485'
30-015-21748	[371786] TRINITY ENVIR'NMENTAL SWD I, LLC	GREEN A FEDERAL	#010	SWD	Federal	Active	K-29-175-29E	*11000'
STRAWN Perfs: 9220'-9600'; *P8TD 9700'; 11.75" (15.0" hole) @ 333 w/ Circ.; 8.625" (11.0" hole) @ 2674' w/ 300 sx - TOC @ 680'; 5.5" (7.875" hole) @ 9705' w/ 1630 sx - TOC @ 1750' CBL.								
30-015-03184	[873] APACHE CORP	EMPIRE ABO UNIT	#050	Injection	Federal	Active	K-29-175-29E	6289'
30-015-30031	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#001	Oil	Federal	Active	K-29-175-29E	5701'
30-015-30450	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#003	Oil	Federal	Active	K-29-175-29E	5020'
30-015-31989	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#010	Oil	Federal	Active	K-29-175-29E	5807'
30-015-32318	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#014	Oil	Federal	Active	K-29-175-29E	4541'
30-015-32243	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#012	Oil	Federal	Active	L-29-175-29E	5319'
30-015-31988	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#009	Oil	Federal	Active	L-29-175-29E	5520'
30-015-30451	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#004	Oil	Federal	Active	L-29-175-29E	5365'
30-015-30301	[229137] COG OPERATING LLC	SCHLEY FEDERAL	#002	Oil	Federal	Active	L-29-175-29E	5432'
30-015-03185	[990] ARCO PERMIAN	EMPIRE ABO UNIT	#049	Injection	Federal	P&A	L-29-175-29E	6294'
30-015-25132	[371484] ROVER OPERATING, LLC	SACKETT FEDERAL	#001	Oil	Federal	Active	M-29-175-29E	3389'
30-015-25502	[371484] ROVER OPERATING, LLC	SACKETT FEDERAL	#002	Oil	Federal	Active	N-29-175-29E	3263'
30-015-03183	[214263] PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL	#008	Oil	Federal	P&A	N-29-175-29E	2708'
								1/1/1900

Section 30 Wells

30-015-34771	[229137] COG OPERATING LLC	NAVAHO FEDERAL	#007	Oil	Federal	Active	I-30-175-29E	5415'	
30-015-34815	[229137] COG OPERATING LLC	WESTERN FEDERAL	#008	Oil	Federal	Active	H-30-175-29E	5775'	
30-015-30839	[229137] COG OPERATING LLC	NAVAHO FEDERAL	#002	Oil	Federal	Active	J-30-175-29E	4515'	
30-015-35022	[229137] COG OPERATING LLC	CHEYENNE FEDERAL	#004	Oil	Federal	Active	O-30-175-29E	5800'	
30-015-42392	[229137] COG OPERATING LLC	CHEYENNE FEDERAL	#006	Oil	Federal	New	O-30-175-29E	6000'	
30-015-30710	[229137] COG OPERATING LLC	CHEYENNE FEDERAL	#002	Oil	Federal	Active	P-30-175-29E	5300'	
30-015-34472	[229137] COG OPERATING LLC	CHEYENNE FEDERAL	#003	Oil	Federal	Active	P-30-175-29E	5475'	

Section 32 Wells

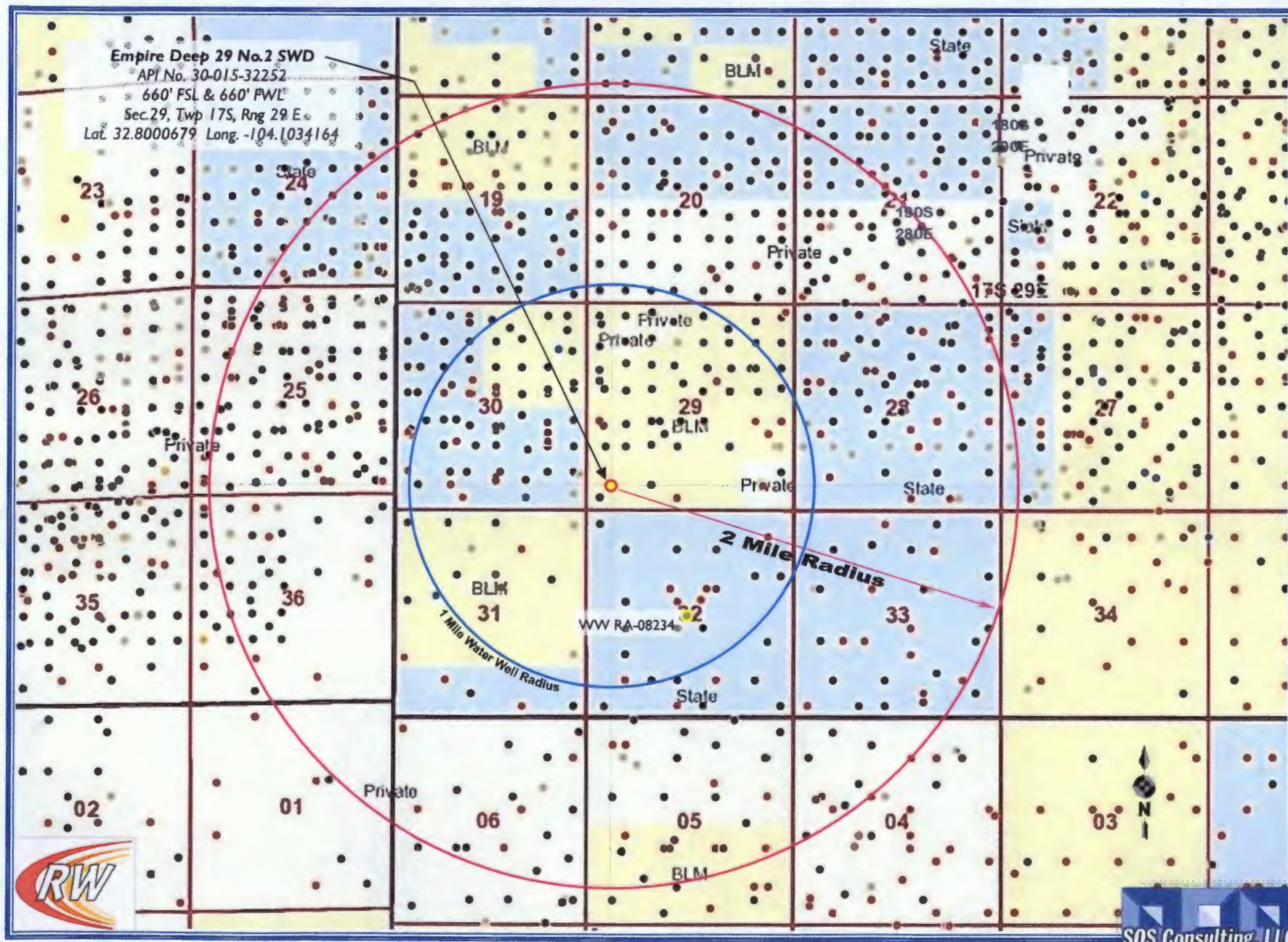
30-015-03203	[236183] TANDEM ENERGY CORPORATION	OLD LOCO UNIT	#003	Injection	State	Active	C-32-175-29E	2673'	
30-015-03204	[236183] TANDEM ENERGY CORPORATION	OLD LOCO UNIT	#004	Oil	State	Active	D-32-175-29E	2777'	
30-015-25239	[236183] TANDEM ENERGY CORPORATION	OLD LOCO UNIT	#025	Oil	State	Active	D-32-175-29E	2830'	

SUMMARY: 1 well penetrates proposed disposal interval; it is an SWD.



