

Additional Information

Geologic Addendum
1/29/2021

Geologic Addendum

January 29, 2021

Strata in the subject well does not provide for the classic 'sealing strata' layers immediately above and below the proposed injection interval. The proposed interval is the San Andres and in spite of being pooled in the area with the Yates, Seven Rivers, Queen and Grayburg formations, there are distinct characteristics we believe support the confinement to the San Andres for a low-rated disposal well. Notably in the lower portion of the Grayburg the porosity and permeability are not well-developed and anhydrite cementation is common in these completions. Below the proposed interval lies the Glorieta, Yeso and Abo formations and while not considered confining, nor are they productive in the area. The next production down is the Morrow and there is no chance that disposal operations in the DHY A State SWD #1 would have any impact whatsoever.

Given that the proposal is for standard gradient pressure through perforations targeting the best porosity, particularly of the lower San Andres interval, we expect the injectates to be reasonably and appropriately confined to the intended intervals. Ray Westall Operating hopes to achieve a maximum rate of 2500 bwpd (~2 bpm) but recognizes that that may be optimistic. However, the facility (tank battery and pumps) are already in place from the attempted lower completion into the Cisco/ Canyon formations (SWD-1556).

The offsetting producers have been stripper wells for years and generally make less than 1 bopd and 1000 mcf of gas. The low oil production is even with the influence of the secondary recovery efforts of the East Millman Queen-Grayburg Pressure Maintenance Project (R-2405, 2405-A), currently owned and operated by Stephens & Johnson Operating Company. (The pool designation evolved through subsequent orders to include the San Andres and later the Yates and Seven Rivers.) It should be noted that the producers tend mostly to the Queen portion of the pool with interval ranging from 1738' to 2283'. Admittedly, one offset shows a completion from 2444' to 2565' however, the well has not produced since May of 2016 and currently has a sundry intent to plug and abandon.

The injectors in the project average pressures near a 0.4 psi/ft gradient. In the unlikely event that any injection fluids in the DHY A State SWD #1 migrated upwards, the only potential impact would be to possibly enhance production but given the advance state of depletion in the area, we don't believe there would be any negative impact to operations and overall, ***recompleting this SWD in the San Andres interval would be the highest and best use for the area.***

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



WELL SCHEMATIC - PROPOSED DHY 'A' State Well No.1 SWD

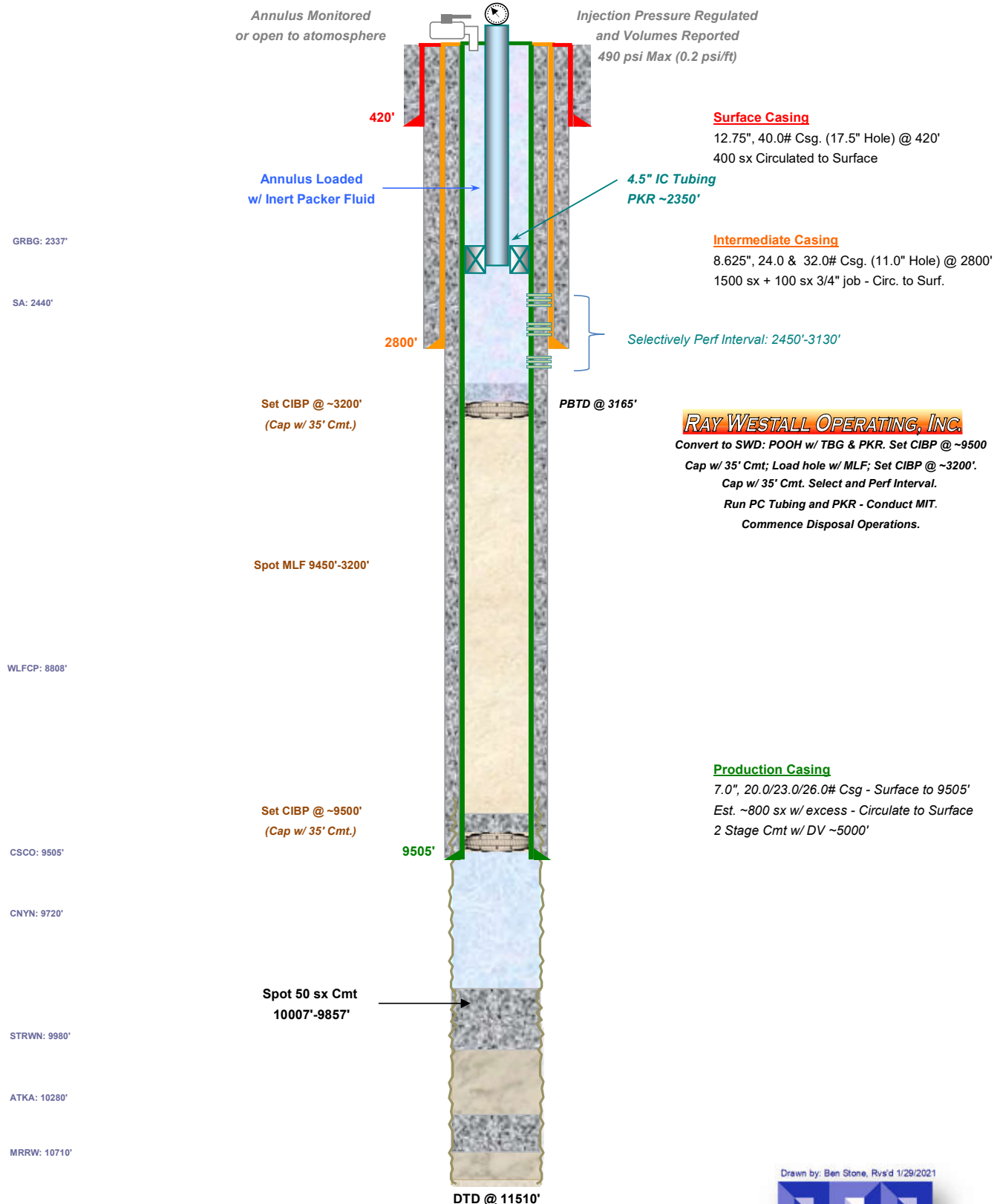
API 30-015-21711

1980' FSL & 1650' FEL, SEC. 15-T19S-R28E
EDDY COUNTY, NEW MEXICO

SWD; San Andres-Glorieta (96127)

P&A Date: 3/17/1976

Re-Config Date: ~11/15/2018



Drawn by: Ben Stone, Rvs'd 1/29/2021



Rose-Coss, Dylan H, EMNRD

From: ben sosconsulting.us <ben@sosconsulting.us>
Sent: Friday, January 29, 2021 3:12 PM
To: Engineer, OCD, EMNRD
Cc: Goetze, Phillip, EMNRD; McClure, Dean, EMNRD; nmoil@aol.com; mathewsad@hotmail.com
Subject: [EXT] RE: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...
Attachments: Response to OCD Questions_20210129.pdf; Schematic_PROPOSED_DHY-A_Rvsd_20210129.pdf

Gentlemen:

Thank you for your review of the subject C-108 application. I have reviewed the information and make this response on behalf of Ray Westall Operating, Inc. (2 docs attached.)

First, the wellbore diagram has been revised – the packer depth was simply a typo/ uncorrected left over from the previous diagram.

I have looked at our GIS and the OCD Online GIS and cannot see that there is any federal land within ½ mile. If I'm missing something, please advise what land area you're looking at that may be anything other than state lands.

Finally, I have added some geologic and operational narrative for what we believe makes the subject application appropriate and viable.

Thank you for your efforts and let me know if there's anything else I can provide.

Best regards,
Ben



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From: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us> **On Behalf Of** Engineer, OCD, EMNRD
Sent: Thursday, January 28, 2021 5:55 PM
To: ben [sosconsulting.us](mailto:ben@sosconsulting.us) <ben@sosconsulting.us>
Cc: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; McClure, Dean, EMNRD <Dean.McClure@state.nm.us>
Subject: RE: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...

Mr. Stone,

OCD staff have performed a technical review for the proposed Ray Westall, DHY A SWD #1 (SWD- 1793, pMAM1825456023) C-108 application. In order to proceed with continued evaluation, the OCD will need the following information:

- The proposed wellbore schematic indicates that the packer is to be set at 9410 ft. Packers are to be set no less than 100 ft from the top of the injection interval. Therefore, please propose a different packer setting depth between 2350-2450 ft bgs.
- The application material does not indicate that the BLM was given notice of the application. OCD records indicate that the BLM is a surface and mineral owner within 0.5 miles of the well. Therefore, please notice the BLM of the application and provide the OCD proof of said notice.

- Submit formation top picks for the intervals which are to act as the lower confining units to injection and analysis that suggests that there will be an adequate lower seal to confine injected fluids to the permitted zone.
- Submit analysis regarding the proposed injection intervals lack of productivity and that injection will not affect correlative rights, or create waste. Review of AOR wells suggests that there are numerous proximal wells currently producing from and injecting into zones very close to the proposed injection interval.

Upon further review the OCD may require that additional supplemental material be provided, but until the aforementioned information is submitted the application will remain in pending status.

Thank you for your time and attention to these matters.

Sincerely,

Dylan Rose-Coss

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

C: (505) 372-8687



From: ben [sosconsulting.us](mailto:ben@sosconsulting.us) <ben@sosconsulting.us>

Sent: Friday, January 15, 2021 11:15 AM

To: Engineer, OCD, EMNRD <OCD.Engineer@state.nm.us>

Cc: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; McClure, Dean, EMNRD <Dean.McClure@state.nm.us>

Subject: [EXT] RE: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...

Gentlemen:

Happy New Year we hope! I sincerely hope everyone up there is well.

I would like to again inquire about Ray Westall's C-108 – sounded like it was close in September but I've not heard anything since.

Thanks for your earliest reply.

Best,
Ben



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From: ben [sosconsulting.us](mailto:ben@sosconsulting.us)

Sent: Tuesday, September 01, 2020 2:34 PM

To: Engineer, OCD, EMNRD <OCD.Engineer@state.nm.us>

Cc: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; McClure, Dean, EMNRD <Dean.McClure@state.nm.us>

Subject: RE: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...

Thanks Dylan.



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From: Engineer, OCD, EMNRD <OCD.Engineer@state.nm.us>

Sent: Tuesday, September 01, 2020 2:32 PM

To: ben [sosconsulting.us](mailto:ben@sosconsulting.us) <ben@sosconsulting.us>

Cc: Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; McClure, Dean, EMNRD <Dean.McClure@state.nm.us>

Subject: Re: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...

Ben,

The OCD Engineering Division UIC team is in receipt of, and currently reviewing the Ray Westall, DHY A SWD #1 (SWD- 1793, pMAM1825456023) application. At this time the application is considered administratively complete and the Division is working through an analysis of the AOR wells.

Regards,

Dylan Rose-Coss

Petroleum Specialist

Oil Conservation Division

1220 South St. Francis Drive

Santa Fe, New Mexico 87505



From: ben [sosconsulting.us](mailto:ben@sosconsulting.us) <ben@sosconsulting.us>

Sent: Monday, August 31, 2020 10:07 AM

To: Engineer, OCD, EMNRD

Subject: [EXT] RE: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...



Any update or info is appreciated as is the courtesy of a response.

Thanks,
Ben



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From: ben [sosconsulting.us](mailto:ben@sosconsulting.us)

Sent: Thursday, August 20, 2020 1:40 PM

To: Engineer, OCD, EMNRD <OCD.Engineer@state.nm.us>

Subject: RE: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...

Any update or info is appreciated.

Thanks,
Ben



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From: ben sosconsulting.us
Sent: Tuesday, August 11, 2020 3:25 PM
To: Engineer, OCD, EMNRD <OCD.Engineer@state.nm.us>
Subject: Ray Westall Operating - C-108 to complete to new interval in its DHY A SWD #1...

Gentlemen:

RWO submitted a C-108 for the subject well in September 2018. Their intent was to recompleate the well as a viable SWD in the San Andres/ Glorieta. The well had been permitted into the Cisco/ Canyon by SWD-1556 but after configuring the well, it was never able to achieve decent, commercial rates of disposal.

RWO would like to move forward to get the well active. I've attached a copy of the C-108 – there were no objections and RWO could get the workover completed quickly to get the well back in service.

Please let me know something at your earliest convenience.

Thank you,
Ben



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