

12/06/2017

ABOVE THIS LINE FOR DIVISION USE ONLY

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



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 _____
- [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

- SWD 1712
 - Kaiser-Franco Oil Co
 12361 well site
 - Leviathan SWD
 30-025-pending
 pool
 - SWD, Devonian -
 Silurian
 97869

[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 Kaiser-Franco Oil Co.	12/01/17
Print or Type Name	Signature	Title	Date
		ben@sosconsulting.us	
		e-mail Address	



December 4, 2017

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

Attn: Mr. David Catanach, Director

Re: Application of Kaiser-Francis Oil Company to permit for salt water disposal the proposed Leviathan State SWD Well No.1, to be located in Section 8, Township 23 South, Range 34 East, NMPM, Lea County, New Mexico.

Dear Mr. Catanach,

Please find enclosed form C-108 Application for Authority to Inject, supporting the above-referenced request to permit for disposal, the Leviathan State SWD No.1.

Kaiser-Francis Oil Company seeks to optimize efficiency, both economically and operationally, of its operations in southeast New Mexico. Approval of this application is consistent with that goal as well as the NMOCD's mission of preventing waste and protection of correlative rights. The proposed well will be for the private use of KFOC.

Published legal notice will run on or about December 2, 2017 in the Hobbs News-Sun 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 a wellbore schematic, area of review maps, leaseholder plats and other required information for a complete Form C-108. The well is located on state land and minerals; a copy of this application has been submitted to the State Land Office, 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,

A handwritten signature in blue ink, appearing to read 'Ben Stone', is written over a light blue horizontal line.

Ben Stone, Partner
SOS Consulting, LLC
Agent for Kaiser-Francis Oil Company

Cc: Application attachment and file

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: ***Salt Water Disposal*** and the application ***QUALIFIES*** for administrative approval.
- II. OPERATOR: ***Kaiser-Francis Oil Company***
ADDRESS: ***P.O. Box 21468, Tulsa, OK 74121-1468***

CONTACT PARTY: ***Agent: SOS Consulting, LLC – Ben Stone (903) 488-9850***
- III. WELL DATA: ***All well data and applicable wellbore diagrams are ATTACHED.***
- 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. ***There are NO (0) Wells in the subject AOR which penetrate the target interval.*** 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 DEVONIAN 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. ***Stimulation program – a conventional acid job may be performed to clean and open the formation.***
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted). ***Standard suite of well logs will be filed with OCD.***
- *XI. ***There are 10 domestic water wells within one mile of the proposed salt water disposal well. 2 sampled - Analyses will be forwarded.***
- 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 3 offset lessees and/or operators within ½ mile; NM and U.S. minerals - all have been noticed. Well location is STATE.***
- 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 for Kaiser-Francis Oil Company***

SIGNATURE:  DATE: ***12/01/2017***

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:

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

FORM C-108 – APPLICATION FOR AUTHORIZATION TO INJECT (cont.)

III. WELL DATA – *The following information and data is included (See ATTACHED Wellbore Schematic):*

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.

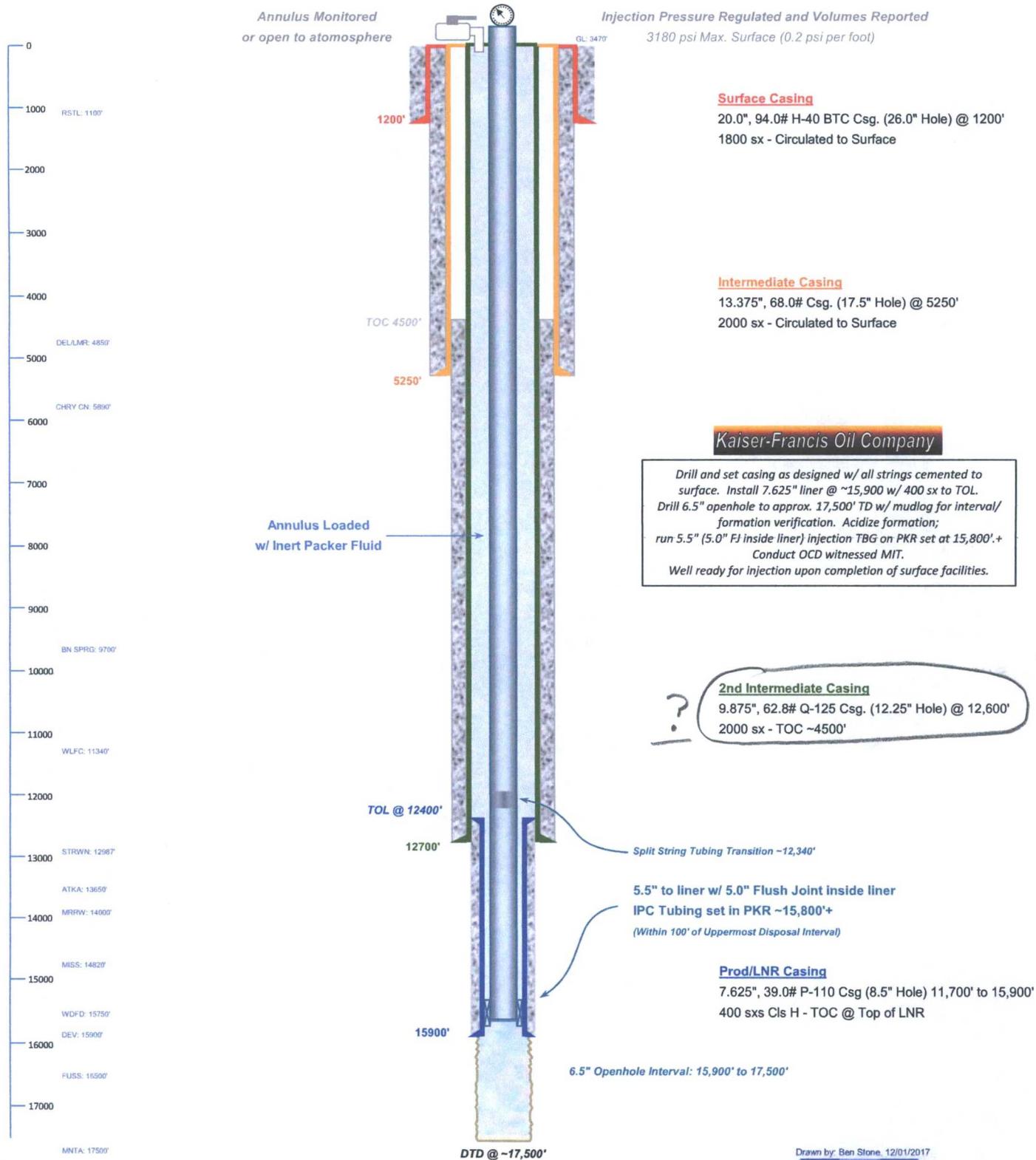
NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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.

WELL SCHEMATIC - PROPOSED Leviathan State SWD Well No.1

API 30-025-xxxxx
760' FSL & 150' FWL, SEC. 8-T23S-R34E
LEA COUNTY, NEW MEXICO

SWD; Devonian-Silurian (97869)
Spud Date: 1/15/2018
SWD Config Dt: 2/15/2018



Kaiser-Francis Oil Company

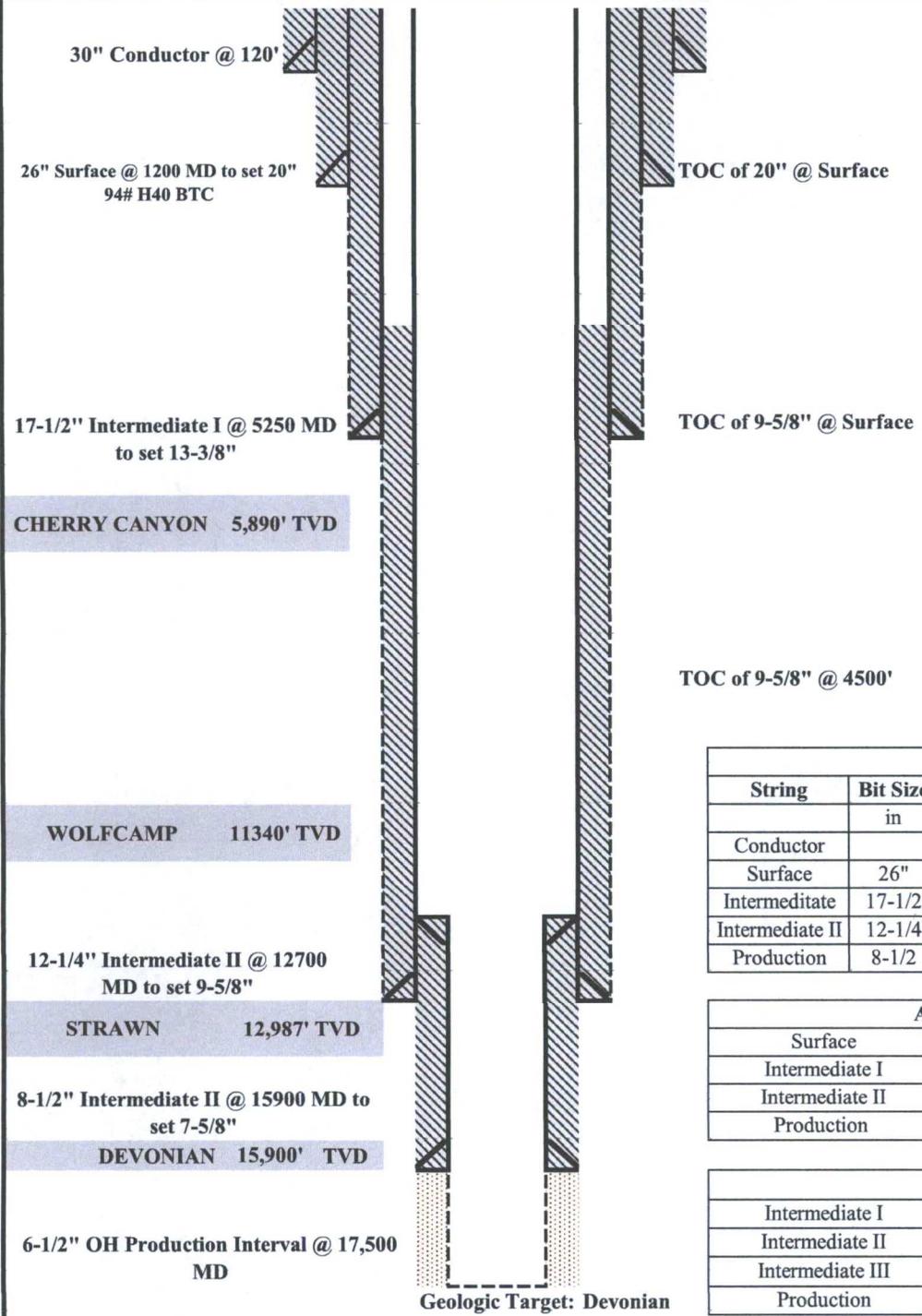
Drill and set casing as designed w/ all strings cemented to surface. Install 7.625" liner @ ~15,900 w/ 400 sx to TOL. Drill 6.5" openhole to approx. 17,500' TD w/ mudlog for interval/formation verification. Acidize formation; run 5.5" (5.0" FJ inside liner) injection TBG on PKR set at 15,800'+. Conduct OCD witnessed MIT. Well ready for injection upon completion of surface facilities.

? **2nd Intermediate Casing**
9.875", 62.8# Q-125 Csg. (12.25" Hole) @ 12,600'
2000 sx - TOC ~4500'

KAISER FRANCIS OIL COMPANY

Well Name: Leviathan SWD #1
 Objective Formation: Devonian
 County, State: Lea County, NM
 Surface Legal Location: Sec 8, 23S 34E
 Surface Lease Line Footage: 760' FSL & 150' FWL
 API #: TBD

Rig: TBD
 Rig RKB: 28'
 Ground Elevation: 3,470'
 RKB Elevation: 3,498'
 TD (MD): 17,500'
 TD (TVD): 17,500'
 BTW: 660' to Ground Level



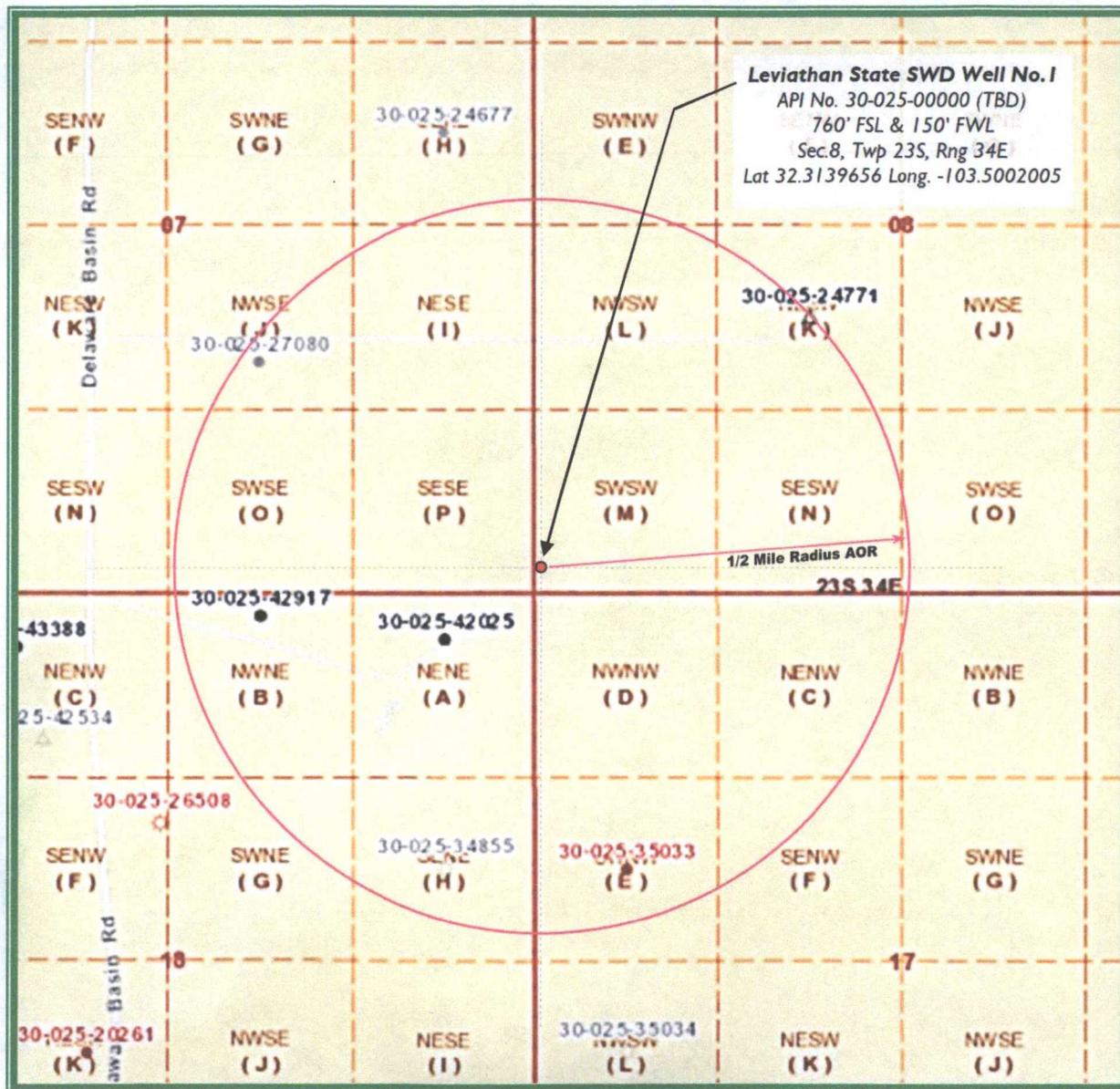
Tubular Details						
String	Bit Size	Size	Weight	Grade	Connection	Length
	in	in	#/ft			ft
Conductor		30		LS		120
Surface	26"	20	94	H40	BTC	1200
Intermediate	17-1/2"	13-3/8"	68	N80	BTC	5250
Intermediate II	12-1/4"	9-5/8"	53.5	HCP-110	BTC	12700
Production	8-1/2"	7-5/8"	39	HCP110	FJ	3200

Anchor Drilling Fluid Details	
Surface	Native Clay, LSND
Intermediate I	Brine
Intermediate II	Cut Brine
Production	TBD

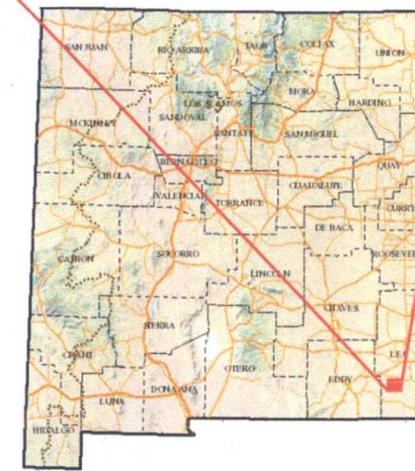
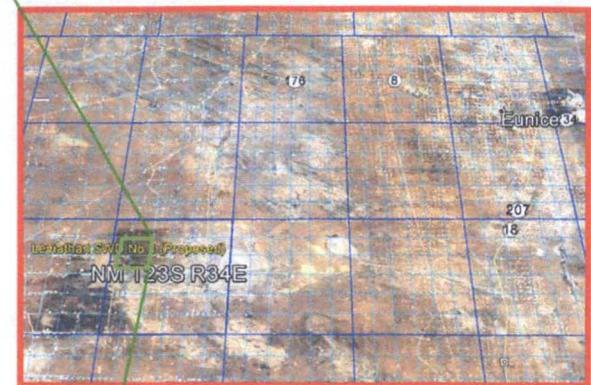
E-log Details	
Intermediate I	None
Intermediate II	Quad Combo over entire interval
Intermediate III	Quad Combo over entire interval
Production	None

Leviathan State SWD Well No.1 - Area of Review / Overview Map

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



~21.6 miles SW of Eunice, NM



Lea County, New Mexico

Kaiser-Francis Oil Company



C-108 - Item VI

Area of Review Well Data

**THERE ARE NO WELLS WHICH PENETRATE THE
PROPOSED DEVONIAN FORMATION IN THE
ONE-HALF MILE AREA of REVIEW**

C-108 ITEM X – LOGS and AVAILABLE TEST DATA

**A Standard Suite of Logs will be run after
drilling the well and submitted to the Division.**

C-108 ITEM VII – PROPOSED OPERATION

Leviathan / Kraken SWD Projects

Private Use SWD Facility

Upon approval of all permits for SWD, operations would begin within 30 days. Completion of the well operations will take approximately 6-8 weeks. Facility construction including installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval but at a different location from the well. In any event, it is not expected for the construction phase of the project to last more than 60 days, depending on availability of contractors and equipment. The operator is applying for NMSLO easements for the facility and well site.

Configure for Salt Water Disposal

Prior to commencing any work, an NOI sundry(ies) will be submitted to configure the well for SWD and will detail the completion workover including all work otherwise described above, any change to the procedure noted herein and to perform mechanical integrity pressure test per OCD test procedures. (Notify NMOCD 24 hours prior.) The casing/tubing annulus will be monitored for communication with injection fluid or loss of casing integrity.

Operational Summary

The Leviathan and Kraken State SWD wells will be for KFOC's area production from Avalon Shale and Bone Spring wells.

The SWD facility will not be fenced. Primary water transportation will be via pipeline but offloading hookups will be available so that trucks may access for load disposal in needed.

The well and injection equipment will be a closed system and equipped with pressure limiting devices and volume meters. The annulus, loaded with an inert, anti-corrosion packer fluid, will be monitored for pressure.

The tanks will be equipped with telemetry devices and visual alarms to alert the operator and customers of full tanks or an overflow situation.

Anticipated daily maximum volume is 30,000 bpd and an average of 20,000 bpd at a maximum surface injection pressure of 3180 psi (.2 psi/ft gradient – maximum pressure will be adjusted if the top of interval is modified after well logs are run).

Potential releases will be contained and cleaned up immediately. The operator shall repair or otherwise correct the situation within 48 hours before resuming operations. OCD will be notified within 24 hours of any release greater than 5 bbls. If required, remediation will start as soon as practicable. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as necessary and appropriate.

C-108 ITEM VII – PRODUCED WATER ANALYSES

Item VII.4 – Water Analysis of Source Zone Water

Bone Spring (Avalon)

Item VII.5 – Water Analysis of Disposal Zone Water

Devonian

Water Analyses follow this page.

**C-108 Item VII.5 - Produced Water Data
Kaiser-Francis Oil Company - Leviathan Kraken SWD Projects**

SOURCE ZONE

BONE SPRING

API No	3002502429	Lab ID	
Well Name	LEA UNIT	Sample ID	4916
		Sample No	
	005		
Location	ULSTR 12 20 S 34 E	Lat / Long	32.58504 -103.51106
	1980 S 1980 E	County	Lea

Operator (when sampled)

	Field	LEA	Unit J
Sample Date			Analysis Date

Sample Source DST
Water Typ

Depth (if known)

ph		alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	202606	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	118100	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	5196
iron_mgL		sulfate_mgL	992
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
Kaiser-Francis Oil Company - Leviathan Kraken SWD Projects**

SOURCE ZONE

BONE SPRING

API No	3002520261	Lab ID	
Well Name	BELL LAKE UNIT	Sample ID	3943
	009	Sample No	
Location	ULSTR 18 23 S 34 E	Lat / Long	32.30266 -103.51073
	1980 S 1980 W	County	Lea
Operator (when sampled)			
	Field BELL LAKE NORTH	Unit	K
Sample Date		Analysis Date	
	Sample Source UNKNOWN	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	204652	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	130000	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	512
iron_mgL		sulfate_mgL	260
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
Kaiser-Francis Oil Company - Leviathan Kraken SWD Projects
DISPOSAL ZONE

DEVONIAN

API No.	3002508483	Lab ID	
Well Name	BELL LAKE UNIT 006	Sample ID	5733
Location	ULSTR 06 23 S 34 E 660 S 1980 E	Sample No	
		Lat / Long	32.32821 -103.50663
		County	Lea
Operator (when sampled)			
	Field BELL LAKE NORTH	Unit	O
Sample Date		Analysis Date	
	Sample Source HEATER/TREATER	Depth (if known)	
	Water Type		
ph	7	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	71078	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	42200	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	500
iron_mgL		sulfate_mgL	1000
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
Kaiser-Francis Oil Company - Leviathan Kraken SWD Projects**

DISPOSAL ZONE

DEVONIAN

API No.	3002521082	Lab ID	
Well Name	ANTELOPE RIDGE UNIT 003	Sample ID	5720
		Sample No	
Location	ULSTR 34 23 S 34 E 1980 S 1650 W	Lat / Long	32.25922 -103.46068
		County	Lea

Operator (when sampled)

Field	ANTELOPE RIDGE	Unit	K
Sample Date	11/14/1967	Analysis Date	

Sample Source	UNKNOWN	Depth (if known)	
Water Type			

ph	6.9	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	80187	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	47900	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	476
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 VIII

Geologic Information

The Devonian and Silurian (including Fusselman) consist of carbonates including light colored dolomite and chert intervals interspersed with some tight limestone intervals. Several thick sections of porous dolomite capable of taking water are present within the subject formations in the area. Depth control data was inferred from deep wells in the vicinity. If the base of Devonian and top of Silurian and/or Ordovician rocks come in as expected the well will only be drilled deep enough for adequate logging rathole.

At a proposed depth of 17,500' BGL (Below Ground Level) the well will TD approximately 1,600 feet below the estimated top of the Devonian. Mud logging through the interval will ensure the target interval remains in Devonian and Silurian. Once Devonian is determined, the casing shoe depth will be set at an approximate maximum upper depth of 15,900' BGL. Injection will occur through the resulting openhole interval. If the base of Silurian and top of Ordovician rocks come in as expected the well will only be drilled deep enough for adequate logging rathole; estimated total depth approximately 17,500'.

The Devonian is overlain by the Woodford Shale and lower Silurian (Fusselman) rock is underlain by the Ordovician; Simpson, McKee and Ellenburger.

Fresh water in the area is generally available from the Santa Rosa formation. State Engineer's records show water wells in the area with an average depth to groundwater of 246 feet.

There are 10 water wells located within one mile of the proposed SWD. 2 wells have been sampled and water analyses will be forwarded when received.

C-108 ITEM XI – WATER WELLS IN AOR

10 WATER WELLS WITHIN ONE MILE OF PROPOSED SWD WELL. 2 SAMPLED.
(10 PODs are shown; GIS coordinates resulted in 10 locations.)



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

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	(quarters are smallest to largest) (NAD83 UTM in meters)				X	Y	
										6416	4	Sec	Tws			Rng
CP 00556	CP	COM	0	GREGORY ROCKHOUSE RANCH, INC.	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206
CP 00613	CP	PRO	0	J.C. MILLS	LE	CP 00613				3	1	07	23S	34E	640433	3576489*
CP 00629	CP	PRO	0	J.C. MILLS	LE	CP 00629				4	4	08	23S	34E	641846	3576102*
CP 00872	CP	EXP	0	KELLER RV, LLC.	LE	CP 00872 POD1			Shallow	1	1	08	23S	34E	641225	3577504*
CP 00876	CP	PLS	50	LIMESTONE LIVESTOCK, LLC.	LE	CP 00872 POD1			Shallow	1	1	08	23S	34E	641225	3577504*
CP 00878	CP	PRO	0	PENWELL ENERGY	LE	CP 00872 POD1			Shallow	1	1	08	23S	34E	641225	3577504*
CP 01070	CP	PRO	0	TONYA'S PERMIT SERVICE	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206
CP 01071	CP	PRO	0	TD WATER SERVICES	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206
CP 01072	CP	PRO	0	GLENN'S WATER WELL SRVC, INC.	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206
CP 01075	CP	COM	80	LIMESTONE LIVESTOCK LLC	LE	CP 01075 POD1			Shallow	1	1	08	23S	34E	641277	3577525
CP 01130	CP	MON	0	STRAUB CORPORATION	LE	CP 01130 POD1				2	1	07	23S	34E	640662	3577558
					LE	CP 01130 POD2				2	1	07	23S	34E	640673	3577549
					LE	CP 01130 POD3				2	1	07	23S	34E	640684	3577540
					LE	CP 01130 POD4				2	1	07	23S	34E	640695	3577534
					LE	CP 01130 POD5				2	1	07	23S	34E	640705	3577525
CP 01179	CP	PRO	0	CONCHO OIL & GAS	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206
CP 01180	CP	PRO	0	CONCHO OIL & GAS	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206
CP 01181	CP	PRO	0	CONCHO OIL & GAS	LE	CP 00556 POD1			Shallow	4	4	08	23S	34E	641762	3576206

*UTM location was derived from PLSS - see Help

Record Count: 18

PLSS Search:

Section(s): 7, 8, 16, 17 Township: 23S Range: 34E

Sorted by: File Number

C-108 Item XI

Water Wells Within One Mile

Leviathan / Kraken SWDs - Water Well Locator Map

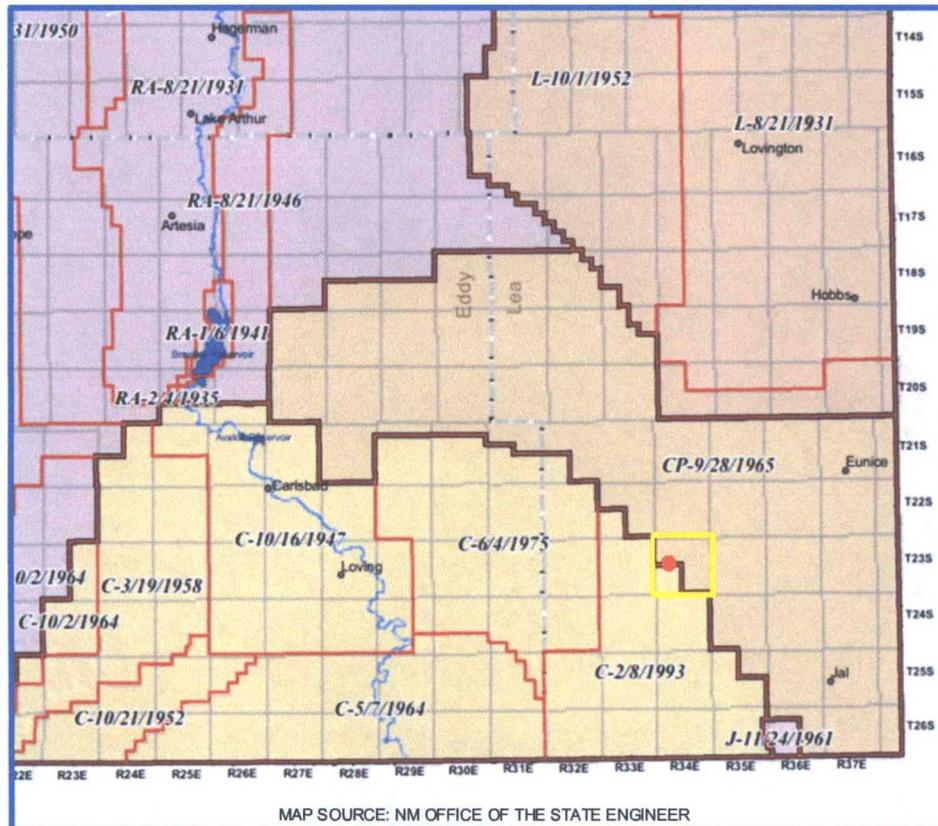
Sample 2 wells indicated by arrows if possible or any other for at least 1 sample for each area of review.
(Yellow – first choice; Blue – second choice)



Leviathan shows 10 wells (10 PODs) within one mile; Kraken shows 2.

C-108 - Item XI

Groundwater Basins - Water Column / Depth to Groundwater



The subject well is located on the apparent boundary of the Lea County Basin and the Capitan Basin.

Fresh water in the area is generally available from the Santa Rosa and similar aged deposits of the basin. State Engineer's records show water wells in 23S-34E with a average depth to water at 246 feet.

There are ten (10) water wells located within one mile of the proposed SWD. 2 have been sampled and will analysis will be forwarded when received.

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 (quarters are 1=NW 2=NE 3=SW 4=SE)
closed) (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
C 03620 POD1	C	LE	1	4	3	32	23S	34E	641790	3569941	480	130	350	
CP 00556 POD1	CP	LE	4	4	3	08	23S	34E	641762	3576206	497	255	242	
CP 00580	CP	LE	3	4	3	23	23S	34E	646524	3572948*	220			
CP 00606	CP	LE	4	1	23	23S	34E	646613	3573854*	650	265	385		
CP 00618	CP	LE	1	2	4	22	23S	34E	645713	3573539*	428	295	133	
CP 00637	CP	LE	3	3	4	15	23S	34E	645293	3574541*	430	430	0	
CP 00872 POD1	CP	LE	1	1	1	08	23S	34E	641225	3577504*	494	305	189	
CP 01075 POD1	CP	LE	1	1	08	23S	34E	641278	3577525	430	20	410		
CP 01120 POD1	CP	LE	3	14	23S	34E	646366	3574753	397	318	79			
CP 01130 POD1	CP	LE	2	1	2	07	23S	34E	640662	3577558	27			
CP 01130 POD2	CP	LE	2	1	2	07	23S	34E	640674	3577549	27			
CP 01258 POD1	CP	LE	1	4	3	22	23S	34E	645015	3573221	25			
CP 01258 POD2	CP	LE	1	4	3	22	23S	34E	644941	3572883	65			
CP 01258 POD3	CP	LE	1	4	3	22	23S	34E	644938	3573097	25			
CP 01502 POD1	CP	LE	4	3	3	05	23S	34E	641342	3577635	648	200	448	

Average Depth to Water: **246 feet**

Minimum Depth: **20 feet**

Maximum Depth: **430 feet**

Record Count: 15

PLSS Search:

Township: 23S

Range: 34E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/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.

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.

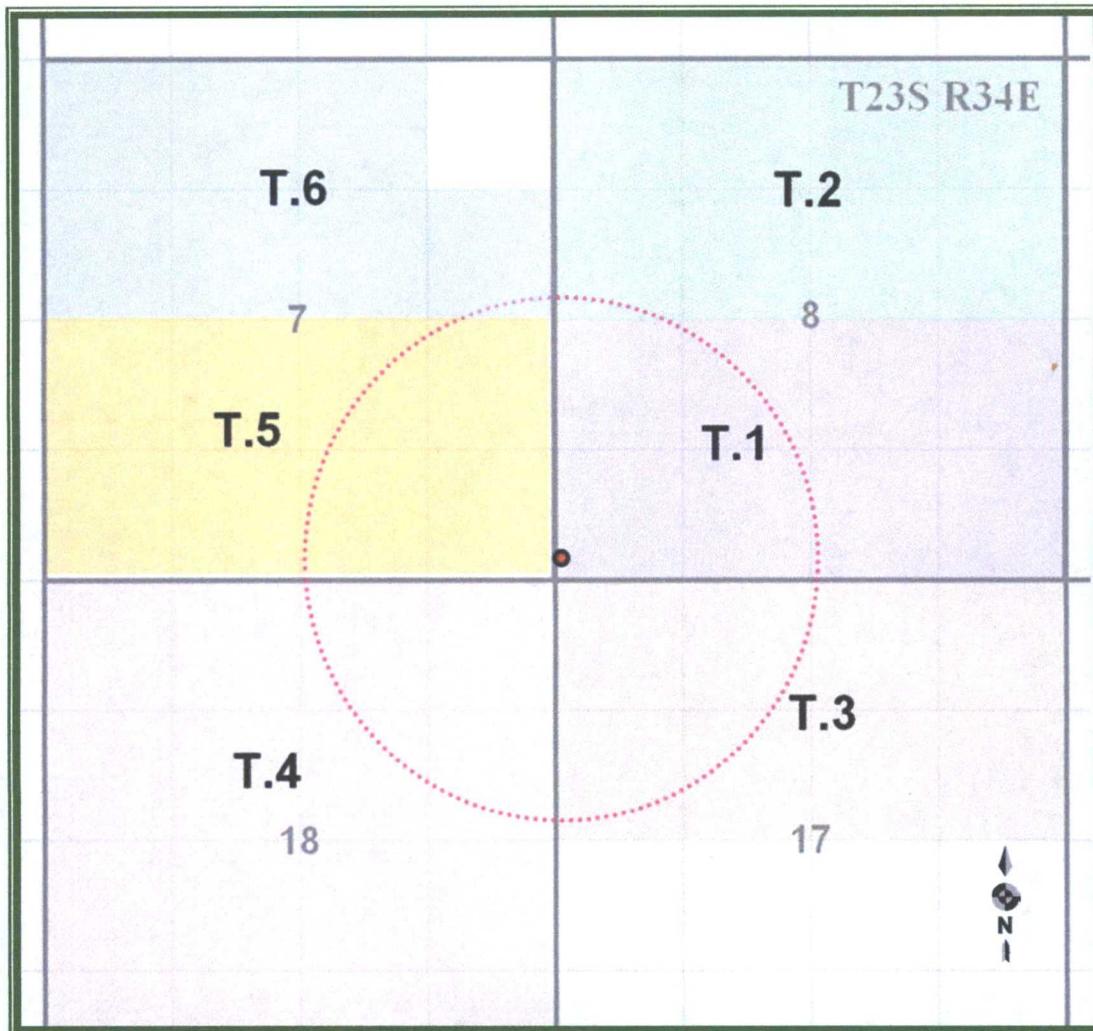


Ben Stone, Partner
SOS Consulting, LLC

Project: Kaiser-Francis Oil Company
Leviathan State SWD No.1
Reviewed 11/28/2017

Leviathan State SWD Well No.1 - Leasehold Plat

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



Kaiser-Francis Oil Company

LEGEND

- T.1 – EO-9458 - Kaiser-Francis Oil Company
- T.2 – Split Estate - Private, Limestone Livestock, LLC;
Minerals, NMLC-0064881 - ConocoPhillips
- T.3 – NMNM-097157 - Devon Energy Production Co.
- T.4 – Private, Limestone Livestock – BTA Oil Producers
- T.5 – EO-1933 - Kaiser-Francis Oil Company
- T.6 – NMNM-0065194 - ConocoPhillips

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

SURFACE OWNER

- 1 STATE OF NEW MEXICO
Oil, Gas and Minerals Division
310 Old Santa Fe Trail
Santa Fe, NM 87504
Certified: 7015 3010 0001 3789 7664

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

State Lease EO-9458 and EO-1933; (T.1 and T.5 on plat.)

Lessee & Operator

KAISER-FRANCIS OIL COMPANY (Applicant)

P.O. Box 21468

Tulsa, OK 74121-1468

Split Estate; BLM Lease NMLC-0064881; (T.2 on plat.)

Lessee

- 2 CONOCOPHILLIPS
P.O. Box 7500
Bartlesville, OK 77005-7500
Certified: 7015 3010 0001 3789 5813

BLM Lease NMNM-097157; (T.3 on plat.)

Lessee

- 3 DEVON ENERGY PRODUCTION CO., LP
333 W. Sheridan Avenue
OKC, OK 73102-5010
Certified: 7015 3010 0001 3789 5820

Fee Lease – Limestone Livestock, LLC; (T.4 on plat.)

Lessee & Operator

- 4 BTA OIL PRODUCERS, LLC
104 S. Pecos
Midland, TX 79701
Certified: 7015 3010 0001 3789 5837

BLM Lease NMNM-097157; (T.3 on plat.)

Lessee

CONOCOPHILLIPS
P.O. Box 7500
Bartlesville, OK 77005-7500

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

OFFSET MINERALS OWNER (Notified via USPS Certified Mail)

- 5 U.S. DEPARTMENT OF INTERIOR
Bureau of Land Management
Oil & Gas Division
620 E. Greene St.
Carlsbad, NM 88220
Certified: 7015 3010 0001 3789 7657

REGULATORY

STATE OF NEW MEXICO
Oil, Gas and Minerals Division
310 Old Santa Fe Trail
Santa Fe, NM 87504

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)
1625 S. French Drive
Hobbs, NM 88240



November 30, 2017

NOTIFICATION TO INTERESTED PARTIES
via U.S. Certified Mail – Return Receipt Requested

To Whom It May Concern:

Kaiser-Francis Oil Company, Tulsa, Oklahoma, has made application to the New Mexico Oil Conservation Division to drill and complete for salt water disposal the Leviathan State SWD Well No.1. The proposed private operation will be for produced water disposal from KFOC operations in the area. As indicated in the notice below, the well is located in Section 8, Township 23 South, Range 34 East in Lea County, New Mexico.

The published notice states that the interval will be from 15,900 feet to 17,500 feet into the Devonian/ Silurian formation.

Following is the notice published in the Hobbs News-Sun, Hobbs, New Mexico on or about December 2, 2017.

LEGAL NOTICE

Kaiser-Francis Oil Company, 6733 South Yale Avenue, Tulsa, OK 74136, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Leviathan State SWD No.1, will be located 760' FSL and 150' FWL, Section 8, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from KFOC's area production will be privately disposed into the Devonian/ Silurian formations at a depth of 15,900' to 17,500' at a maximum surface pressure of 3180 psi and a rate limited only by such pressure. The proposed SWD well is located 21.6 miles southwest of Eunice, NM.

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 lessee or operator.

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-s531f6385e0e454bb>

(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 "**Leviathan SWD Dec2017 PDF Copy Request**".

Thank you for your attention in this matter.

Best regards,



Ben Stone, SOS Consulting, LLC
Agent for Kaiser-Francis Oil Company

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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<input type="checkbox"/> Return Receipt (electronic)	\$
<input type="checkbox"/> Certified Mail Restricted Delivery	\$
<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$

Postage	\$
Total Postage and Fees	\$ 6.59

Sent To
Street and P.O. Box
City, State
PS Form 3800, April 2008

CONOCOPHILLIPS
P.O. Box 7500
Bartlesville, OK 77005-7500

7015 3010 0001 3789 5837

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Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$
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Street and P.O. Box
City, State
PS Form 3800, April 2008

BTA OIL PRODUCERS, LLC
104 S. Pecos
Midland, TX 79701

7015 3010 0001 3789 5820

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<input type="checkbox"/> Adult Signature Restricted Delivery	\$

Postage	\$
Total Postage and Fees	\$ 6.59

Sent To
Street and P.O. Box
City, State
PS Form 3800, April 2008

DEVON ENERGY PROD. CO., LP
333 W. Sheridan Avenue
OKC, OK 73102-5010

7015 3010 0001 3789 7657

For delivery information, visit our website at www.usps.com®.
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Certified Mail Fee	\$
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$
<input type="checkbox"/> Return Receipt (electronic)	\$
<input type="checkbox"/> Certified Mail Restricted Delivery	\$
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Postage	\$
Total Postage and Fees	\$ 6.59

Sent To
Street and P.O. Box
City, State
PS Form 3800, April 2008

BUREAU OF LAND MANAGEMENT
Oil & Gas Division
620 E. Greene St.
Carlsbad, NM 88220

7015 3010 0001 3789 7664

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Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$
<input type="checkbox"/> Return Receipt (electronic)	\$
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<input type="checkbox"/> Adult Signature Restricted Delivery	\$

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Total Postage and Fees	\$ 6.59

Sent To
Street and P.O. Box
City, State
PS Form 3800, April 2008

STATE OF NEW MEXICO
Oil, Gas and Minerals Division
310 Old Santa Fe Trail
Santa Fe, NM 87504

C-108 - Item XIV

Proof of Notice – Legal Notice Newspaper of General Circulation

LEGAL NOTICE December 2, 2017

Kaiser-Francis Oil Company, 6733 South Yale Avenue, Tulsa, OK 74136, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Leviathan State SWD No.1, will be located 760' FSL and 150' FWL, Section 8, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from KFOC's area production will be privately disposed into the Devonian/ Silurian formations at a depth of 15,900' to 17,500' at a maximum surface pressure of 3180 psi and a rate limited only by such pressure. The proposed SWD well is located 21.6 miles southwest of Eunice, NM.

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.
#32286

The above is the "Proof Copy" sent to the Hobbs News-Sun.
The affidavit of publication will be forwarded as soon as it is received.

McMillan, Michael, EMNRD

From: ben@sosconsulting.us
Sent: Wednesday, December 6, 2017 10:47 AM
To: McMillan, Michael, EMNRD
Subject: KFOC - Leviathan State SWD - Affidavit...
Attachments: Affidavit_Levithan_20171206001.pdf

Mike,

Leviathan affidavit attached. Hard copy via U.S. mail.

Thanks,
Ben



Visit us on the web at www.sosconsulting.us!

This electronic message and all attachments are confidential, and are intended only for the use of the individual to whom it is addressed; information may also be legally privileged. This transmission is sent in trust for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, you are hereby notified that any use, dissemination, distribution or reproduction of this transmission is strictly prohibited and may be unlawful. If you are not the intended recipient, you must delete this message and any copy of it (in any form) without disclosing it. If this message has been sent to you in error, please notify the sender by replying to this transmission, or by calling SOS Consulting, LLC. 903-488-9850. Unless expressly stated in this e-mail, nothing in this message should be construed as a digital or electronic signature. Thank you for your cooperation.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Todd Bailey, Editor of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
December 02, 2017
and ending with the issue dated
December 02, 2017.

Editor

Sworn and subscribed to before me this
2nd day of December 2017.

Business Manager

My commission expires
January 29, 2019

(Seal)



OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

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

LEGAL NOTICE

LEGAL NOTICE
December 2, 2017

Kaiser-Franco Oil Company, 6733 South Yale Avenue, Tulsa, OK 74136, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Leviathan State SWD No.1, will be located 760' FSL and 150' FWL, Section 8, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from KFOC's area production will be privately disposed into the Devonian/Silurian formations at a depth of 15,900' to 17,500' at a maximum surface pressure of 3180 psi and a rate limited only by such pressure. The proposed SWD well is located 21.6 miles southwest of Eunice, NM.

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67104420

00203531

BEN STONE
SOS CONSULTING, LLC.
P.O. BOX 300
COMO, TX 75431

McMillan, Michael, EMNRD

From: ben@sosconsulting.us
Sent: Thursday, December 7, 2017 2:35 PM
To: McMillan, Michael, EMNRD
Subject: Leviathan Fresh Water Wells - Analyses...
Attachments: Delaware Basin Water Station Fresh Water Analysis 17012584 OPS.pdf; Delaware Basin Water Station Fresh Water Analysis 17012584.pdf; GRR Bell Lake 4-15 Fresh Water Analysis 17012585 OPS.pdf; GRR Bell Lake 4-15 Fresh Water Analysis 17012585.pdf

Mike,

For the Leviathan, 2 wells were sampled. Analyses attached.

Thanks,
Ben



Visit us on the web at www.sosconsulting.us!

This electronic message and all attachments are confidential, and are intended only for the use of the individual to whom it is addressed; information may also be legally privileged. This transmission is sent in trust for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, you are hereby notified that any use, dissemination, distribution or reproduction of this transmission is strictly prohibited and may be unlawful. If you are not the intended recipient, you must delete this message and any copy of it (in any form) without disclosing it. If this message has been sent to you in error, please notify the sender by replying to this transmission, or by calling SOS Consulting, LLC. 903-488-9850. Unless expressly stated in this e-mail, nothing in this message should be construed as a digital or electronic signature. Thank you for your cooperation.

DownHole SAT Water Analysis Report

Leviathan

SYSTEM IDENTIFICATION

Kaiser Francis
 Delaware Basin
 Water Station
 Account Manager: Steve Tigert

Analyst: Davida Lowery

Sample ID#: 12584
 ID:

Sample Date: 11-30-2017 at 1135
 Report Date: 12-01-2017

WATER CHEMISTRY

CATIONS

Calcium(as Ca) 24.30
 Magnesium(as Mg) 23.90
 Barium(as Ba) 0.00
 Sodium(as Na) 655.64
 Iron(as Fe) 0.00

ANIONS

Chloride(as Cl) 1000
 Sulfate(as SO₄) 0.00
 Dissolved CO₂(as CO₂) 9.00
 Bicarbonate(as HCO₃) 213.00
 Carbonate(as CO₃) 0.00
 H₂S (as H₂S) 0.00

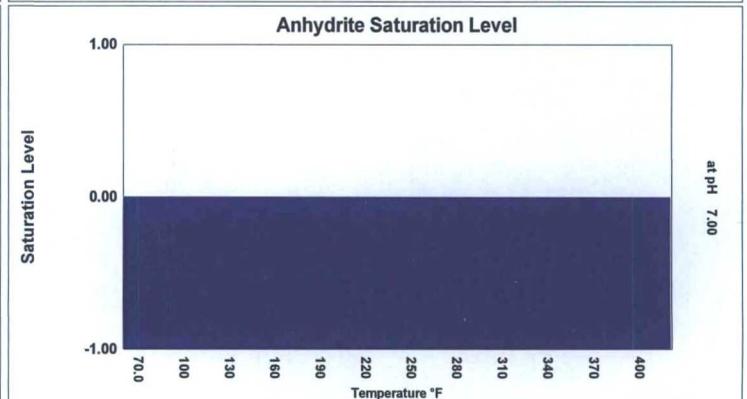
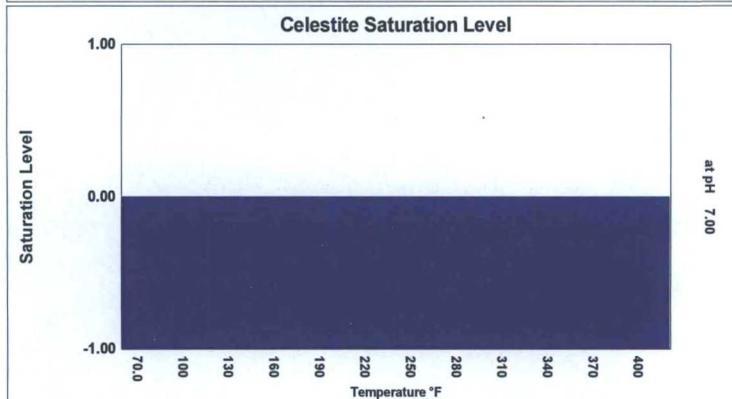
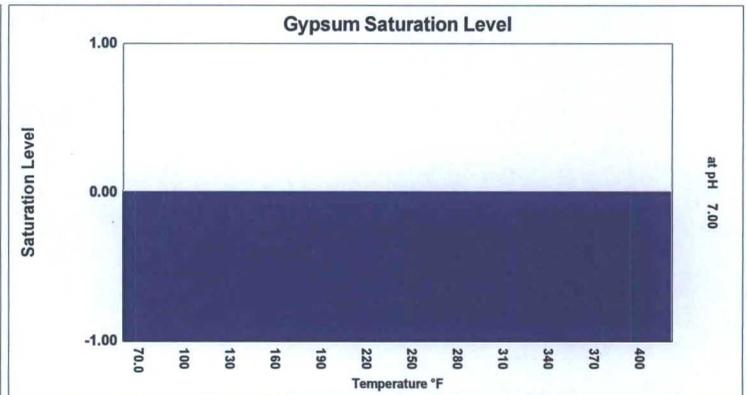
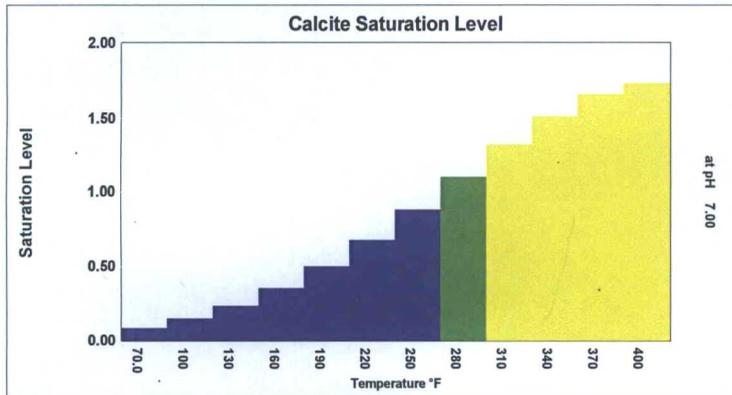
PARAMETERS

Temperature(°F) 72.00
 Sample pH 7.00

SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (psig)	Calcite CaCO ₃	Anhydrite CaSO ₄	Gypsum CaSO ₄ *2H ₂ O	Barite BaSO ₄	Celestite SrSO ₄	Siderite FeCO ₃	Mackawenite FeS	CO ₂ (mpy)	pCO ₂ (atm)							
70.00	0.00	0.0860	-0.850	0.00	-511.15	0.00	-511.75	0.00	-1.51	0.00	-59.93	0.00	-0.0708	0.00	-0.160	0.0284	0.00508
100.00	0.00	0.151	-0.620	0.00	-544.10	0.00	-513.43	0.00	-2.01	0.00	-57.28	0.00	-0.0430	0.00	-0.162	0.0503	0.00508
130.00	0.00	0.237	-0.451	0.00	-457.10	0.00	-449.65	0.00	-2.52	0.00	-53.70	0.00	-0.0262	0.00	-0.164	0.0403	0.00508
160.00	0.00	0.353	-0.319	0.00	-358.71	0.00	-394.78	0.00	-3.10	0.00	-50.89	0.00	-0.0160	0.00	-0.166	0.0356	0.00508
190.00	0.00	0.501	-0.211	0.00	-266.20	0.00	-352.45	0.00	-3.76	0.00	-48.71	0.00	-0.0100	0.00	-0.169	0.0174	0.00508
220.00	2.51	0.675	-0.122	0.00	-189.84	0.00	-321.78	0.00	-4.54	0.00	-47.36	0.00	-0.00656	0.00	-0.173	0.0211	0.00595
250.00	15.16	0.879	-0.0411	0.00	-129.23	0.00	-296.41	0.00	-5.40	0.00	-46.23	0.00	-0.00446	0.00	-0.176	0.0407	0.0103
280.00	34.54	1.10	0.0305	0.00	-84.61	0.00	-276.70	0.00	-6.37	0.00	-45.50	0.00	-0.00316	0.00	-0.180	0.0396	0.0170
310.00	63.00	1.32	0.0937	0.00	-53.31	0.00	-261.66	0.00	-7.47	0.00	-45.17	0.00	-0.00235	0.00	-0.185	0.0180	0.0269
340.00	103.33	1.51	0.146	0.00	-33.64	0.00	-250.66	0.00	-8.74	0.00	-45.24	0.00	-0.00182	0.00	-0.189	0.0199	0.0408
370.00	158.67	1.65	0.186	0.00	-21.59	0.00	-243.37	0.00	-10.21	0.00	-45.76	0.00	-0.00149	0.00	-0.195	0.0219	0.0599
400.00	232.58	1.73	0.210	0.00	-14.11	0.00	-239.76	0.00	-11.94	0.00	-46.83	0.00	-0.00128	0.00	-0.202	0.0250	0.0855
		Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO₃}/K_{sp}. pCO₂ (atm) is the partial pressure of CO₂ in the gas phase.
 Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.





DownHole SAT®
SURFACE WATER CHEMISTRY INPUT

Leviathan

Kaiser Francis
Delaware Basin
Account Manager: Steve Tigert
Water Station

Report Date: 12-01-2017 Sampled: 11-30-2017
Sample #: 12584 at 1135

CATIONS

Calcium (as Ca) 24.30
Magnesium (as Mg) 23.90
Barium (as Ba) 0.00
Sodium (as Na) 655.64
Iron (as Fe) 0.00

ANIONS

Chloride (as Cl) 1000
Sulfate (as SO₄) 0.00
Dissolved CO₂ (as CO₂) 9.00
Bicarbonate (as HCO₃) 213.00
Carbonate (as CO₃) 0.00
H₂S (as H₂S) 0.00

PARAMETERS

Calculated T.D.S. 1957
Molar Conductivity 3229
Resistivity 309.66
Sp.Gr.(g/mL) 1.00
Pressure(psia) 50.00
pCO₂(atm) 0.0173
pH₂S(atm) 0.00
Temperature (°F) 72.00
pH 7.00

COMMENTS Analyst: Davida Lowery

ROCKWATER ENERGY SOLUTIONS
7906 West Highway 80, Midland, TX 79706



DownHole SAT®
SURFACE WATER
DEPOSITION POTENTIAL INDICATORS

Levittown

Kaiser Francis
 Delaware Basin Water Station
 Account Manager: Steve Tigert

Report Date: 12-01-2017 Sampled: 11-30-2017
 Sample #: 12584 at 1135

SATURATION LEVEL

Calcite (CaCO ₃)	0.0893
Aragonite (CaCO ₃)	0.0781
Witherite (BaCO ₃)	0.00
Strontianite (SrCO ₃)	0.00
Magnesite (MgCO ₃)	0.0645
Anhydrite (CaSO ₄)	0.00
Gypsum (CaSO ₄ *2H ₂ O)	0.00
Barite (BaSO ₄)	0.00
Celestite (SrSO ₄)	0.00
Siderite (FeCO ₃)	0.00
Halite (NaCl)	< 0.001
Iron sulfide (FeS)	0.00

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.838
Aragonite (CaCO ₃)	-0.964
Witherite (BaCO ₃)	-6.78
Strontianite (SrCO ₃)	-2.22
Magnesite (MgCO ₃)	-1.01
Anhydrite (CaSO ₄)	-594.95
Gypsum (CaSO ₄ *2H ₂ O)	-513.59
Barite (BaSO ₄)	-1.55
Celestite (SrSO ₄)	-60.02
Siderite (FeCO ₃)	-0.0686
Halite (NaCl)	-147227
Iron sulfide (FeS)	-0.160

SIMPLE INDICES

Langelier	-1.04
Ryznar	9.07
Puckorius	8.25
Larson-Skold Index	8.08
Stiff Davis Index	-1.22
Oddo-Tomson	-1.11

BOUND IONS

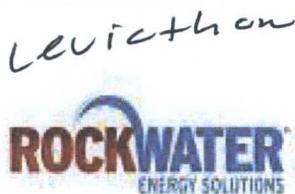
	TOTAL	FREE
Calcium	24.30	23.76
Barium	0.00	0.00
Carbonate	0.259	0.148
Sulfate	0.00	0.00

OPERATING CONDITIONS

Temperature (°F)	72.00
Time(mins)	3.00

ROCKWATER ENERGY SOLUTIONS
7906 West Highway 80, Midland, TX 79706

DownHole SAT Water Analysis Report



SYSTEM IDENTIFICATION

Kaiser Francis
 GRR Bell Lake 4-15
 Well Head
 Account Manager: Steve Tigert

Analyst: Davida Lowery

Sample ID#: 12585
 ID:

Sample Date: 11-30-2017 at 1135
 Report Date: 12-01-2017

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	74.80
Magnesium(as Mg)	33.40
Barium(as Ba)	0.00
Sodium(as Na)	561.31
Iron(as Fe)	0.00

ANIONS

Chloride(as Cl)	1000
Sulfate(as SO ₄)	0.00
Dissolved CO ₂ (as CO ₂)	19.00
Bicarbonate(as HCO ₃)	164.00
Carbonate(as CO ₃)	0.00
H ₂ S (as H ₂ S)	0.00

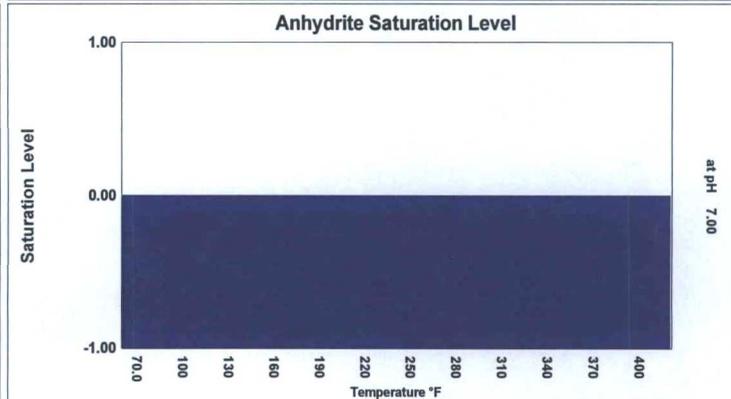
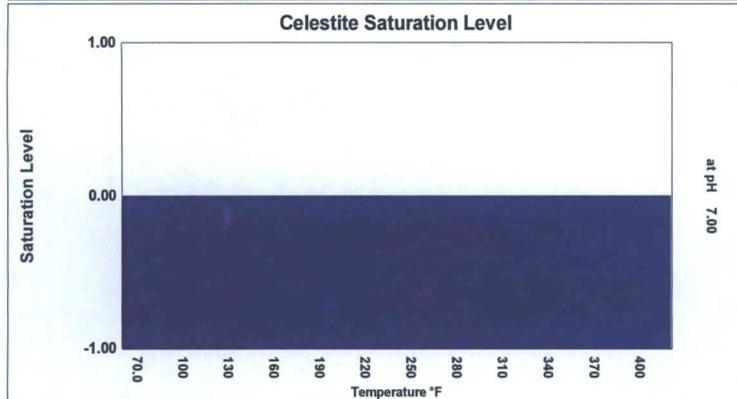
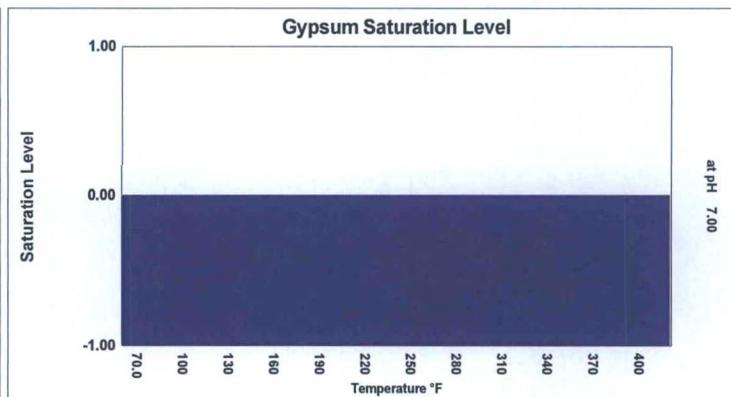
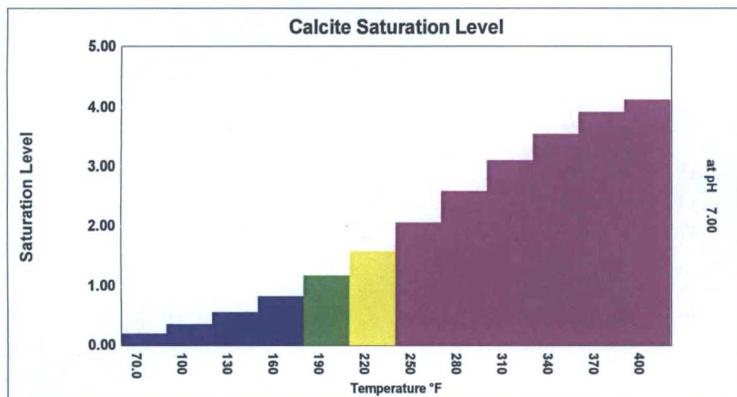
PARAMETERS

Temperature(°F)	72.00
Sample pH	7.00

SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (psig)	Calcite CaCO ₃		Anhydrite CaSO ₄		Gypsum CaSO ₄ *2H ₂ O		Barite BaSO ₄		Celestite SrSO ₄		Siderite FeCO ₃		Mackawenite FeS		CO ₂ (mpy)	pCO ₂ (atm)
70.00	0.00	0.202	-0.253	0.00	-570.85	0.00	-483.67	0.00	-1.52	0.00	-60.30	0.00	-0.0786	0.00	-0.161	0.0239	0.00389
100.00	0.00	0.354	-0.159	0.00	-519.74	0.00	-485.50	0.00	-2.03	0.00	-57.64	0.00	-0.0503	0.00	-0.163	0.0424	0.00389
130.00	0.00	0.555	-0.0881	0.00	-432.59	0.00	-421.73	0.00	-2.54	0.00	-54.05	0.00	-0.0321	0.00	-0.165	0.0339	0.00389
160.00	0.00	0.825	-0.0288	0.00	-334.17	0.00	-366.96	0.00	-3.12	0.00	-51.23	0.00	-0.0203	0.00	-0.167	0.0300	0.00389
190.00	0.00	1.17	0.0239	0.00	-241.91	0.00	-324.82	0.00	-3.79	0.00	-49.03	0.00	-0.0130	0.00	-0.170	0.0132	0.00389
220.00	2.51	1.58	0.0719	0.00	-166.25	0.00	-294.39	0.00	-4.57	0.00	-47.69	0.00	-0.00862	0.00	-0.173	0.0116	0.00455
250.00	15.16	2.05	0.118	0.00	-106.96	0.00	-269.29	0.00	-5.43	0.00	-46.55	0.00	-0.00590	0.00	-0.177	0.0126	0.00790
280.00	34.54	2.57	0.162	0.00	-64.46	0.00	-249.89	0.00	-6.41	0.00	-45.83	0.00	-0.00421	0.00	-0.181	0.0213	0.0130
310.00	63.00	3.08	0.203	0.00	-36.19	0.00	-235.19	0.00	-7.53	0.00	-45.50	0.00	-0.00313	0.00	-0.185	0.0112	0.0206
340.00	103.33	3.55	0.239	0.00	-19.96	0.00	-224.52	0.00	-8.81	0.00	-45.59	0.00	-0.00244	0.00	-0.190	0.0144	0.0312
370.00	158.67	3.91	0.270	0.00	-11.21	0.00	-217.58	0.00	-10.29	0.00	-46.14	0.00	-0.00198	0.00	-0.196	0.0182	0.0459
400.00	232.58	4.11	0.293	0.00	-6.52	0.00	-214.32	0.00	-12.04	0.00	-47.24	0.00	-0.00169	0.00	-0.203	0.0224	0.0654
		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels			

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO₃}/K_{sp}. pCO₂ (atm) is the partial pressure of CO₂ in the gas phase. Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.





DownHole SAT®
SURFACE WATER CHEMISTRY INPUT

Levia than

Kaiser Francis
GRR Bell Lake 4-15 Well Head
Account Manager: Steve Tigert

Report Date: 12-01-2017 Sampled: 11-30-2017
Sample #: 12585 at 1135

CATIONS

Calcium (as Ca)	74.80
Magnesium (as Mg)	33.40
Barium (as Ba)	0.00
Sodium (as Na)	561.31
Iron (as Fe)	0.00

ANIONS

Chloride (as Cl)	1000
Sulfate (as SO ₄)	0.00
Dissolved CO ₂ (as CO ₂)	19.00
Bicarbonate (as HCO ₃)	164.00
Carbonate (as CO ₃)	0.00
H ₂ S (as H ₂ S)	0.00

PARAMETERS

Calculated T.D.S.	1864
Molar Conductivity	3119
Resistivity	320.65
Sp.Gr.(g/mL)	1.00
Pressure(psia)	50.00
pCO ₂ (atm)	0.0132
pH ₂ S(atm)	0.00
Temperature (°F)	72.00
pH	7.00

COMMENTS

Analyst: Davida Lowery

ROCKWATER ENERGY SOLUTIONS
7906 West Highway 80, Midland, TX 79706



DownHole SAT®
SURFACE WATER
DEPOSITION POTENTIAL INDICATORS

Kaiser Francis
 GRR Bell Lake 4-15
 Account Manager: Steve Tigert

Well Head

Report Date: 12-01-2017 Sampled: 11-30-2017
 Sample #: 12585 at 1135

SATURATION LEVEL

Calcite (CaCO ₃)	0.209
Aragonite (CaCO ₃)	0.183
Witherite (BaCO ₃)	0.00
Strontianite (SrCO ₃)	0.00
Magnesite (MgCO ₃)	0.0687
Anhydrite (CaSO ₄)	0.00
Gypsum (CaSO ₄ *2H ₂ O)	0.00
Barite (BaSO ₄)	0.00
Celestite (SrSO ₄)	0.00
Siderite (FeCO ₃)	0.00
Halite (NaCl)	< 0.001
Iron sulfide (FeS)	0.00

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.247
Aragonite (CaCO ₃)	-0.292
Witherite (BaCO ₃)	-6.84
Strontianite (SrCO ₃)	-2.25
Magnesite (MgCO ₃)	-0.737
Anhydrite (CaSO ₄)	-570.64
Gypsum (CaSO ₄ *2H ₂ O)	-485.52
Barite (BaSO ₄)	-1.56
Celestite (SrSO ₄)	-60.39
Siderite (FeCO ₃)	-0.0764
Halite (NaCl)	-147527
Iron sulfide (FeS)	-0.161

SIMPLE INDICES

Langelier	-0.660
Ryznar	8.32
Puckorius	7.66
Larson-Skold Index	10.50
Stiff Davis Index	-0.847
Oddo-Tomson	-0.743

BOUND IONS

Calcium	74.80
Barium	0.00
Carbonate	0.266
Sulfate	0.00

TOTAL

74.80
0.00
0.266
0.00

FREE

73.53
0.00
0.113
0.00

OPERATING CONDITIONS

Temperature (°F)	72.00
Time(mins)	3.00

ROCKWATER ENERGY SOLUTIONS
7906 West Highway 80, Midland, TX 79706

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

RECEIVED OGD

2017 DEC 12 P 2:51

I, Todd Bailey, Editor of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
December 02, 2017
and ending with the issue dated
December 02, 2017.

Editor

Sworn and subscribed to before me this
2nd day of December 2017.

Business Manager

My commission expires
January 29, 2019

(Seal)



OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

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

LEGALS

LEGAL NOTICE
December 2, 2017

Kaiser-Francis Oil Company, 6733 South Yale Avenue, Tulsa, OK 74136, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Leviathan State SWD No.1, will be located 760' FSL and 150' FWL, Section 8, Township 23 South, Range 34 East, Lea County, New Mexico. Produced water from KFOC's area production will be privately disposed into the Devonian/ Silurian formations at a depth of 15,900' to 17,500' at a maximum surface pressure of 3180 psi and a rate limited only by such pressure. The proposed SWD well is located 21.6 miles southwest of Eunice, NM.

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 #32286

67104420

00203531

BEN STONE
SOS CONSULTING, LLC.
P.O. BOX 300
COMO, TX 75431



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

DATE RECORD: First Rec: 12/04/2017 Admin Complete: 12/06/2017 or Suspended: Add. Request/Reply:

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

Well No. 1 Well Name(s): Leviathan State SWD

API: 30-0 25 - Pending Spud Date: TBD New or Old (EPA): N (UIC Class II Primacy 03/07/1982)

Footages 760 FSL 150 FSL Lot or Unit M Sec 8 Tsp Rge 235 County 34E

General Location: 2.15 miles NW JAI Pool: SWD, Devonian-Silurian Pool No.: 57869

BLM 100K Map: JAI Operator: Kaiser-Francis Oil Company OGRID: 12361 Contact: Storey Agent

COMPLIANCE RULE 5.9: Total Wells: 58 Inactive: 2 Fincl Assur: OK Compl. Order? N/A IS 5.9 OK? Y Date: 12/26/2017

WELL FILE REVIEWED Current Status: Proposed

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

Planned Rehab Work to Well:

Table with columns: Well Construction Details, Sizes (in) Borehole / Pipe, Setting Depths (ft), Cement (Sy or Cf), Cement Top and Determination Method. Includes rows for Surface, Interm/Prod, Prod/Liner, and OH/PERF.

AOR: Hydrologic and Geologic Information

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

FRESH WATER: Aquifer Santa Rosa fm Max Depth 500 HYDRO AFFIRM STATEMENT By Qualified Person

NMOSE Basin: CAPITAN CAPITAN REEF: thru adj NA No. GW Wells in 1-Mile Radius? FW Analysis?

Disposal Fluid: Formation Source(s) Analysis? On Lease Operator Only or Commercial

Disposal Interval: Inject Rate (Avg/Max BWPD): 20K/30K Protectable Waters? Source: System: Closed or Open

HC Potential: Producing Interval? Formerly Producing? Method: Logs/DST/P&A/Other 2-Mi Radius Pool Map

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

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

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

NOTICE: Newspaper Date December 2017 Mineral Owner NMSLO Surface Owner NMSLO N. Date 10-30-2017

RULE 26.7(A): Identified Tracts? Affected Persons: DEVON, BTA, ConocoPhillips N. Date 10-30-2017

Order Conditions: Issues: C-B-L from 500' / top of 2nd Int to has a liner

Additional COAs: