

## **Jones, William V, EMNRD**

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**From:** Jones, William V, EMNRD  
**Sent:** Friday, February 20, 2015 1:46 PM  
**To:** Ben Stone  
**Cc:** Goetze, Phillip, EMNRD; Wade, Gabriel, EMNRD; Brown, Maxey G, EMNRD; Kautz, Paul, EMNRD; Holm, Anchor E.; 'Smith, Kelly'; Khalsa, Niranjana K.; Sanchez, Daniel J., EMNRD  
**Subject:** Cruz; Delaware Pool Area Sections 17 and 18 of T23S R33E

Hello Ben,  
As consultant to Randall at Endurance – sending this to you.

Phillip Goetze asked me to look this over and I did and talked to our attorney quickly about it. The Division had gotten three SWD proposals into the Delaware (Unit letters N, O of Sec 18 and Unit letter M of Sec 17). One of these wells (Unit letter N of Sec 18) is still producing a small amount from the Delaware, and another offsetting well (Unit letter I of Sec 18) is also still producing a small amount. And there are open Delaware perforations in several offsetting wells (depleted). These Sections including Sections to the south are being drilled up as horizontal Bone Spring.

**So all this below is my take on how to accomplish this and subject to change:**

Order R-7857 in Case No. 8729 established a pressure maintenance project covering the E2SE4 of Sec 18 (NM State DL Lease) and the W2SW4 of Sec 17 (NM State EF Lease).

I don't know the actual State lease numbers or who is the current lessees of these two tracts of land.

There may be a State Land Office Comm Agreement covering this 160-acre project with its two separate State leases?

Anyway, there was no Landman testifying at the hearing, but Exxon's application said this was a "cooperative" venture. The Land issues were glossed over and the pressure maintenance project was approved by the OCD. The NM State EF Well No. 3 (in Unit letter P) was to be the first and probably was the only "injection" well into the Delaware below the Oil-Water Contact at -1434 feet SSD. That well is still actively re-injecting Delaware water and probably other waters.

We need to make sure the "project" is dissolved at the same time as the SWD wells are approved.

The SWD wells should only be approved if Endurance agrees to plug the offsetting Delaware production or open perfs. The State Land Office (and the OCD) may not agree to allow this without some proof the Delaware wells are uneconomic.

### Dissolving the Project:

If Endurance will determine all owners (WI and RI) in this 160-acre "project area" and notify them that it intends to abandon the pressure maintenance project AND the cooperative venture that was set up by Exxon years ago.

If Endurance will then send a letter to the Division asking for R-7857 to no longer be in effect – as of the date the EF Well No. 3 is approved for SWD.

### Economics of the Delaware:

Please send to OCD and to Anchor Holm at the State Land Office some accounting documents showing revenue and costs from these Delaware wells that are still producing and include a calculation as to economic limit that is clear and easy to see all assumptions. Send an analysis from a reservoir engineer as to whether this Delaware reservoir is Kaput and has no future potential – or whether something else could be done to recover more oil.

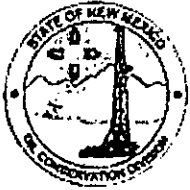
If you are proposing to stay below the original Oil-Water contact in this old reservoir with future disposal – please map this out and let me know.

Send me something from Endurance stating whether they will agree to confining (plugging or replugging) all open AOR wells – mainly Delaware depleted wells. And look at the Bone Spring cement jobs to make sure this covers the Delaware.

If you will do all this, then we will start to look over the three applications still pending in this office.