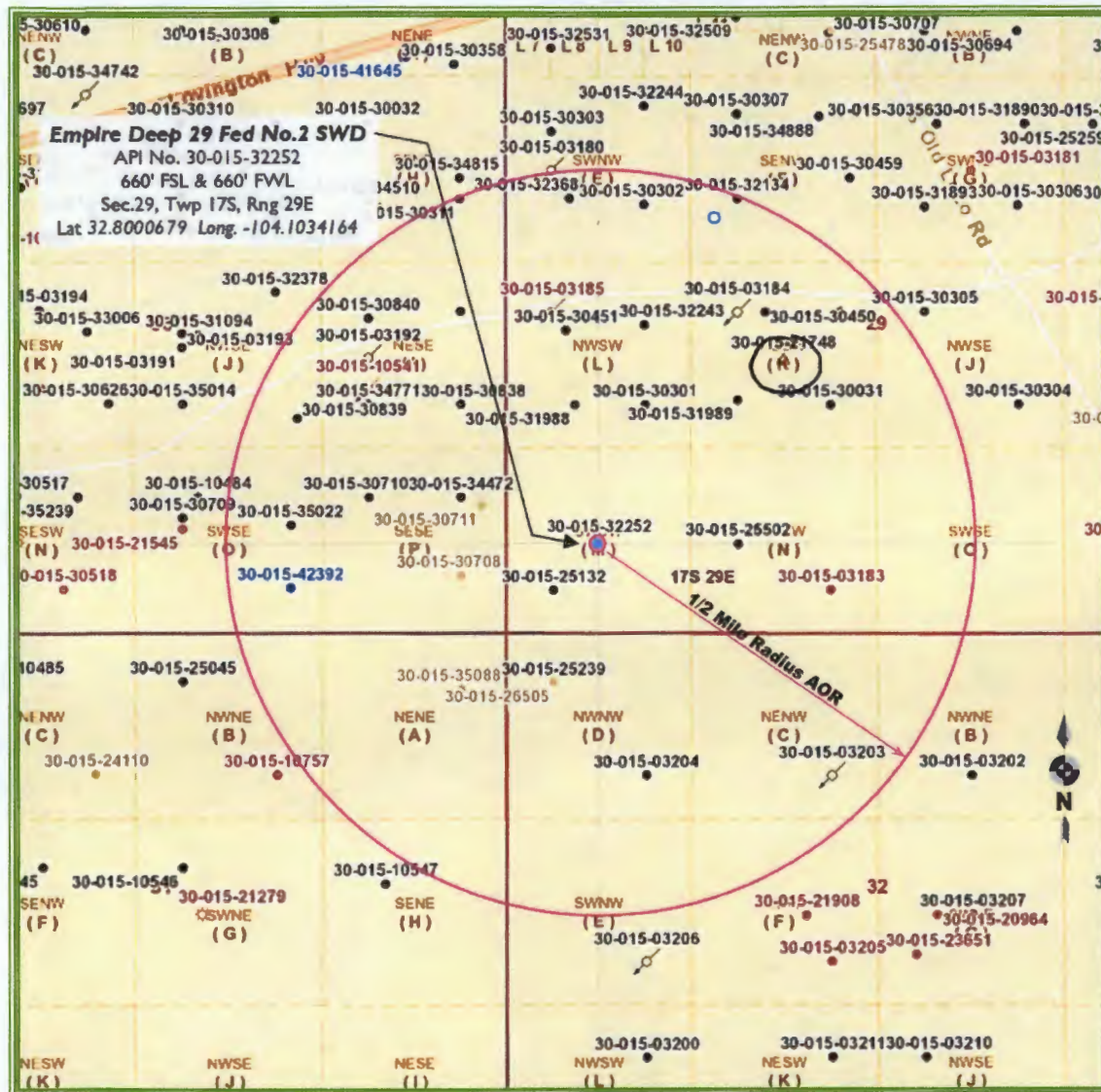
Empire Deep 29 No.2 SWD - Area of Review - 2 Miles

(Attachment to NMOCD Form C-108 - Item V)



Empire Deep 29 Federal No.2 SWD - Area of Review / Overview Map

(Attachment to NMOCD Form C-108 - Item V)



8.9 miles W/SW of Loco Hills, NM



Eddy County, New Mexico



RAY WESTALL OPERATING, INC.



C-108 ITEM X – LOGS and AVAILABLE TEST DATA

A log strip from subject well is attached.

LOG STRIP FOLLOWS

BAKER HUGHES

COMPENSATED Z-DENS LOG

COMPENSATED NEUTRON LOG

GAMMA RAY LOG

FILE NO: 5823

API NO: 30-015-32152

COMPANY: SOUTHWESTERN ENERGY PRODUCTION COMPANY

WELL: EMPIRE DEEP "29" TED COM #2

FIELD: EDDY

COUNTY: STATE NM

LOCATION: 560' FSL & 650' FRL

OTHER SERVICES: D.L./M.L.

PERMANENT DATUM: G.A. ELEVATION 3605 FT

LOG MEASURED FROM: K.B. 13.5 FT ABOVE P.D.

DRILL MEAS. FROM: K.B.

ELEVATIONS: K.B. 3612.5 FT, D.F. 3617.5 FT, CL 3605 FT

DATE: 25-APR-2002

RUN: 1

TRIP: 1

SERVICE ORDER: 39475

DEPTH DRILLER: 11000 FT

DEPTH LOGGER: 10998 FT

BOTTOM LOGGED INTERVAL: 10963 FT

TOP LOGGED INTERVAL: SURFACE

CASING DRILLER: 8.625 IN

CASING LOGGER: 3004 FT

BIT SIZE: 8.75 IN

TYPE OF FLUID IN HOLE: SOL. GEL/STARCH

DENSITY: 9.9 LB/G

PH: 4.5

SOURCE OF SAMPLE: FLOMLINE

RM AT MEAS. TEMP.: 0.086 OHM

RM AT MEAS. TEMP.: 86.2 DEGF

RM AT MEAS. TEMP.: 0.086 OHM

RM AT MEAS. TEMP.: 86.2 DEGF

SOURCE OF REF: RMC

RM AT BHT: 0.039 OHM

RM AT BHT: 14.3 DEGF

TIME SINCE CIRCULATION: 8 HOURS

MAX. RECORDED TEMP.: 14.3 DEGF

EQUIP. NO.: HL - 6611

RECORDED BY: M. BACA

WITNESSED BY: JEFFREY SMITH

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD			
BIT SIZE	FROM	TO	
17.5 IN	0 FT	445 FT	
12.25 IN	445 FT	3000 FT	
8.75 IN	3000 FT	11000 FT	

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
13.375 IN			0 FT	445 FT
9.625 IN			0 FT	3000 FT

