Additional Information

Tech Check and

Correspondence

FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V17]

DATE RECORD: First Rec: 3/29/19 **Admin Complete:** _____ **or Suspended:** _____ Add. Request/Reply:_____

ORDER TYPE: SWD Number: 2032 Order Date: _____ Legacy Permits/Orders: _____

Well No. 1 Well Name(s): The Office SWD

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

Footages 150' FSL 410' FEL Lot____ or Unit P Sec 4 Tsp 25S Rge 27E County EDDY

Lattitude: 32.15254 Longitude -104.18753 Pool: SWD; Devonian-Silurian Pool No.: 97869

Operator: OWL SWD OPERATING, LLC OGRID: 308339 Contact: Ramona Hovey Email: RAMONA@LONQUIST.cor

COMPLIANCE RULE 5.9: Total Wells: 26 Inactive: 2 **Fincl Assur:** Yes Compl. Order?_____ **IS 5.9 OK?** ☑ **Date:** 5/20/20

WELL FILE REVIEWED ☑ Current Status: No, New Well

WELL DIAGRAMS: NEW: Proposed ◯ or **RE-ENTER:** Before Conv. ◯ After Conv. ◯ Logs in Imaging: N/A

Planned Rehab Work to Well: N/A New Well

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)		Cement Sx or Cf	Cement Top and Determination Method
Planned ☑ or Existing ☐ **Surface**	26" / 20"	850'	**Stage Tool**	1,785 Sxs	Surface / Circulation
Planned ☑ or Existing ☐ **Interm/Prod**	17.5" / 13.625"	5,300'		3,950 Sxs	Surface / Circulation
Planned ☑ or Existing ☐ **Interm/Prod**	12.25" / 9.625"	13,500'	6100	2,280 Sxs	Surface / Circulation
Planned ☐ or Existing ☐ **Prod/Liner**					
Planned ☐ or Existing ☐ **Liner**					
Planned ☑ or Existing ☐ **OH / PERF**	OH	13,500' - 14,600'	**Inj Length** 1,100'		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho ☐ Struc ☐ Por. ☐	13,163'	Mississippian	13,163
Confining Unit: Litho ☐ Struc ☐ Por. ☐	13,419'	Woodford	13,418'
Proposed Inj Interval TOP:	13,500'	Devonian	13,500
Proposed Inj Interval BOTTOM:	14,600'	Devonian	
Confining Unit: Litho ☐ Struc ☐ Por. ☐			
Adjacent Unit: Litho ☐ Struc ☐ Por. ☐			

Completion/Operation Details:

Drilled TD _____ PBTD _____

NEW TD 14,600' NEW PBTD _____

NEW Open Hole ◉ NEW Perfs ◯

Tubing Size 5.5" in. Inter Coated? Yes

Proposed Packer Depth 13,400 ft

Min. Packer Depth 13,400' (100-ft limit)

Proposed Max. Surface Press. 2,700 psi

Admin. Inj. Press. 2,700 (0.2 psi per ft)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P ☐ *Noticed?* ☐ **BLM Sec Ord** ☐ **WIPP** ☐ *Noticed?* ☑ **Salt/Salado** T: 800 B: 2266 **NW: Cliff House fm** ____

USDW: Aquifer(s) Rustler Max Depth 800' **HYDRO AFFIRM STATEMENT By Qualified Person** ☑

NMOSE Basin: _____ **CAPITAN REEF:** thru ☐ adj ☐ NA ☑ **No. GW Wells in 1-Mile Radius?** 0 FW Analysis? No

Disposal Fluid: Formation Source(s) BS/WC/Delaware/Morrow Analysis? Yes On Lease ◯ Operator Only ◯ Commercial ◯

Disposal Interval: Inject Rate (Avg/Max BWPD): 25,000 / 35,000 Protectable Waters?_____ Source:_____ System: **C**losed ☑ or **O**pen ☐

HC Potential: Producing Interval?_____ Formerly Producing? No Method: Logs ☐ /DST ☐ /P&A ☐ /Other_____ 2-Mi Radius Pool Map ☐

AOR Wells: 1/2-M ____ **or ONE-M** Yes **RADIUS MAP/WELL LIST: Total Penetrating Wells:** 0 [AOR Hor: 0 AOR SWDs: 0]