Thanks Ben,

Will



**William V. Jones, P.E., District IV Supervisor**  
Oil Conservation Division <http://www.emnrd.state.nm.us/ocd/>  
1220 South St. Francis Drive, Santa Fe, NM 87505  
P: 505.476.3477 C: 505.419.1995

COUNTY

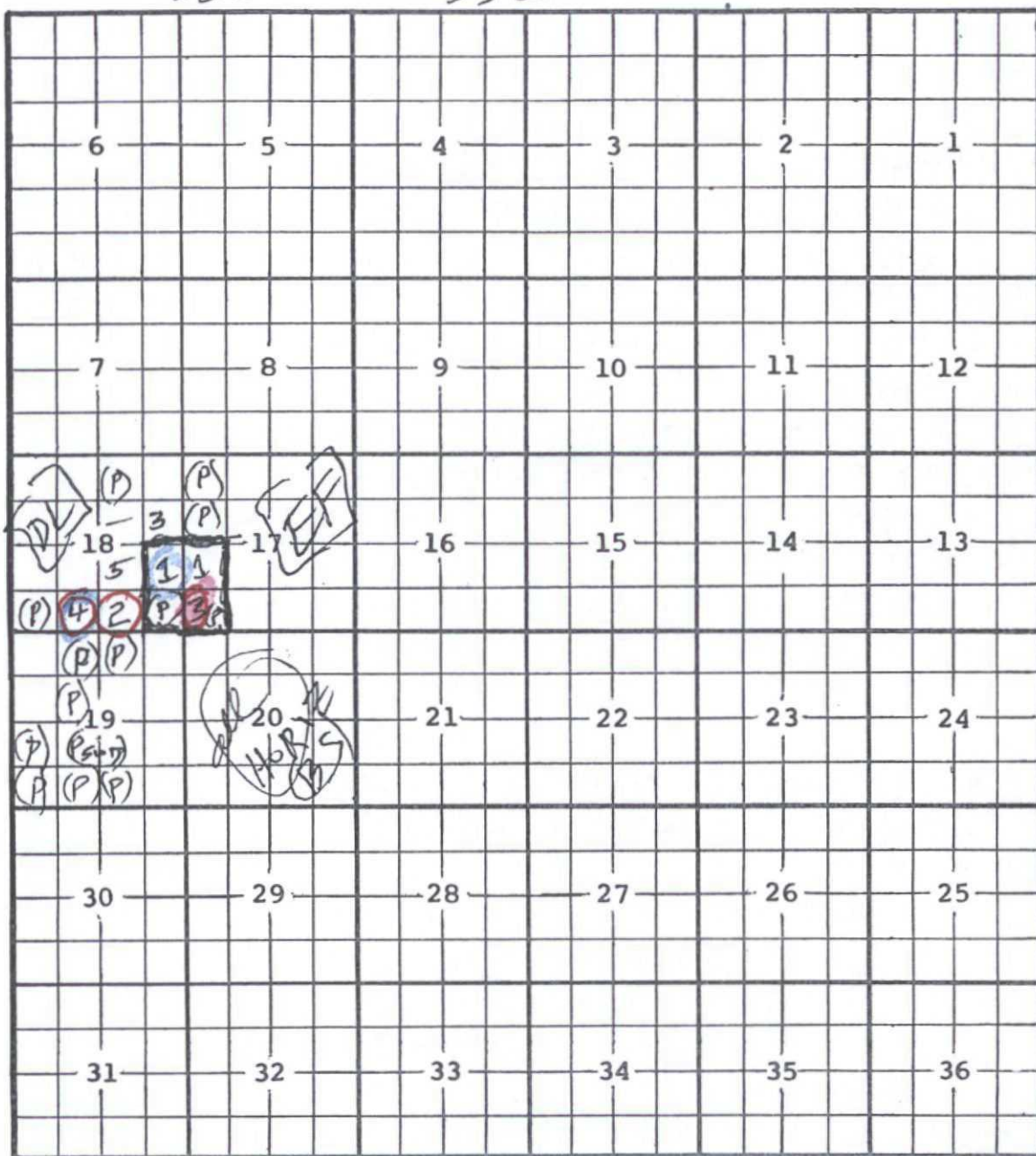
POOL

CRUZ; DELAWARE

TOWNSHIP 23 S

RANGE 33 E

NMPM



NM State "DL" &amp; "EF" P.M. Project

NM State EF #3

5160'-5250'

Below W-O contour

(O-W  
contour)

-1434' SSD

INT (PMZ) well

Producing

Proposed SWD

1 = Zero (Prod)

3 = inj 750-1200 BP

(P) = PFA 6400 well

1 = ACT. DEL. Prod.