REMARKS

RUN 1 TRIP 1: NAEL = 102107 PPM CL = 52071 PPM

1) ZDL-C/CN/GR/DLL/M.L. RAN IN COMBINATION

2) BVOL IS BOREHOLE VOLUME IN CU-FT

3) CVOL IS BVOL BOREHOLE VOLUME - 5.5 IN CASING OD IN CU-FT

+++CREW: LPEREZ/JMATA/AGUSTINUS

RIG: PATTERSON #510

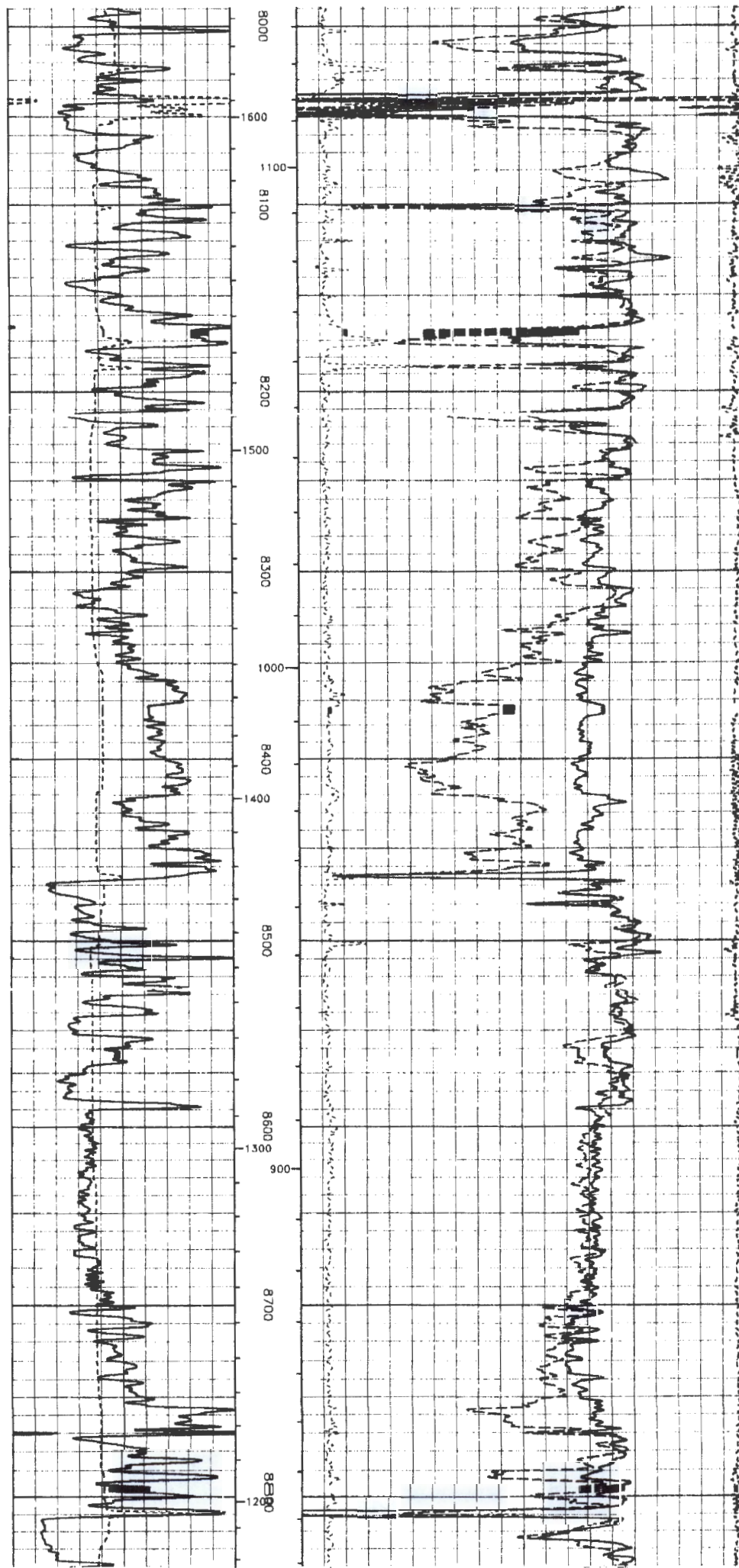
EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	CN/ZDL-C	2448/2228	173998/185960	DECENT
1	1	ZDL/ZDL-C	2228	183460/185981	PINNED-PAD/1-ARM OPEN
1	1	SLAO/ISO	3516/3967	188195/170313	FREE
1	1	DLL-L/DLL	1239CA/MA	379178/02499	CENT
1	1	M.L.	3104	113138	PAD-DEVICE
1	1	WTS/GR	3510/1329	178177/179409	FREE

INSTRUMENT CONFIGURATION

Source File: /data/9523/elom-tdg

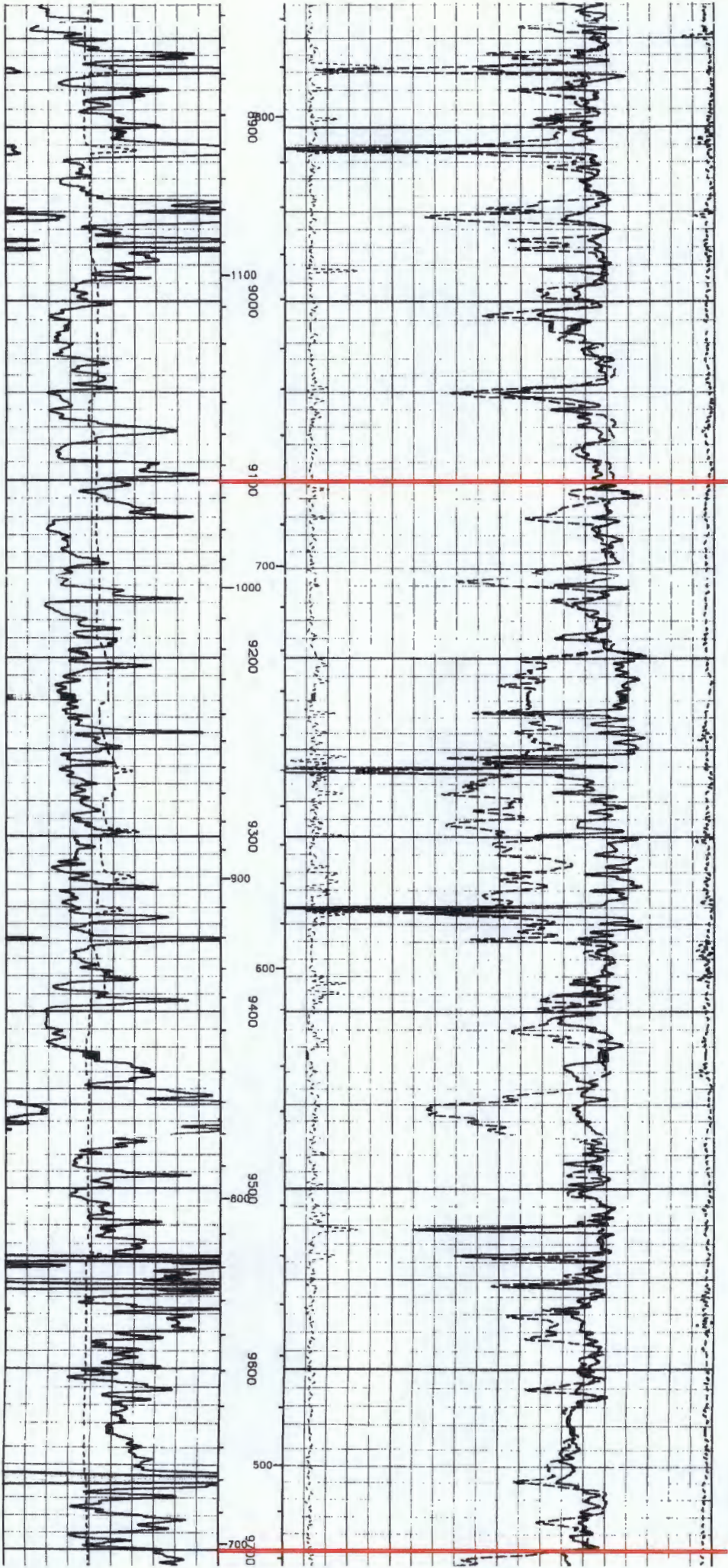
CABLEHEAD
 Measured: CBLH
 Diameter: 3.38"
 Measure Point: 2.75' CABLEHEAD TOP

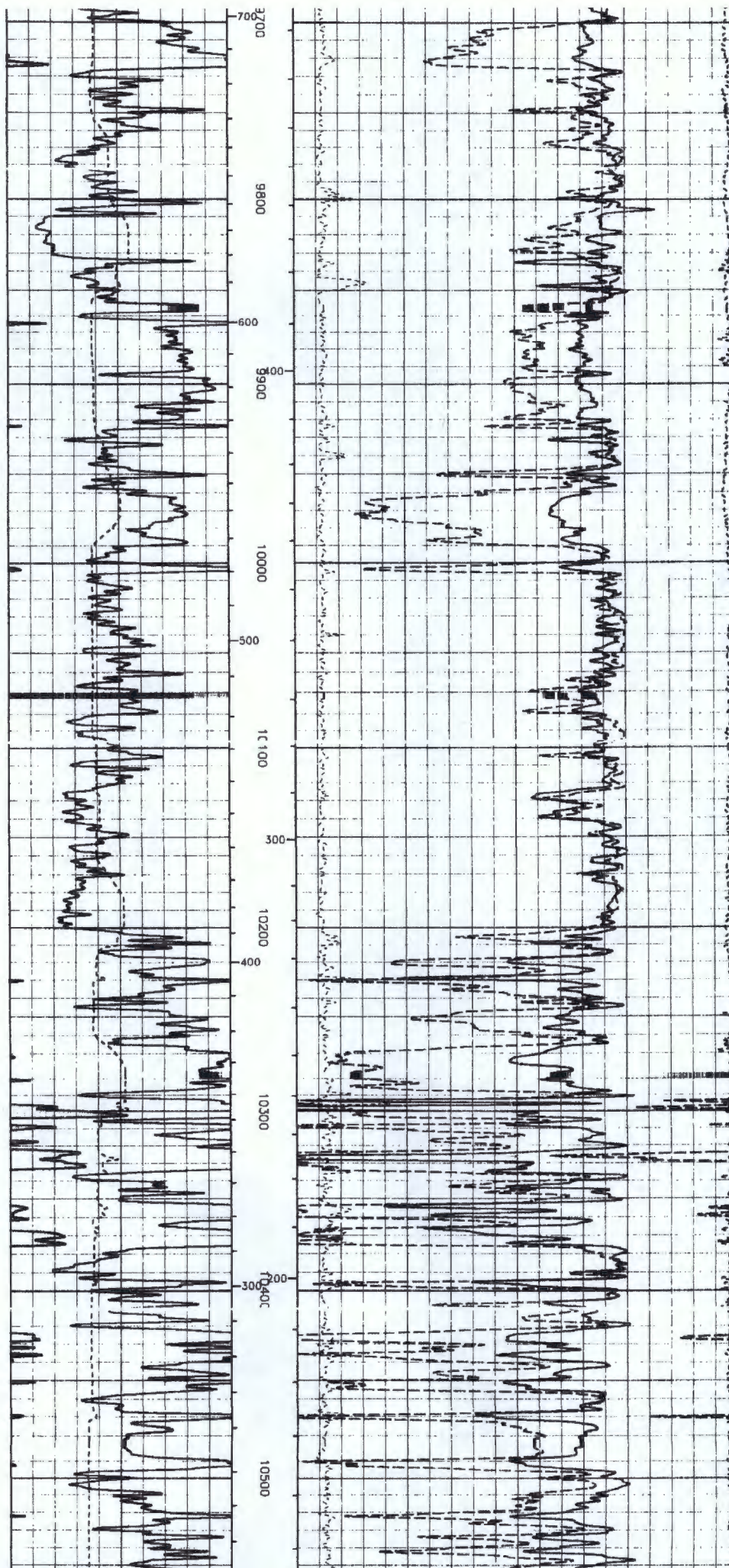
CABLEHEAD TOP 103.63'



TOP OF
PROPOSED
INJECTION
INTERVAL

BOTTOM OF
PROPOSED
INJECTION
INTERVAL





C-108 ITEM VII – PROPOSED OPERATION

The Empire Deep 29 Federal No.2 SWD will be operated as a commercial disposal service to area operators to facilitate in disposal of produced water from typical producing formations in the area. (Samples are included in this application from Yates, Queen and Delaware formation waters - chlorides and TDS are relative compatible with Cisco waters.)

The system will be closed utilizing a tank battery facility located on the well site and possible future delivery via pipeline.

Injection pressure will be 1830 psi with rates limited only by that pressure but are not expected to be greater than approximately 5000 bwpd. In the future, Ray Westall Operating, Inc. may opt to conduct a step rate test if it is determined that greater rates may be required. This would be submitted to OCD as a request to increase the injection pressure.

Routine maintenance will be ongoing and any releases will be reported within 24 hours to OCD on form C-141 pursuant to various portions of 19.15.30 NMAC.

The facility will not be manned but will be available to Ray Westall's customers 24/7. The facility will be available for inspections at any time deemed necessary by OCD.

C-108 ITEM VII – PRODUCED WATER ANALYSES

Item VII.4 – Water Analysis of Source Zone Water

Tansil-Yates-Seven Rivers
Grayburg-San Andres
Yeso

Item VII.5 – Water Analysis of Disposal Zone Water

Cisco

Water Analyses follow this page.

C-108 Item VII.5 - Produced Water Data
Ray Westall Operating, Inc. - Empire Deep 29 Federal No.2 SWD

SOURCE ZONE

ARTESIA GROUP - TNSL-YTS-7RVRS

API No	3001502891	Lab ID	
		Sample ID	5128
Well Name	CAVE POOL UNIT 030	Sample No	
Location	ULSTR 04 17 S 29 E	Lat / Long	32.85900 -104.07829
	990 S 2310 E	County	Eddy
Operator (when sampled)			
	Field GRAYBURG JACKSON	Unit	O
Sample Date		Analysis Date	
	Sample Source TANK	Depth (if known)	
	Water Typ		
ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	227185	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	140700	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	47
iron_mgL		sulfate_mgL	900
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 Item VII.5 - Produced Water Data
Ray Westall Operating, Inc. - Empire Deep 29 Federal No.2 SWD

SOURCE ZONE

GRAYBURG-SAN ANDRES

API No	3001502873	Lab ID	
		Sample ID	5366
Well Name	GULF STATE 002	Sample No	
Location	ULSTR 03 17 S 29 E	Lat / Long	32.86987 -104.06746
	330 N 990 W	County	Eddy
Operator (when sampled)			
	Field SQUARE LAKE	Unit	4
Sample Date		Analysis Date	
	Sample Source WELLHEAD	Depth (if known)	
	Water Typ		
ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	109000	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	63070	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	339
iron_mgL		sulfate_mgL	3538
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 Item VII.5 - Produced Water Data
Ray Westall Operating, Inc. - Empire Deep 29 Federal No.2 SWD

SOURCE ZONE

YESO

		Lab ID	
API No	3001530307	Sample ID	5901
Well Name	SCHLEY FEDERAL	Sample No	
	008		
Location	ULSTR 29 17 S 29 E	Lat / Long	32.80836 -104.09972
	1580 N 1650 W	County	Eddy
Operator (when sampled)	MACK ENERGY		
	Field EMPIRE EAST	Unit	F
Sample Date	8/7/2000	Analysis Date	8/14/2000
	Sample Source	Depth (if known)	
	Water Typ		
ph	7	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity	1.135	hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	208172	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	140286	conductivity_temp_F	
sodium_mgL	87396.1	carbonate_mgL	0
calcium_mgL	3103.09	bicarbonate_mgL	611.765
iron_mgL	3.405	sulfate_mgL	3456.07
barium_mgL	0.1135	hydroxide_mgL	
magnesium_mgL	817.2	h2s_mgL	79.45
potassium_mgL	545.935	co2_mgL	
strontium_mgL	55.615	o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 Item VII.5 - Produced Water Data
Ray Westall Operating, Inc. - Empire Deep 29 Federal No.2 SWD

DISPOSAL ZONE

CIS

		Lab ID	
API No.	3001500129	Sample ID	5353
Well Name	SPRINGS SWD	Sample No	
	001		
Location	ULSTR 04 21 S 25 E	Lat / Long	32.52054 -104.39423
	660 N 830 E	County	Eddy
Operator (when sampled)			
	Field	SEVEN RIVERS HILLS	Unit 1
Sample Date		Analysis Date	
	Sample Source SWAB	Depth (if known)	
	Water Type		
ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	31485	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	17000	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	635
iron_mgL		sulfate_mgL	2500
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 - Item VIII

Geological Data

The Cisco formation (Upper Penn) consists of some sandstone and gray micritic (fine grained) fossiliferous limestone with vugular porosity; it's similar to the overlying Wolfcamp lithology. The Cisco formation in this area usually ranges from 400 to 600 feet thick.

The zone offers decent porosity in the proposed injection interval located from 9100' to 9700' with very good porosity interspersed throughout the overall interval.

The Cisco is overlain by the Wolfcamp then the Abo, Yeso, Glorieta then upwards to San Andres and Grayburg above. It is underlain by Strawn and then the Atoka.

Fresh water in the area is generally available from the Santa Rosa formation. State Engineer's records show one water well within one mile of the proposed SWD with a depth to water of 76 feet.

Samples have been taken and analysis will be forwarded when received.

C-108 ITEM XI – WATER WELLS IN AOR

The NM Office of the State Engineer database indicates there is one water well located within one mile of the proposed well.



New Mexico Office of the State Engineer Active & Inactive Points of Diversion (with Ownership Information)

(acre R per annum)						(R=POD has been replaced and no longer serves this file, C=the file is closed)										(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)			
WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	q	q	q	Sec	Twp	Range	X	Y		
RA 08234	STK		1.34	BOGLE FARMS	ED	RA 08234			6416 4	32	17S	29E				584560	3628472*		

Record Count: 1

PLSS Search:

Section(s): 29, 30, 31, 32 Township: 17S Range: 29E

Sorted by: File Number

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOS/ISC and is accepted by the recipient with the expressed understanding that the OS/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

1/16/18 3:33 PM

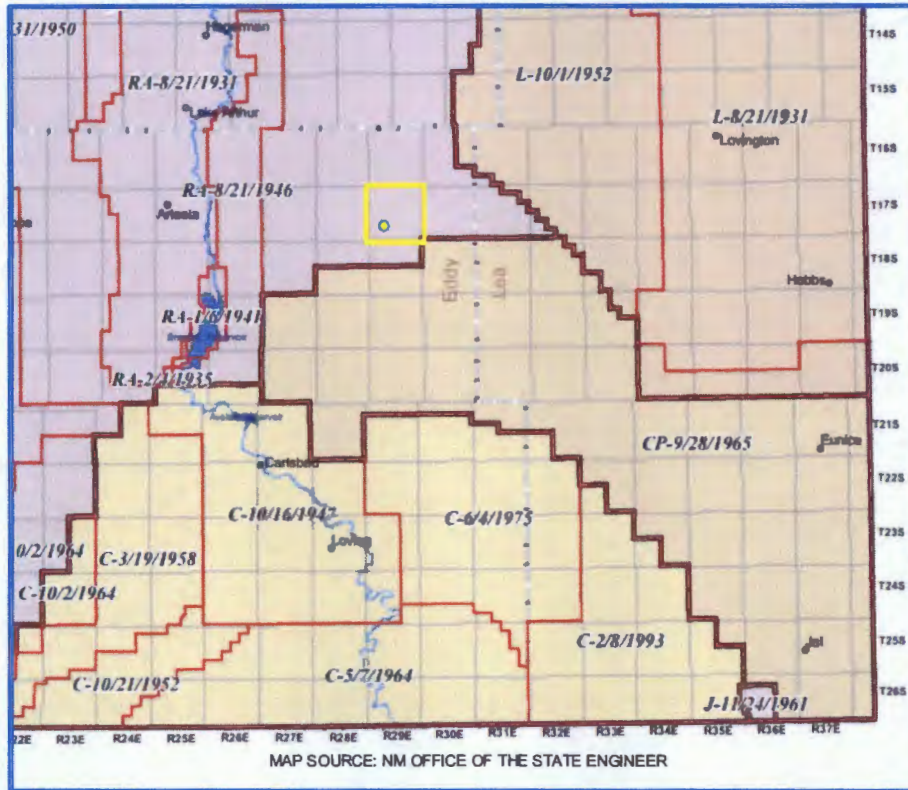
Page 1 of 1

ACTIVE & INACTIVE POINTS OF DIVERSION

The well was sampled and analysis will be forwarded when received.

C-108 - Item XI

Groundwater Basins - Water Column / Depth to Groundwater



The subject well is located within the Roswell Basin.

The Roswell Artesian Basin consists of an eastward-dipping carbonate aquifer overlain by a leaky evaporitic confining unit, overlain in turn by an unconfined alluvial aquifer. The carbonate aquifer is artesian to the east but under water-table conditions in the western outcrop area.

Water-producing zones in the carbonate aquifer rise stratigraphically from north to south and from west to east. Some wells may penetrate as many as five water-producing zones. Secondary porosity is developed in vuggy and cavernous limestone, solution-collapse breccia, and solution-enlarged fractures. Recharge occurs by direct infiltration of precipitation and by runoff from intermittent losing streams flowing eastward across a broad area east of the Sacramento Mountains. (USGS)

State Engineer's records show water wells in 29-17S-29E with an average depth to water at 76 feet.

There is one (1) water well located within one mile of the proposed SWD.

C-108 ITEM XI – WATER WELLS IN AOR

Depth to Ground Water



New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
RA 11807 POD1			ED	1	2	3	22	17S	29E	587360	3631585	131	76	55

Average Depth to Water: 76 feet

Minimum Depth: 76 feet

Maximum Depth: 76 feet

Record Count: 1

PLSS Search:

Township: 17S

Range: 29E

Elite
Well Services LLC

Water Analysis

2702 N Freeman Artesia, NM 88210
(575) 736-4411 FAX:(575)736-4958

Date: 1/30/2018
Company: Ray Westall Oper.
Wellsite: 210 Water Well
State: NM

Tank #:
Test #:
Formation
Source Well 1

pH	7.16
Specific Gravity	1.001

Temperature (F):	69.7
H ₂ S	None Detected

Cations

	mg/L	me/L	ppm
Sodium	856.67	37.28	855.82
Calcium	946.36	47.22	945.41
Magnesium	136.08	11.20	135.94
Barium	< 25	---	---
Potassium	< 10	---	---
Iron	1.00	0.04	1.00

Anions

	mg/L	me/L	ppm
Chloride	2800.00	78.98	2797.20
Sulfate	799.20	16.64	798.40
Carbonate	< 1	---	---
Bicarbonate	14.64	0.24	14.63

	mg/L	me/L	ppm
Total Solids Dissolved	5553.95		5548.41
Total Hardness as CaCO ₃	2923.58	58.42	2920.66

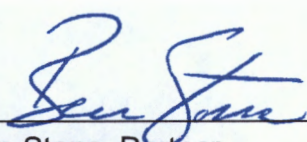
Comments

Scale Analysis

CaCO ₃ Factor	13854.71	Calcium Carbonate Scale Probability	Remote
CaSO ₄ Factor	757088	Calcium Sulfate Scale Probability	Remote

C-108 ITEM XII – GEOLOGIC AFFIRMATION

We have examined available geologic and engineering data and have found no evidence of open faults or other hydrologic connection between the disposal interval and any underground sources of drinking water.



Ben Stone, Partner
SOS Consulting, LLC

Project: Ray Westall Operating, Inc.
Empire Deep 29 Federal No.2 SWD
Reviewed 1/22/2018

C-108 ITEM XIII – PROOF OF NOTIFICATION

IDENTIFICATION AND NOTIFICATION OF INTERESTED PARTIES

Exhibits for Section

Leasehold Plat

List of Interested Parties

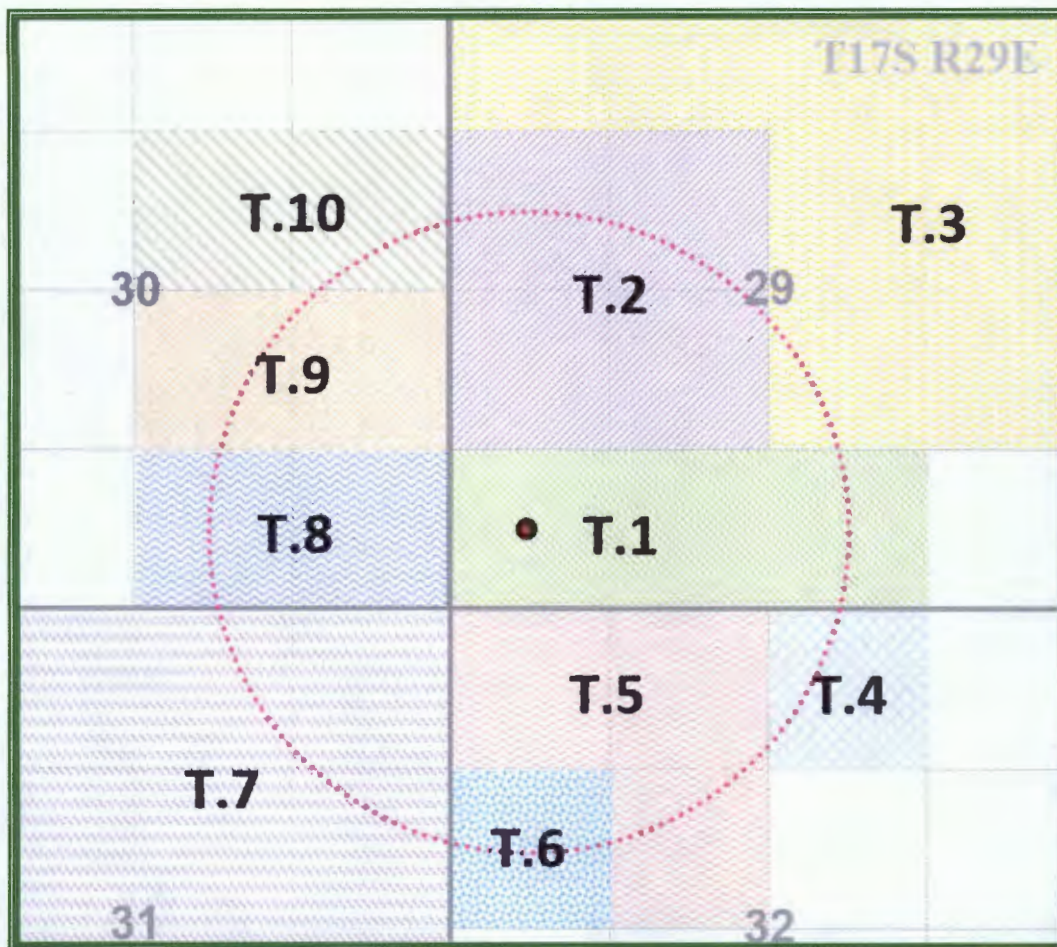
Notification Letter to Interested Parties

Proof of Certified Mailing

Published Legal Notice

Empire Deep 29 Fed Well No.2 SWD - Leasehold Plat

(Attachment to NMOCD Form C-108, Application for Authority to Inject.)



RAY WESTALL OPERATING, INC.

LEGEND

T.1 – NMNM-014847 – ConocoPhillips	T.6 – E0-7640 – COG Operating, LLC
T.2 – NMNM-029281 – ConocoPhillips	T.7 – NMNM-0555569 – ConocoPhillips
T.3 – NMNM-014840 – COG Operating, LLC	T.8 – NMLC-0062407 – Khody Land & Minerals
T.4 – OG-0181 – MRC Delaware Rcrscs, LLC	T.9 – NMNM-029269 – Khody Land & Minerals
T.5 – E0-0537 – Chase Oil Corporation	T.10 – NMNM-028480A – COG Operating, LLC

C-108 ITEM XIII – PROOF OF NOTIFICATION INTERESTED PARTIES LIST

SOS Consulting is providing electronic delivery of C-108 applications.

**ALL APPLICABLE AFFECTED PARTIES ARE PROVIDED A LINK IN THE NOTICE LETTER
TO A SECURE CITRIX SHAREFILE SITE TO VIEW AND DOWNLOAD
A FULL COPY OF THE SUBJECT C-108 APPLICATION IN PDF FORMAT.**

SURFACE & MINERALS OWNER

U.S. DEPARTMENT OF INTERIOR
Bureau of Land Management (Notified via USPS Certified Mail)
Oil & Gas Division
620 E. Greene St.
Carlsbad, NM 88220
Certified: 7015 3010 0001 3789 7442

OFFSET MINERALS LESSEES and OPERATORS (All Notified via USPS Certified Mail)

BLM Leases NMNM-014847; 029281; 0555569 (T.1, T.2 and T.7 on plat.)

Lessee

CONOCOPHILLIPS COMPANY
P.O. Box 7500
Bartlesville, OK 74005-7500
Certified: 7015 3010 0001 3789 7459

Operators

RAY WESTALL OPERATING, INC. (Applicant)
P.O. Box 4
Loco Hills, NM 88255

APACHE CORPORATION
303 Veterans Airpark Ln., Ste. 3000
Midland, TX 79705
Certified: 7015 3010 0001 3789 7466

4

COG OPERATING, LLC
Attn: Jim Bob Burnett
2208 W. Main St.
Artesia, NM 88210
Certified: 7015 3010 0001 3789 9033

ROVER OPERATING, LLC
17304 Preston Rd., Ste. 740
Dallas, TX 75252
Certified: 7015 3010 0001 3789 9040

TRINITY ENVIRONMENTAL SWD, LLC
13443 Hwy 71 West
Austin, TX 78738
Certified: 7015 3010 0001 3789 9057

**C-108 ITEM XIII – PROOF OF NOTIFICATION
INTERESTED PARTIES LIST (cont.)**

BLM Leases NMNM-014840, 028489A (T.3 and T.10 on plat.)

State Lease E0-7640 (T.6 on plat.)

Lessee & Operator

COG OPERATING, LLC
Attn: Jim Bob Burnett
2208 W. Main St.
Artesia, NM 88210

State Lease E0-0181 (T.4 on plat.)

Lessee

- 7 MRC DELAWARE RESOURCES, LLC
P.O. Box 1936
Roswell, NM 88202
Certified: 7015 3010 0001 3789 7473

Operator

- 8 TANDEM ENERGY CORP.
400 N Marienfeld, Ste.100
Midland, TX 79701
Certified: 7015 3010 0001 3789 9064

State Lease E0-0537 (T.5 on plat.)

Lessee

- 9 CHASE OIL CORPORATION
P.O. Box 1767
Artesia, NM 88211-1767
Certified: 7015 3010 0001 3789 7480

Operator

TANDEM ENERGY CORP.
400 N Marienfeld, Ste.100
Midland, TX 79701

BLM Leases NMLC-0062407; NMNM-029269 (T.8 and T.9 on plat.)

Lessee

- 10 KHODY LAND AND MINERALS COMPANY
210 Park Avenue, Ste., 900
Oklahoma City, OK 73102
Certified: 7015 3010 0001 3789 7497

Operator

COG OPERATING, LLC
Attn: Jim Bob Burnett
2208 W. Main St.
Artesia, NM 88210

**C-108 ITEM XIII – PROOF OF NOTIFICATION
INTERESTED PARTIES LIST (cont.)**

OFFSET MINERALS OWNER

- 11 STATE OF NEW MEXICO
Oil, Gas and Minerals Division
310 Old Santa Fe Trail
Santa Fe, NM 87504
Certified: 7015 3010 0001 3789 9026

REGULATORY

NEW MEXICO OIL CONSERVATION DIVISION (FedEx'ed original and copy)
1220 S. St. Francis Dr.
Santa Fe, NM 87505

NEW MEXICO OIL CONSERVATION DIVISION (FedEx'ed copy)
811 S. First St.
Artesia, NM 88210

BUREAU OF LAND MANAGEMENT (FedEx'ed copy)
Oil & Gas Division
620 E. Greene St.
Carlsbad, NM 88220



January 22, 2018

NOTIFICATION TO INTERESTED PARTIES
via U.S. Certified Mail

To Whom It May Concern:

Ray Westall Operating, Inc., Loco Hills, New Mexico, has made application to the New Mexico Oil Conservation Division to convert for salt water disposal the Empire Deep 29 Federal Well No.2. The proposed commercial operation will be for produced water disposal from area operators. As indicated in the notice below, the well is located in Section 29, Township 17 South, Range 29 East in Eddy County, New Mexico.

Disposal will be into the Cisco formation through perforations from 9100 feet to 9700 feet at a maximum surface pressure of 1820 psi.

Following is the notice published in the Artesia Daily Press, Artesia, New Mexico on or about January 21, 2018.

LEGAL NOTICE

Ray Westall, Inc., P.O. Box 4, Loco Hills, NM 88255 is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division for administrative approval to permit and convert for salt water disposal its Empire Deep 29 Federal Well No.2. The well, API No.30-015-32252 is located 660' FSL & 660' FWL in Section 29, Township 17 South, Range 29 East in Eddy County, New Mexico. Produced water from area production will be commercially disposed into the Cisco formation through selected perforated intervals between a maximum applied for top of 9100' feet to maximum depth of 9800' feet and based on further log analysis. Maximum injection pressure will be 1820 psi with a maximum rate limited only by such pressure.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or, email info@sosconsulting.us.

You have been identified as a party who may be interested as an offset operator or lessee.

You are entitled to a full copy of the application. A full copy in PDF format is posted on the SOS Consulting **ShareFile** site and is available for immediate download.

Use the URL link <https://sosconsulting.sharefile.com/d-s89fd9d3a0314db89>

(Please Note: The ShareFile service is powered by Citrix Systems and is completely secure.*)

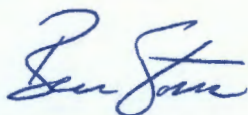
The link to this file will be active for 30 days from the date of this letter. Your company can access and download the file a maximum of five (5) times. (Copies may be downloaded and shared as needed among your company.)

Alternatively, you may call SOS Consulting, LLC at 903-488-9850, or email info@sosconsulting.us, and the same PDF file copy will be expedited to you via email.

Please use the subject **"Westall Empire Deep C-108 Jan 2018 Copy Request"**.

Thank you for your attention in this matter.

Best regards,



Ben Stone, SOS Consulting, LLC
Agent for Ray Westall Operating, Inc.

Cc: Application File

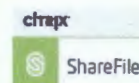
SOS Consulting is committed to providing superior quality work using technology to assist clients and interested parties in obtaining the documentation required. SOS will continue to utilize methods for reducing papers copies and are less energy and resource intensive.

We hope you'll partner with us and appreciate these efforts.

* You will be asked for your email, name and company.

This will not be used by anyone except keeping track of the file downloads.

You will not be solicited by SOS or anyone else. Data is stored on Citrix Systems servers only.



C-108 - Item XIV

Proof of Notice (Certified Mail Receipts)

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7015 3010 0001 3789 7466

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Oil & Gas Division
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Carlsbad, NM 88220

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Midland, TX 79705

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13443 Hwy 71 West
Austin, TX 78738

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7015 3010 0001 3789 9033

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P.O. Box 7500
Bartlesville, OK 74005-7500

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COG OPERATING, LLC
Attn: Jim Bob Burnett
2208 W. Main St.

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17304 Preston Rd., Ste. 740
Dallas, TX 75252

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C-108 - Item XIV

Proof of Notice (Certified Mail Receipts - cont.)

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P.O. Box 1936
City, State Roswell, NM 88202
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☐ Adult Signature Restricted Delivery \$
Postage \$
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Street and CHASE OIL CORPORATION
P.O. Box 1767
City, State, Zip Artesia, NM 88211-1767
PS Form 38

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☐ Adult Signature Restricted Delivery \$
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Total Postage and Fees \$ 6.70
Sent To
Street and Ap STATE OF NEW MEXICO
Oil, Gas and Minerals Division
City, State, Zip 310 Old Santa Fe Trail
Santa Fe, NM 87504
PS Form 38

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7015 3010 0001 3789 7473
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Postage \$.50
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400 N Marienfeld, Ste. 100
City, State Midland, TX 79701
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☐ Adult Signature Restricted Delivery \$
Postage \$
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Street and A KHODY LAND AND MINERALS CO.
210 Park Avenue, Ste., 900
City, State, Zip Oklahoma City, OK 73102
PS Form 38

C-108 - Item XIV

Proof of Notice – Legal Notice Newspaper of General Circulation

Legal Notice

Ray Westall, Inc., P.O. Box 4, Loco Hills, NM 88255 is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division for administrative approval to permit and convert for salt water disposal its Empire Deep 29 Federal Well No.2. The well, API No.30-015-32252 is located 660' FSL & 660' FWL in Section 29, Township 17 South, Range 29 East in Eddy County, New Mexico. Produced water from area production will be commercially disposed into the Cisco formation through selected perforated intervals between a maximum applied for top of 9100' feet to maximum depth of 9800' feet and based on further log analysis. Maximum injection pressure will be 1820 psi with a maximum rate limited only by such pressure.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or, email info@sosconsulting.us.

Published in the Artesia Daily Press, Artesia, N.M., Jan. 21, 2018 Legal No. 24538.

The above is the "Proof Copy" sent from the Artesia Daily Press.
The affidavit of publication will be forwarded as soon as it is received.

Affidavit of Publication

No. 24538

State of New Mexico

County of Eddy:

Danny Scott

being duly sworn says: that she is the

Publisher

of the Artesia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto attached

Legal Ad

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for

1 Consecutive weeks/day on the same

day as follows:

First Publication January 21, 2018

Second Publication

Third Publication

Fourth Publication

Fifth Publication

Sixth Publication

Seventh Publication

Subscribed and sworn before me this

22nd day of January 2018



OFFICIAL SEAL
Latisha Romine
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires: 5/12/2019

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

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2018 JAN 29 P 3: 00

RECEIVED OGD



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

PLSS Search:

Section(s): 19-21, 28-33 **Township:** 17S **Range:** 29E

The data is furnished by the NMOS/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

2/27/18 12:40 PM WATER COLUMN/ AVERAGE DEPTH TO WATER



New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64 Q16 Q4	Sec	Tws	Rng	X	Y
RA 11807 POD1		1	2	3	22 17S 29E	587360	3631585

Driller License: 1348	Driller Company: TAYLOR WATER WELL SERVICE	
Driller Name: TAYLOR, CLINTON E.		
Drill Start Date: 11/23/2012	Drill Finish Date: 11/26/2012	Plug Date:
Log File Date: 03/26/2013	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield: 4 GPM
Casing Size: 4.50	Depth Well: 131 feet	Depth Water: 76 feet

Water Bearing Stratifications:	Top	Bottom	Description
	104	128	Other/Unknown

Casing Perforations:	Top	Bottom
	91	131

McMillan, Michael, EMNRD

From: ben@sosconsulting.us
Sent: Tuesday, February 27, 2018 1:32 PM
To: McMillan, Michael, EMNRD
Subject: RE: Current WBD Empire Deep Federal Well No. 2

Hi Mike,

RWO was aware of the Trinity SWD when they asked me to prepare a C-108.

I can ask but I'm sure the answer is "yes". I had put 5000 bwpd in the C-108 but typically, RWO would have a daily average of about 1000-1500 bwpd.

Thanks,
Ben

From: McMillan, Michael, EMNRD [mailto:Michael.McMillan@state.nm.us]
Sent: Tuesday, February 27, 2018 2:19 PM
To: ben@sosconsulting.us
Subject: RE: Current WBD Empire Deep Federal Well No. 2

Ben:
Does Ray Westall still want to use this as an injection well when the Trinity Environmental, LLC Green A Federal 10 (API 30-015-21748) has injected over 15 million barrels from the same interval (Trinity well is listed As SWD; Strawn)?
Mike

From: ben@sosconsulting.us [mailto:ben@sosconsulting.us]
Sent: Tuesday, January 30, 2018 7:06 AM
To: McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
Subject: RE: Current WBD Empire Deep Federal Well No. 2

Here you go Mike... thanks.
Ben

From: McMillan, Michael, EMNRD [mailto:Michael.McMillan@state.nm.us]
Sent: Monday, January 29, 2018 4:12 PM
To: Ben Stone <ben@sosconsulting.us>
Subject: Ray Westall operating Empire Deep Federal Well No. 2

Ben:
I need a before WBD

Mike

Michael McMillan
1220 South St. Francis
Santa Fe, New Mexico
505-476-3448
Michael.mcmillan@state.nm.us



FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V16.2]

DATE RECORD: First Rec: 1/24/2018 Admin Complete: 1/24/2018 or Suspended: _____ Add. Request/Reply: _____

ORDER TYPE: WFX / PMX / SWD Number: _____ Order Date: _____ Legacy Permits/Orders: _____

Well No. 2 Well Name(s): Empire 29Ked

API : 30-0 15-3225-2 Spud Date: 3-28-2002 New or Old (EPA): N (UIC Class II Primacy 03/07/1982)

Footages 660FSL 660FWL Lot _____ or Unit 4 Sec 29 Tsp 17S Rge 29E County Eddy

General Location: 2.18 miles W Antesi Pool: SW, CISC Pool No.: 4669

BLM 100K Map: Antesi Operator: City Westfall Operations OGRID: 119305 Contact: Ben Stinson

COMPLIANCE RULE 5.9: Total Wells: 47 Inactive: 1 Fincl Assur: OK Compl. Order? N/A IS 5.9 OK? X Date: 3-20-2018

WELL FILE REVIEWED ☐ Current Status: Active

WELL DIAGRAMS: NEW: Proposed ☐ or RE-ENTER: Before Conv. ☒ After Conv. ☒ Logs in Imaging: X

Planned Rehab Work to Well: _____

Well Construction Details		Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned ___ or Existing ___ Surface		<u>17 1/2" / 13 3/4"</u>	<u>445</u>	<u>491</u>	<u>Surface / Visal</u>
Planned ___ or Existing ___ Interm/Prod		<u>12 1/4" / 9 5/8"</u>	<u>3000'</u>	<u>1025</u>	<u>Surface / Visal</u>
Planned ___ or Existing ___ Interm/Prod		<u>9 3/4" / 5 1/2"</u>	<u>11000</u>	<u>1905</u>	<u>3600' / CALC / 3600' well file</u>
Planned ___ or Existing ___ Prod/Liner					
Planned ___ or Existing ___ Liner					
Planned ___ or Existing ___ OH / PERF		<u>9100-9700</u>			

Injection Lithostratigraphic Units	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.		<u>LF</u>	<u>730</u>
Confining Unit: Litho. Struc. Por.		<u>CS CO</u>	<u>8780</u>
Proposed Inj Interval TOP:		<u>CS CO</u>	<u>9100</u>
Proposed Inj Interval BOTTOM:			<u>9800</u>
Confining Unit: Litho. Struc. Por.		<u>STR</u>	<u>9440</u>
Adjacent Unit: Litho. Struc. Por.		<u>CS 60m</u>	<u>9882</u>

Completion/Operation Details:	
Drilled TD	<u>11000</u> PBDT
NEW TD	<u>940</u> NEW PBDT
NEW Open Hole	☐ or NEW Perfs ☒
Tubing Size	<u>2 7/8</u> in. Inter Coated?
Proposed Packer Depth	<u>9600</u> ft
Min. Packer Depth	<u>9600</u> (100-ft limit)
Proposed Max. Surface Press.	<u>1820</u> psi
Admin. Inj. Press.	<u>1820</u> (0.2 psi per ft)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P _____ Noticed? _____ BLM Sec Ord ☐ WIPP ☐ Noticed? _____ Salt/Salado T: _____ B: _____ NW: Cliff House fm _____

FRESH WATER: Aquifer Roswell Antesi Max Depth 131 HYDRO AFFIRM STATEMENT By Qualified Person ☒

NMOSE Basin: Antesi CAPITAN REEF: thru _____ adj. N/A No. GW Wells in 1-Mile Radius? 1 FW Analysis? _____

Disposal Fluid: Formation Source(s) TAHILL-THURS Analysis? X On Lease ☐ Operator Only ☐ or Commercial ☒

Disposal Interval: Inject Rate (Avg/Max BWPD): SK Protectable Waters? _____ Source: _____ System: Closed or Open

HC Potential: Producing Interval? N/A Formerly Producing? _____ Method: Logs/DST/P&A/Other SWD in AOR same interval 2-Mi Radius Pool Map ☐

AOR Wells: 1/2-M Radius Map and Well List? Y No. Penetrating Wells: 1 [AOR Horizontals: N/A AOR SWDs: _____]

Penetrating Wells: No. Active Wells 1 Num Repairs? _____ on which well(s)? _____ Diagrams? _____

Penetrating Wells: No. P&A Wells 0 Num Repairs? _____ on which well(s)? _____ Diagrams? _____

NOTICE: Newspaper Date 1-21-2018 Mineral Owner BLM Surface Owner BLM N. Date 1-22-2018

RULE 26.7(A): Identified Tracts? _____ Affected Persons: Camacho Phillips, Cob, Apache, Bawel N. Date 1-22-2018

Order Conditions: Issues: SWAB test