Penetrating Wells: No. Active Wells 0 No. Corrective?____ on which well(s)?_____ Diagrams?_____

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

Induced-Seismicity Risk Assess: analysis submitted ☐ historical/catalog review ☐ fault-slip model ☐ **probability** _____

NOTICE: 1/2-M ☐ **or ONE-M** ☑ **:** Newspaper Date 3/7/19 **Mineral Owner*** NMSLO Surface Owner BLM N. Date 3/28/19

RULE 26.7(A): Identified Tracts? ☑ **Affected Persons*:** BLM/NMSLO/COG/Concho?EOG/CImarex?EOG N. Date 3/28/19

*** new definition as of 12/28/2018** [any the mineral estate of United States or state of New Mexico; SWD operators within the notice radius]

Order Conditions: **Issues:** No data supporting Induced Seismic Risk - Just statement saying no faults in area.

Additional COAs: _____

Rose-Coss, Dylan H, EMNRD

From: Rose-Coss, Dylan H, EMNRD
Sent: Friday, September 4, 2020 2:09 PM
To: Ramona Hovey
Subject: Re: OWL - The Office SWD

I'm out of the office. I'd be happy to have a call Tuesday though.
Happy labor day.
Dylan

Get Outlook for Android

From: Ramona Hovey <ramona@lonquist.com>
Sent: Friday, September 4, 2020 12:25:36 PM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] RE: OWL - The Office SWD

Do you have time for a quick call about the fault discrepancy? You can reach me at either number below.

Regards,

Ramona Hovey
Sr. Petroleum Engineer

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS

Office: 512-600-1777 Cell: 512-585-0654
12912 Hill Country Blvd., Suite F-200, Austin, Texas, 78738
ramona@lonquist.com · www.lonquist.com

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From: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Sent: Thursday, September 3, 2020 4:58 PM
To: Ramona Hovey <ramona@lonquist.com>
Subject: RE: OWL - The Office SWD

Hi Ramona,

Thanks for working on that. You are correct, that is the sight I was referring to. And yes, the distances are approximations. What I did do though, was copy the Lat, Long from the event and input the coordinates into my ArcGIS file and then measure the distance from the event to the proposed well location. Hopefully they make the website a little more user friendly in the near future, but it is at least another resource.

Anyway, just let me know if there are any other questions.

Regards,

Dylan Rose-Coss

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

From: Ramona Hovey <ramona@lonquist.com>
Sent: Thursday, September 3, 2020 2:48 PM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] RE: OWL - The Office SWD

Dylan,

I'm working on the requests below. Is this the site you are referring to? https://geoinfo.nmt.edu/nmtso/events/home.cfml. If so, are you approximating the distances to get your values for the two events below? Just want to make sure I'm using this correctly for now and in the future.

Regards,

Ramona Hovey
Sr. Petroleum Engineer

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From: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Sent: Friday, August 21, 2020 3:50 PM
To: Ramona Hovey <ramona@lonquist.com>
Subject: RE: OWL - The Office SWD

Ramona,

Thanks for putting the seismicity and faulting analysis for the Office SWD No. 1 app together. I do happen to have a few questions though:

1. The Seismicity discussion mentions USGS and Texnet seismic data. For your information, New Mexico Tech now operates a seismic network. Going forward, please include relevant +2 events from New Mexico Tech's seismic monitoring network. For instance:
    a. 3.5 mi to 2.1 event in May 2020,
    b. 7.5 mile 2.49 event in 2019,
2. I am unable to decipher the information on the geomap regional subsurface structure maps; please resubmit so I am able to read the text
3. Why is the Blue Duck State location used in the discussion of the Snee and Zoback Figure?
4. Please discuss the discrepancy between the geomap surfaces suggesting the nearest faulting to the proposed location being 16.5 miles, and the Snee and Zoback fault locations?

Thanks, and let me know if you have any additional questions, or if I can help clarify anything.

Regards,

Dylan Rose-Coss

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

From: Ramona Hovey <ramona@longuist.com>
Sent: Monday, August 3, 2020 8:55 AM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] RE: OWL - The Office SWD

Please find our attached seismicity review response. Please reach out if you have any questions.

Regards,

Ramona Hovey
Sr. Petroleum Engineer

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From: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Sent: Friday, July 31, 2020 3:42 PM
To: Ramona Hovey <ramona@lonquist.com>
Subject: RE: OWL - The Office SWD

Oh, right on. Well, we'll be on the lookout then.

From: Ramona Hovey <ramona@lonquist.com>
Sent: Friday, July 31, 2020 2:11 PM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] RE: OWL - The Office SWD

Yes, I have it ready. Just waiting for the geologist to sign. I was checking all my OWL application statuses and forgot that you were waiting on me on that one.

Regards,

Ramona Hovey
Sr. Petroleum Engineer

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Sent: Friday, July 31, 2020 2:55 PM
To: Ramona Hovey <ramona@lonquist.com>
Subject: RE: OWL - The Office SWD

Are you working on a induced seismicity analysis to accompany the application? The Division is agreeable to the well plan, but needs the an induced seismicity analysis to proceed.

From: Ramona Hovey <ramona@lonquist.com>
Sent: Friday, July 31, 2020 1:09 PM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] RE: OWL - The Office SWD

Any news on the status of this one?

Regards,

Ramona Hovey
Sr. Petroleum Engineer

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From: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Sent: Tuesday, June 16, 2020 9:53 AM
To: Ramona Hovey <ramona@lonquist.com>
Subject: RE: OWL - The Office SWD

Hi Ramona,

The 7” x 5-1/2” tapered string.

Thanks,

Dylan Rose-Coss

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

From: Ramona Hovey <ramona@lonquist.com>
Sent: Tuesday, June 16, 2020 8:20 AM
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[External email]
[External email]
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Sent: Monday, August 3, 2020 8:55 AM
To: Rose-Coss, Dylan H, EMNRD
Subject: [EXT] RE: OWL - The Office SWD
Attachments: Seismicity and Faults in the Vicinity of Proposed OWL -The Office SWD No. 1.pdf

Please find our attached seismicity review response. Please reach out if you have any questions.

Regards,

Ramona Hovey
Sr. Petroleum Engineer

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Petroleum Specialist
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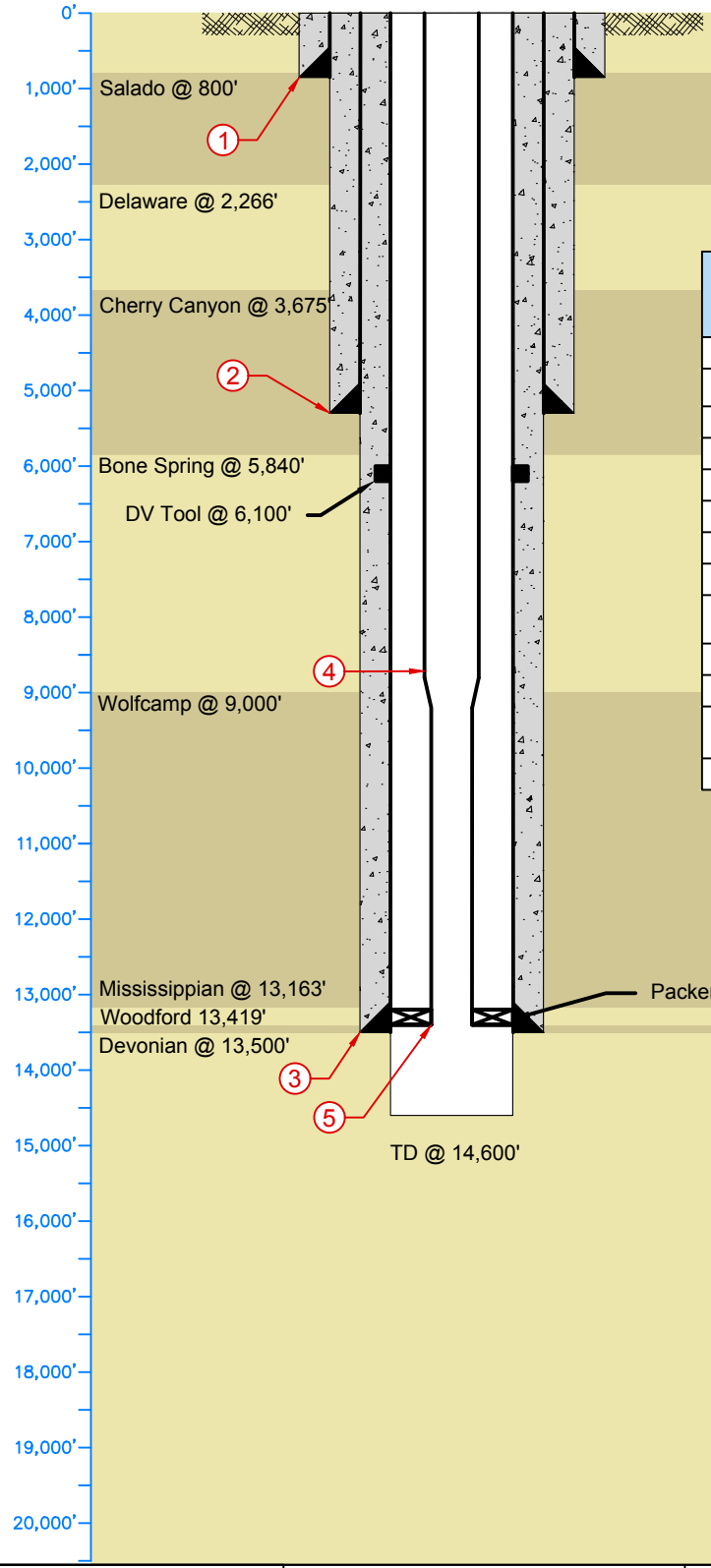

KB:	NA
BHF:	NA
GL:	NA
Spud:	NA

Casing Information

Label	1	2	3	4	5
Type	Surface	Intermediate	Production	Tapered Tubing	
OD	20"	13-5/8"	9-5/8"	7"	5-1/2"
WT	0.729"	0.625"	0.595"	0.453"	0.361"
ID	18.542"	12.375"	8.435"	6.094"	4.778"
Drift ID	NA	NA	NA	5.969"	4.653"
COD	21.000"	14.375"	10.625"	7.675"	6.050"
Weight	133 lb/ft	88.2 lb/ft	58.4 lb/ft	32 lb/ft	20 lb/ft
Grade	J-55 STC	HCP-110 BTC	P-110 LTC	P-110 BTC	P-110 BTC
Hole Size	26"	17-1/2"	12-1/4"	NA	NA
Depth Set	850'	5,300'	13,500'	9,000'	13,400'
TOC	Surface (circulation)	Surface (circulation)	Surface (circulation)	NA	NA
Volume	TBD	TBD	TBD	NA	NA

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Texas License F-9147

12912 Hill Country Blvd, Ste F-200
Austin, Texas 78738
Tel: 512.732.9812
Fax: 512.732.9816

OWL SWD Operating, LLC

The Office SWD No. 1 - Proposed

Country: USA	**State/Province:** New Mexico	**County/Parish:** Eddy
Location:	**Site:**	**Survey/STR:** Sect 10, T-25S, R-27E
API No:	**Field:**	**Well Type/Status:** SWD
State ID No:	**Project No:**	**Date:** 6/16/2020
Drawn: NJP	**Reviewed:** RH	**Approved:** SLP
Rev No: 9	**Notes:**	

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ____X___Disposal _____Storage
Application qualifies for administrative approval? ___X___Yes _____No

II. OPERATOR: OWL SWD Operating, LLC

ADDRESS: 8214 Westchester Drive, Suite 850, Dallas, TX 75255

CONTACT PARTY: Preston Carr PHONE: 855-695-7937

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes ___X___No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

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. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Ramona K. Hovey TITLE: Consulting Engineer – Agent for OWL

SIGNATURE: Ramona K Hovey DATE: 6/16/2020

E-MAIL ADDRESS: ramona@lonquist.com

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

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

Side 2

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

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

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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

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

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

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

INJECTION WELL DATA SHEET

OPERATOR: OWL SWD Operating, LLC

WELL NAME & NUMBER: The Office SWD No. 1

WELL LOCATION:	150’ FSL & 410’ FEL	P	4	25S	27E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26.000” Casing Size: 20.00”

Cemented with: 1,785 sx. ***or*** _____ ft^3

Top of Cement: surface Method Determined: circulation

1st Intermediate Casing

Hole Size: 17.500” Casing Size: 13.625”

Cemented with: 3,950 sx. ***or*** _____ ft^3

Top of Cement: surface Method Determined: circulation

2nd Intermediate Casing

Hole Size: 12.250” Casing Size: 9.625”

Cemented with: 2,280 sx. ***or*** _____ ft^3

Top of Cement: surface Method Determined: circulation

Total Depth: 14,600’

Injection Interval

13,500 feet to 14,600 feet

(Open Hole)

INJECTION WELL DATA SHEET

Tubing Size: 7", 32 lb/ft, P-110, BT&C from 0' – 9000' and 5-1/2", 20 lb/ft, P-110, BT&C from 9000'-13400'
Lining Material: Duoline

Type of Packer: 9-5/8" x 5-1/2" D&L Oil Tools Permapak Packer – Single Bore

Packer Setting Depth: 13,400'

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? ___X___Yes _____No

   If no, for what purpose was the well originally drilled?

   _____

2. Name of the Injection Formation: Devonian-Silurian

3. Name of Field or Pool (if applicable): SWD: Devonian-Silurian (97869)
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.

   No, new drill.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

   Delaware: 2,266'
   Bone Spring: 5,840'
   Wolfcamp: 9,000'
   Morrow: 11,885'
   Mississippian: 13,163'

OWL SWD Operating, LLC.

The Office SWD No. 1

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1.

Well information	
Lease Name	The Office SWD
Well No.	1
Location	S-4 T-25S R-27E
Footage Location	150’ FSL & 410’ FEL

2.

a. Wellbore Description

Casing Design			
Type	Surface	Intermediate	Production
OD	20”	13.625”	9.625”
WT	0.729”	0.625”	0.595”
ID	18.542”	12.375”	8.435”
Drift ID			
COD	21.000”		10.625”
Weight	133 lb/ft	88.2 lb/ft	58.4 lb/ft
Grade	J-55 STC	HCP-110 BTC (or equivalent)	P-110 LTC (or equivalent)
Hole Size	26”	17.5"	12.25”
Depth Set	850’	5,300’	13,500’

b. Cementing Program

Cement Design			
Casing String	Surface	Intermediate	Production
Lead Cement	Cl C + 4% Gel + 5% Salt + 0.25 pps Celloflake	HLC + 5% Salt	Stage 1: HLC Stage 2: HLC
Lead Cement Volume	820 sks	3,430 sks	Stage 1: 1,190 sks Stage 2: 730 sks
Tail Cement	Cl C + 2% CaCl + 0.25 pps Celloflake	Class C + 2% CaCl	Stage 1: Cl H Stage 2: Cl H
Tail Cement Volume	965 sks	520 sks	Stage 1:255 sks Stage 2: 105 sks
TOC	Surface	Surface	Surface
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface

3. Tubing Description

Tubing Design		
OD	7"	5-1/2"
WT	0.453”	0.361"
ID	6.094"	4.778"
Drift ID	5.969”	4.653"
COD	7.675"	6.050"
Weight	32 lb/ft	20 lb/ft
Grade	P-110, BTC	P-110, BTC
Depth Set	0’-9,000’	9,000’-13,400’

Tubing will be lined with Duoline.

4. Packer Description

D&L Oil Tools 9-5/8” x 5-1/2” Permapack Packer – Single Bore

B. Completion Information

1. Injection Formation: Devonian-Silurian

2. Gross Injection Interval: 13,500’ – 14,600’

   Completion Type: Open Hole

3. Drilled for injection.

4. See the attached wellbore schematic.

5. Oil and Gas Bearing Zones within area of well:

Formation	Depth
Delaware	2,266’
Bone Spring	5,840’
Wolfcamp	9,000’
Morrow	11,885’
Mississippian	13,163’

VI. Area of Review

No wells within the area of review penetrate the proposed injection zone.

VII. Proposed Operation Data

1. Proposed Daily Rate of Fluids to be Injection:

   Average Volume: 25,000 BPD
   Maximum Volume: 35,000 BPD

2. Closed System

3. Anticipated Injection Pressure:

   Average Injection Pressure: 2,470 PSI (surface pressure)
   Maximum Injection Pressure: 2,700 PSI (surface pressure)

4. The injection fluid is to be locally produced water. Attached are produced water sample analyses taken from the closest wells that feature samples from the Bone Springs, Wolfcamp, Delaware and Morrow formations.

5. No wells have produced in the Devonian/Silurian in the area surrounding the proposed location.

VIII. Geological Data

The Devonian formation is a dolomitic ramp carbonate that occurs below the Woodford shale and above the Fusselman formation. Strata found in the Devonian formation near Jal are two major groups, the Wristen Buildups and the Thirtyone Deepwater Chert, with the Wristen being more abundant. The Wristen Groups is composed of mixed limestone and dolomites with mudstone to grainstone and boundstone textures. Porosity in the Wristen group is a result of both primary and secondary development. Present are moldic, vugular, karstic (including collapse breccia) features that allow for higher porosities and permeabilities. The Thirtyone Formation contains two end-member reservoir facies, skeletal packstones/grainstones and spiculitic chert, with most of the porosity and permeability found in the coarsely crystalline cherty dolomite. These particular characteristics allow for this formation to be a saltwater disposal horizon with great potential.

A. Injection Zone: Devonian Formation

Formation	**Depth**
Rustler	620’
Salado	800’
Delaware	2,266’
Cherry Canyon	3,675’
Bone Spring	5,840’
Wolfcamp	9,000’
Strawn	10,852’
Atoka	11,117’
Morrow	11,885’
Mississippian	13,163’
Woodford	13,419’
Devonian	13,500’

B. Underground Sources of Drinking Water

No water wells exist within the one-mile surrounding area for the proposed well. Across the area, fresh water wells are usually drilled around 100’. The Rustler is known to exist in this general area and may also be another USDW and will be protected through the top of the Salado formation at 800’ by setting surface casing at 850’.

IX. Proposed Stimulation Program

No proposed stimulation program.

X. Logging and Test Data on the Well

There are no logs or test data on the well. During the process of drilling and completion resistivity, gamma ray, and density logs will be run.

XI. Chemical Analysis of Fresh Water Wells

There are no fresh water wells within one mile of the well location.

XII. Affirmative Statement of Examination of Geologic and Engineering Data

Based on the available engineering and geologic data we find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

Rose-Coss, Dylan H, EMNRD

From: Rose-Coss, Dylan H, EMNRD
Sent: Monday, July 20, 2020 11:09 AM
To: Garcia, John A, EMNRD
Subject: FW: OWL - The Office SWD
Attachments: Response_The Office SWD .pdf

From: Ramona Hovey <ramona@lonquist.com>
Sent: Tuesday, June 16, 2020 3:55 PM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] RE: OWL - The Office SWD

Please find our revised schematic and updated C-108 and support document with the tapered design.

Regards,

Ramona Hovey
Sr. Petroleum Engineer

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS

Office: 512-600-1777 Cell: 512-585-0654
12912 Hill Country Blvd., Suite F-200, Austin, Texas, 78738
ramona@lonquist.com · www.lonquist.com

AUSTIN · HOUSTON · CALGARY · WICHITA · BATON ROUGE · DENVER · COLLEGE STATION · EDMONTON

From: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Sent: Tuesday, June 16, 2020 9:53 AM
To: Ramona Hovey <ramona@lonquist.com>
Subject: RE: OWL - The Office SWD

Hi Ramona,

The 7” x 5-1/2” tapered string.

Thanks,

Dylan Rose-Coss

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

From: Ramona Hovey <ramona@lonquist.com>
Sent: Tuesday, June 16, 2020 8:20 AM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>
Subject: [EXT] OWL - The Office SWD

Dylan,

Following up on our call last week regarding The Office SWD tubing design. Would 7" flush joint be acceptable or do we need to go to 7" x 5-1/2" tapered string?

Regards,

Ramona Hovey
Sr. Petroleum Engineer

LONQUIST & CO. LLC
PETROLEUM ENGINEERS | ENERGY ADVISORS

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