3 = Zero (Prod)

5 = 1111

4 = ACT. Del. Prod

## Goetze, Phillip, EMNRD

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**From:** Ben Stone <ben@sosconsulting.us>  
**Sent:** Thursday, February 12, 2015 3:15 PM  
**To:** Goetze, Phillip, EMNRD  
**Subject:** Status & Review of Endurance DL 2, DL4 and EF 3...

Hello Phillip,

Hope you picked up some good information at the GWPC conference. I almost made this one - wish I had, looked like a good agenda.

Back in November, I inquired about the subject wells and you replied with the following:

*The status on the three some is pending due to the type of request made. Your client has provide a unique application package with no prior precèdence. OCD is still in discussion with the SLO on some technical issues since the proposed activity is for three injection wells in the same horizon in close proximity. Additionally, though this was a cooperative PM project, no discussion in the application was provided on the declined production and possible potential EOR for the area/interval of injection. The Secretary has stated that the protection of resources will be priority over injection. Will has provide some pointers on reservoir characteristics and I am going through the case file for the PM project to gleam some structural geology. If Endurance has any additional info they wish to supply about reservoir and ROIP, then we would be very receptive. PRG*

*Phillip R. Goetze, P.G.  
Engineering and Geological Services Bureau, Oil Conservation Division*

In a review of my open items, I again inquired w/ Randall Harris w/ Endurance about the PM situation. Randall reminded me that all of the production has been plugged out with the exception of one well and it's also on their list to P&A. Randall contends that the proposed disposal would be into the Bell Canyon. While the PM order R-7857 states the Ramsey member of the Bell Canyon, he says it should rightly be considered Brushy.

He would like for the applications to still be considered as individual SWD applications as the PM project for all intent and purpose has effectively terminated. Let me know what you think - you guys are the geologists and I'm

## Goetze, Phillip, EMNRD

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**From:** Jones, William <wjones@slo.state.nm.us>  
**Sent:** Wednesday, May 21, 2014 7:42 PM  
**To:** Goetze, Phillip, EMNRD; Holm, Anchor E.  
**Cc:** McMillan, Michael, EMNRD; Ezeanyim, Richard, EMNRD; Martin, Ed; Warnell, Terry G.; Martinez, Pete  
**Subject:** RE: SLO Input to the Three Endurance SWD Applications

Hey Phillip,  
I just now looked at this.

Of the three proposed SWD wells, one is already injecting as part of this "Pressure Maintenance" project. The other two are making 1.5 to less than 1.0 barrels of oil per day and quite a bit of water – probably not economic. I assume Randall is proposing using this same Upper Delaware (Ramsey) sand as the disposal interval? This sand has about 25% porosity if you believe only the density log and about 1.5 ohmm resistivity and seems permeable from the separation in the curves. This upper Delaware interval was obviously the only one with oil and gas potential, but for SWD use, the sands below this depleted interval could also be used – I assume they proposed perforating down into the water leg to get the maximum capacity? I do agree this Ramsey sand in this area is depleted – always hate to see them write it off as a loss, but I see in the files, that the various operators have had problems keeping this going for a while and may be doing it to keep the inactive well count low. And for less than 2 barrels per day when the Bone Spring is doing well, hard to argue against this proposal.

The PM project (cooperative) is only 160 acres and includes one active injection well and two inactive producers – so obviously this is not doing much "secondary recovery" as an inverted 160 acre, five spot without any active producing wells. No way this was ever going to be efficient. If you wanted to dissolve the PM with some sort of note in the Case file No. 8429 or however Richard wants to handle these end-stage projects – it would be OK with me (as my recommendation to the managers here at State land office). I think this is a cooperative PM project, so nothing here for Pete to terminate.

And the two State leases involved are large and have active production elsewhere.

I suspect that using this Ramsey sand as a disposal zone will not work for long – they already have one good horizontal Bone Spring well located in the E2E2 of Section 17 and have permits for 6 or 7 more. They may be seeking more disposal capacity soon. But this is an inexpensive way to start. I could tell by Randall Harris' happy demeanor at the hearing yesterday, he may have an interest in this... sometimes I think we are missing the boat working this side of the oil business.

Hope you all have a good day,

Will

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**From:** Goetze, Phillip, EMNRD [<mailto:Phillip.Goetze@state.nm.us>]  
**Sent:** Wednesday, May 14, 2014 3:20 PM  
**To:** Jones, William; Holm, Anchor  
**Cc:** McMillan, Michael, EMNRD; Ezeanyim, Richard, EMNRD  
**Subject:** SLO Input to the Three Endurance SWD Applications

5/14/2014 DATE	SUSPENSE	ENGINEER	5/14/2014 LOGGED IN	SWD TYPE	PMA 1413451840 APP NO.
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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



**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 \_\_\_\_\_

- SWD  
- Endurance  
Resources  
270329

RECEIVED COD  
MAY 14 2014

[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

Well  
- NM 'DL' State  
Well #4  
30-025-28609  
Pool  
- SWD, Delaware  
96100

[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 Endurance Resources	5/08/14
Print or Type Name	Signature	Title	Date
		ben@sosconsulting.us	
		e-mail Address	



~~Oil & Gas Accounting & Regulatory Assistance~~ ~~Oil & Gas Permitting Assistance~~

May 9, 2014

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

Attn: Ms. Jami Bailey, Director

*Re: Application of Endurance Resources, LLC to permit its New Mexico 'DL' State No.4 for salt water disposal, located in Section 18, Township 23 South, Range 33 East, NMPM, Lea County, New Mexico.*

Dear Ms. Bailey,

Please find enclosed form C-108 Application for Authority to Inject, supporting the above-referenced request to convert for disposal, the NM 'DL' State Well No.4.

Endurance Resources 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.

Of particular note with this project, this conversion to SWD is part of a larger effort to accommodate the produced water expected to be generated by Endurance's upcoming efforts to drill and complete several horizontal producers in the area. The wells will be completed in the Cruz-Bone Spring Pool and are expected to yield several thousand barrels of oil per month. Existing Cruz-Delaware producers are mostly plugged out with only a couple of wells left. This is discussed in more detail in the subject application.

Published legal notice ran in the April 18, 2013 edition of the Hobbs Daily News-Sun and all offset operators and other interested parties have been notified. The legal notice affidavit is included in this application package. 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 state land and state minerals and a copy of this application has been submitted to the State Land Office, Division of Oil, Gas and Minerals. The BLM has offset minerals and has also been notified.

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 Endurance Resources, LLC

Cc: Application attachment and file

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: ***Salt Water Disposal – Application Meets Qualifications for Administrative Approval.***
- II. OPERATOR: ***Endurance Resources, LLC.***  
ADDRESS: ***P.O. Box 1466, Artesia, NM 88211***  
  
CONTACT PARTY: ***Randall Harris (575) 308-0722***  
***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. ***(7 AOR wells penetrate subject interval – 5 PA, 1 proposed SWDs and 1 intent to PA.) 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. ***No stimulation program is proposed at this time.***
- \*X. ***There is no applicable test data on the well however, any previous well logs (2 well logs available via OCD Online)*** have been filed with the Division and they need not be resubmitted.
- \*XI. ***State Engineer's records indicates one (1) domestic water wells within one mile the proposed salt water disposal well. Analysis is included herein.***
- 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. NM State Land Office and BLM (Offset) There are 4 offset lessees and/or operators within ½ mile - all have been noticed via U.S. Certified Mail..***
- 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 Endurance Resources, LLC***

SIGNATURE:  DATE: ***5/08/2014***

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: