STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

REVISED EXHIBIT PACKET TABLE OF CONTENTS*

* Revised and/or new exhibits (as requested by Division) denoted by italics

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APPLICATION OF RAZ OIL AND GAS L.L.C.
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SELF-AFFIRMED DECLARATION OF JOSHUA TICKNOR

Joshua Ticknor declares as follows:

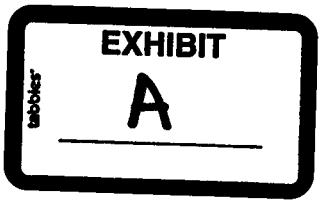
1. My name is Joshua Ticknor. I work for ALL Consulting as a Project Manager/Regulatory Specialist. I have been retained by Raz Oil and Gas L.L.C. ("Raz") (OGRID No. 370507). My responsibilities at ALL Consulting include saltwater disposal well permitting efforts in New Mexico. I have personal knowledge of the matters stated herein.

2. I have not previously testified before the Division. My resume is attached as **Exhibit A-1**. I received a Bachelor's Degree in Petroleum Engineering from the University of Tulsa, in 2008. Since that time, I have spent more than 15 years supporting oil and gas exploration and production operations, including designing disposal facilities for water produced in the oil and gas production process. I also have experience with reservoir modeling. I am a registered professional engineer in New Mexico, as well as Oklahoma, Texas, and Wyoming. I have supervised the assembly and submission of multiple produced water injection applications submitted to the New Mexico Oil Conservation Division.

3. I request to be admitted as an expert in saltwater disposal well operations, engineering, and permitting matters.

4. My area of responsibility includes the area of Lea County in New Mexico.

5. I am familiar with the application Raz filed in this matter and I am familiar with the status of the lands in the subject area.



6. **Exhibit A-2** is the hearing application in Case No. 25081 that Raz filed with the Division. The application includes the Form C-108, attached as Exhibit A to the Application. In preparing for this hearing, I have reviewed the C-108 and did not identify any changes that require amending the C-108 or affect the accuracy of statements in the C-108, other than the changes I will discuss below that Raz has agreed to as a result of discussions with Mewbourne Oil Company ("Mewbourne").

7. Raz currently operates the YO State SWD #1 (API 30-025-38162) (the "Well") pursuant to Division Order SWD-1594, at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Raz currently injects produced water into the Devonian formation. The well is a commercial well.

8. In this case, Raz seeks authority to plug back the Well to the Delaware Mountain Group ("DMG") and authority to inject produced water into the Bell Canyon and Cherry Canyon formations.

9. Raz is applying to plug back the Well to allow disposal into the Bell Canyon and Cherry Canyon formations because current disposal into the Devonian formation has become nonviable. Injection pressures have increased to near the maximum allowable limit, making continued operations in the Devonian formation uneconomic. By plugging back and recompleting into the Bell Canyon and Cherry Canyon formations, Raz aims to maintain viability by utilizing a shallower and potentially more efficient disposal zone that could accommodate its operational needs.

10. In its C-108 and application in this case, Raz originally sought authority to inject at a depth of approximately 5,540 feet to 6,930 feet, and requested that the Division approve a maximum daily injection rate for the well of 20,000 barrels of water per day ("bwpd").

11. Mewbourne objected to Raz's application in this case on January 3, 2025.

12. Raz and Mewbourne engaged in discussions to resolve Mewbourne's objections, and, as a result of those discussions, Raz agreed to limit the injection interval to 5,540 feet to 6,104 feet and to limit the maximum requested injection volume to 8000 bwpd. Attached as **Exhibit A-3** is a revised wellbore diagram showing the revised injection interval.

13. Raz and Mewbourne have also coordinated with the New Mexico State Land Office and the New Mexico State Land Office does not have any objections to recompleting the Well in the DMG based on the revised injection interval and injection volumes.

14. Raz requests that the 8000 bwpd be specified in the Special Conditions section of the approved permit.

15. The outside diameter of the injection tubing will be 4.5 inches.

16. Raz requests approval of a maximum injection pressure of 1,108 psi for the well.

17. Raz calculated the maximum injection pressure using the Division 0.2 PSI per foot of depth to top perforation (0.2 x 5540).

18. Raz understands that the Division may require Raz to undertake a step-rate test ("SRT") prior to commencing injection to determine the surface injection pressure and the corresponding rate of injection. If this Division imposes this requirement, Raz will undertake the SRT prior to commencing injection.

19. Raz proposes to cement back the well as follows:

- Set CIBP at 12,300' and spot 25 sacks Class H cement (approximately 122 feet of fill up) on top.

- Spot 200' Class H cement plug from 10,200'-10,000'.
- Spot 200' Class H cement plug from 7,678'-7,478'.
- Set CIBP at 7,100' and spot 25 sacks Class H cement (approximately 122 feet of fill up) on top.
- Perforate best zones based on open hole log suite, with top perforations at approximately 5,540'.

20. Raz intends to use the Hornet Packet, which is a specialized downhole tool used in injection wells to create an effective seal between the casing and tubing. It is designed to isolate specific zones in the wellbore, allowing for controlled injection into the desired formation while preventing fluid migration to unintended zones.

21. A summary of the Hornet Packer is included in the C-108 (Attachment 1, Exhibit A-2).

22. A map that identifies wells within 2 miles of the Well is included in the C-108 (Attachment 2, Exhibit A-2).

23. As noted on Attachment 2 to Exhibit A-2, there are no DMG disposal wells within 2 miles of the Well.

24. As noted on Attachment 2 to Exhibit A-2, there are no wells targeting the DMG within 2 miles of the Well. The closest DMG producer is 12.5-miles SW (API # 025-32937). There is a plugged oil well (025-35108) that is 2.29-miles due west.

25. I prepared an analysis of the potential for injected fluids to impact the closest DMG producer and the nearest DMG plugged well and my analysis concludes that the injected flued would not reach the nearest DMG producer or plugged DMG well. My analysis of the YO State #1 SWD Volumetrics is attached as **Exhibit A-4**.

26. As noted in Attachment 2 to Exhibit A-2, there is one well within a half-mile of the Well, which is the State WE K #001 well, operated by Raz, which has been plugged. Attachment

2 to Exhibit A-2 includes the plugging information and a wellbore diagram showing how the well was plugged.

27. Attachment 2 to Exhibit A-2 identifies the operators, lessees, mineral and surface owners within two miles of the Well.

28. ALL Consulting reviewed publicly available data on OCD's website to determine whether there are any gas processing facilities that are currently approved for disposal of treated acid gas in the DMG and did not find any within 3 miles of the Well.

29. I also reviewed whether there are any fresh water wells within a mile of the Well. I found one freshwater well within one mile of the Well, as noted in Attachment 5 to Exhibit A-2. I have also included the well data from that well, undertaken in 2015.

30. The Lamar Limestone and the Brushy Canyon will not be used for injection and are not part of the proposed injection interval.

31. Raz will not using well stimulation that induces any new fracture systems or propagates existing fractures and Raz will not use any proppants in stimulation.

32. Raz understands that the Division may require additional testing and reporting, which Raz is prepared to undertake and submit.

33. I provided notice information to Raz's counsel based on OCD's regulations, in Rule 19.15.26.8(B), which require notice to the surface owner and to each leasehold operator, and to any other affected person as that term is defined Rule 19.15.2.7(8). The notice party information is included in Attachment 7 to Exhibit A-2.

34. I reviewed the notice party information prior to submitting the application for this case and found one change, which is that Tom Brown Incorporate leased to Winston & Marshall.

I provided Winston & Marshall's contact information to Raz's counsel for notice purposes. Attached as **Exhibit A-5** to my declaration is an updated ½ mile AOR map.

35. It is my opinion that Raz undertook a good faith effort to locate and identify the correct parties and valid addresses required for notice.

36. In my opinion, the granting of Raz's application is in the interests of conservation and the prevention of waste. The Well will provide much needed capacity for produced water, which will, in turn, support oil and gas operators' ability to produce oil and gas.

37. The attached exhibits were prepared by me, or compiled from company business records, or were prepared at my direction.

38. I attest under penalty of perjury under the laws of the State of New Mexico that the information provided herein is correct and complete to the best of my knowledge and belief.

[Signature page follows]

Dated: February 6, 2025

Josh Ticknor

Joshua Ticknor

January 2025

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Joshua David Ticknor P.E., Q.M.S
Project Petroleum Engineer
Registered Professional Engineer in OK, TX, NM, & WY

Education

B.S., Petroleum Engineer, University of Tulsa

Distinguishing Qualifications

Mr. Ticknor obtained a bachelor's degree in petroleum engineering and since then has gained versatile experience through more than 15 years of supporting exploration and production operations, coordinating reservoir engineering teams, and designing wastewater management, recycling, and disposal facilities.

Mr. Ticknor has proven his ability to manage all aspects of well interventions safely and efficiently, recently concentrating on abandonment of complex and challenging wells. His experience includes development and implementation of detailed procedures for well abandonment operations and supervising extensive research efforts on the best practice considerations for idle and orphan well plugging and abandonment. Mr. Ticknor has provided on-site supervision and coordination of well service rigs during abandonment operations, effectively managing wellbore integrity, fluid handling, pressure control, and safety throughout the task.

Mr. Ticknor's varied experience includes analysis and resolution of other operational and multi- disciplinary issues in the areas of well construction and siting; well permitting; contractor management; water sourcing, and pipeline modeling. This includes experience in produced water storage, treatment, transportation, and disposal. He is highly knowledgeable in many areas and aspects of workover operations not limited to flowback maintenance, gas lift optimization, and marginal well management.

Mr. Ticknor is also proficient in utilizing advanced software tools for reservoir modeling, economic forecasting, and project scheduling. His hands-on experience with technologies like aerial drone surveillance, mechanical integrity testing, and pressure transient analysis further bolsters his ability to handle complex engineering projects.

Mr. Ticknor is a registered professional engineer in Oklahoma, Texas, New Mexico, and Wyoming. In December 2023, he earned the Qualified Methane Specialist (QMS) certification through a40-hour course administered by the WellDone Foundation.

EXHIBIT
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Relevant Experience

The following information is intended to demonstrate Mr. Ticknor's experience and qualifications:

For **Promise Energy**, Mr. Ticknor developed abandonment proposals and evaluated carbon credit potential for neglected wells in the South Gillock Unit near Texas City. Many of these wells were situated near residential areas and water channels, highlighting the need for environmental risk mitigation. The project focused on prioritizing the plugging of wells with a high risk of contamination while aligning efforts with carbon credit generation strategies to ensure sustainable outcomes. Led engineering efforts for the project, including drafting and reviewing wellbore diagrams (WBDs), creating detailed abandonment plans, and providing oversight of well plugging operations. Ensured compliance with regulatory standards and incorporated best practices for minimizing environmental impact and optimizing cost efficiency."

For **Landowners near Boehmer Lake**, Mr. Ticknor conducted a comprehensive review of well files and operator records for aging and abandoned wells near Boehmer Lake, an artificial lake in Pecos County, Texas, created by a leaking well. The surrounding area is characterized by extensive legacy oilfield infrastructure and complex subsurface geology, which pose significant challenges for well integrity. Assessed potential pathways for crossflow by analyzing historical data, well construction, and plugging records. Provided detailed recommendations to mitigate environmental risks, address regulatory compliance, and improve site management strategies. Provided insights and recommendations to mitigate environmental impacts and enforce regulatory compliance.

For owners of the **Petty Ranch near Pecos, Texas**, Mr. Ticknor conducted an air quality study to investigate emissions from a nearby gas plant suspected of exceeding regulatory limits. Collected and analyzed atmospheric data, monitored emissions, and identified non-compliance with air quality standards. Developed evidence-based reports and figures supporting claims of environmental impact, aiding the ranch owner in addressing the issue with regulators and stakeholders.

For **Dynavert**, Mr. Ticknor evaluated recently abandoned and idle wells near Garden City, Kansas for their potential to generate carbon credits through plugging and reclamation activities. Conducted site assessments, reviewed regulatory frameworks, and analyzed environmental benefits to quantify carbon offset potential. Provided recommendations to optimize credit generation while addressing environmental and compliance goals.

For **Charm Industrial**, Mr. Ticknor prepared a study assessing the feasibility of utilizing corn stover as a feedstock for biodiesel production and generating carbon credits. Analyzed supply chain logistics, conversion processes, and regulatory frameworks to evaluate economic viability and environmental impact. Provided actionable recommendations for integrating corn stover into sustainable energy and carbon offset initiatives.

For **Denali Resources**, Mr. Ticknor evaluated the potential of deep Arbuckle natural gas production wells in Latimer County for conversion to Class VI carbon dioxide disposal wells. Analyzed reservoir properties, geological suitability, and well construction to determine feasibility. Provided recommendations and detailed assessments to support decision-making for CO_2 sequestration operations.

Litigation Support – Saltwater Disposal and Production Operations Dispute Mr. Ticknor provided litigation support in a dispute involving a saltwater disposal operator and production operators alleging interference with nearby drilling activities in the Permian Basin. He conducted volumetric analysis, reviewed injection pressure data, and assessed subsurface interactions. His work included developing detailed, evidence-based figures and reports that demonstrated the disposal operations were not the cause of the claimed issues.

For **Litigation Support**, Mr. conducted a **Frac Hit Investigation for Damaged Vertical Wells** in Cleveland County Oklahoma. Mr. Ticknor investigated frac hit damage on vertical wells caused by nearby horizontal drilling operations. Analyzed pressure data, well performance, and geological factors to assess the extent of the impact. Provided detailed reports and evidence-based figures to support the affected operator in addressing the issue with stakeholders and regulators.

For **Litigation Support,** Mr. Ticknor conducted an **Analysis of a Saltwater Purge in Latimer County Oklahoma.** The saltwater purge incident initially was attributed to a saltwater disposal operator. Collected and analyzed on-site pressure and flow data over 18 months, identifying evidence suggesting nearby production wells as the potential cause. Developed data-driven figures and reports to support the defense, aiding in case strategy and resolution.

For **Shareholder Litigation Support Against Concho Resources**, Mr. Ticknor provided technical support in a shareholder case involving Concho Resources' Dominator pad in the Permian Basin. Conducted in-depth reviews of production forecasts, reserve estimates, and marketing strategies. Analyzed evidence and developed figures to support the case,

highlighting discrepancies in production and reserve reporting.

For **Raz Oil and Gas**, Mr. Ticknor coordinated the abandonment of an idle deep disposal well drilled on New Mexico State Land in Lea county. This project necessitated complex plugging requirements as the operator of the idle disposal well proposed that the final disposition of the abandonment would allow for future up-hole recompletion of their other nearby SWD properties, Mr. Ticknor prepared a well abandonment procedure, specifying the steps to be taken to abandon the idle disposal well in a safe and environmentally responsible manner. The procedure was developed in consultation with all relevant stakeholders, including engineers, regulators, and environmental experts. Mr. Ticknor procured the vendors and service providers needed to carry out the abandonment. Mr. Ticknor provided on-site supervision of all abandonment activities to ensure that the procedure was followed correctly and that all regulations were met.

For the **Groundwater Protection Council**, Mr. Ticknor served as the project manager for an extensive research effort on best practice considerations for idle and orphan well plugging and abandonment. Mr. Ticknor led a team of authors to investigate oil and gas well abandonment technologies, methods, and regulations from historic to modern day practices. The team conducted a comprehensive review of state and federal plugging requirements, which were summarized in the document. Mr. Ticknor was responsible for developing a research plan and timeline, overseeing the data collection and analysis, facilitating collaboration among researchers, managing the budget and resources, and ensuring that all deadlines were met. Mr. Ticknor also played a key role in writing the research paper, which included summarizing the findings of our research, discussing the implications for industry and regulators, and recommending areas for future research.

For a **confidential client**, Mr. Ticknor prepared an expert witness report for a blowout that occurred during the reabandonment of an oil well in Marina del Rey, California. The expert report was based on Mr. Ticknor's review of the well's history, the accident investigation report, and his own expertise in oil and gas well abandonment. The document discussed the causes of the blowout and the steps that could have been taken by the contracted well service providers to prevent the incident from happening. The expert witness report was used in the litigation that followed the blowout.

For **Empire Disposal Solutions**, Mr. Ticknor was critically involved in the planning, design, drilling and completion of two Class II Non-Hazardous Saltwater Disposal wells in Belmont, Ohio. This project included all aspects of the well development process, including AFE development, contractor coordination, drilling, cementing, geophysical logging, mechanical integrity testing, injectivity testing. During the drilling of the wells, Mr. Ticknor was

responsible for assisting in the oversight of the drilling of the well, cementing of the well, logging of the well, onsite safety, and demobilization of the rig.

For **Deep Rock Disposal Solutions**, **Scout Energy, Spur Energy, Anthem Water Solutions, LLC, Blackbuck Resources, Goodnight Midstream, Lilystream Water Solutions, LLC, Marathon Oil EF., Overflow Energy, Probity SWD, LLC, Select Energy Service, Solaris Water Midstream, LLC, Waterbridge Stateline, LLC,** and **Vista Disposal Solutions**, Mr. Ticknor has supervised the assembly and submission of multiple Drilling Applications in both Texas and New Mexico (on state and private land), over 100 Injections Application for the New Mexico Oil Conservation Division and multiple injection applications for the Texas Rail Road Commission (RRC). Mr. Ticknor's role in the permitting process was as follows:

- **Area of Review (TX & NM)** – Mr. Ticknor assisted in the evaluation of all wells within the state required area of review (AOR) and assembling tables to summarize the review findings. The review consisted of analysis productive formations, well data, well logs, offset operators, and surface owners of wells within the state required radiuses.

- **Drilling Application (C-101) (NM) –** reviewed the proposed drilling programs and compiled the drilling applications for numerous saltwater disposal wells. Mr. Ticknor's role was to ensure that the proposed drilling and casing plan followed state regulation, and then to compile and submit the drilling applications in accordance with the New Mexico Oil Conservation Division regulation.

- **Geologic Evaluation (NM &TX)** – Mr. Ticknor assisted in the evaluation of faults, seismic activity, and formation characteristics within the area of review. He also constructed documents showing the proximity of faults and most recent seismic activity to the proposed injection well. These documents were used to demonstrate the lack of hydrologic connection between the freshwater formations and the proposed injection zone.

- **Injection Application (C-108) (NM) -** compiled applications in accordance with the New Mexico Oil Conservation Division regulation, including supplemental well information; area of review; well bore diagram; injection formation, source water and freshwater well sampling results; seismicity assessments; operator information; surface, and mineral owner contact information; and public notice affidavits.
- **Public Notice (NM & TX)** – Mr. Ticknor created several letters to be sent to local newspapers for the purpose of notifying local residents, landowners, and operators of the proposed saltwater disposal wells in the area.

- **Water Well Analysis (NM)** – Conducted a multiple reviews of state water well

records to determine what water wells within an AOR could meet the regulatory requirements for sampling. Mr. Ticknor contacted water well owners to confirm the status of each well and obtain permission for sampling (if required). Once complete, he creates a detailed table outlining the water well eligibility for sampling, location, status, and contact information.

- **Water Well Sampling (NM)** – Mr. Ticknor has both conducted and coordinated sampling of water well in accordance with New Mexico state regulations.
- **Surveying (NM & TX) –** Mr. Ticknor has assisted in the review of proposed SWD location and coordinated surveying of viable SWD locations. Once the surveys are completed, Mr. Ticknor reviews the completed C-102 plats to ensure that each plate is accurate and complete with state regulations.
- **Task Management –** Mr. Ticknor has assisted in the project management by assigning sub- tasks to team members, reviewing completed portions of the project, tracking project progress, communication problems with the project manager, and preparing project updates for the client.
- **Application Audit –** Mr. Ticknor has assisted in the audit of application completed by either operators or third-party consultants. During the audit Mr. Ticknor identifies areas where the application is not administratively complete per NMOCD requirements, presents inconsistent data, or does not comply with New Mexico regulations.
- **Ground Water Determination (GW-1) –** Mr. Ticknor compiled well logs, survey information, and W-14 Injections into a non-productive formation application form in order to receive a determination of the depth of usable quality water which must be protected within the proposed well location.
- **Application to Inject into a Non-Productive Formation (W-14) (TX) -** Mr. Ticknor compiled several applications in accordance with the Texas Railroad Commission regulation, including area of review; historic production reviews; well bore diagrams; groundwater determinations; no-harm letters; seismicity assessments; certificates of notice; and public notice affidavits.

For multiple confidential clients, Mr. Ticknor is involved in the permitting and drilling of Class I Non-Hazardous Waste Disposal Wells in Converse and Campbell County, Wyoming. He has coordinated with state regulators on many aspects of the process and has developed technical documents and procedures for step rate testing, formation stimulation, mechanical integrity testing, and pressure transient analysis. Mr. Ticknor

conducted formation water testing in association with a Wyoming SWD Permit. In addition to the formation water sampling, Mr. Ticknor completed aerial drone surveillance of the 5-mile Area of Review (AOR) around the permitted SWD well. Mr. Ticknor also completed aerial drone surveys of multiple proposed facility locations, to assist in determining the feasibility of the proposed locations.

For **Southwind Oil and Gas**, Mr. Ticknor was critically involved in the planning, design, drilling and completion of a Saltwater Disposal well in Louisiana. This project included all aspects of the well development process, including AFE development, contractor coordination, drilling, cementing, geophysical logging, mechanical integrity testing, injectivity testing. During the drilling of the SWD well, Mr. Ticknor was responsible for assisting in the oversight of the drilling of the well, cementing of the well, logging of the well, onsite safety, and demobilization of the rig. During the permitting of Southwind's Texas SWD, Mr. Ticknor was responsible for assisting in the review of the completed SWD application.

For **a confidential client**, Mr. Ticknor developed an Expert Report discussing potential health risks associated with Unconventional Natural Gas (UNG) development occurring near populated areas providing a thorough review of the relationships between potential nuisance sources, oil and gas development processes, and the associated hazards that may lead to human exposure and possible health effects.

For **multiple clients in the Permian Basin**, Mr. Ticknor has worked with the Texas Railroad Commission and The New Mexico Oil Conservation District in developing drilling and injection permit applications. He has coordinated with state regulators on many aspects of the process and has developed technical documents including siting, design, geology, wellbore diagrams, and emplaced waste calculations.

For **Fairway Resources**, Mr. Ticknor was part of a team tasked with providing water for oil & gas development operations in Major County, Oklahoma. For this project, ALL Consulting has assessed options to transport fresh water via pipeline to Fairway's development area, these impoundments will then be used to supply water on a rapid basis for completion operations. ALL Consulting also has evaluated the potential of Brackish Groundwater supply from the Hennessey Group (a Groundwater aquifer system).

For **Alta Mesa**, Mr. Ticknor serves as a team member helping to develop a large water infrastructure project in Kingfisher County, Oklahoma. The project includes planning, design, construction, and operation of water infrastructure for approximately 100,000 acres that are being developed by Alta Mesa. This includes in excess of 100 miles of water

pipeline, water access from the Cimarron River, multiple water impoundments, various pumps, manifolds, and various other components. The project is being done on a full design-build (or Turnkey) basis with an overall budget of approximately $100 million.

For **Primexx Energy Partners Ltd., & Halcon Resources**, Mr. Ticknor assisted with the construction management of water and gas pipelines, water impoundments, treatment tank batteries, roadways, and a gas plant. During construction management, Mr. Ticknor was responsible for ensuring the technical specifications were met, job safety analysis was performed daily, 811 underground clearance calls were placed and cleared, and progress reports were generated daily. The development of this water transfer infrastructure is to facilitate the treatment and movement of limited water resources so drilling and hydraulic fracturing can be performed across this arid environment. In addition to construction management, Mr. Ticknor assisted in the preparation of an Operation and Maintenance Plan for a small exempt dam in west Texas. These plans are required by the TCEQ once an exception has been awarded.

From 2013 to 2016, Mr. Ticknor worked as an **Operations Engineer** at **Newfield Exploration** where he supported production operations for newly drilled horizontal wells in the Woodford formation and vertical wells drilled in the Hunton and Viola formations for the SCOOP play near Blanchard, Oklahoma. This work included maintaining initial flowback wells received just after completion; designing and coordinating facility construction; performing biannual marginal economic well reviews; leading weekly meetings with field foremen, superintendents, and management; maintaining workover rig schedules; and preparing AFE packages for review and approval by management and partners.

While at Newfield, Mr. Ticknor served with Newfield's Mid-Continent Water Operations Team, whose task involved the procurement, transportation, storage, recycling, and disposal of fresh and produced water. During that period Mr. Ticknor, developed economics for saltwater disposal well development in Kingfisher Co, Oklahoma. He also maintained several resourcing and forecasting Spotfire projects for weekly scheduling and was crucially involved in produced water recycling facility design and review.

Also, while with Newfield, Mr. Ticknor was involved in production operations for horizontal and vertical wells drilled in the Granite Wash and Red Fork Formations in Wheeler County, Texas. He was active in gas lift optimization and many redesigns on long vertical perforated intervals. He was also involved in high pressure gas lift pipeline planning and construction and wrote workover procedures for various projects such as fishing, gas Lift, and plungers. Some projects of note include repairing Brown Dolomite Casing leaks, Deadstring/Capstring BHA retrieval operations, and installing and optimizing gas lift

assisted plungers.

From 2011 to 2013, Mr. Ticknor worked for **Petrohawk/BHP Billiton** as **a reservoir engineer** for the Haynesville Production Unit. While there, he was responsible for providing reservoir engineering input and support to development and planning teams responsible for the Haynesville Production Unit. Mr. Ticknor also delivered reserve estimates for quarterly and annual review and helped develop performance type curves for production forecasting for shale gas wells. He was involved in estimating the impacts of well interference from full-scale field development on existing and planned wells, which led to an in-house methodology that provided appropriate well spacing to planning and drilling that could be used for future development. Other notable projects and skills include pressure management through restricted rate production, reservoir modeling technique and software comparison, updated reservoir quality maps and developed gas quality maps

From 2009 to 2011, Mr. Ticknor worked for **ALL Consulting**. While there, Mr. Ticknor worked with The Texas Railroad Commission and the Texas Commission on Environmental Quality on Class I&II UIC applications in Texas. He also worked with EPA on Class II UIC applications in California. He was also tasked with developing injection well histories and proposed possible actions to increase injection capacity and reviewed submitted bids for best options for s saltwater disposal operation in Louisiana. Mr. Ticknor also provided onsite coordination during the drilling, completion, and installation of injection well facilities in Fort Worth, Texas. Mr. Ticknor also helped to develop a traffic impact study for a water disposal facility in Bradford County, Pennsylvania, and help perform an economic impact study using IMPLAN software for Marcellus development in West Virginia. He has also aided in developing Stormwater Pollution Prevention Plans (SWPPP) and National Pollutant Discharge Elimination System (NPDES) permits for various oil and gas facilities in Oklahoma, Louisiana, and Pennsylvania. Other work included performing injectivity analysis determining permeability and skin influence for several annual injection well mechanical integrity tests along with reservoir modeling including expected pressure increase, zone of endangering influence, and determination of lowermost underground source of drinking water for injection well permit applications. Mr. Ticknor has also aided in preparing research for papers on several topics including water sourcing, produced water treatment, visual/noise impact, induced seismicity, and methane migration.

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Professional Organizations

Society of Petroleum Engineers

Short Courses, Continuing Education, and Certifications

Qualified Methane Specialist

Well Control Training (Various Courses)

National Incident Command System (Various Courses)

HAZWOPER (Various Courses)

CPR, AED, First Aid, and Blood borne Pathogens (Various Courses) Safeland and Basic Safety Awareness Orientation (Various Courses) H2S Awareness (Various Courses)

IADC BOP Training (Various Courses)

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

APPLICATION

Raz Oil and Gas L.L.C. ("Raz"), OGRID No. 370507, through its undersigned attorneys, hereby submits this application to the Oil Conservation Division pursuant to the provisions of NMSA 1978, § 70-2-12, Rule No. 19.15.26, and Rule 19.15.4.8 for an order authorizing Raz to plug back the YO State SWD #1 well to the Delaware Mountain Group and authorizing injection from the YO State SWD #1 well into the Delaware Mountain Group. In support of this application, Raz states as follows:

(1) Raz currently operates the YO State SWD #1 (API 30-025-38162) pursuant to Division Order SWD-1594, at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Raz currently injects produced water into the Devonian formation.

(2) Raz seeks authority to plug back the YO State SWD #1 well to the Delaware Mountain Group and authority to inject produced water into the Delaware Mountain Group at a depth of approximately 5,540 feet to 6,930 feet.

(3) Raz requests that the Division approve a maximum daily injection rate for the well of 20,000 bbls per day.

(4) Raz requests approval of a maximum injection pressure of 1,108 psi for the well.

(5) A proposed C-108 for the subject well is attached hereto as Attachment A. Raz previously submitted a C-108 for administrative approval in October 2023. Raz reviewed the C-108 in preparation for submitting this application and made one revision to the ownership map—otherwise the C-108 as submitted in October 2023 required no changes and is still accurate.

(6) Notice of the previously submitted administrative application was given as shown in the attached C-108. Counsel for Raz will provide notice of this hearing application as required by the Division's regulations.

(7) The granting of this application will prevent waste and will protect correlative rights.

WHEREFORE, Raz requests that this application be set for hearing before an Examiner of the Oil Conservation Division on January 9, 2025; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS
& SISK, P.A.

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Attorneys for Applicant

CASE NO. 25081**: Application of Raz Oil and Gas L.L.C. for approval of a salt water disposal well in Lea County, New Mexico.** Applicant seeks an order authorizing applicant to plug back the YO State SWD #1 well to the Delaware Mountain Group and authorizing applicant to inject produced water into the Delaware Mountain Group at a depth of approximate 5,540 feet to 6,930 feet. Applicant currently operates the YO State SWD #1 (API 30-025-38162), at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Applicant further requests that the Division approve a maximum daily injection rate for the well of 20,000 bbls per day. Said area is located approximately 12.24 miles northwest of Eunice, New Mexico.

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Geological & 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

Applicant: _____ **OGRID Number:** _____
Well Name: _____ **API:** _____
Pool: _____ **Pool Code:** _____

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ☐ Offset operators or lease holders
B. ☐ Royalty, overriding royalty owners, revenue owners
C. ☐ Application requires published notice
D. ☐ Notification and/or concurrent approval by SLO
E. ☐ Notification and/or concurrent approval by BLM
F. ☐ Surface owner
G. ☐ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

3) **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.

_____ Date

_____ Print or Type Name

_____ Phone Number

Josh Ticknor
_____ Signature

_____ e-mail Address

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: Raz Oil and Gas L.L.C.

ADDRESS: P.O. Box 1180, Eunice, NM 88321

CONTACT PARTY: Joshua Ticknor PHONE: (580) 916-2126

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: Joshua Ticknor TITLE: Consultant / Project Manager

SIGNATURE: Josh Ticknor DATE: 12/10/2024

E-MAIL ADDRESS: jticknor@all-llc.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: File Electronically Via OCD Permitting

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.

Application for Authorization to Inject
Well Name: YO State SWD #1
API: 30-025-38162

III – Well Data (*The Wellbore Diagram is included as **Attachment 1***)

A.

(1) General Well Information:

Operator: Raz Oil and Gas L.L.C. (OGRID No. 370507) Lease Name & Well Number: YO State SWD #1 Location Footage Calls: 660 FNL & 840 FWL
Legal Location: Lot D, S15 T21S R35E
Ground Elevation: 3,587'
Proposed Injection Interval: 5,540' – 6,104'

County: Lea

(2) Casing Information:

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface Casing	17-1/2"	13-3/8"	48 lb/ft	850'	750	Surface	Circulation
Intermediate Casing	12-1/2"	9-5/8"	40 lb/ft	5,420'	1,900	Surface	Circulation
Production Casing	8-3/4"	7"	26 lb/ft	12,536'	1,605	Surface	CBL
Liner	6-1/8"	5"	15 lb/ft	12,273' – 13,962'	105	12,662'	CBL

DV Tools set on 7" casing at: 4,166', 5,335', and 9,797'

(3) Tubing Information:

4.5" (11.6 lb/ft) ICP L80 or N80 injection tubing with setting depth of 5,520'.

(4) Packer Information: Baker Hughes Hornet or equivalent packer set at 5,520'.

B.

(1) Injection Formation Name: Delaware
Pool Name: SWD; Delaware
Pool Code: 96100
(2) Injection Interval: Perforated injection between 5,540' – 6104'
(3) Drilling Purpose: Plug back for saltwater disposal in Delaware Mountain Group.
(4) Other Perforated Intervals: Perforations from 13,518' – 13,718' and open hole from 13,962' – 14,347' are currently being utilized to inject into the Devonian Formation. These Perforations will be properly plugged and abandoned during the plug back of the YO State SWD #1 into a Delaware Mountain Group injection well.
(5) Overlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Yates (3,680')

Underlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Bone Spring (7,578')
- Wolfcamp (10,156')
- Morrow (11,669')

Application for Authorization to Inject
Well Name: YO State SWD #1
API: 30-025-38162

V – Well and Lease Maps

The following maps and documents are included in ***Attachment 2***:

- 2-mile Oil & Gas Well Map
- 1/2-Mile Well Detail List
- Penetrating Wellbore Diagram (Plugged Wells)
- 2-Mile Lease Map
- 2-Mile Mineral Ownership Map
- 2-Mile Surface Ownership Map
- Potash Lease Map

VI – AOR Well List

A list of the wells within the 1/2-mile AOR is included in ***Attachment 2***.

There is one (1) well within the 1/2-mile AOR which penetrates the injection zone. This well has been properly cased, cemented, and plugged to isolate the injection zone. A wellbore diagram, casing information, and plugging details for this well is also included in ***Attachment 2.***

VII – Proposed Operation

(1) **Proposed Maximum Injection Rate:** 8,000 bpd
Proposed Average Injection Rate: 4,000 bpd
(2) A **closed-loop system** will be used.
(3) **Proposed Maximum Injection Pressure**: 1,108 psi (surface)
Proposed Average Injection Pressure: approximately 720 psi (surface)
(4) **Source Water Analysis:** It is expected that the injectate will consist of produced water from production wells completed in the Yates, Bone Spring, and Morrow formations. Analysis of water from these formations is included as ***Attachment 3***.
(5) **Injection Formation Water Analysis:** The proposed SWD will be injecting water into the Delaware Mountain Group which is a non-productive zone known to be compatible with formation water from the Yates, Bone Spring, and Morrow formations. Water analyses from the Delaware formation in the area are included as ***Attachment 4.***

VIII – Geologic Description

The proposed injection interval includes the Delaware Mountain Group from 5,540 to 6,104 feet. This formation consists of fine-grained Permian age sandstones with interbedded siltstones. Several thick intervals of porous and permeable sandstones capable of taking water are present within the Delaware Mountain Group in the area.

The base of the USDW is at a depth of approximately 850 feet. Water well depth in the area is approximately 150 feet below the ground surface.

Application for Authorization to Inject
Well Name: YO State SWD #1
API: 30-025-38162

IX – Proposed Stimulation Program

A small cleanup acid job may be used to treat the new perforations in the Delaware Mountain Group. However, no other formation stimulation is currently planned.

X – Logging and Test Data

Logs will be submitted to the Division upon completion of the well.

XI – Fresh Groundwater Samples

Based on a review of data from the New Mexico Office of the State Engineer, one (1) water well is located within 1-mile of the proposed SWD location. This water well was sampled on June 7, 2015.

A water well map, details of the water well within 1-mile, and the associated water analyses are included in ***Attachment 5***.

XII – No Hydrologic Connection Statement

No faulting is present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing program has been designed to ensure there will be no hydrologic connection between the injection interval and overlying USDWs.

A signed No Hydrologic Connection Statement is included as ***Attachment 6.***

XIII – Proof of Notice

A Public Notice was filed with the Hobbs News-Sun newspaper and an affidavit is included in ***Attachment 7***.

A copy of the application was mailed to the OCD district office, landowner, and all identified affected parties within 1/2-mile of the proposed SWD location. A list of the recipients, as well as delivery confirmations, are included in ***Attachment 7***.

Attachments

Attachment 1:

- C-102
- As-Built Wellbore Diagram
- Proposed Recompletion Wellbore Diagram
- Packer Diagram

Attachment 2: Area of Review Information:

- 2-Mile Oil & Gas Well Map
- 1/2-Mile Well Detail List
- Penetrating Wellbore Diagram (Plugged Wells)
- 2-Mile Lease Map
- 2-Mile Mineral Ownership Map
- 2-Mile Surface Ownership Map
- Potash Lease Map

Attachment 3: Source Water Analyses

Attachment 4: Injection Formation Water Analyses

Attachment 5: Water Well Map and Well Data

- Water Well Map
- Well Data

Attachment 6: No Hydrologic Connection Statement

Attachment 7: Public Notice Affidavit and Notice of Application Confirmations

Attachment 1

- C-102
- As-Built Wellbore Diagram
- Proposed Recompletion Wellbore Diagram
- Packer Diagram

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

HOBBS OCD
DEC 16 2015
RECEIVED

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-38162	97996	SWD; Cherry Canyon – Brushy Canyon

[4] Property Code	[5] Property Name	[6] Well Number
315024	YO State SWD	001

[7] OGRID No.	[8] Operator Name	[9] Elevation
370507	Raz Oil and Gas, LLC	3587

[10] Surface Location

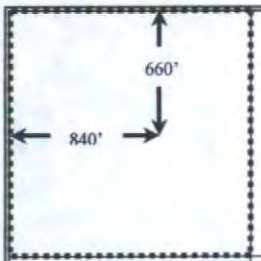
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	15	21S	35E		660	N	840	W	Lea

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
40			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



See original survey plat signed 11/10/2006

Lat: 32.4844551
Long: -103.36129
NAD83
Per NMOCD Well File

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

DHolcomb 12/14/15
Signature Date

Danny J. Holcomb, Agent for Raz Oil and Gas LLC
Printed Name

danny@pwllc.net
E-mail Address

[18] SURVEYOR CERTIFICATION

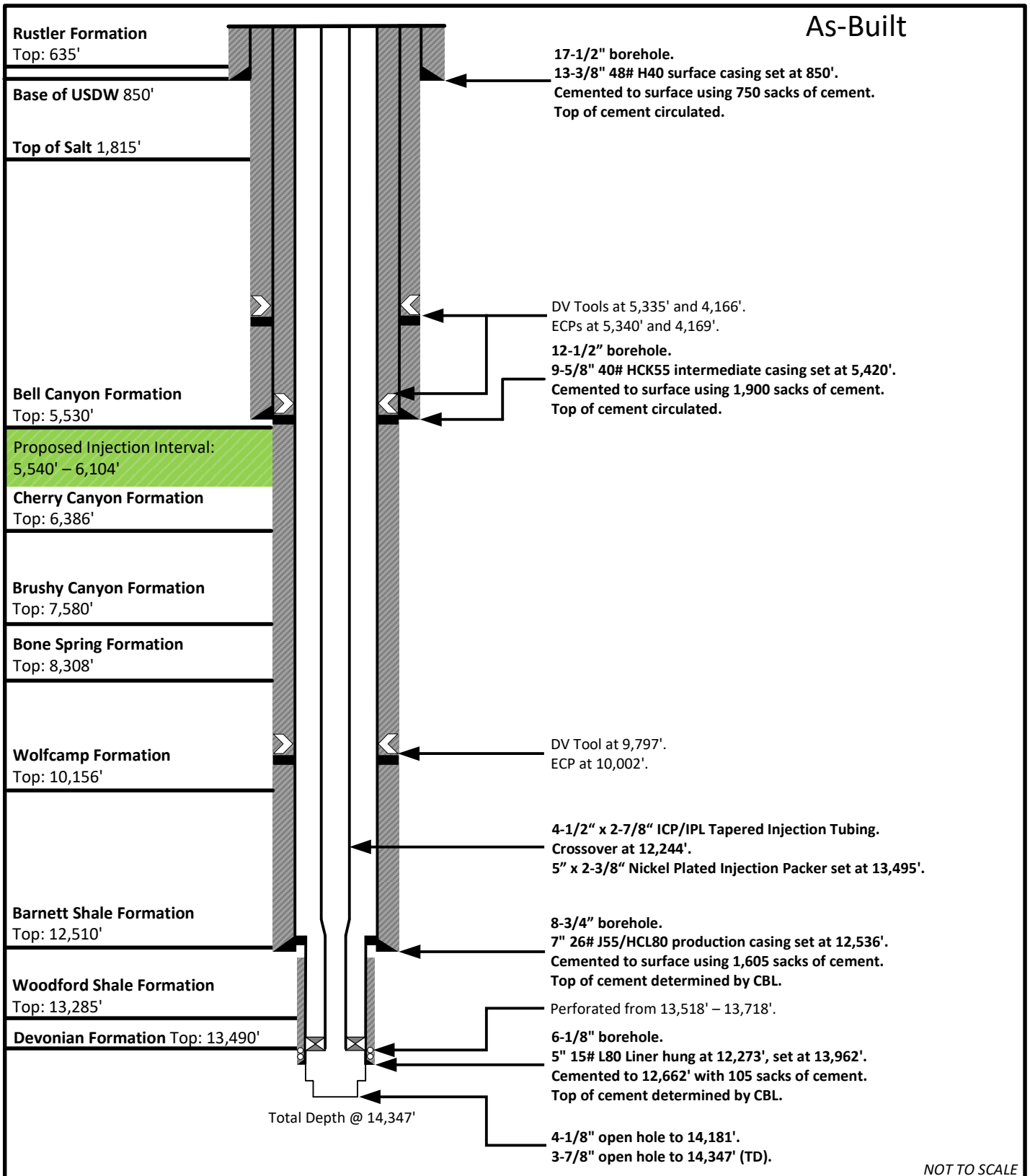
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey

Signature and Seal of Professional Surveyor:

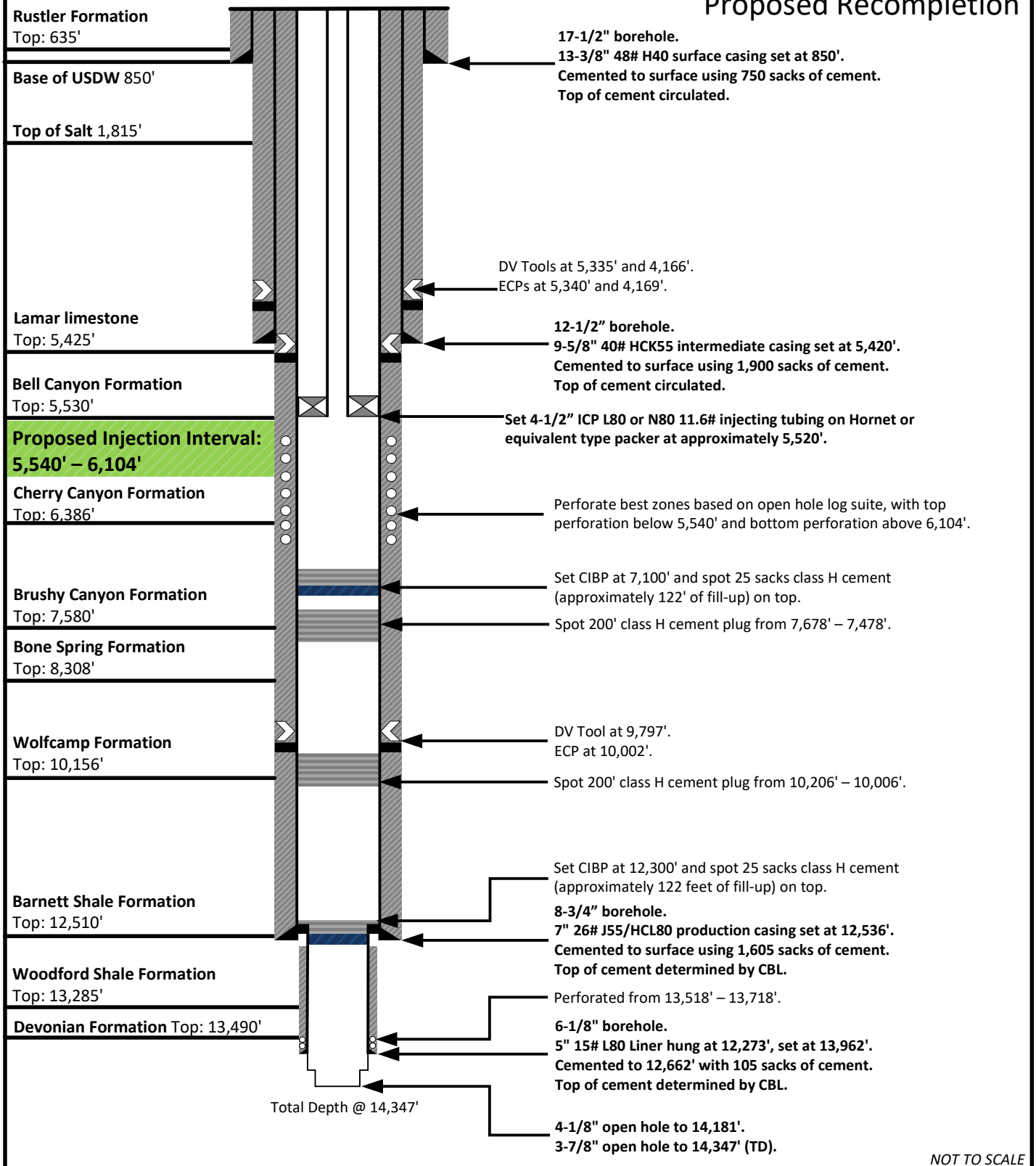
Certificate Number

DEC 21 2015



Prepared by: ALL CONSULTING *Prepared for:* **Raz Oil and Gas L.L.C.**	Drawn by: Reed Davis	**YO State SWD #1**
	Project Manager: Oliver Seekins	**Raz Oil and Gas L.L.C.**
	Date: 10/17/2023	**API#: 30-025-38162**
		Sec. 15 Town. 22S Rng. 35E
		Lat: 32.4844551° Long: -103.36129° (NAD 83)

Proposed Recompletion



NOT TO SCALE

Prepared by: ALL CONSULTING *Prepared for:* **Raz Oil and Gas L.L.C.**	Drawn by Reed Davis Modified by Josh Ticknor Project Manager: Josh Ticknor Date:02/03/2025	**YO State SWD #1** **Raz Oil and Gas L.L.C.** **API#: 30-025-38162** **Sec. 15 Town. 22S Rng. 35E** **Lat: 32.4844551° Long: -103.36129° (NAD 83)**

HORNET Packer

Product Family No. H64682

HORNET EL Packer

Product Family No. H64683

APPLICATION

The mechanically set HORNET™ packer offers ease of operation with quarter-turn right to set and release. Converting it for wireline-setting applications is simple and inexpensive. The HORNET packer provides for landing in compression, tension, or neutral positions. Every component from the jay track, to the internal bypass, to the packing-element system and the upper slip assembly has been developed to ensure the HORNET's setting and releasing reliability.

The HORNET EL packer is run and set on electric line using an E-4™ (Product Family No. H43702) with a slow-set power charge or a J™ setting tool (Product Family No. H41371) and a special wireline adapter kit. An L-10™ type on/off seal nipple is run on top of the packer to connect the tubing to the packer and to house a blanking plug when the packer is used as a temporary bridge plug.

Advantages

Upper Slip Assembly:

- Thoroughly tested across API minimum to maximum casing ID tolerances for each specified casing weight, for setting and releasing reliability
- Slip-wicker configuration providing bidirectional-load support with solid upper cone to support highest tensile loads
- Staged-release action eliminates high-overpull requirement
- Minimal set-down weight required to anchor slips

Internal Bypass Seal:

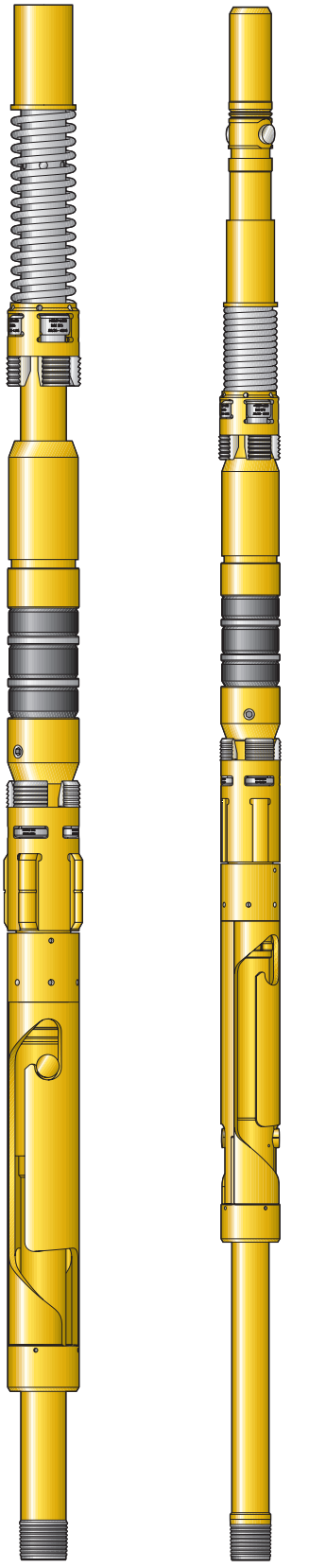
- Durable bypass seal design provides sealing after unloading, under differential pressures
- No O-ring sealing system

Packing Element System:

- Fully tested to combined ratings at the API's maximum ID tolerance
- Patented enhancements to control overboost
- High-performance, three-piece element system

Lower Slip and Jay Assembly:

- Slips and drag blocks tested to maximum API tolerance ID for positive set and ease of release
- One-quarter-turn right setting and releasing action
- Packoff of packing elements with applied tension or compression
- Spacing in jay ensures opening of internal bypass, before slip releasing action begins–important to both ease of release and safety
- Automatically returns to running position



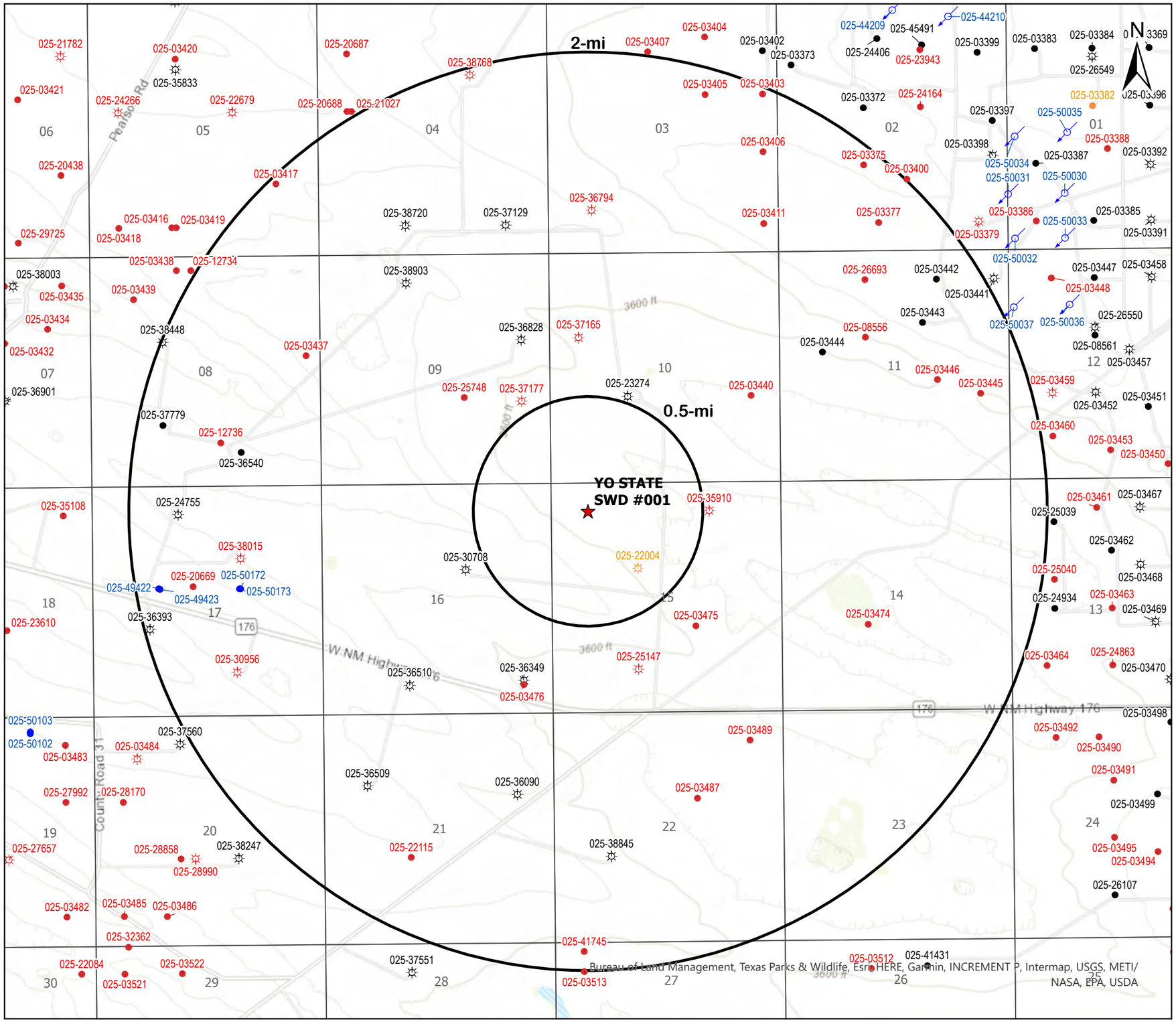
HORNET Packer
Product Family No. H64682

HORNET EL Packer
Product Family No. H64683

Attachment 2

Area of Review Information:

- 2-mile Oil & Gas Well Map
- 1/2-Mile Well Detail List
- Penetrating Wellbore Diagram (Plugged Wells)
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- Potash Lease Map



Legend

- YO STATE SWD #1 (1)
- Gas, Active (34)
- Gas, Plugged (16)
- Gas, Temporary Abandonment (1)
- Injection, New (10)
- Oil, Active (28)
- Oil, New (6)
- Oil, Plugged (79)
- Oil, Temporary Abandonment (1)

Source Info: NMOCD O&G Wells updated 9/7/2023 (https://ocd-hub-nm-emnrd.hub.arcgis.com/search)

O&G Wells AOR Map

YO STATE SWD #001

Lea County, New Mexico

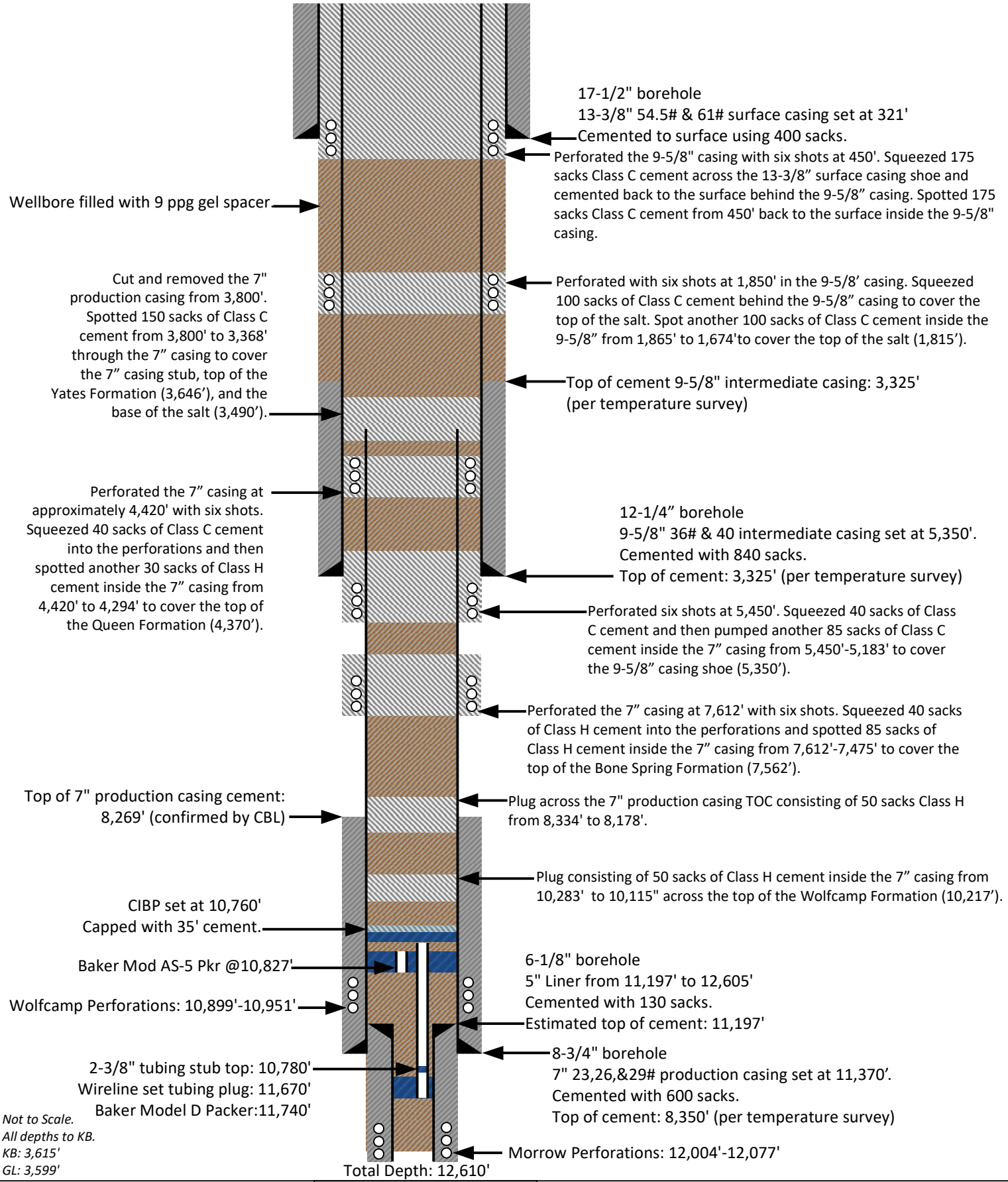
Proj Mgr: Joshua Ticknor	September 27, 2023	Mapped by: Ben Bockelmann

Prepared for:
RAZ OIL & GAS

Prepared by:
ALL CONSULTING

AOR Tabulation for Yo State SWD #001 (Top of Injection Interval: 5,540' - 6,930')							
Well Name	**API#**	**Well Type**	**Operator**	**Spud Date**	**Location (Sec., Tn., Rng.)**	**Total Vertical Depth (feet)**	**Penetrate Inj. Zone?**
STATE WE K #001	30-025-22004	Plugged	Raz Oil and Gas LLC	1/10/1967	F-15-21S-35E	12,610 (plugged)	Yes

Casing / Plugging Information for Wells Penetrating the Yo State SWD #001 Injection Zone							
Well Name	**Type**	**Set Depth**	**Casing Size**	**TOC**	**TOC Method Determined**	**Sks of Cement**	**Hole Size**
STATE WE K #001	Surface	321'	13.375"	Surface	Circulation	400	17.5"
	Intermediate	5,350'	9.625"	3,325'	Temperature Survey	840	12.25"
	Production	4,420' - 11,370'	7"	8,350'	Temperature Survey	600	8.75"
	Liner	11,197' - 12,605'	5"	11,197'	Estimated	130	6.125"
	Plugging Details: Tubing plug @11,670'. CIBP @10,760' capped with 35' cement. Plugs @10,283' - 10,115' with 50 sx, @8,334' - 8,178' with 50 sx. Perf and squeeze @7,612' to 7,475' with 40 sx and spotted 85 sx inside 7" casing from 7,612' - 7,475', @5,450' - 5,183' with 40 sx and spotted 80 sx from 5,450' - 5,183', @4,420' - 4,294' w/ 70 sx. 7" casing cut and pulled @3,800', spotted 150 sx from 3,800' to 3,368'. Perf and squeeze @1,850' - 1,674' with 100 sx and spotted 100 sx from 1,865' - 1,674', @450' - surface with 175 sx and spotted 175 sx from 450' - surface.						



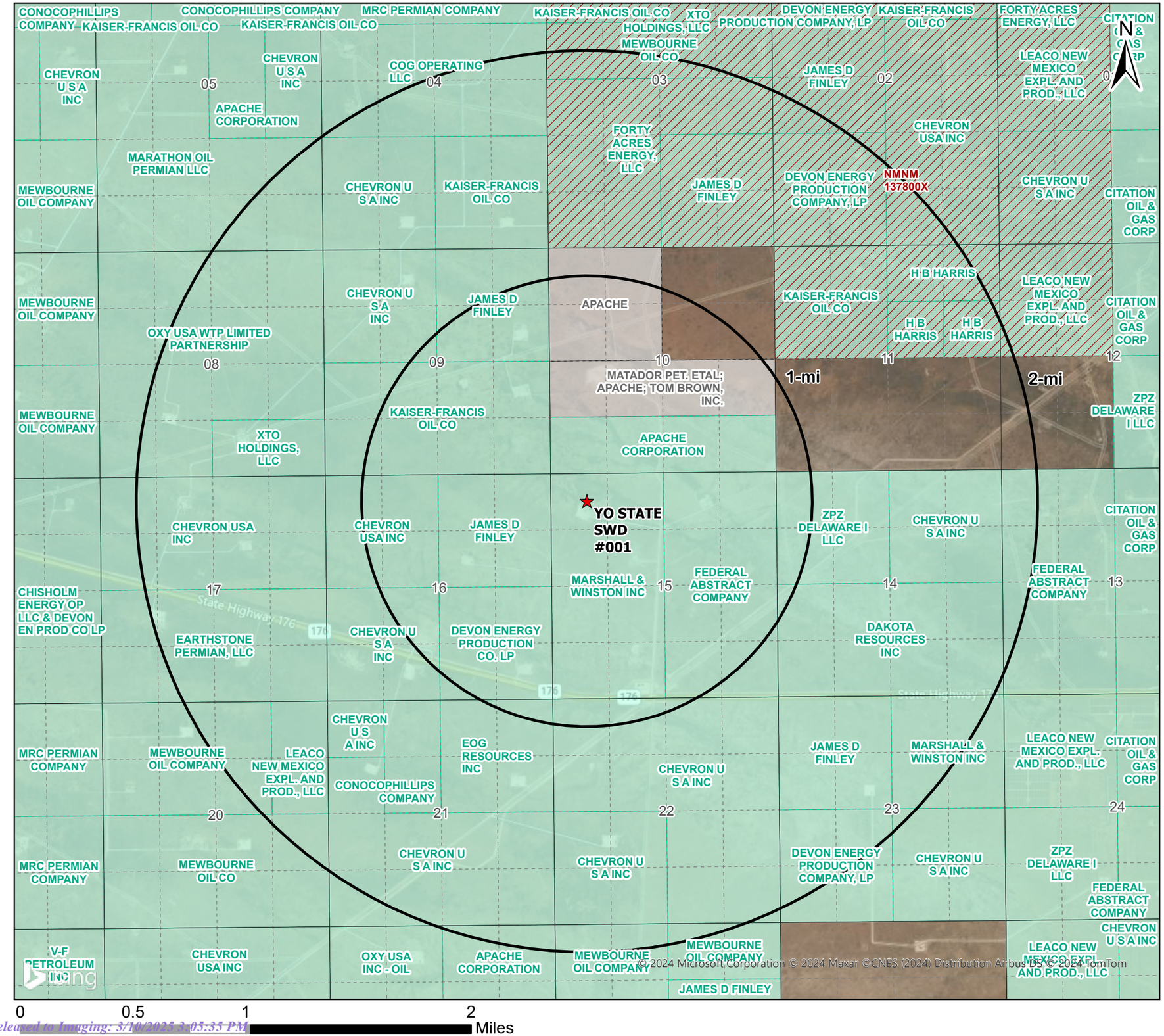
Prepared by: ALL CONSULTING

Drawn by: Joshua Ticknor

Project Manager: Joshua Ticknor

Date: 09/07/2023

Subsequent Report of P&A Wellbore Diagram
Raz Oil and Gas, LLC
State WE "K" #1
API # 30-025-22004
1980' FNL x 1980' FWL, UL 'F'
Sec 15, T21S, R35E, Lea County, NM



Legend

- YO STATE SWD #1
- BLM Communitization Units
- NMSLO Mineral Leases
- Private Mineral Leases

Source Info: BLM Mineral Leases (https://catalog.data.gov/dataset/blm-new-mexico-mineral-ownership). NMSLO Mineral Leases (http://www.nmstatelands.org/maps-gis/gis-data-download/). Where applicable, Private Mineral Leases were identified utilizing Enverus, Midland Maps, or operator identified lease data.

Mineral Lease AOR

YO STATE SWD #001

Lea County, New Mexico

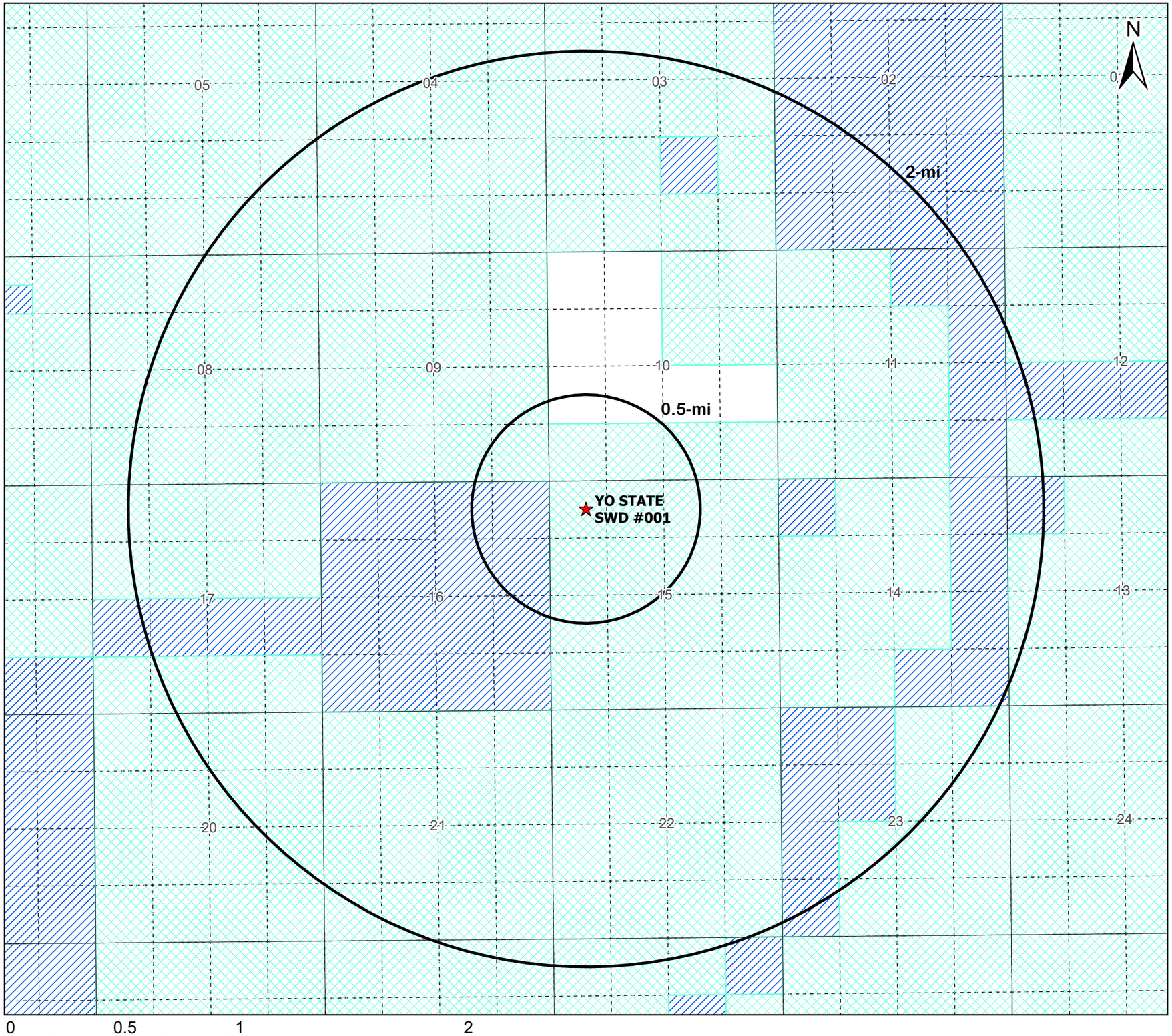
Proj Mgr:		Mapped by:
Reed Davis	November 08, 2024	Ben Bockelmann

Prepared for:

RAZ OIL & GAS

Prepared by:

ALL CONSULTING



Legend

- YO STATE SWD #1
- Private minerals
- Subsurface minerals (NMSLO)
- Surface and Subsurface minerals (NMSLO)

Mineral Ownership AOR

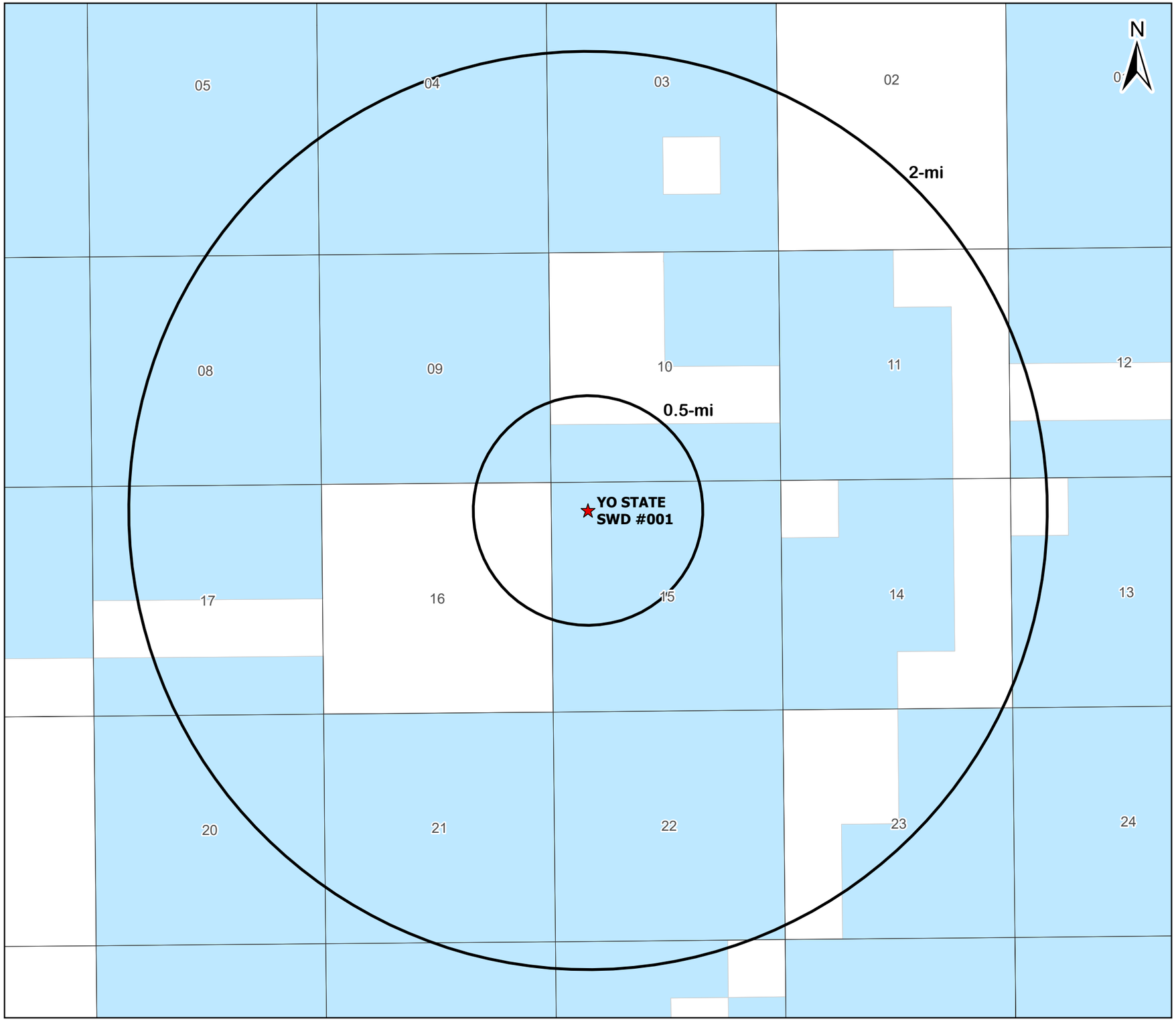
YO STATE SWD #001

Lea County, New Mexico

Proj Mgr: Joshua Ticknor	September 28, 2023	Mapped by: Ben Bockelmann

Prepared for:
RAZ OIL & GAS

Prepared by:
ALL CONSULTING



Legend

- YO STATE SWD #1 (1)

Surface Ownership

- Private (9)
- State (2)

Surface Ownership AOR

YO STATE SWD #001

Lea County, New Mexico

Proj Mgr: Joshua Ticknor	September 28, 2023	Mapped by: Ben Bockelmann

Prepared for:
RAZ OIL & GAS

Prepared by:
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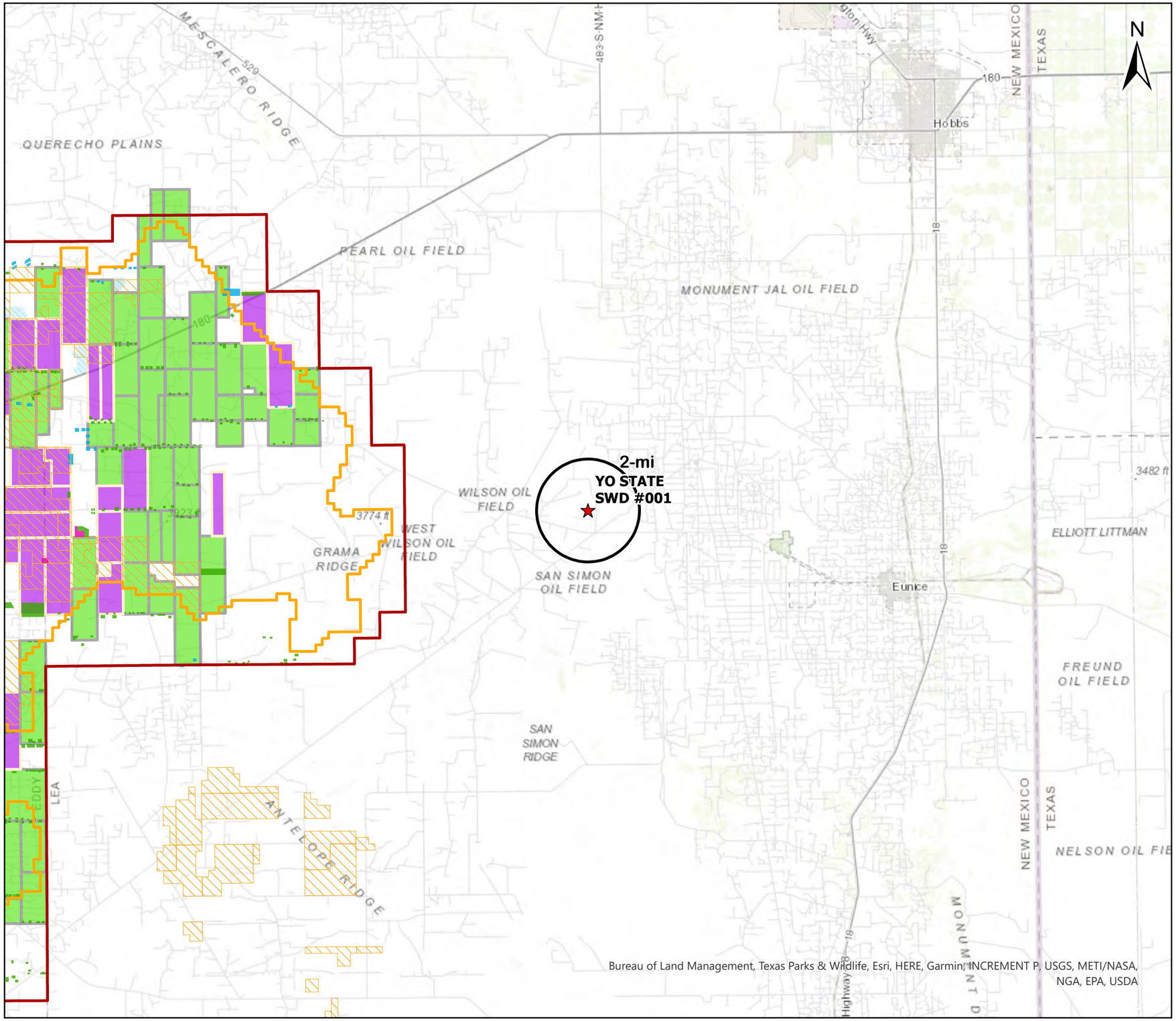


Legend

- YO STATE SWD #1
- SOPA 1986
- Known Potash Leasing Area
- Potash Leases

Drill Islands

Status, Depth Buffer

- Approved, Half Mile
- Approved, Quarter Mile
- Nominated, Half Mile

Development Areas

Status

- Approved
- Pending

Potash AOR

YO STATE SWD #001

Lea County, New Mexico

Proj Mgr: Joshua Ticknor	September 28, 2023	Mapped by: Ben Bockelmann
Prepared for: **RAZ OIL & GAS**	*Prepared by:* ALL CONSULTING	

Attachment 3

Source Water Analysis

Source Water Analysis

Raz Oil and Gas LLC - YO State SWD #001

Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Field	Formation	TDS (mg/L)	Chloride (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)
APPLESEED FEDERAL COM #001	3002520377	32.5750008	-103.4730377	17	20S	35E	H	1980N	660E	LEA	NM	LYNCH	BONE SPRING	173,141	93,660	5,174	7,916
HUNT APO STATE #001	3002527135	32.5070038	-103.4812317	4	21S	34E	T	2310S	660W	LEA	NM	GRAMA RIDGE NORTH	BONE SPRING	294,627	216,575	74	403
BERRY APN STATE #001	3002527250	32.5060349	-103.4983444	5	21S	34E	L	1980S	660W	LEA	NM	BERRY NORTH	BONE SPRING	192,871	132,048	163	445
HUNT APO STATE #001	3002527135	32.5070038	-103.4812317	4	21S	34E	T	2310S	660W	LEA	NM	GRAMA RIDGE NORTH	BONE SPRING	294,627	216,575	74	403
MONK 21 STATE COM #001H	3002540986	32.4706993	-103.4818954	21	21S	34E	D	330N	460W	Lea	NM		BONE SPRING 2ND SAND	261,089	160,264	122	425
MONK 21 STATE #004H	3002542193	32.4710767	-103.4727296	21	21S	34E	B	200N	1980E	Lea	NM		BONE SPRING 2ND SAND	184,233	112,775	488	425
GAUCHO UNIT #007H	3002534440	32.3889961	-103.4941711	17	22S	34E	K	1650S	1980W	Lea	NM		BONE SPRING 2ND SAND	166,698	101,677	61	675
GAUCHO UNIT #015H	3002541566	32.3841896	-103.4984589	20	22S	34E	D	100N	660W	Lea	NM		BONE SPRING 2ND SAND	158,147	96,378	232	710
GAUCHO UNIT #011H	3002541184	32.385006	-103.4891129	17	22S	34E	O	200S	1730E	Lea	NM		BONE SPRING 3RD SAND	156,141	97,978	305	1,005
GAUCHO UNIT #010H	3002541183	32.385006	-103.4892731	17	22S	34E	O	200S	1780E	Lea	NM		BONE SPRING 3RD SAND	165,155	100,777	220	560
GAUCHO UNIT #010H	3002541183	32.385006	-103.4892731	17	22S	34E	O	200S	1780E	Lea	NM		BONE SPRING 3RD SAND	165,155	100,777	220	560
WILSON DEEP UNIT #001	3002520461	32.4805832	-103.4253387	13	21S	34E	F	2080N	2080W	LEA	NM	WILSON	MORROW	11,648	566	2,161	5,252
EUNICE MONUMENT SOUTH UNIT #102	3002504326	32.5495567	-103.3014832	25	20S	36E	A	660N	660E	Lea	NM		YATES		247,872	1,091	30,984

Attachment 4

Injection Formation Water Analysis

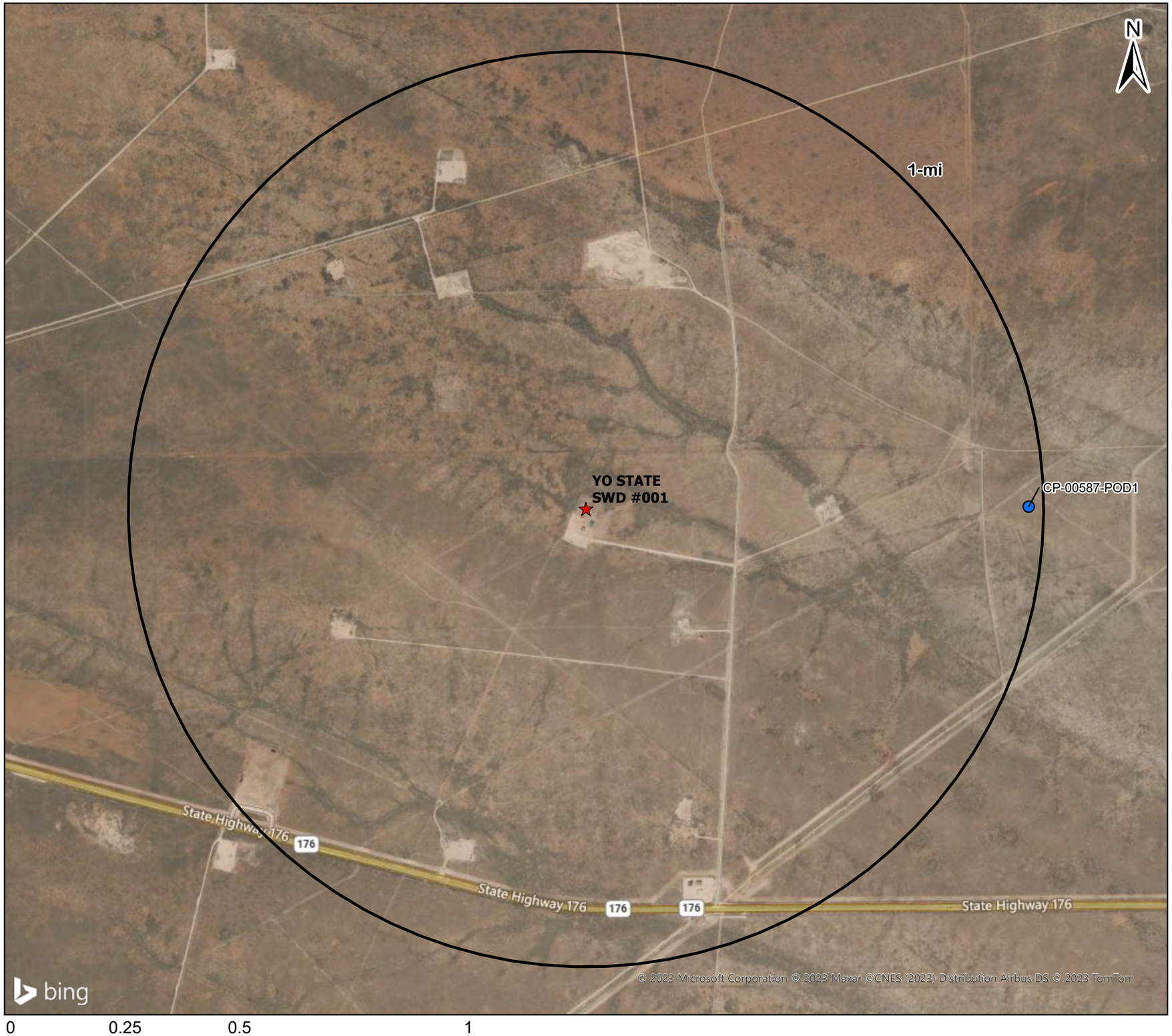
Injection Formation Water Analysis

Raz Oil and Gas LLC - YO State SWD #001 - Delaware Mountain Group

Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Field	Formation	TDS (mg/L)	Chloride (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)
MOBIL LEA STATE #001	3002531696	32.5999107	-103.5331573	2	20S	34E	K	1800S	1980W	LEA	NM	LEA NORTHEAST	DELAWARE	152,064	102,148	404	691
MOBIL LEA STATE #003	3002532105	32.5976906	-103.5367584	2	20S	34E	M	990S	870W	LEA	NM	LEA NORTHEAST	DELAWARE	296,822	215,237	143	294
MOBIL LEA STATE #005	3002532466	32.6028633	-103.5367584	2	20S	34E	E	2440N	870W	LEA	NM	LEA NORTHEAST	DELAWARE	340,838	245,270	229	147
LEA UNIT #001	3002502427	32.5858536	-103.520256	12	20S	34E	L	1980S	660W	LEA	NM	LEA	DELAWARE	214,787	132,700	208	1,816
GAUCHO 21 FEDERAL #002H	3002540626	32.3709793	-103.4823151	21	22S	34E	M	375S	375W	Lea	NM		DELAWARE-BRUSHY CANYON	266,468	167,562	366	

Attachment 5

- Water Well Map
- Well Data



Legend

- YO STATE SWD #1 (1)

OSE PODs

Status

- Active (1)
- Pending (0)
- Change Location of Well (0)
- Capped (0)
- Plugged (0)
- Incomplete (0)
- Unknown (0)

Source Info: NMOSE PODs updated 9/21/2023
(https://geospatialdata-ose.opendata.arcgis.com/search?collection=Dataset)

Water Wells AOR Map

YO STATE SWD #001

Lea County, New Mexico

Proj Mgr: Joshua Ticknor	September 27, 2023	Mapped by: Ben Bockelmann

Prepared for:
RAZ OIL & GAS

Prepared by:
ALL CONSULTING

Water Well Sampling Rationale					
Raz Oil and Gas LLC - YO State SWD #001					
Water Wells	**Owner**	**Available Contact Information**	**Use**	**Sampling Required**	**Notes**
CP-00587-POD1	The Merchant Livestock Company	P.O. Box 1105 Eunice, NM 88231spencer@merchantlivestock.com	Livestock Watering	Yes	CP-00587-POD1 was sampled on June 7, 2015.

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

RAZ OIL & GAS
BEN THOMPSON
P. O. BOX 1180
EUNICE NM, 88231
Fax To: NONE GIVEN

Received:	06/08/2015	Sampling Date:	06/07/2015
Reported:	06/12/2015	Sampling Type:	Water
Project Name:	WATER WELL CP00587	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: WELL WATER (H501468-01)

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**92.0**	4.00	06/09/2015	ND	104	104	100	0.00	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**860**	5.00	06/11/2015	ND	552	105	527	1.35	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Attachment 6

No Hydrologic Connection Statement

RE: Raz Oil and Gas LLC – YO State SWD #1 – Plug Back Saltwater Disposal Application, Lea County, New Mexico

ALL Consulting LLC (ALL) has performed a thorough hydrologic investigation related to the proposed plug back of the YO State SWD #1 into the Delaware Mountain Group. The hydrologic investigation was conducted to determine if there were any existing or potential connections between the proposed injection intervals in the Delaware Mountain Group and the deepest underground source of drinking water (USDW).

ALL performed an assessment and analysis of the subsurface geophysical log data along with published documents on the groundwater in this vicinity of Lea County, New Mexico. Based on ALL's assessment and analysis there is containment through multiple confining zones above the Delaware Mountain Group and the USDW and over 4,690 feet of vertical separation between the base of the USDW and the top of the injection interval. Additionally, there is no evidence of extensive faulting that would allow for communication between the USDW and the Delaware Mountain Group.

Tom Tomastik

October 19, 2023

Tom Tomastik

Date

Chief Geologist and Regulatory Specialist

ALL Consulting LLC

Attachment 7

Public Notice Affidavit and Notice of Application Confirmations

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That Raz Oil and Gas L.L.C., P.O. Box 1180 Eunice, NM 88231, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

PURPOSE: The intended purpose of the injection well is to dispose of salt water produced from permitted oil and gas wells.

WELL NAME AND LOCATION: YO State SWD #1
Located 12.24 miles northwest of Eunice, NM
NW ¼ NW ¼, Section 15, Township 21S, Range 35E
660' FNL & 840' FWL
Lea County, NM

NAME AND DEPTH OF DISPOSAL ZONE: Delaware Mountain Group (5,540' – 6,930')
EXPECTED MAXIMUM INJECTION RATE: 20,000 Bbls/day
EXPECTED MAXIMUM INJECTION PRESSURE: 1,108 psi (surface)

Objections or requests for hearing must be filed with the New Mexico Oil Conservation Division within fifteen (15) days. Any objection or request for hearing should be mailed to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505.

Additional information may be obtained by contacting Joshua Ticknor at (580)-916-2126.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher 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
October 24, 2023
and ending with the issue dated
October 24, 2023.

Publisher

Sworn and subscribed to before me this 24th day of October 2023.

Notary LeAnn Whitehead

My commission expires
June 07, 2024
(Seal)

OFFICIAL SEAL
LEANN WHITEHEAD
Notary Public State of New Mexico
My Commission Expires 6-7-24

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 publication has been made.

LEGAL NOTICE
October 24, 2023

APPLICATION FOR AUTHORIZATION TO INJECT

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Additional information may be obtained by contacting Oliver Seekins at 918-382-7581.
#00284109

67115320 00284109

DANIEL ARTHUR
ALL CONSULTING
1718 S. CHEYENNE AVE.
TULSA, OK 74119

Raz Oil and Gas L.L.C - YO State SWD #1 - Affected Persons						
Affected Party Classification	**Entity - Proof of Notice**	**Entity - As Mapped/Exhibited**	**Address**	**City**	**State**	**Zip Code**
Mineral / Surface Owner	New Mexico State Land Office	NMSLO	310 Old Santa Fe Trail	Santa Fe	NM	87501
NMOCD District Office	New Mexico Oil Conservation District 1	N/A	1625 N. French Drive	Hobbs	NM	88240
NMSLO Lessee	Federal Abstract Company	Federal Abstract Company	P.O. Box 4362	Houston	TX	77210-4362
NMSLO Lessee	Devon Energy Production Company Limited Partnership	Devon Energy Production Co. LP	333 W Sheridan Avenue	Oklahoma City	OK	73102
NMSLO Lessee	James D. Finley	James D Finley	1308 Lake Street Suite 200	Fort Worth	TX	76102
NMSLO / Fee Lessee	Apache Corporation	Apache Corporation	303 Veterans Airpark Ln #1000	Midland	TX	79705
NMSLO Lessee	Kaiser-Francis Oil Company	Kaiser-Francis Oil Co	P.O. Box 21468	Tulsa	OK	74121
Fee Lessee	Matador Resources Company	Matador Pet. Etal.	5400 LBJ Freeway, Suite 1500	Dallas	TX	75240
Fee Lessee	Tom Brown Incorporated	Tom Brown, Inc.	508 W Wall, Suite 500	Midland	TX	79701
Notes: The affected parties above received notification of this C-108 application.						

Top of the page

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Tulsa OK 74119

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District 1
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SANTA FE NM 87501-2708

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For injected fluids to impact the nearest DMG producer, they would need to horizontally traverse approximately 12.5 miles from the YO State #1 SWD. The closest active producing oil well (API #025-32937) is located 12.5 miles southwest. There is also a plugged DMG well (API #025-35108) located 2.29 miles due west, and an active DMG SWD (API #025-41703) situated 9.89 miles northwest.

To further substantiate RAZ's assertion that the YO State #1 SWD will not influence DMG production in the area, a volumetric analysis was conducted to determine the radius of the cylinder of emplaced waste (COEW). Under the assumption of homogeneous reservoir conditions and varying reasonable conservative values for unoccupied porosity, the COEW analysis calculates the extent of fluid spread. The radius of a fluid plume in a subsurface reservoir depends on the total volume of injected fluid, the porosity of the reservoir rock, and the geometric configuration of the spread (e.g., a full circle or a partial arc). The plume radius adjusts when the spread is constrained to a partial arc instead of a full 360-degree circle. This adjustment ensures that the same volume of fluid is accommodated within the reduced area of the arc.

The tables below summarize the results of the COEW radius calculations for both the **proposed maximum injection rate of 8,000 bpd** and results for additional scenarios at rates greater than the proposed maximum injection rate (13,000 bpd and 20,000 bpd) calculated for a **20-year injection period**. Results are provided for **porosity values ranging from 4% to 20%** and different **arc radii (15°, 30°, 45°, 90°, 180°, and 360°)**.

These results indicate that YO State #1 SWD injected fluids within the DMG injection zone would spread along a maximum distance of **10,619 feet** in a **4% porosity** formation along a **15° arc** under maximum injection rates, well below the distance those fluids would have to travel to impact the nearest DMG producer or reach the nearest plugged DMG well.

Results Tables are provided on the following pages.

EXHIBIT tabbies A-4

SWD Cylinder of Emplaced Wastes –Proposed Maximum Injection Rate of 8,000 BPD

Porosity (%)	15° Arc Radius (ft)	30° Arc Radius (ft)	45° Arc Radius (ft)	90° Arc Radius (ft)	180° Arc Radius (ft)	360° Arc Radius (ft)
4% Φ	6,716 ft	4,749 ft	3,878 ft	2,742 ft	1,939 ft	1,371 ft
5% Φ	6,608 ft	4,672 ft	3,815 ft	2,698 ft	1,907 ft	1,349 ft
7% Φ	5,585 ft	3,949 ft	3,224 ft	2,280 ft	1,612 ft	1,140 ft
9% Φ	4,925 ft	3,483 ft	2,844 ft	2,011 ft	1,422 ft	1,005 ft
11% Φ	4,455 ft	3,150 ft	2,572 ft	1,819 ft	1,286 ft	909 ft
13% Φ	4,098 ft	2,898 ft	2,366 ft	1,673 ft	1,183 ft	836 ft
15% Φ	3,815 ft	2,698 ft	2,203 ft	1,557 ft	1,101 ft	779 ft
20% Φ	3,304 ft	2,336 ft	1,907 ft	1,349 ft	954 ft	674 ft

SWD Cylinder of Emplaced Wastes – Increased Rate Scenario of 13,000 BPD

Porosity (%)	15° Arc Radius (ft)	30° Arc Radius (ft)	45° Arc Radius (ft)	90° Arc Radius (ft)	180° Arc Radius (ft)	360° Arc Radius (ft)
4%	8,561	6,054	4,943	3,495	2,471	1,748
5%	8,423	5,956	4,863	3,439	2,432	1,719
7%	7,119	5,034	4,110	2,906	2,055	1,453
9%	6,278	4,439	3,625	2,563	1,812	1,282
11%	5,679	4,016	3,279	2,318	1,639	1,159
13%	5,224	3,694	3,016	2,133	1,508	1,066
15%	4,863	3,439	2,808	1,985	1,404	993
20%	4,212	2,978	2,432	1,719	1,216	860

SWD Cylinder of Emplaced Wastes – Increased Rate Scenario of 20,000 BPD

Porosity (%)	15° Arc Radius (ft)	30° Arc Radius (ft)	45° Arc Radius (ft)	90° Arc Radius (ft)	180° Arc Radius (ft)	360° Arc Radius (ft)
4%	10,619	7,509	6,131	4,335	3,065	2,168
5%	10,448	7,388	6,032	4,265	3,016	2,133
7%	8,830	6,244	5,098	3,605	2,549	1,802
9%	7,787	5,506	4,496	3,179	2,248	1,590
11%	7,044	4,981	4,067	2,876	2,033	1,438
13%	6,479	4,582	3,741	2,645	1,870	1,323
15%	6,032	4,265	3,483	2,463	1,741	1,231
20%	5,224	3,694	3,016	2,133	1,508	1,066

Volumetric Calculations

Raz Oil and Gas

YO State #1 SWD

Description and Formula for Volumetric Arcs

Overview

- The radius of a fluid plume in a subsurface reservoir depends on the total volume of injected fluid, the porosity of the reservoir rock, and the geometric configuration of the spread (e.g., a full circle or a partial arc). The plume radius adjusts when the spread is constrained to a partial arc instead of a full 360-degree circle. This adjustment ensures that the same volume of fluid is accommodated within the reduced area of the arc.

Key Parameters

- **H (Thickness of injection zone)**: The perforated interval of the well in feet.
- **V (Volume of injectate)**: The total volume of injectate. Equal to **Q*T**
- **θ (Porosity)**: The fraction of pore space in the reservoir rock (dimensionless).
- **T (Injection duration)**: Set to 20 years for historical analysis.
- **Q (Injection rate)**: Set to maximum (20,000 bpd) or average (13,000 bpd) rate for forecast analysis.
- **Π (Pi)**: The constant (≈ 3.14159).
- **R (Radius of plume)**: The calculated radius of the circular or arc-shaped plume in feet.
- **A_arc (Area of the arc)**: The area of the arc in square feet.
- **α (Arc angle)**: The angle of the arc in degrees (e.g., 360° for a full circle, 180° for a half-circle, etc.).

Description and Formula for Volumetric Arcs

Formula Derivations

1. **Full Circle Plume Radius**

   For a 360-degree circular plume:

$$V = A_{circle} \cdot H \cdot \theta$$

   Where A_{circle} is the area of the full circle:

$$A_{circle} = \pi R^2$$

   Substituting for A_{circle}:

$$V = \pi R^2 \cdot H \cdot \theta$$

   Solving for R:

$$R = \sqrt{\frac{V}{\pi \cdot H \cdot \theta}}$$

2. **Partial Arc Plume Radius**

   For a partial arc, the total area of the arc (A_{arc}) must equal the area of the circle that the arc would occupy if it were a full circle:

$$A_{arc} = \frac{\alpha}{360} \cdot \pi R_{arc}^2$$

   The volume of the emplaced waste remains the same, so:

$$V = A_{arc} \cdot H \cdot \theta$$

   Substituting A_{arc}:

$$V = \frac{\alpha}{360} \cdot \pi R_{arc}^2 \cdot H \cdot \theta$$

   Solving for R_{arc}:

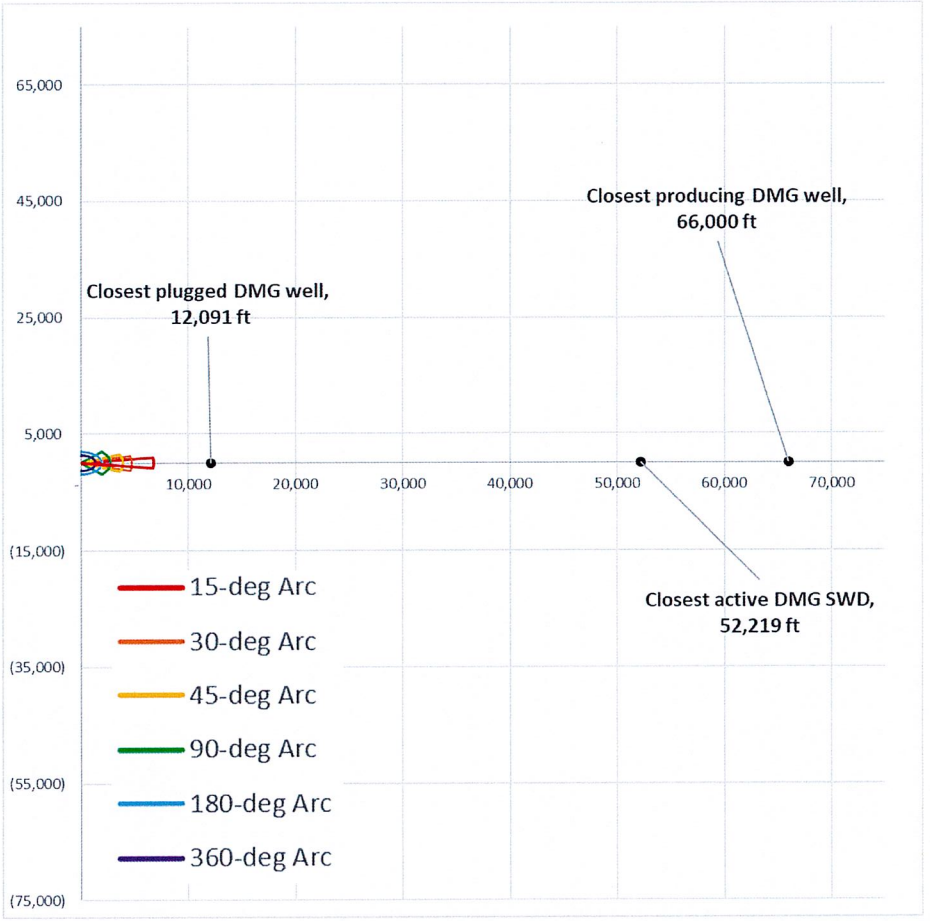
$$R_{arc} = \sqrt{\frac{360 \cdot V}{\alpha \cdot \pi \cdot H \cdot \theta}}$$

Application and Insights

- 360-Degree Circle: Uniform fluid spread with the smallest radius.
- 180-Degree Arc: Fluid spreads over a half-circle, increasing the radius by approximately 41%.
- 90-Degree Arc: Fluid spreads over a quarter-circle, doubling the radius.
- Key Impact: Smaller arc angles lead to a larger plume radius to accommodate the same volume of fluid, driven by the constraint in directional flow.

Volumetric Arcs for YO State #1 SWD
Scenario: Proposed Injection Rate of 8,000 bpd

Cylinder of Emplaced Waste Calculations Proposed Average Injection Rate of 8,000 BPD 4% Porosity	
Description	**Value**
Top of the Lamar limestone member (FT BGS)	5,425
Top of the Bell Canyon (FT BGS)	5,530
Top of the Cherry Canyon (FT BGS)	6,386
Top of the Brushy Canyon (FT BGS)	7,580
Proposed Top Perforation (FT BGS)	5,540
Proposed Bottom Perforation (FT BGS)	6,930
H = Thickness of the injection zone (FT)	1,390
T = Anticipated duration of injection over life of well (Days)	7,305
Q = Proposed injection rate (BPD)	8,000



- YO State #1 SWD is located at the origin of chart.
- Presented volumetric plumes assume 4% porosity.
- Uses proposed perforated interval as formation height.
- Larger values of porosity result in smaller radii.
- Image illustrate most conservative case.

The closest active producing DMG well (API #025-32937) is 12.5 miles SW.
The closest plugged DMG well (API #025-35108) is 2.29 miles W.
The closest active DMG SWD (API #025-41703) is 9.89 miles NW.

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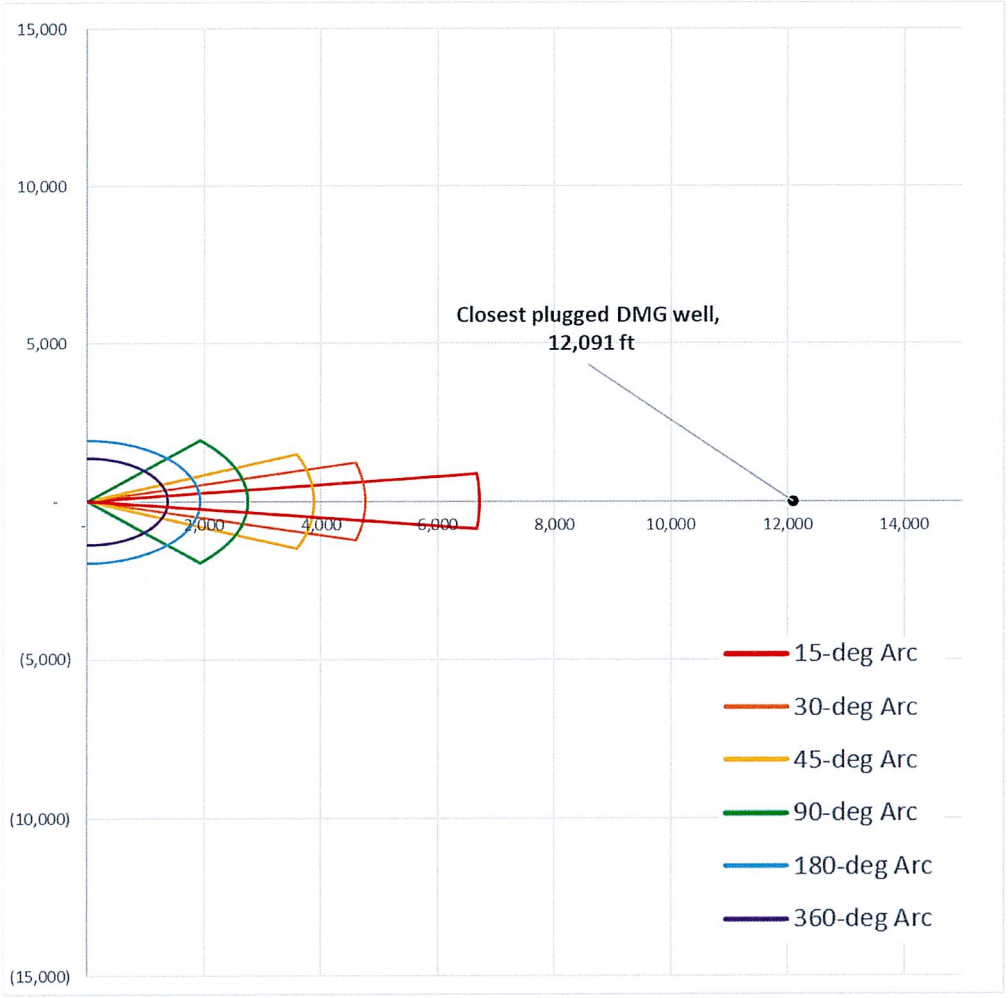
Volumetric Arcs for YO State #1 SWD
Scenario: Proposed Injection Rate of 8,000 bpd



Zoomed In View

The closest DMG penetration is a plugged well (API #025-35108) 2.29 miles West.

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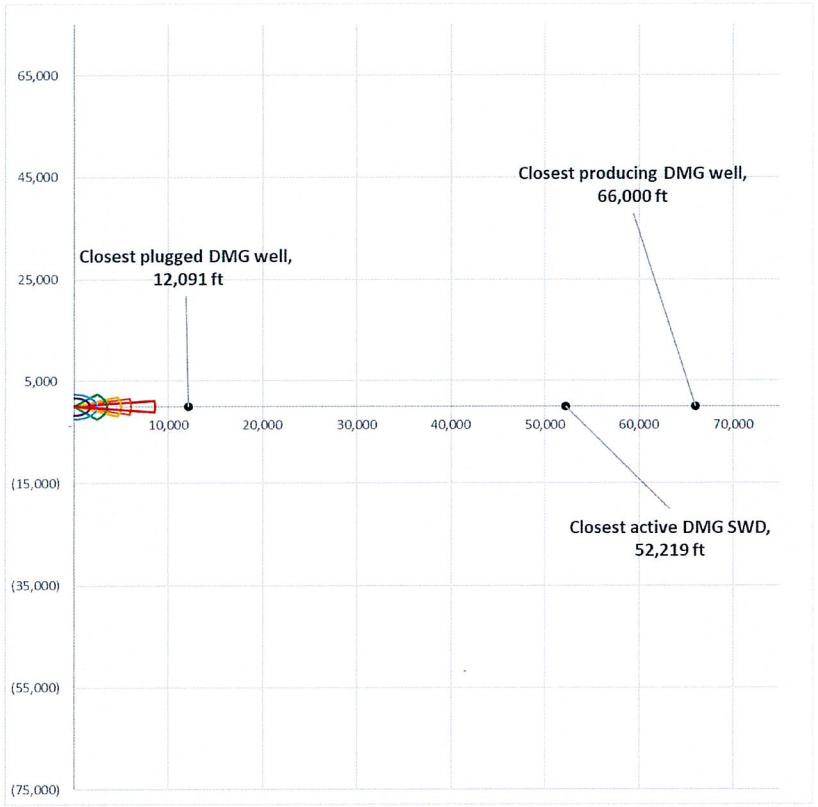
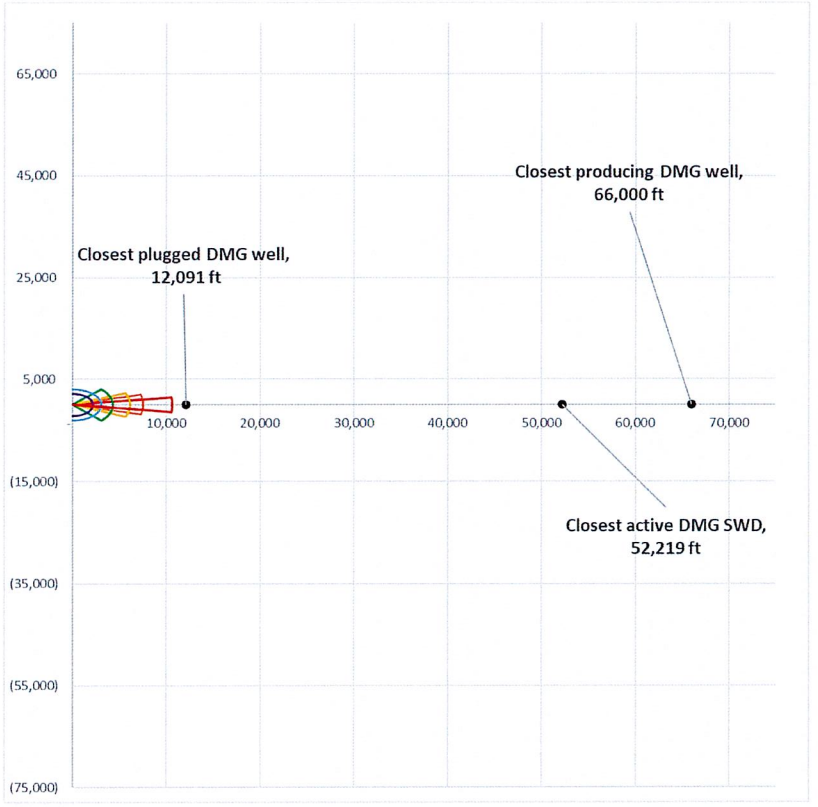
Volumetric Arcs for YO State #1 SWD Scenarios at Rates Greater than Proposed Injection Rate



13,000 bpd



20,000 bpd

Fluid migration is limited to close proximity of the YO STATE #1 and does not extend to neighboring DMG penetrations.

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Max Injection Rate: 8,000 BPD
Volumetric Arcs as it Varies with Porosity

Porosity (%)	15° Arc Radius (ft)	30° Arc Radius (ft)	45° Arc Radius (ft)	90° Arc Radius (ft)	180° Arc Radius (ft)	360° Arc Radius (ft)
4% Φ	6,716 ft	4,749 ft	3,878 ft	2,742 ft	1,939 ft	1,371 ft
5% Φ	6,608 ft	4,672 ft	3,815 ft	2,698 ft	1,907 ft	1,349 ft
7% Φ	5,585 ft	3,949 ft	3,224 ft	2,280 ft	1,612 ft	1,140 ft
9% Φ	4,925 ft	3,483 ft	2,844 ft	2,011 ft	1,422 ft	1,005 ft
11% Φ	4,455 ft	3,150 ft	2,572 ft	1,819 ft	1,286 ft	909 ft
13% Φ	4,098 ft	2,898 ft	2,366 ft	1,673 ft	1,183 ft	836 ft
15% Φ	3,815 ft	2,698 ft	2,203 ft	1,557 ft	1,101 ft	779 ft
20% Φ	3,304 ft	2,336 ft	1,907 ft	1,349 ft	954 ft	674 ft

ALI CONSULTING

Scenario Injection Rate: 13,000 BPD
Volumetric Arcs as it Varies with Porosity

Porosity (%)	15° Arc Radius (ft)	30° Arc Radius (ft)	45° Arc Radius (ft)	90° Arc Radius (ft)	180° Arc Radius (ft)	360° Arc Radius (ft)
4%	8,561	6,054	4,943	3,495	2,471	1,748
5%	8,423	5,956	4,863	3,439	2,432	1,719
7%	7,119	5,034	4,110	2,906	2,055	1,453
9%	6,278	4,439	3,625	2,563	1,812	1,282
11%	5,679	4,016	3,279	2,318	1,639	1,159
13%	5,224	3,694	3,016	2,133	1,508	1,066
15%	4,863	3,439	2,808	1,985	1,404	993
20%	4,212	2,978	2,432	1,719	1,216	860

Scenario Injection Rate: 30,000 BPD
Volumetric Arcs as it Varies with Porosity

Porosity (%)	15° Arc Radius (ft)	30° Arc Radius (ft)	45° Arc Radius (ft)	90° Arc Radius (ft)	180° Arc Radius (ft)	360° Arc Radius (ft)
4%	10,619	7,509	6,131	4,335	3,065	2,168
5%	10,448	7,388	6,032	4,265	3,016	2,133
7%	8,830	6,244	5,098	3,605	2,549	1,802
9%	7,787	5,506	4,496	3,179	2,248	1,590
11%	7,044	4,981	4,067	2,876	2,033	1,438
13%	6,479	4,582	3,741	2,645	1,870	1,323
15%	6,032	4,265	3,483	2,463	1,741	1,231
20%	5,224	3,694	3,016	2,133	1,508	1,066

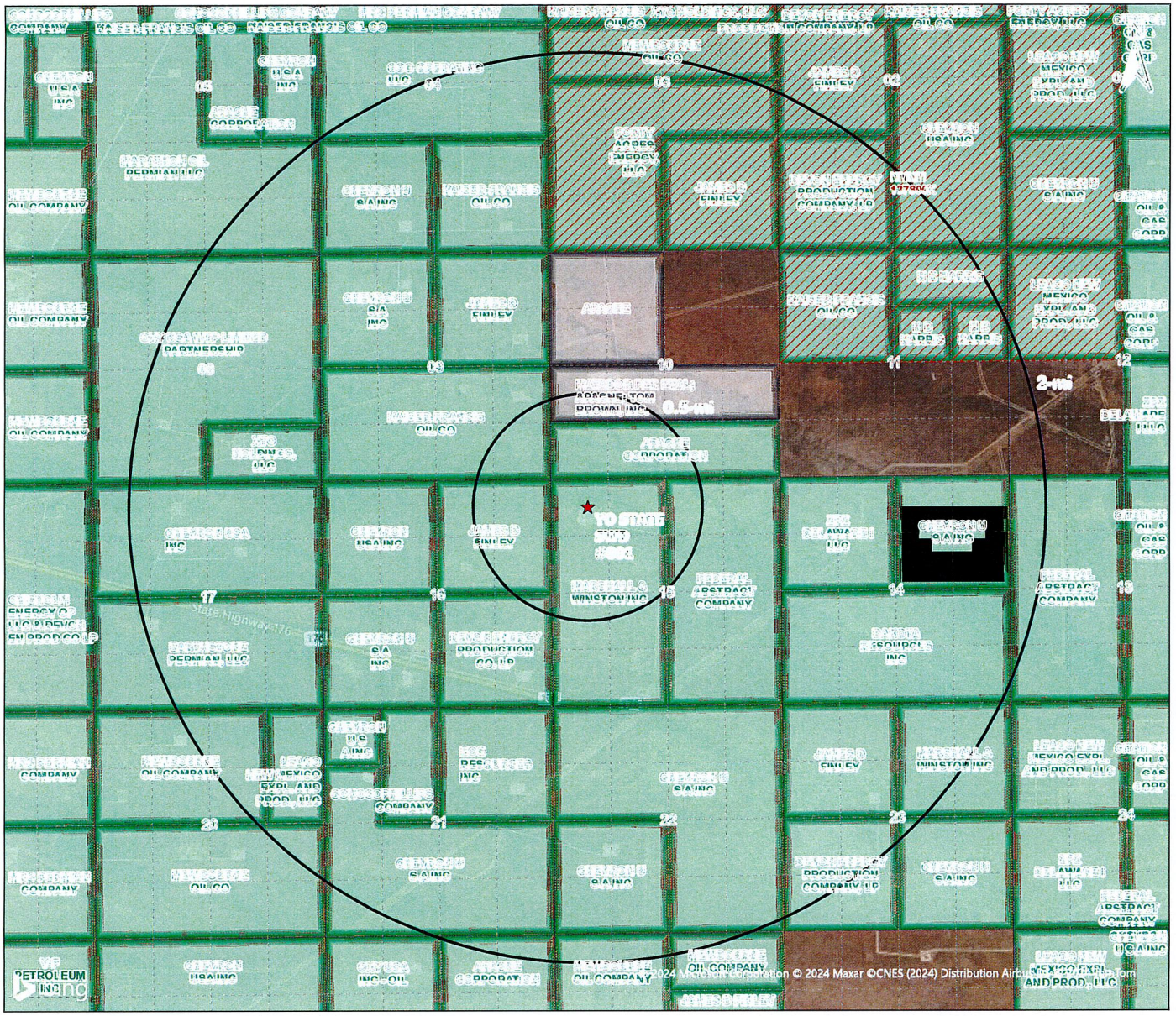

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EXHIBIT
A-5

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In 2024, the YO State SWD #1 operation generated approximately **$57,500** in revenue from disposal fees and residual skim oil sales. However, total expenses, including regulatory fees, insurance, lease costs, utilities, chemical treatments, and personnel, amounted to approximately **$191,500**, resulting in a net loss for the year. The continued financial shortfall is primarily due to the limited amount of fluid that can be disposed of at the well, restricting revenue potential. Given these constraints, **recompletion into the DMG formation appears to be the only viable option to improve financial performance and maintain operations.**

Exhibit A-6

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 12, 2015

BEN THOMPSON

RAZ OIL & GAS

P. O. BOX 1180

EUNICE, NM 88231

RE: WATER WELL CP00587

Enclosed are the results of analyses for samples received by the laboratory on 06/08/15 13:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

RAZ OIL & GAS
BEN THOMPSON
P. O. BOX 1180
EUNICE NM, 88231
Fax To: NONE GIVEN

Received:	06/08/2015	Sampling Date:	06/07/2015
Reported:	06/12/2015	Sampling Type:	Water
Project Name:	WATER WELL CP00587	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: WELL WATER (H501468-01)

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**92.0**	4.00	06/09/2015	ND	104	104	100	0.00	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**860**	5.00	06/11/2015	ND	552	105	527	1.35	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

		BILL TO	
Company Name:	Raz Oil & Gas	P.O. #:	
Project Manager:	Ben Thompson	Company:	
Address:	P.O. Box 1180	Attn:	
City:	Eunice State: NM Zip: 88231	Address:	
Phone #:	575-399-2457 Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	Water Well CP 00587	Phone #:	
Project Location:	Lea County, NM	Fax #:	
Sampler Name:			

ANALYSIS REQUEST: TDS, Cl

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME
H501468 1	well water	G	1	✓									6/7/15	12:00

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Ben Thompson	Date: 6/8/15 Time: 1:25	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	30.2°C	Sample Condition Cool: ☐ Yes ☑ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: razoilandgas@gmail.com
danny@pwllc.net

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#GH

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

SELF-AFFIRMED DECLARATION OF THOMAS E TOMASTIK

Thomas E. Tomastik declares as follows:

1. My name is Thomas E. Tomastik. I work for ALL Consulting as a Chief Geologist and Regulatory Specialist. I have been retained by Raz Oil and Gas L.L.C. ("Raz") (OGRID No. 370507).

2. I have personal knowledge of the matters stated herein.

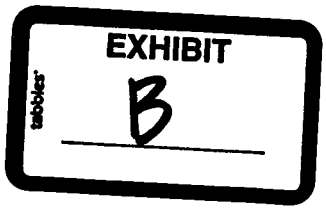
3. I have previously testified before the Oil Conservation Division ("Division") as an expert witness in petroleum engineering and petroleum geology and my credentials as have been accepted by the Division and made a matter of record.

4. My area of responsibility includes the area of Lea County in New Mexico.

5. I am familiar with the application Raz filed in this matter and I am familiar with the status of the lands in the subject area.

6. Raz seeks authority to plug back the YO State SWD #1 well to the Delaware Mountain Group ("DMG") and authority to inject produced water into the DMG at a depth of approximately 5,540 feet to 6,104 feet.

7. I undertook a hydrologic evaluation related to the YO State SWD #1 well (the "Well"), which is included as Attachment 6 to Exhibit A-2. In reviewing Attachment 6, I noticed



typographical error—rather than saying Eddy County in the second paragraph, it should say Lea County.

8. I examined publicly available geologic and groundwater data and found no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water ("USDW").

9. In my opinion, there is containment through multiple confining zones above the DMG and the USDW and there is over 4,690 feet of vertical separation between the base of the USDW and the top of the injection interval.

10. In addition, Raz's wellbore design will isolate any known freshwater zones and is protective of USDWs.

11. All of the well data and operations information required by the C-108 is included in the C-108 attached as Exhibit A-2. The proposed well design is contained in Attachment 1 and described in Section III.A, and a revised well bore design is included as Exhibit A-3 to Mr. Ticknor's testimony to show the revised the injection interval.

12. In my opinion, the well design will be protective of freshwater and USDWs in the area and protective of correlative rights.

13. Water chemistry information is included in Attachments 3 and 4 to Exhibit A-2. Based on this water chemistry analysis, in my opinion and based on my experience, there will not be a compatibility issue between the injection fluids and the fluids within the injection interval.

14. The estimated average surface injection pressure is expected to be approximately 720 psi. The maximum surface injection pressure will be 1,108 psi, based on the Division's guideline limiting surface injection pressures to 0.2 psi per foot of depth to the top-most injection

interval. The proposed injection volumes can be achieved without exceeding the maximum surface injection pressure.

15. I am familiar with the "Delaware Mountain Group Risk Area" or the "DMGRA." I am also familiar with the Avalon Shale Play Area. The DMGRA and Avalon Shale Play area were identified on a map included as Exhibit 6 within the Division's exhibits in Case Nos. 23686 and 23687.

16. Attached as **Exhibit B-1** is OCD's Exhibit 6, on which I have marked the approximate location of the Yo State SWD #1. As indicated on Exhibit B-1, the YO State SWD #1 is outside the boundaries of the DMGRA and outside the boundaries of the Avalon Shale Play.

17. I have been researching and investigating the geology of the DMG and working on DMG SWD applications in both New Mexico and Texas since 2019. This research includes reading of numerous publications on alleged DMG induced seismicity and allegations of impacts to horizontal production wells and drilling operations from existing or proposed DMG SWDs.

18. In my opinion, granting Raz's application would not impact hydrocarbon production from the Avalon or Bone Spring formations, because there is approximately 1,776 feet of vertical separation between the base of the proposed Bell Canyon injection interval (6100') and the top of the Bone Spring perforations (7876') in the Bell State 16 Com #1 well.

19. In addition, there are multiple confining intervals and shale barriers, above and below the injection interval, which help ensure safety and containment.

20. As demonstrated in Exhibit C-1, attached to Mr. Davis' Declaration and which I co-authored with Mr. Davis, the proposed injection interval is overlain by the Castile Evaporites, consisting of anhydrite and calcite, which will serve as the upper confining layer. Additionally, the proposed injection zone is underlain by approximately 120 feet of low porosity and

permeability zones within the lower Cherry Canyon formation which will serve as the lower confining layer, preventing downward migration of fluid into the Brushy Canyon formation and deeper formations.

21. In my opinion, granting Raz's application would not lead to an increase in induced seismicity as further outlined in Mr. Davis' Declaration and in Exhibit C-1.

22. The attached exhibits were prepared by me, or compiled from company business records, or were prepared at my direction.

23. I attest under penalty of perjury under the laws of the State of New Mexico that the information provided herein is correct and complete to the best of my knowledge and belief.

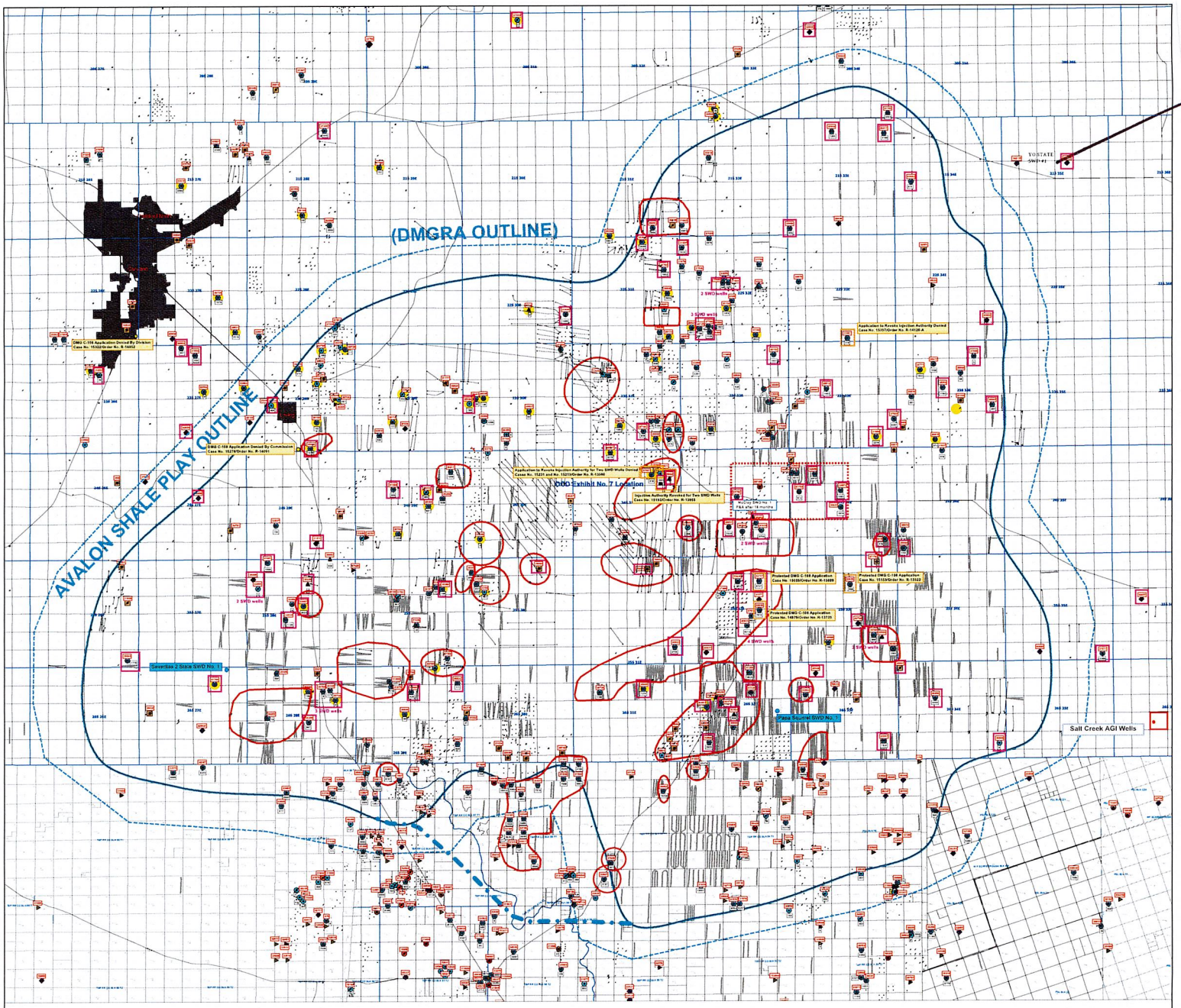
[Signature page follows]

Dated: February _6_, 2025

Thomas E. Tomastik

Thomas E. Tomastik

YO STATE #1



EXHIBIT

B-1

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PROPOSED CONDITIONS OF APPROVAL FOR THE YO STATE SWD #1 PLUG BACK TO THE BELL CANYON FORMATION

The following proposed conditions are being submitted to satisfy New Mexico Oil Conservation Division's (NMOCD) approval of the plugging back of the YO State SWD #1 well from the Devonian to the Bell Canyon Formation of the Delaware Mountain Group.

Isolation of the Devonian Injection Zone and Plug Back to 8,700 feet:

1. Once the Class II permit is issued by NMOCD, RAZ Oil and Gas will move in with a service rig and withdraw the existing injection tubing and packer set directly above the Devonian perforations and remove the injection tubing and packer from the well.
2. Then run into the well with a cast iron bridge plug (CIBP) with a wireline unit and set the CIBP at a depth of approximately 13,490 feet (perforations are from 13,518'-13,718') and then trip out of the well with the wireline unit back to the surface.
3. Trip back into the well with 2-7/8" work string and spot 30 feet of cement on top of the CIBP.
4. Pump spacer back to approximately 12,700 feet and spot a 500-foot plug of Class H cement inside the 7" production casing from 12,700 to 12,200 feet to cover the 7" casing shoe and back up across the top of the 5" liner.
5. Pump spacer back to approximately 10,200 feet and spot a 200-foot plug of Class H 14.8 pounds per gallon (ppg) cement from 10,200 feet to 10,000 feet to cover the top of the Wolfcamp Formation.
6. Pump spacer back to approximately 8,700 feet and withdraw 2-7/8" work string back to the surface.

Run New Cement Bond Log to Confirm Cement Behind the 7" Production Casing:

1. Run into the well with either a radial cement bond log (CBL) with lubricator so CBL can be run under pressure or utilize the Baker Hughes segmented bond log to confirm the quality of the cement sheath from approximately 8,700 feet back to approximately 5,300 feet which is directly above the 2nd DV tool and the area of good cement bond.
2. Based on the evaluation of the cement bond on the CBL determine if remedial cementing **is necessary or even possible** prior to perforating the 7" production casing.
3. Submit the CBL and ALL Consulting's (ALL) assessment and evaluation of the CBL to NMOCD for their review and approval on proceeding forward.
4. If the CBL shows the potential for performing remedial cementing operations with perforating and cement squeeze operations, ALL will submit a plan to NMOCD for approval prior to any remedial cementing operations are undertaken.

Remedial Cementing and Completion of Plug Back Operations:

1. If remedial cementing is necessary and possible to be performed, the preliminary proposal would be to perforate lower perforations at a depth of approximately 8,690 feet with 4 shots per foot over a 6-foot zone.
2. Trip out wireline and perforating gun and then run back into the well with a second perforating gun to perforate from approximately 5,600 feet with 4 shots per foot over a 6-foot interval.
3. Run into the well with a 2-7/8” work string and tubing conveyed cement retainer and set cement retainer above the squeeze perforations.
4. Sting out of the cement retainer after setting it and then sting back into the cement retainer and attempt to pump and circulate fluid from approximately 8,690 to 5,600 feet.
5. If circulation cannot be established, then only pump and squeeze a Class H 14.8 PPG cement plug from 8,690 back to approximately 7,500 feet to cover the top of the Bone Spring limestone at 7,578 feet.
6. If circulation is established, then pump and squeeze a Class H 14.8 ppg cement plug from 8,690 feet back to approximately 5,600 feet.
7. Trip of the well and then wait approximately 72 hours to run another radial CBL to confirm remedial cementing operations. Submit a copy of the radial CBL to NMOCD. If remedial cementing operations were successful, finish plugging back the YO State SWD #1 with spacer to approximately 7,650 feet and spot a 200-foot Class H 14.8 ppg cement plug inside the 7” production casing to a depth of approximately 7,450 feet to cover the top of the Bone Spring Formation.
8. Then pump spacer back to approximately 6,250 feet. Run with wireline conveyed CIBP and set at a depth of approximately 6,250 feet and then trip in with work string and spot 30-foot plug of Class H 14.8 ppg cement on top of the CIBP (will want 100 feet of rat hole below the bottom perforation).

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

SELF-AFFIRMED DECLARATION OF REED DAVIS

Reed Davis, of lawful age and being duly sworn, declares as follows:

1. My name is Reed Davis. I work for ALL Consulting as a Geophysicist. I have been retained by Raz Oil and Gas L.L.C. ("Raz") (OGRID No. 370507).

2. I personal knowledge of the matters stated herein.

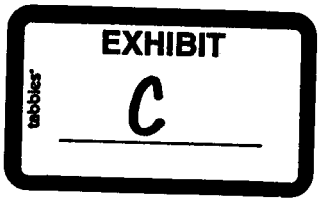
3. I have previously testified before the Oil Conservation Division ("Division") as an expert witness in reservoir geology and my credentials have been accepted by the Division and made a matter of record.

4. My area of responsibility includes the area of Lea County in New Mexico.

5. I am familiar with the application Raz filed in this matter and I am familiar with the status of the lands and geology in the subject area.

6. In this case, Raz seeks authority to plug back the YO State SWD #1 well (the "Well") to the Delaware Mountain Group ("DMG") and authority to inject produced water into the DMG at a depth of approximately 5,540 feet to 6,104 feet.

7. Exhibit C-1 provides a brief overview of the geology of this area. Based on ALL's geology study, I have concluded that the Bell Canyon and Cherry Canyon Formations of the DMG are well suited for injection because they are bounded by both an upper confining layer and a lower confining layer, which will prevent migration of the injected fluids. The Bell Canyon and Cherry Canyon Formations primarily consist of fine-grained Permian-age sandstone with interbedded



carbonate members. Several thick intervals of porous and permeable sandstones are capable of taking water are present within the Bell Canyon and Cherry Canyon Formations in this area.

8. As demonstrated in Exhibit C-1, the proposed injection interval is overlain by the Castile Evaporites, consisting of anhydrite and calcite, which will serve as the upper confining layer. Additionally, the proposed injection zone is underlain by approximately 120 feet of low porosity and permeability zones within the lower Cherry Canyon Formation which will serve as the lower confining layer, preventing downward migration of fluid into the Brushy Canyon Formation and deeper formations.

9. In my opinion, operating the Well will not impact the correlative rights of mineral owners because the proposed injection will remain within the target injection interval due to the upper and lower confining zones.

10. I also prepared a statement regarding seismicity, which is included in Exhibit C-1. Based on my study, in my opinion, the potential for the Well to cause injection-induced seismicity is expected to be minimal because (1) the presence of numerous confining layers above and below the proposed injection interval, (2) the significant vertical distance between the proposed injection interval and the nearest identified fault, and (3) the lack of historic seismicity within the proposed Delaware Mountain Group injection interval, or other shallow formations. Additionally, the location of the Well is monitored for seismic activity by both the United States Geological Survey (USGS) and New Mexico Tech Seismological Observatory (NMTSO) public seismic networks.

11. In my opinion, the granting of Raz's application is in the interests of conservation and the prevention of waste.

12. The attached exhibits were prepared by me, or compiled from company business records, or were prepared at my direction.

13. I attest under penalty of perjury under the laws of the State of New Mexico that the information provided herein is correct and complete to the best of my knowledge and belief.

[Signature page follows]

Dated: February __, 2025

Reed Davis

ALL CONSULTING
GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

February 24, 2025

PN 1843.SWD.02

Mr. Phillip Goetze, P.G.
NM EMNRD – Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Subject: **Raz Oil and Gas LLC**
YO State SWD #1 - Seismic Potential Letter

Dear Mr. Goetze,

At the request of Raz Oil and Gas LLC (Raz), ALL Consulting, LLC (ALL) has assessed the potential injection-induced seismicity risks in the vicinity of Raz's YO State SWD #1, a saltwater disposal (SWD) facility in Lea County, New Mexico, and summarized the findings in this letter. This assessment used publicly available data to identify the proximity and characteristics of seismic events and known faults to evaluate the potential for the operation of the YO State SWD #1 to contribute to seismic activity in the area.

Geologic Evaluation

The YO State SWD #1 is requesting a permit to inject into the Bell Canyon Formation of the Delaware Mountain Group at a depth of 5,540 – 6,104 feet below ground surface (bgs). The Permian Delaware Mountain Group consists of fine-grained Permian age sandstones with interbedded carbonate members. The proposed injection interval is overlain by the Castile evaporites, consisting of anhydrites, salts, and low porosity carbonate rocks, which will act as the upper confining layer (see **Attachment 1**). Additionally, the proposed injection interval is underlain by approximately 120 feet of low porosity and permeability zones within the lower Bell Canyon Formation which will act as the lower confining layer. A stratigraphic chart depicting the geologic setting is included as **Figure 1**.[1]

[1] Yang, K.-M., & Dorobek, S. L. (1995). The Permian Basin of west Texas and New Mexico: Tectonic history of a "composite" Foreland Basin and its effects on stratigraphic development. *Stratigraphic Evolution of Foreland Basins*, 149–174. https://doi.org/10.2110/pec.95.52.0149

Raz Oil and Gas LLC
YO State SWD #1 Seismic Potential Letter
February 24, 2025

Seismic Events and Fault Data

A review of United States Geological Survey (USGS) and New Mexico Tech Seismological Observatory (NMTSO) earthquake catalogues determined that the closest recorded seismic event was a M1.23 that occurred on June 15, 2024, and was located approximately 0.19 miles south of the YO State SWD #1 (see **Attachment 2**). Additionally, this seismic event was recorded at a depth of 11.54km (37,861'), approximately 32,000 feet below the base of the proposed injection interval. **Per the USGS earthquake catalog, one (1) seismic event M2.5 or greater has been recorded within 10 miles of the YO State SWD #1.**[2] The YO State SWD #1 was previously completed as a Devonian SWD and is currently active. Raz is requesting to plug back from the Devonian and recomplete the well into the Bell Canyon Formation of the Delaware Mountain Group, which is approximately 7,414' above the previous disposal zone in the Devonian.

Figure 1 – Delaware Basin Stratigraphic Chart (Adapted from Yang and Dorobek 1995)

SYSTEM	SERIES/ STAGE	CENTRAL BASIN PLATFORM	DELAWARE BASIN
PERMIAN	OCHOAN	DEWEY LAKE RUSTLER SALADO	DEWEY LAKE RUSTLER SALADO CASTILE
	GUADALUPIAN	TANSILL YATES SEVEN RIVERS QUEEN GRAYBURG SAN ANDRES GLORIETA	DELAWARE MT GROUP BELL CANYON CHERRY CANYON BRUSHY CANYON
	LEONARDIAN	CLEAR FORK WICHITA	BONE SPRING
	WOLFCAMPIAN	WOLFCAMP	WOLFCAMP
PENNSYLVANIAN	VIRGILIAN	CISCO	CISCO
	MISSOURIAN	CANYON	CANYON
	DESMOINESIAN	STRAWN	STRAWN
	ATOKAN	ATOKA — BEND	ATOKA — BEND
	MORROWAN	(ABSENT)	MORROW
MISSISSIPPIAN	CHESTERIAN MERAMECIAN OSAGEAN KINDERHOOKIAN	CHESTER MERAMEC OSAGE "BARNETT"	CHESTER MERAMEC OSAGE "BARNETT"
		KINDERHOOK WOODFORD	KINDERHOOK WOODFORD
DEVONIAN		DEVONIAN	DEVONIAN
SILURIAN		SILURIAN SHALE FUSSELMAN	MIDDLE SILURIAN FUSSELMAN
ORDOVICIAN	UPPER	MONTOYA	SYLVAN MONTOYA
	MIDDLE	SIMPSON	SIMPSON
	LOWER	ELLENBURGER	ELLENBURGER
CAMBRIAN	UPPER	CAMBRIAN	CAMBRIAN
PRECAMBRIAN			

Fault data from United States Geological Survey (USGS) and the Texas Bureau of Economic Geology (BEG)[3] indicates that the closest known shallow fault is located approximately 3.27 miles east of the YO State SWD #1 (see **Attachment 3**). This identified fault is known to penetrate the Canyon, Cisco, and Wolfcamp Formations, which are at least 5,500 feet below the proposed injection interval per nearby well logs and completion reports. A map of the seismic events and faults within 10 miles of the YO State SWD #1 is included as **Attachment 3.**

Seismic Potential Evaluation

Experience in evaluating induced seismic events indicates that most injection-induced seismicity throughout the U.S. (e.g., Oklahoma, Ohio, Texas, New Mexico, and Colorado) occurs as a result of injection into Precambrian basement rock, into overlying formations that are in hydraulic communication with the Precambrian basement rock, or as a result of injection near critically stressed and optimally oriented faults. Seismicity at basement depths occurs because

[2] *USGS Earthquake Catalog.* U.S. Geological Survey. (n.d.). https://earthquake.usgs.gov/earthquakes/search/

[3] Horne E. A. Hennings P. H., and Zahm C. K. 2021. Basement structure of the Delaware Basin, in The Geologic Basement of Texas: A Volume in Honor of Peter Flawn, Callahan O. A., and Eichubl P., The University of Texas at Austin, Bureau of Economic Geology.

critically stressed faults generally originate in crystalline basement rock and may also extend into overlying sedimentary formations. [4]

Injection into either the Precambrian basement rock or its overlying formations that are hydraulically connected to the basement rock through faulting or fracture networks can increase the pore pressure and may lead to the fault slipping, resulting in a seismic event.[4] As such, the vertical distance between the injection formation and Precambrian basement rock and the presence or lack of faulting within the injection interval are major considerations when determining the risk of injection-induced seismicity.

The one (1) USGS recorded seismic event M2.5 or greater within 10 miles of the YO State SWD #1 was a M2.9 which occurred on December 14, 2021, at a recorded depth of 4.0 km (13,123'). This recorded depth would place the event within the lower Mississippian Formation just above the Woodford Shale. There is approximately 7,019 feet of vertical separation between the base of the proposed Delaware Mountain Group injection interval and the recorded seismic event. USGS lists the depth uncertainty for this event at 3.4 km and the surface location uncertainty at 1.3 km.

Depth to Precambrian Basement

Geophysical data from nearby well records, aeromagnetic surveys, and gravity surveys indicates the top of the Precambrian basement to be approximately 15,000 feet bgs at the YO State SWD #1, or nearly 9,000 feet below the proposed injection interval.[3] **There are insufficient Precambrian basement penetrations and/or public well data regarding Precambrian basement depth to generate an accurate structural contour map of the Precambrian basement in the vicinity of the YO State SWD #1.**

Formation Parting Pressure

Class II SWDs in New Mexico are administratively permitted with a maximum pressure gradient of 0.2 psi/ft. Review of New Mexico Oil Conservation Division (NMOCD) Order IPI-543 from NGL Waste Service's Striker 4 SWD #1 (30-025-49364), located approximately 20 miles southwest of the YO State SWD #1, determined the fracture gradient of the Bell Canyon injection interval is approximately 0.36 psi/ft based on approved step-rate tests. Typical SWD permitting standards in New Mexico would indicate that formation parting pressure will not be exceeded by the YO State SWD #1.

Conclusion

As experts on the issue of induced seismicity, seismic monitoring, and mitigation, it is our expert opinion that the potential for the YO State SWD #1 to cause injection-induced seismicity is expected to be minimal, at best. This conclusion assumes the YO State SWD #1 will be operated under formation parting pressure at the regulated 0.2 psi per foot and is based on (1) the presence of numerous confining layers above and below the proposed injection interval, (2) the significant

[4] Ground Water Protection Council and Interstate Oil and Gas Compact Commission. *Potential Injection-Induced Seismicity Associated with Oil & Gas Development: A Primer on Technical and Regulatory Considerations Informing Risk Management and Mitigation.* 2015. 141 pages.

vertical distance between the proposed injection interval and the nearest identified shallow fault, and (3) the lack of historic seismicity within the proposed Bell Canyon Formation of the Delaware Mountain Group injection interval, or other shallow formations.

Sincerely,
ALL Consulting

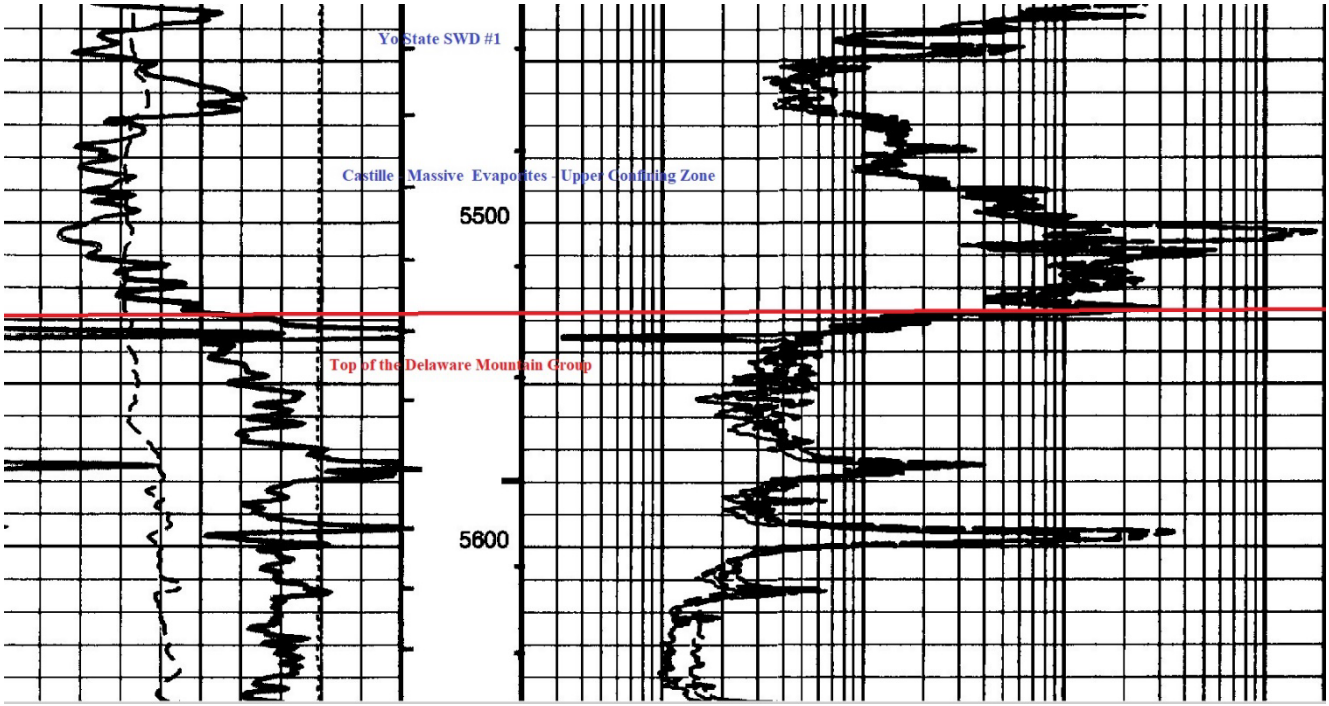
Reed Davis
Geophysicist

Tom Tomastik
Chief Geologist

Attachment 1
Confining Zones

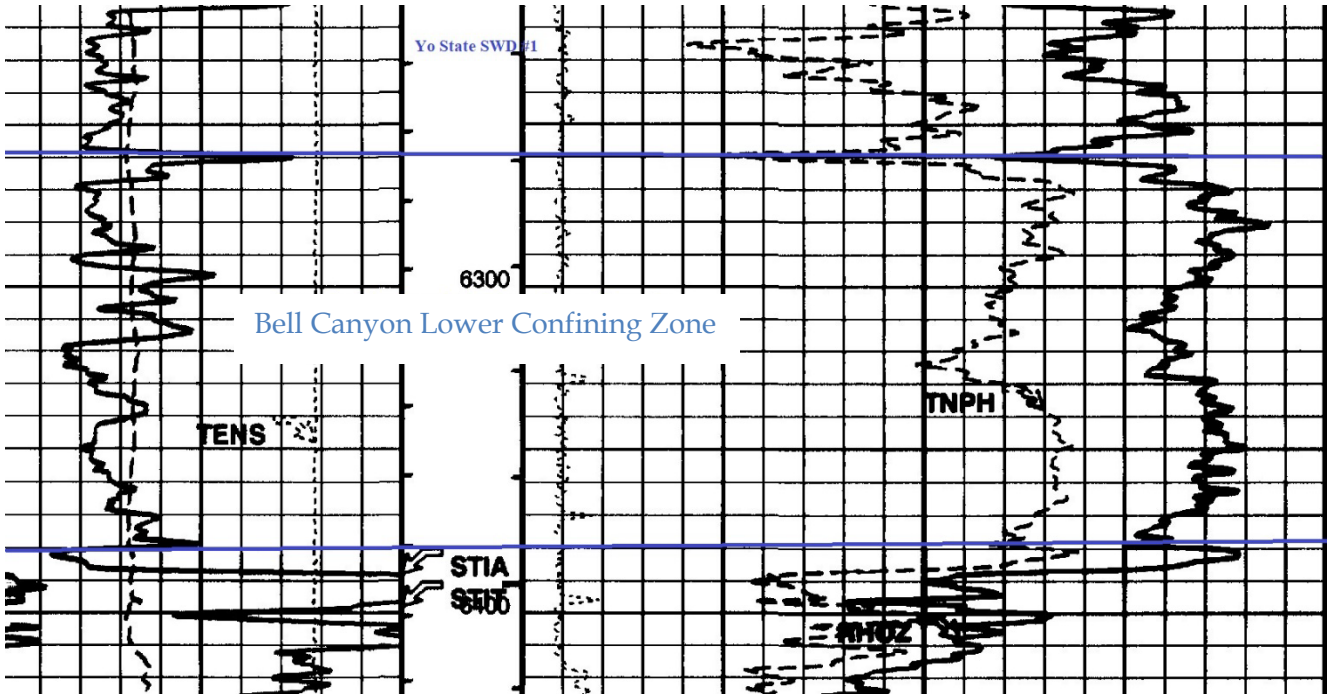
Raz Oil and Gas LLC
YO State SWD #1 Seismic Potential Letter
February 24, 2025

Castile Formation Upper Confining Zone from YO State SWD #1



Raz Oil and Gas LLC
YO State SWD #1 Seismic Potential Letter
February 24, 2025

Bell Canyon Lower Confining Zone from YO State SWD #1



Raz Oil and Gas LLC
YO State SWD #1 Seismic Potential Letter
February 24, 2025

YO State SWD #1 - Lower Confinement	
Depth (feet)	**Porosity Reading (%)**
6,260	12
6,270	8.5
6,280	8.5
6,290	9
6,300	10.5
6,310	11
6,320	12
6,330	10.5
6,340	9
6,350	9
6,360	9
6,370	10
6,380	10.5

Attachment 2
USGS Event List

Raz Oil and Gas LLC
YO State SWD #1 Seismic Potential Letter
February 24, 2025

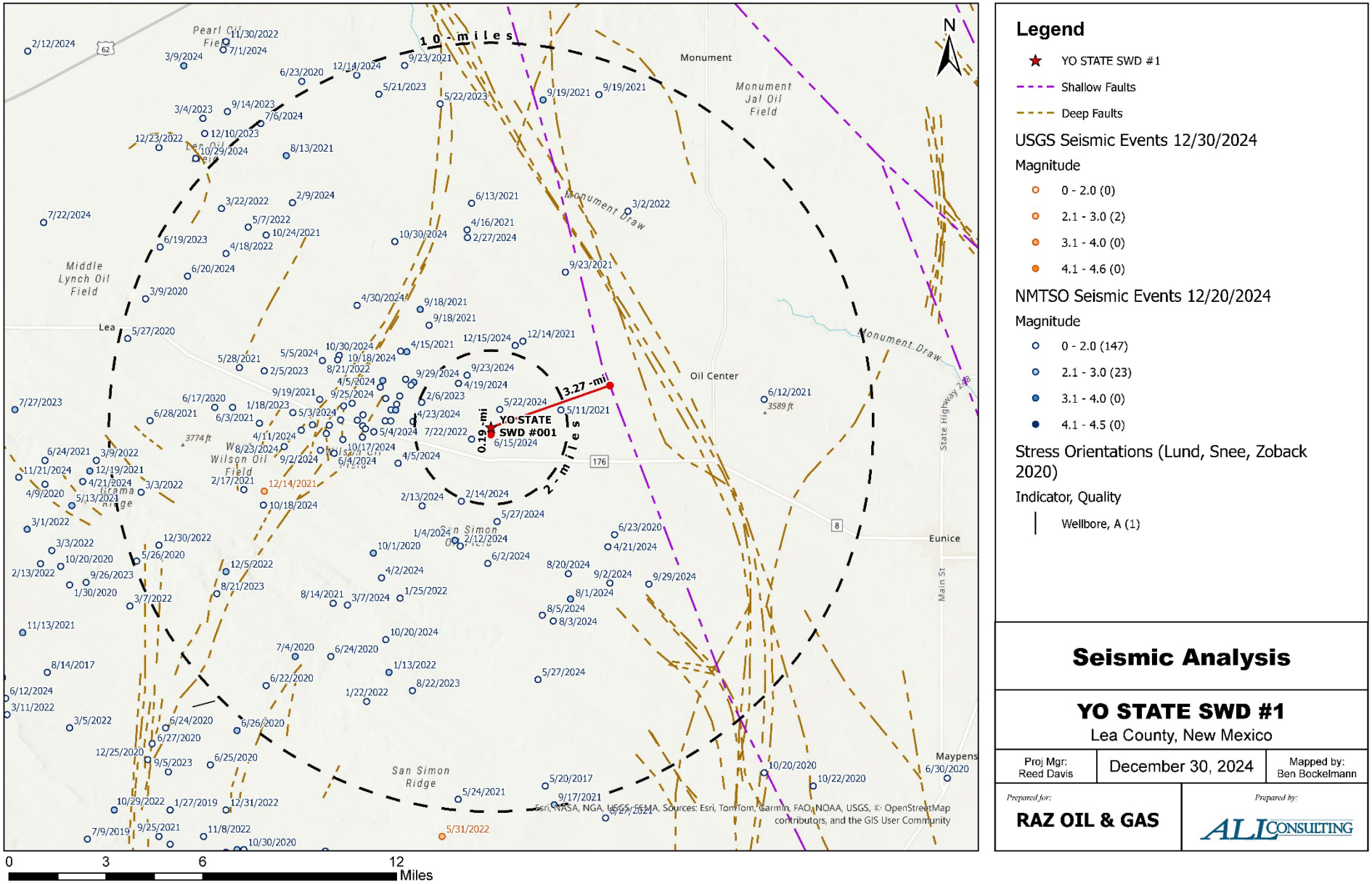
USGS Seismic Events ≥ M2.5 Within 10-Miles of YO State SWD #1

Date	Magnitude (M)	Depth (km)	Depth Error (km)	Latitude	Longitude
12/14/2021	2.9	4.04	3.4	32.4604	-103.4628

Attachment 3
Seismic Event Map

Raz Oil and Gas LLC
YO State SWD #1 Seismic Potential Letter
February 24, 2025

YO State SWD #1 Nearby Seismic Events and Faults



Legend

- YO STATE SWD #1
- Shallow Faults
- Deep Faults

USGS Seismic Events 12/30/2024

Magnitude

- 0 - 2.0 (0)
- 2.1 - 3.0 (2)
- 3.1 - 4.0 (0)
- 4.1 - 4.6 (0)

NMTSO Seismic Events 12/20/2024

Magnitude

- 0 - 2.0 (147)
- 2.1 - 3.0 (23)
- 3.1 - 4.0 (0)
- 4.1 - 4.5 (0)

Stress Orientations (Lund, Snee, Zoback 2020)

Indicator, Quality

- Wellbore, A (1)

Seismic Analysis

YO STATE SWD #1
Lea County, New Mexico

Proj Mgr: Reed Davis	December 30, 2024	Mapped by: Ben Bockelmann

Prepared for: **RAZ OIL & GAS**

Prepared by: ALL CONSULTING

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

SELF-AFFIRMED DECLARATION OF DEANA M. BENNETT

Deana M. Bennett, attorney in fact and authorized representative of Raz Oil and Gas LLC, the Applicant herein, declares as follows:

1) The above-referenced Application was provided under notice letter, dated December 16, 2024, attached hereto, labeled Exhibit D.1.

2) Exhibit D.2 is the mailing list, which show the notice letters were delivered to the USPS for mailing December 16, 2024.

3) Exhibit D.3 is the certified mailing tracking information, which is automatically compiled by CertifiedPro, the software Modrall uses to track the mailings. This spreadsheet shows the names and addresses of the parties to whom notice was sent and the status of the mailing.

4) Exhibit D.4 is the Affidavit of Publication from the Hobbs Daily News-Sun, confirming that notice of the January 9, 2025 hearing was published on December 19, 2024.

5) I attest under penalty of perjury under the laws of the State of New Mexico that the information provided herein is correct and complete to the best of my knowledge and belief.

Dated: February 6, 2025

Deana M. Bennett

MODRALL SPERLING

LAWYERS

December 16, 2024

Deana M. Bennett
505.848.1834
dmb@modrall.com

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: APPLICATION OF RAZ OIL AND GAS L.L.C. TO APPROVE SALT WATER DISPOSAL WELL IN LEA COUNTY, NEW MEXICO

CASE NO. 25081

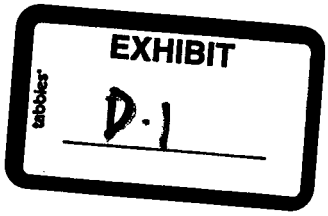
TO: AFFECTED PARTIES

This letter is to advise you that Raz Oil and Gas LLC ("Raz Oil") has filed the enclosed application.

In Case No. 25081, Raz Oil seeks an order authorizing applicant to plug back the YO State SWD #1 well to the Delaware Mountain Group and authorizing applicant to inject produced water into the Delaware Mountain Group at a depth of approximate 5,540 feet to 6,930 feet. Applicant currently operates the YO State SWD #1 (API 30-025-38162), at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Applicant further requests that the Division approve a maximum daily injection rate for the well of 20,000 bbls per day. Said area is located approximately 12.24 miles northwest of Eunice, New Mexico.

The hearing is set for January 9, 2025 beginning at 9:00 a.m. The hearing will be conducted in a hybrid fashion, both in-person at the Energy, Minerals, Natural Resources Department, Wendell Chino Building, Pecos Hall, 1220 South St. Francis Drive, 1st Floor, Santa Fe, NM 87505 and via the WebEx virtual meeting platform. To participate in the electronic hearing, see the instructions posted on the docket for the hearing date: https://www.emnrd.nm.gov/ocd/hearing-info/.

As a party who may be affected by this application, we are notifying you of your right to appear at the hearing and participate in this case, including the right to present evidence either in support of or in opposition to the



Modrall Sperling
Roehl Harris & Sisk P.A.

500 Fourth Street NW
Suite 1000
Albuquerque,
New Mexico 87102

PO Box 2168
Albuquerque,
New Mexico 87103-2168

Tel: 505.848.1800
www.modrall.com

application. Failure to appear at the hearing may preclude you from any involvement in this case at a later date.

You are further notified that if you desire to appear in this case, then you are requested to file a Pre-Hearing Statement with the Division at least four business days in advance of a scheduled hearing before the Division or the Commission, but in no event later than 5:00 p.m. mountain time, on the Thursday preceding the scheduled hearing date, with a copy delivered to the undersigned.

Sincerely,

Deana M. Bennett

Deana M. Bennett
Attorney for Applicant

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

APPLICATION

Raz Oil and Gas L.L.C. ("Raz"), OGRID No. 370507, through its undersigned attorneys, hereby submits this application to the Oil Conservation Division pursuant to the provisions of NMSA 1978, § 70-2-12, Rule No. 19.15.26, and Rule 19.15.4.8 for an order authorizing Raz to plug back the YO State SWD #1 well to the Delaware Mountain Group and authorizing injection from the YO State SWD #1 well into the Delaware Mountain Group. In support of this application, Raz states as follows:

(1) Raz currently operates the YO State SWD #1 (API 30-025-38162) pursuant to Division Order SWD-1594, at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Raz currently injects produced water into the Devonian formation.

(2) Raz seeks authority to plug back the YO State SWD #1 well to the Delaware Mountain Group and authority to inject produced water into the Delaware Mountain Group at a depth of approximately 5,540 feet to 6,930 feet.

(3) Raz requests that the Division approve a maximum daily injection rate for the well of 20,000 bbls per day.

(4) Raz requests approval of a maximum injection pressure of 1,108 psi for the well.

(5) A proposed C-108 for the subject well is attached hereto as Attachment A. Raz previously submitted a C-108 for administrative approval in October 2023. Raz reviewed the C-108 in preparation for submitting this application and made one revision to the ownership map—otherwise the C-108 as submitted in October 2023 required no changes and is still accurate.

(6) Notice of the previously submitted administrative application was given as shown in the attached C-108. Counsel for Raz will provide notice of this hearing application as required by the Division's regulations.

(7) The granting of this application will prevent waste and will protect correlative rights.

WHEREFORE, Raz requests that this application be set for hearing before an Examiner of the Oil Conservation Division on January 9, 2025; and that after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS & SISK, P.A.

By: Deana M. Bennett

Earl E. DeBrine, Jr.
Deana M. Bennett
Yarithza Peña
Post Office Box 2168
500 Fourth Street NW, Suite 1000
Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
edebrine@modrall.com
deana.bennett@modrall.com
yarithza.pena@modrall.com
Attorneys for Applicant

CASE NO. 25081: Application of Raz Oil and Gas L.L.C. for approval of a salt water disposal well in Lea County, New Mexico. Applicant seeks an order authorizing applicant to plug back the YO State SWD #1 well to the Delaware Mountain Group and authorizing applicant to inject produced water into the Delaware Mountain Group at a depth of approximate 5,540 feet to 6,930 feet. Applicant currently operates the YO State SWD #1 (API 30-025-38162), at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Applicant further requests that the Division approve a maximum daily injection rate for the well of 20,000 bbls per day. Said area is located approximately 12.24 miles northwest of Eunice, New Mexico.

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Geological & 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

Applicant: Raz Oil and Gas L.L.C. **OGRID Number:** 370507
Well Name: YO State SWD #001 **API:** 30-025-38162
Pool: SWD; DELAWARE **Pool Code:** 96100

SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW

1) **TYPE OF APPLICATION:** Check those which apply for [A]
A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]
[I] Commingling – Storage – Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

2) **NOTIFICATION REQUIRED TO:** Check those which apply.
A. ☒ Offset operators or lease holders
B. ☐ Royalty, overriding royalty owners, revenue owners
C. ☒ Application requires published notice
D. ☒ Notification and/or concurrent approval by SLO
E. ☐ Notification and/or concurrent approval by BLM
F. ☒ Surface owner
G. ☒ For all of the above, proof of notification or publication is attached, and/or,
H. ☐ No notice required

3) **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.

Joshua Ticknor
Print or Type Name

Josh Ticknor
Signature

12/10/2024
Date

(580) 916-2126
Phone Number

jticknor@all-llc.com
e-mail Address

EXHIBIT A

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: Raz Oil and Gas L.L.C.

ADDRESS: P.O. Box 1180, Eunice, NM 88321

CONTACT PARTY: Joshua Ticknor PHONE: (580) 916-2126

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: injection authorized under Order SWD-1594

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: Joshua Ticknor TITLE: Consultant / Project Manager

SIGNATURE: Josh Ticknor DATE: 12/10/2024

E-MAIL ADDRESS: jticknor@all-llc.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: File Electronically Via OCD Permitting

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.

Application for Authorization to Inject
Well Name: YO State SWD #1
API: 30-025-38162

III – Well Data (*The Wellbore Diagram is included as **Attachment 1***)

A.

(1) General Well Information:

Operator: Raz Oil and Gas L.L.C. (OGRID No. 370507)
Lease Name & Well Number: YO State SWD #1
Location Footage Calls: 660 FNL & 840 FWL
Legal Location: Lot D, S15 T21S R35E
Ground Elevation: 3,587'
Proposed Injection Interval: 5,540' – 6,930'
County: Lea

(2) Casing Information:

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface Casing	17-1/2"	13-3/8"	48 lb/ft	850'	750	Surface	Circulation
Intermediate Casing	12-1/2"	9-5/8"	40 lb/ft	5,420'	1,900	Surface	Circulation
Production Casing	8-3/4"	7"	26 lb/ft	12,536'	1,605	Surface	CBL
Liner	6-1/8"	5"	15 lb/ft	12,273' – 13,962'	105	12,662'	CBL

DV Tools set on 7" casing at: 4,166', 5,335', and 9,797'

(3) Tubing Information:

4.5" (11.6 lb/ft) ICP L80 or N80 injection tubing with setting depth of 5,520'.

(4) Packer Information: Baker Hughes Hornet or equivalent packer set at 5,520'.

B.

(1) Injection Formation Name: Delaware
Pool Name: SWD; Delaware
Pool Code: 96100

(2) Injection Interval: Perforated injection between 5,540' – 6,930'

(3) Drilling Purpose: Plug back for saltwater disposal in Delaware Mountain Group.

(4) Other Perforated Intervals: Perforations from 13,518' – 13,718' and open hole from 13,962' – 14,347' are currently being utilized to inject into the Devonian Formation. These Perforations will be properly plugged and abandoned during the plug back of the YO State SWD #1 into a Delaware Mountain Group injection well.

(5) Overlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Yates (3,680')

Underlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Bone Spring (7,578')
- Wolfcamp (10,156')
- Morrow (11,669')

Application for Authorization to Inject
Well Name: YO State SWD #1
API: 30-025-38162

V – Well and Lease Maps

The following maps and documents are included in ***Attachment 2***:

- 2-mile Oil & Gas Well Map
- 1/2-Mile Well Detail List
- Penetrating Wellbore Diagram (Plugged Wells)
- 2-Mile Lease Map
- 2-Mile Mineral Ownership Map
- 2-Mile Surface Ownership Map
- Potash Lease Map

VI – AOR Well List

A list of the wells within the 1/2-mile AOR is included in ***Attachment 2***.

There is one (1) well within the 1/2-mile AOR which penetrates the injection zone. This well has been properly cased, cemented, and plugged to isolate the injection zone. A wellbore diagram, casing information, and plugging details for this well is also included in ***Attachment 2.***

VII – Proposed Operation

(1) Proposed Maximum Injection Rate: 20,000 bpd
Proposed Average Injection Rate: 13,000 bpd
(2) A **closed-loop system** will be used.
(3) Proposed Maximum Injection Pressure: 1,108 psi (surface)
Proposed Average Injection Pressure: approximately 720 psi (surface)
(4) Source Water Analysis: It is expected that the injectate will consist of produced water from production wells completed in the Yates, Bone Spring, and Morrow formations. Analysis of water from these formations is included as ***Attachment 3***.
(5) Injection Formation Water Analysis: The proposed SWD will be injecting water into the Delaware Mountain Group which is a non-productive zone known to be compatible with formation water from the Yates, Bone Spring, and Morrow formations. Water analyses from the Delaware formation in the area are included as ***Attachment 4***.

VIII – Geologic Description

The proposed injection interval includes the Delaware Mountain Group from 5,540 to 6,930 feet. This formation consists of fine-grained Permian age sandstones with interbedded siltstones. Several thick intervals of porous and permeable sandstones capable of taking water are present within the Delaware Mountain Group in the area.

The base of the USDW is at a depth of approximately 850 feet. Water well depth in the area is approximately 150 feet below the ground surface.

Application for Authorization to Inject
Well Name: YO State SWD #1
API: 30-025-38162

IX – Proposed Stimulation Program

A small cleanup acid job may be used to treat the new perforations in the Delaware Mountain Group. However, no other formation stimulation is currently planned.

X – Logging and Test Data

Logs will be submitted to the Division upon completion of the well.

XI – Fresh Groundwater Samples

Based on a review of data from the New Mexico Office of the State Engineer, one (1) water well is located within 1-mile of the proposed SWD location. This water well was sampled on June 7, 2015.

A water well map, details of the water well within 1-mile, and the associated water analyses are included in ***Attachment 5***.

XII – No Hydrologic Connection Statement

No faulting is present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing program has been designed to ensure there will be no hydrologic connection between the injection interval and overlying USDWs.

A signed No Hydrologic Connection Statement is included as ***Attachment 6.***

XIII – Proof of Notice

A Public Notice was filed with the Hobbs News-Sun newspaper and an affidavit is included in ***Attachment 7***.

A copy of the application was mailed to the OCD district office, landowner, and all identified affected parties within 1/2-mile of the proposed SWD location. A list of the recipients, as well as delivery confirmations, are included in ***Attachment 7***.

Attachments

Attachment 1:

- C-102
- As-Built Wellbore Diagram
- Proposed Recompletion Wellbore Diagram
- Packer Diagram

Attachment 2: Area of Review Information:

- 2-Mile Oil & Gas Well Map
- 1/2-Mile Well Detail List
- Penetrating Wellbore Diagram (Plugged Wells)
- 2-Mile Lease Map
- 2-Mile Mineral Ownership Map
- 2-Mile Surface Ownership Map
- Potash Lease Map

Attachment 3: Source Water Analyses

Attachment 4: Injection Formation Water Analyses

Attachment 5: Water Well Map and Well Data

- Water Well Map
- Well Data

Attachment 6: No Hydrologic Connection Statement

Attachment 7: Public Notice Affidavit and Notice of Application Confirmations

Attachment 1

- C-102
- As-Built Wellbore Diagram
- Proposed Recompletion Wellbore Diagram
- Packer Diagram

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

HOBBS OCD
DEC 16 2015
RECEIVED

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-38162	97996	SWD; Cherry Canyon – Brushy Canyon

[4] Property Code	[5] Property Name	[6] Well Number
315024	YO State SWD	001

[7] OGRID No.	[8] Operator Name	[9] Elevation
370507	Raz Oil and Gas, LLC	3587

[10] Surface Location

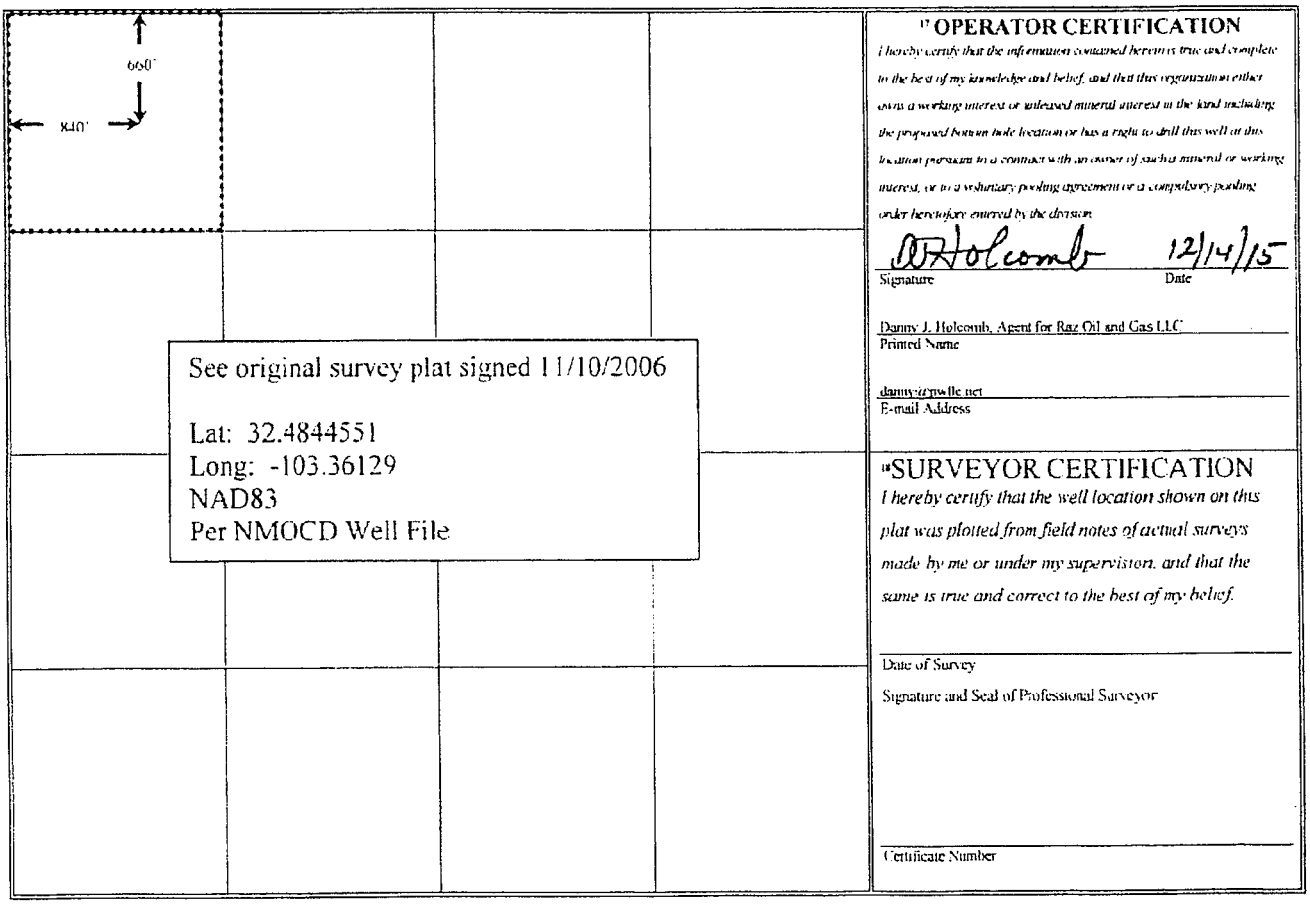
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	15	21S	35E		660	N	840	W	Lea

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
40			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

DJHolcomb 12/14/15
Signature Date

Danny J. Holcomb, Agent for Raz Oil and Gas LLC
Printed Name

dannyj@pwlle.net
E-mail Address

[18] SURVEYOR CERTIFICATION

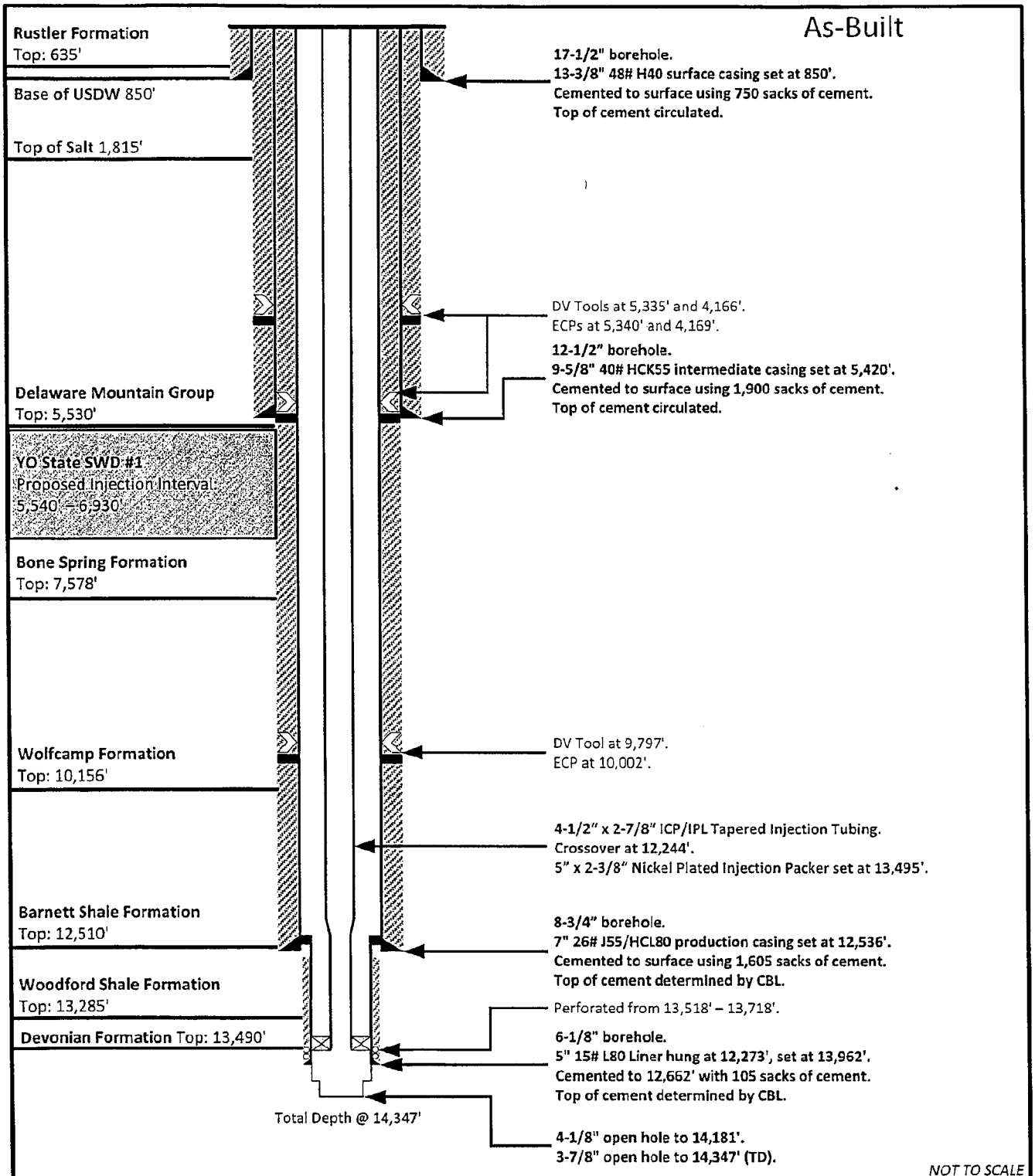
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey

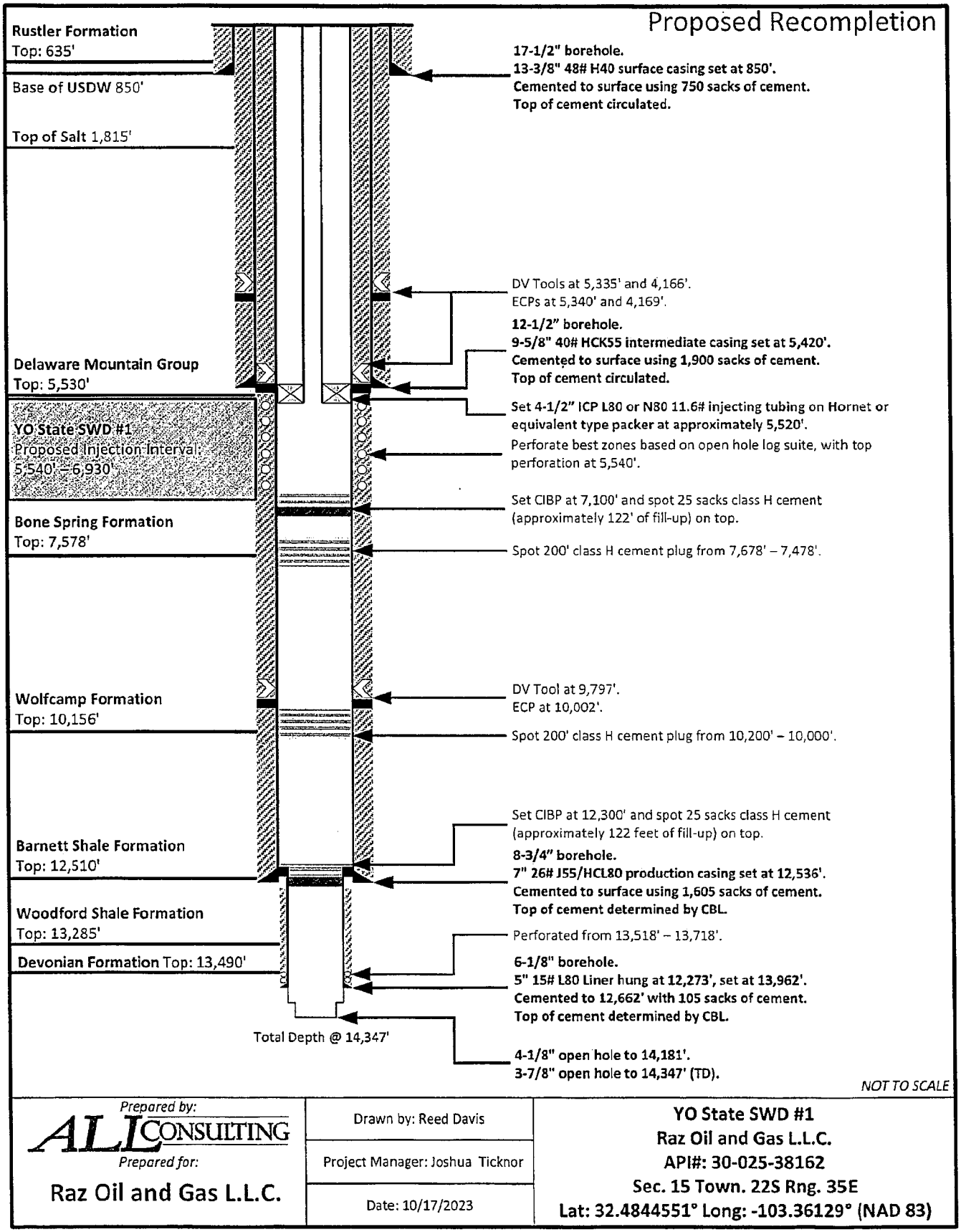
Signature and Seal of Professional Surveyor

Certificate Number

DEC 21 2015



Prepared by: ALL CONSULTING Prepared for: Raz Oil and Gas L.L.C.	Drawn by: Reed Davis Project Manager: Joshua Ticknor Date: 10/17/2023	YO State SWD #1 Raz Oil and Gas L.L.C. API#: 30-025-38162 Sec. 15 Town. 22S Rng. 35E Lat: 32.4844551° Long: -103.36129° (NAD 83)


Proposed Recompletion
Rustler Formation
Top: 635'
Base of USDW 850'
Top of Salt 1,815'
Delaware Mountain Group
Top: 5,530'
YO State SWD #1
Proposed Injection Interval
5,540' – 6,930'
Bone Spring Formation
Top: 7,578'
Wolfcamp Formation
Top: 10,156'
Barnett Shale Formation
Top: 12,510'
Woodford Shale Formation
Top: 13,285'
Devonian Formation Top: 13,490'
Total Depth @ 14,347'
17-1/2" borehole.
13-3/8" 48# H40 surface casing set at 850'.
Cemented to surface using 750 sacks of cement.
Top of cement circulated.
DV Tools at 5,335' and 4,166'.
ECPs at 5,340' and 4,169'.
12-1/2" borehole.
9-5/8" 40# HCK55 intermediate casing set at 5,420'.
Cemented to surface using 1,900 sacks of cement.
Top of cement circulated.
Set 4-1/2" ICP L80 or N80 11.6# injecting tubing on Hornet or equivalent type packer at approximately 5,520'.
Perforate best zones based on open hole log suite, with top perforation at 5,540'.
Set CIBP at 7,100' and spot 25 sacks class H cement (approximately 122' of fill-up) on top.
Spot 200' class H cement plug from 7,678' – 7,478'.
DV Tool at 9,797'.
ECP at 10,002'.
Spot 200' class H cement plug from 10,200' – 10,000'.
Set CIBP at 12,300' and spot 25 sacks class H cement (approximately 122 feet of fill-up) on top.
8-3/4" borehole.
7" 26# J55/HCL80 production casing set at 12,536'.
Cemented to surface using 1,605 sacks of cement.
Top of cement determined by CBL.
Perforated from 13,518' – 13,718'.
6-1/8" borehole.
5" 15# L80 Liner hung at 12,273', set at 13,962'.
Cemented to 12,662' with 105 sacks of cement.
Top of cement determined by CBL.
4-1/8" open hole to 14,181'.
3-7/8" open hole to 14,347' (TD).
NOT TO SCALE
Prepared by:
ALL CONSULTING
Prepared for:
Raz Oil and Gas L.L.C.
Drawn by: Reed Davis
Project Manager: Joshua Ticknor
Date: 10/17/2023
YO State SWD #1
Raz Oil and Gas L.L.C.
API#: 30-025-38162
Sec. 15 Town. 22S Rng. 35E
Lat: 32.4844551° Long: -103.36129° (NAD 83)

HORNET Packer

Product Family No. H64682

HORNET EL Packer

Product Family No. H64683

APPLICATION

The mechanically set HORNET™ packer offers ease of operation with quarter-turn right to set and release. Converting it for wireline-setting applications is simple and inexpensive. The HORNET packer provides for landing in compression, tension, or neutral positions. Every component from the jay track, to the internal bypass, to the packing-element system and the upper slip assembly has been developed to ensure the HORNET's setting and releasing reliability.

The HORNET EL packer is run and set on electric line using an E-4™ (Product Family No. H43702) with a slow-set power charge or a J™ setting tool (Product Family No. H41371) and a special wireline adapter kit. An L-10™ type on/off seal nipple is run on top of the packer to connect the tubing to the packer and to house a blanking plug when the packer is used as a temporary bridge plug.

Advantages

Upper Slip Assembly:

- Thoroughly tested across API minimum to maximum casing ID tolerances for each specified casing weight, for setting and releasing reliability
- Slip-wicker configuration providing bidirectional-load support with solid upper cone to support highest tensile loads
- Staged-release action eliminates high-overpull requirement
- Minimal set-down weight required to anchor slips

Internal Bypass Seal:

- Durable bypass seal design provides sealing after unloading, under differential pressures
- No O-ring sealing system

Packing Element System:

- Fully tested to combined ratings at the API's maximum ID tolerance
- Patented enhancements to control overboost
- High-performance, three-piece element system

Lower Slip and Jay Assembly:

- Slips and drag blocks tested to maximum API tolerance ID for positive set and ease of release
- One-quarter-turn right setting and releasing action
- Pickoff of packing elements with applied tension or compression
- Spacing in jay ensures opening of internal bypass, before slip releasing action begins—important to both ease of release and safety
- Automatically returns to running position

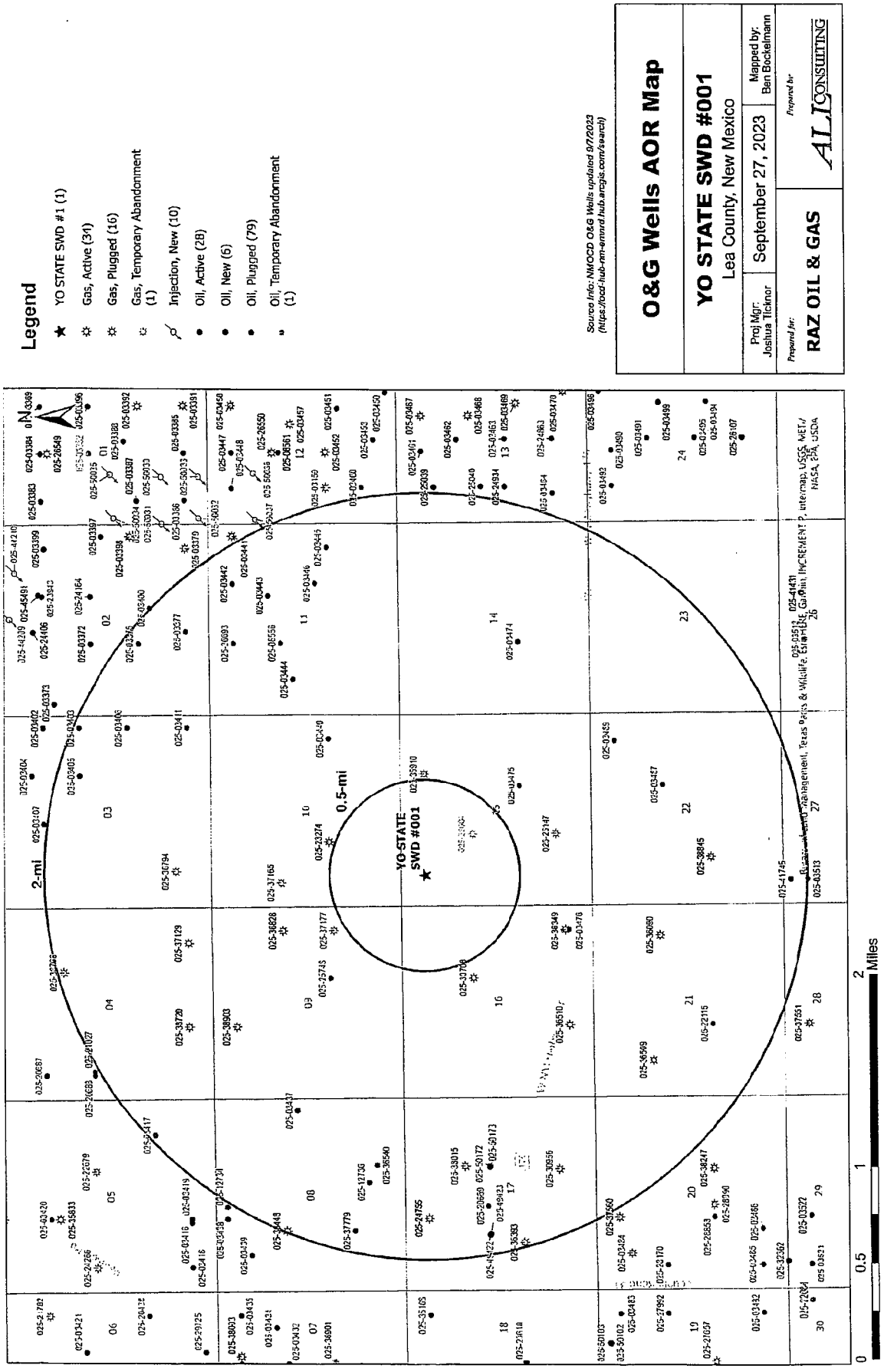
HORNET Packer Product Family No. H64682

HORNET EL Packer Product Family No. H64683

Attachment 2

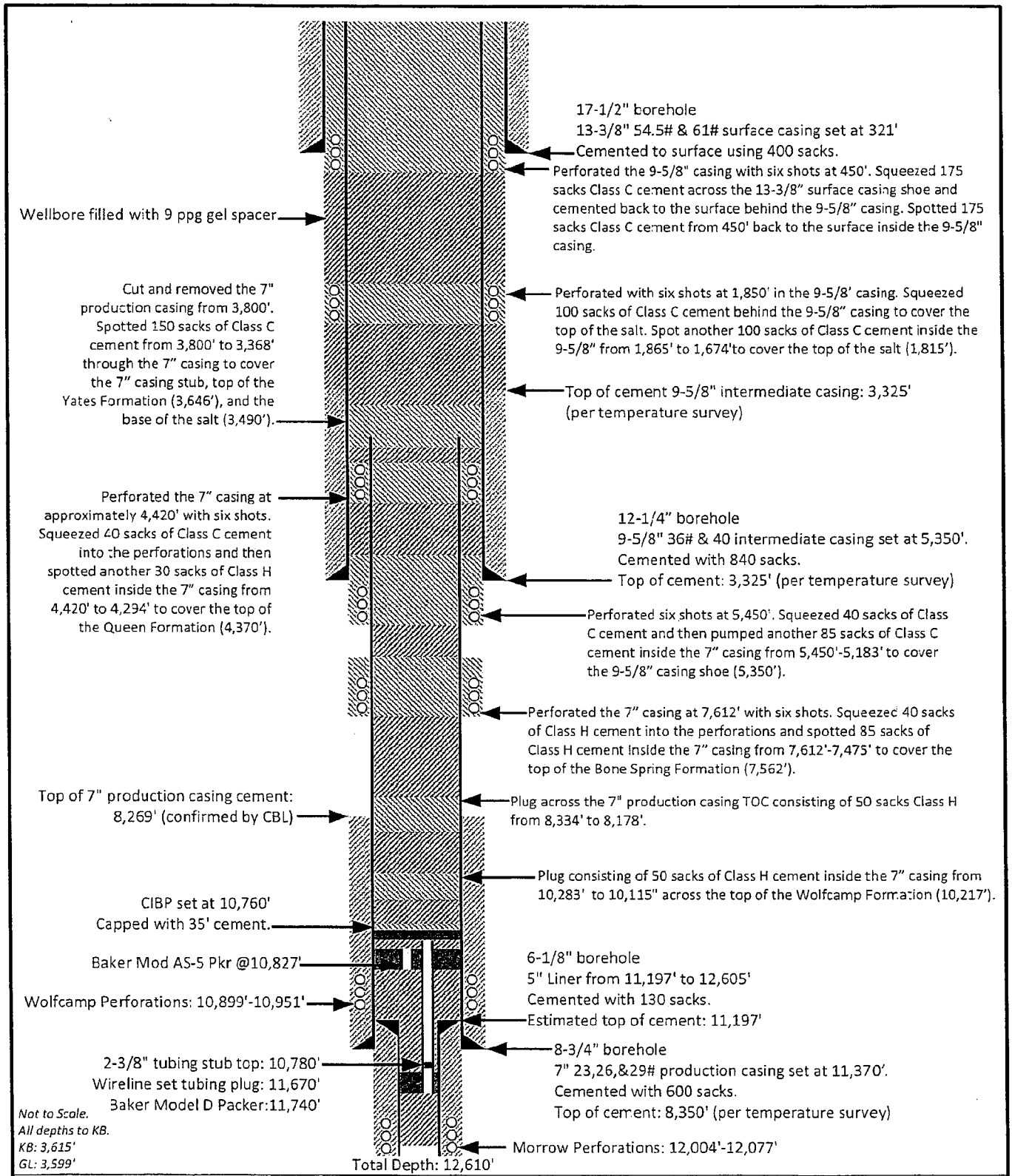
Area of Review Information:

- 2-mile Oil & Gas Well Map
- 1/2-Mile Well Detail List
- Penetrating Wellbore Diagram (Plugged Wells)
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- Potash Lease Map

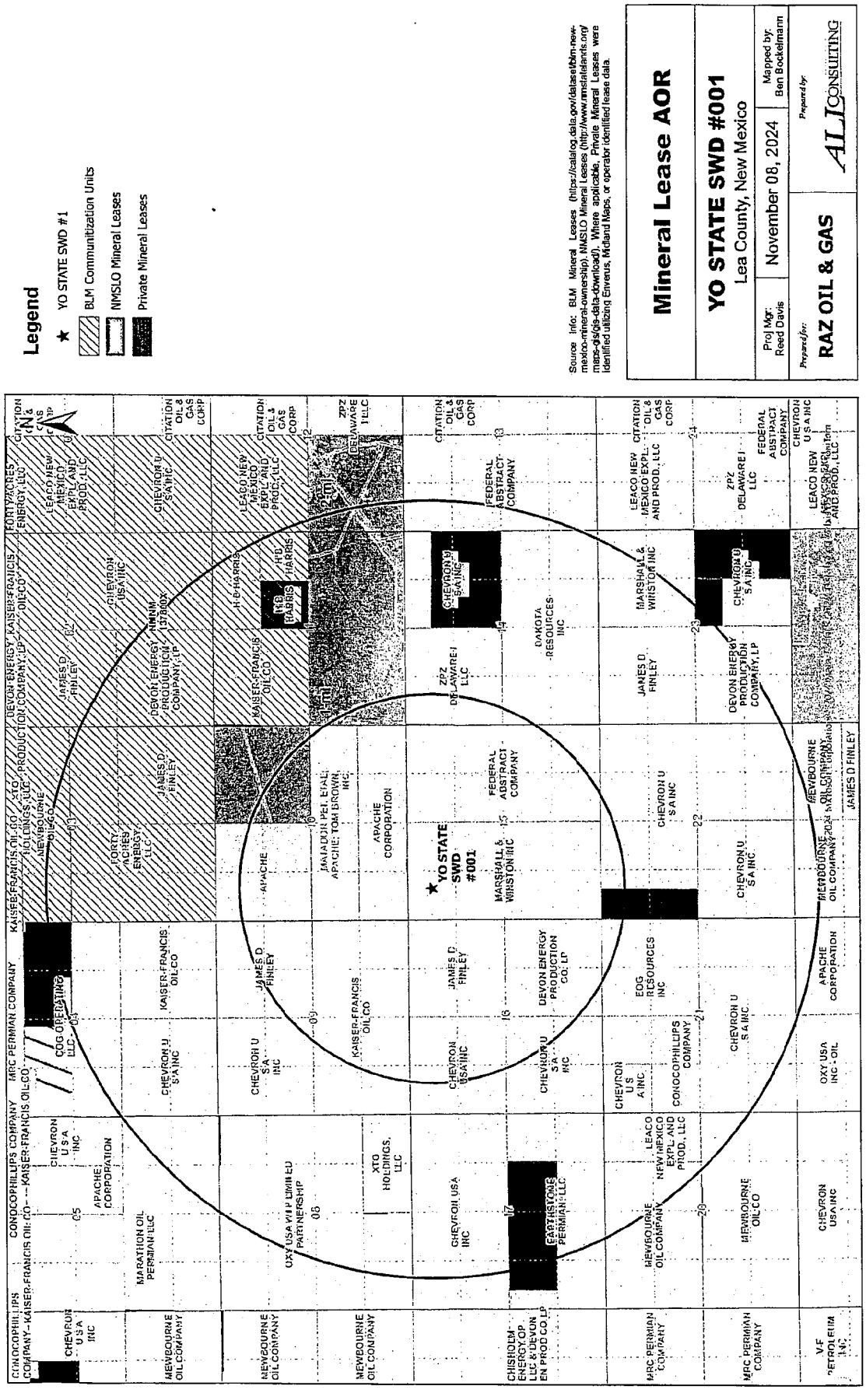

O&G Wells AOR Map
YO STATE SWD #001
Lea County, New Mexico
Proj Mgr: Joshua Ticknor
September 27, 2023
Mapped by: Ben Bockelmann
Prepared for: RAZ OIL & GAS
Prepared by: ALT CONSULTING
Source Info: NMOCD O&G Wells updated 9/7/2023 (https://ocd-hub-nm-emnrd.hub.arcgis.com/search)
Legend
YO STATE SWD #1 (1)
Gas, Active (34)
Gas, Plugged (16)
Gas, Temporary Abandonment (1)
Injection, New (10)
Oil, Active (28)
Oil, New (6)
Oil, Plugged (79)
Oil, Temporary Abandonment (1)
2-mi
0.5-mi
YO-STATE SWD #001
N
0
0.5
1
2
Miles

AOR Tabulation for Yo State SWD #001 (Top of Injection Interval: 5,540' - 6,930')							
Well Name	API#	Well Type	Operator	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth (feet)	Penetrate Inj. Zone?
STATE WE K #001	30-025-22004	Plugged	Raz Oil and Gas LLC	1/10/1967	F-15-21S-35E	12,610 (plugged)	Yes

Casing / Plugging Information for Wells Penetrating the Yo State SWD #001 Injection Zone							
Well Name	Type	Set Depth	Casing Size	TOC	TOC Method Determined	Sks of Cement	Hole Size
STATE WE K #001	Surface	321'	13.375"	Surface	Circulation	400	17.5"
	Intermediate	5,350'	9.625"	3,325'	Temperature Survey	840	12.25"
	Production	4,420' - 11,370'	7"	8,350'	Temperature Survey	600	8.75"
	Liner	11,197' - 12,605'	5"	11,197'	Estimated	130	6.125"
	Plugging Details: Tubing plug @11,670'. CIBP @10,760' capped with 35' cement. Plugs @10,283' - 10,115' with 50 sx, @8,334' - 8,178' with 50 sx. Perf and squeeze @7,612' to 7,475' with 40 sx and spotted 85 sx inside 7" casing from 7,612' - 7,475', @5,450' - 5,183' with 40 sx and spotted 80 sx from 5,450' - 5,183', @4,420' - 4,294' w/ 70 sx. 7" casing cut and pulled @3,800', spotted 150 sx from 3,800' to 3,368'. Perf and squeeze @1,850' - 1,674' with 100 sx and spotted 100 sx from 1,865' - 1,674', @450' - surface with 175 sx and spotted 175 sx from 450' - surface.						



Prepared by: ALL CONSULTING	Drawn by: Joshua Ticknor	Subsequent Report of P&A Wellbore Diagram Raz Oil and Gas, LLC State WE "K" #1 API # 30-025-22004 1980' FNL x 1980' FWL, UL 'F' Sec 15, T21S, R35E, Lea County, NM
	Project Manager: Joshua Ticknor	
	Date: 09/07/2023	



Source Info: BLM Mineral Leases (https://catalog.data.gov/dataset/blm-new-mexico-mineral-ownership), NMSLO Mineral Leases (http://www.nmstatelands.org/maps-gis/gis-data-download), Where applicable, Private Mineral Leases were identified utilizing Enverus, Midland Maps, or operator identified lease data.

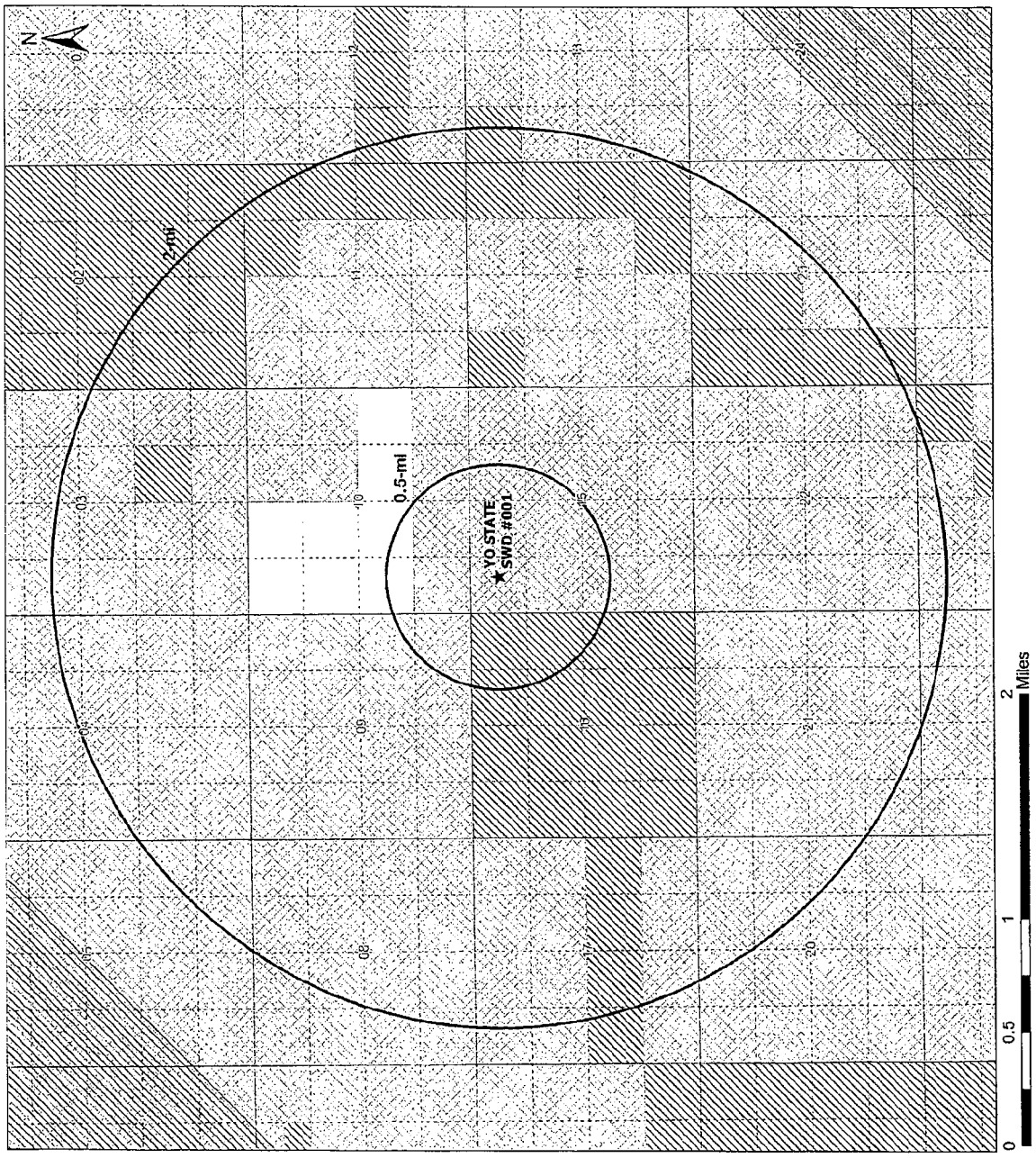
Mineral Lease AOR

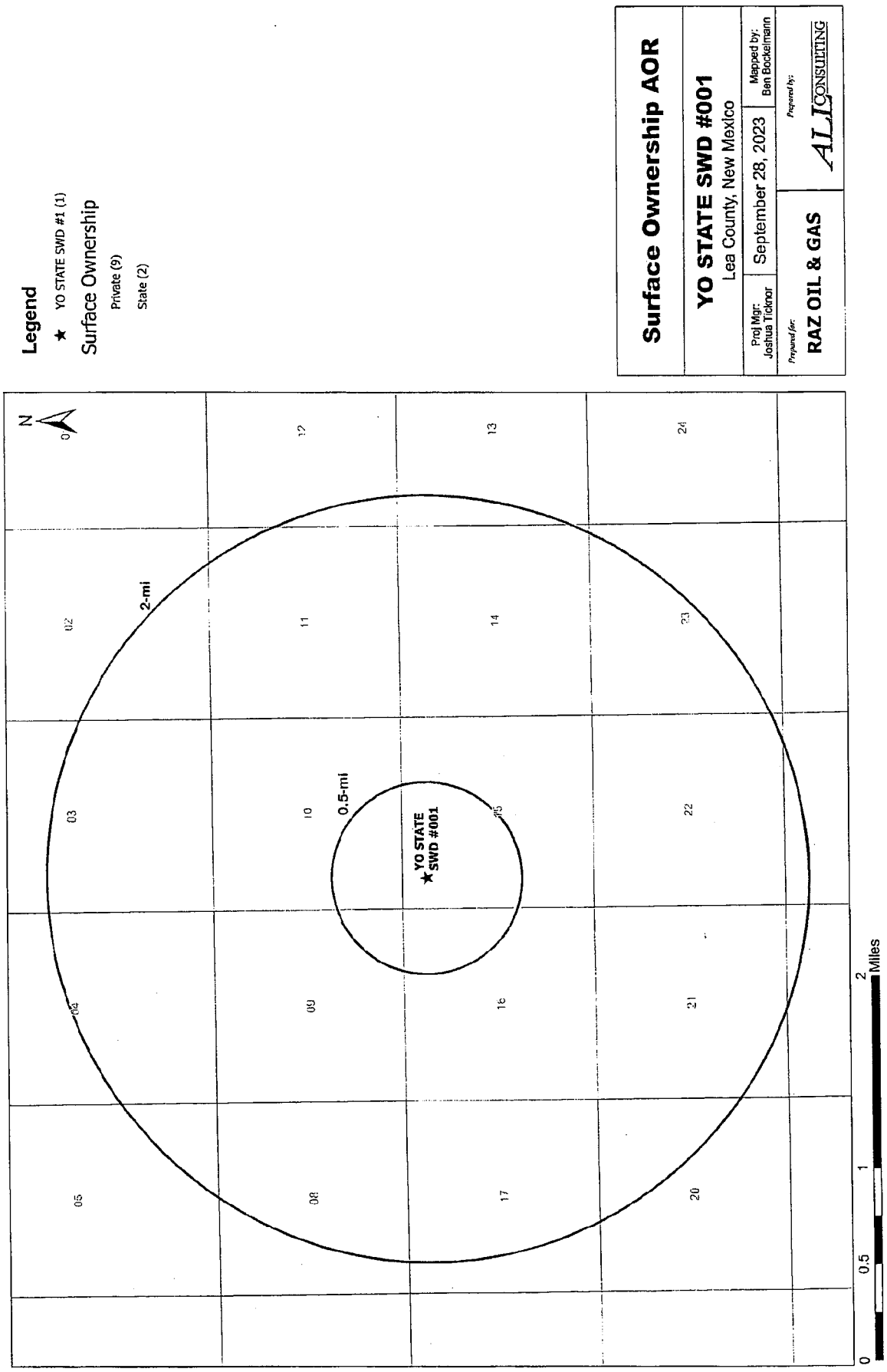
YO STATE SWD #001
Lea County, New Mexico

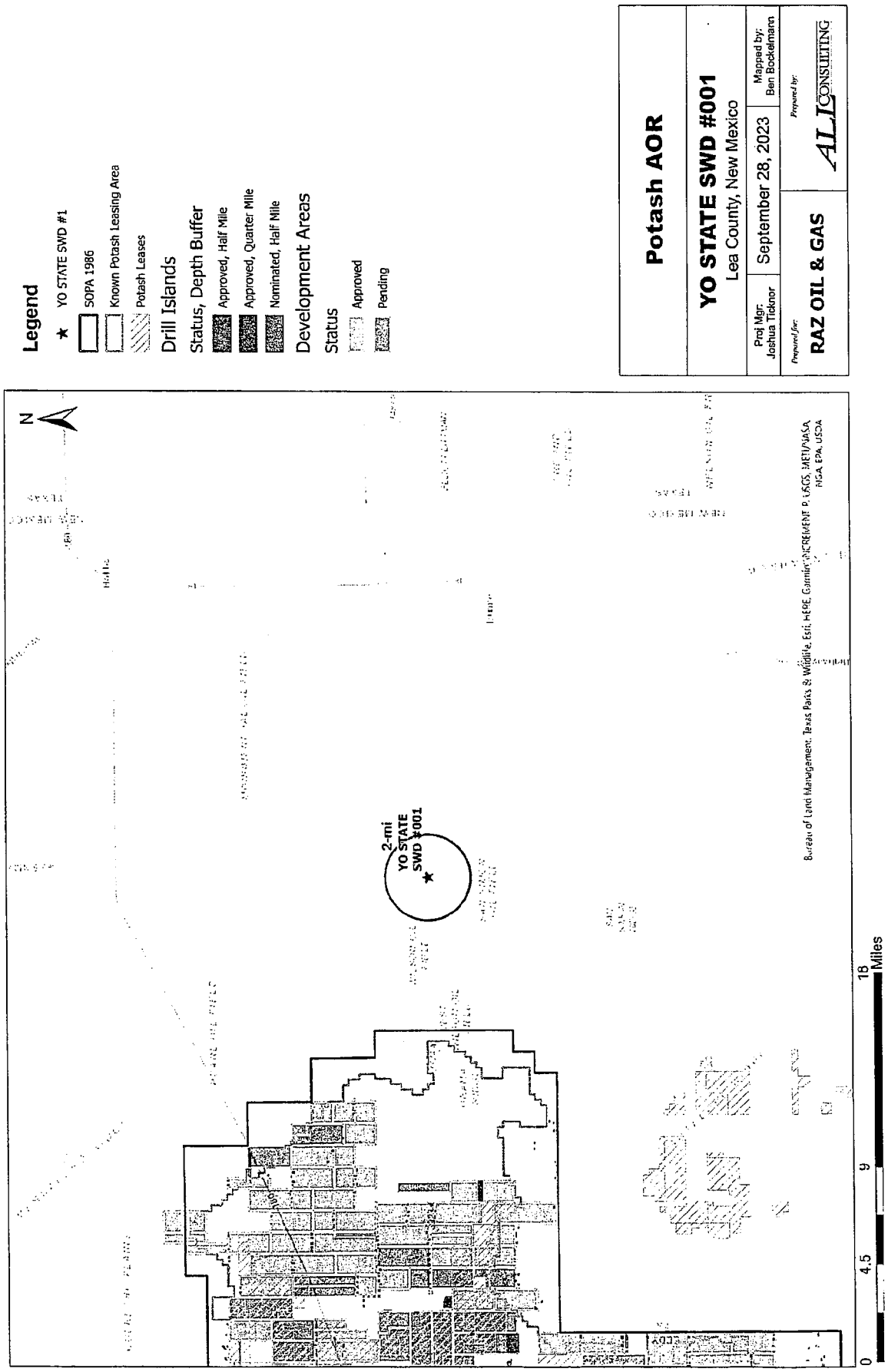
Proj Mgr: Reed Davis | November 08, 2024 | Mapped by: Ben Bockelmann

Prepared for: **RAZ OIL & GAS**

Prepared by: ALL CONSULTING


Legend
YO STATE SWD #1
Private minerals
Subsurface minerals (NMSLO)
Surface and Subsurface minerals (NMSLO)
Mineral Ownership AOR
YO STATE SWD #001
Lea County, New Mexico
Proj Mgr: Joshua Ticknor
September 28, 2023
Mapped by: Ben Bockelmann
Prepared for: RAZ OIL & GAS
Prepared by: ALJ CONSULTING
N
2-mi
0.5-mi
YO STATE SWD #001
0
0.5
1
2
Miles


Legend
YO STATE SWD #1 (1)
Surface Ownership
Private (9)
State (2)
Surface Ownership AOR
YO STATE SWD #001
Lea County, New Mexico
Proj Mgr: Joshua Ticknor
September 28, 2023
Mapped by: Ben Bockelmann
Prepared for: RAZ OIL & GAS
Prepared by: AJ CONSULTING
N
2-mi
0.5-mi
YO STATE SWD #001
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
0
0.5
1
2
Miles


Legend
YO STATE SWD #1
SOPA 1986
Known Potash Leasing Area
Potash Leases
Drill Islands
Status, Depth Buffer
Approved, Half Mile
Approved, Quarter Mile
Nominated, Half Mile
Development Areas
Status
Approved
Pending
Potash AOR
YO STATE SWD #001
Lea County, New Mexico
Proj Mgr: Joshua Tidknor
September 28, 2023
Mapped by: Ben Bockelmann
Prepared for: RAZ OIL & GAS
Prepared by: ALL CONSULTING
2-mi
YO STATE SWD #001
N
0
4.5
9
18
Miles

Attachment 3

Source Water Analysis

Source Water Analysis

Raz Oil and Gas LLC - YO State SWD #001

Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Field	Formation	TDS (mg/L)	Chloride (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)
APPLEWHITE FEDERAL COM #001	3002520377	32.5750008	-103.4730377	17	20S	35E	H	1980N	660E	LEA	NM	LYNCH	BONE SPRING	173,141	93,660	5,174	7,916
HUNT APO STATE #001	3002527135	32.5070038	-103.4812317	4	21S	34E	P	2310S	660W	LEA	NM	GRAMA RIDGE NORTH	BONE SPRING	294,627	216,575	74	403
BERRY APN STATE #001	3002527250	32.5060349	-103.4983444	5	21S	34E	L	1980S	660W	LEA	NM	BERRY NORTH	BONE SPRING	192,871	132,048	163	445
HUNT APO STATE #001	3002527135	32.5070038	-103.4812317	4	21S	34E	P	2310S	660W	LEA	NM	GRAMA RIDGE NORTH	BONE SPRING	294,627	216,575	74	403
MONK 21 STATE COM #001H	3002540986	32.4706993	-103.4818954	21	21S	34E	D	330N	460W	Lea	NM		BONE SPRING 2ND SAND	261,089	160,264	122	425
MONK 21 STATE #004H	3002542193	32.4710767	-103.4727296	21	21S	34E	B	200N	1980E	Lea	NM		BONE SPRING 2ND SAND	184,233	112,775	488	425
GAUCHO UNIT #007H	3002534440	32.3889961	-103.4941711	17	22S	34E	K	1650S	1980W	Lea	NM		BONE SPRING 2ND SAND	166,698	101,677	61	675
GAUCHO UNIT #015H	3002541566	32.3841896	-103.4984589	20	22S	34E	D	100N	660W	Lea	NM		BONE SPRING 2ND SAND	158,147	96,378	232	710
GAUCHO UNIT #011H	3002541184	32.385006	-103.4891129	17	22S	34E	O	200S	1730E	Lea	NM		BONE SPRING 3RD SAND	156,141	97,978	305	1,005
GAUCHO UNIT #010H	3002541183	32.385006	-103.4892731	17	22S	34E	O	200S	1780E	Lea	NM		BONE SPRING 3RD SAND	165,155	100,777	220	560
GAUCHO UNIT #010H	3002541183	32.385006	-103.4892731	17	22S	34E	O	200S	1780E	Lea	NM		BONE SPRING 3RD SAND	165,155	100,777	220	560
WILSON DEEP UNIT #001	3002520461	32.4605832	-103.4253387	13	21S	34E	F	2080N	2080W	LEA	NM	WILSON	MORROW	11,648	566	2,161	5,252
EUNICE MONUMENT SOUTH UNIT #102	3002504326	32.5495567	-103.3014832	25	20S	36E	A	660N	660E	Lea	NM		YATES		247,872	1,091	30,984

Attachment 4

Injection Formation Water Analysis

Injection Formation Water Analysis

Raz Oil and Gas LLC - YO State SWD #001 - Delaware Mountain Group

Well Name	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Field	Formation	TDS (mg/L)	Chloride (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)
MOBIL LEA STATE #001	3002531696	32.5999107	-103.5331573	2	20S	34E	K	1800S	1980W	LEA	NM	LEA NORTHEAST	DELAWARE	152,064	102,148	404	691
MOBIL LEA STATE #003	3002532105	32.5976906	-103.5367584	2	20S	34E	M	990S	870W	LEA	NM	LEA NORTHEAST	DELAWARE	296,822	215,237	143	294
MOBIL LEA STATE #005	3002532466	32.6028613	-103.5367584	2	20S	34E	E	2440N	870W	LEA	NM	LEA NORTHEAST	DELAWARE	340,838	245,270	229	147
LEA UNIT #001	3002502427	32.5858536	-103.5202556	12	20S	34E	L	1980S	660W	LEA	NM	LEA	DELAWARE	214,787	132,700	208	1,816
GAUCHO 21 FEDERAL #002H	3002540626	32.5709793	-103.4823151	21	22S	34E	M	375S	375W	Lea	NM		DELAWARE-BRUSHY CANYON	266,468	167,562	366	

Attachment 5

- Water Well Map
- Well Data

Legend
YO STATE SWD #1 (1)
OSE PODs
Status
Active (1)
Pending (0)
Change Location of Well (0)
Capped (0)
Plugged (0)
Incomplete (0)
Unknown (0)
Source Info: NMOSE PODs updated 9/21/2023
(https://geospatialdata-ose.opendata.arcgis.com/search?collection=Dataset)
Water Wells AOR Map
YO STATE SWD #001
Lea County, New Mexico
Proj Mgr: Joshua Ticknor
September 27, 2023
Mapped by: Ben Bockelmann
Prepared for:
RAZ OIL & GAS
Prepared by:
ALL CONSULTING
YO STATE SWD #001
State Highway 176
0
0.25
0.5
1
Miles

Water Well Sampling Rationale

Raz Oil and Gas LLC - YO State SWD #001

Water Wells	Owner	Available Contact Information	Use	Sampling Required	Notes
CP-00587-POD1	The Merchant Livestock Company	P.O. Box 1105 Eunice, NM 88231spencer@merchantlivestock.com	Livestock Watering	Yes	CP-00587-POD1 was sampled on June 7, 2015.

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

RAZ OIL & GAS
BEN THOMPSON
P. O. BOX 1180
EUNICE NM, 88231
Fax To: NONE GIVEN

Received:	06/08/2015	Sampling Date:	06/07/2015
Reported:	06/12/2015	Sampling Type:	Water
Project Name:	WATER WELL CP00587	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: WELL WATER (H501468-01)

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**92.0**	4.00	06/09/2015	ND	104	104	100	0.00	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**860**	5.00	06/11/2015	ND	552	105	527	1.35	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Attachment 6

No Hydrologic Connection Statement

ALL CONSULTING

RE: Raz Oil and Gas LLC – YO State SWD #1 – Plug Back Saltwater Disposal Application, Lea County, New Mexico

ALL Consulting LLC (ALL) has performed a thorough hydrologic investigation related to the proposed plug back of the YO State SWD #1 into the Delaware Mountain Group. The hydrologic investigation was conducted to determine if there were any existing or potential connections between the proposed injection intervals in the Delaware Mountain Group and the deepest underground source of drinking water (USDW).

ALL performed an assessment and analysis of the subsurface geophysical log data along with published documents on the groundwater in this vicinity of Eddy County, New Mexico. Based on ALL's assessment and analysis there is containment through multiple confining zones above the Delaware Mountain Group and the USDW and over 4,690 feet of vertical separation between the base of the USDW and the top of the injection interval. Additionally, there is no evidence of extensive faulting that would allow for communication between the USDW and the Delaware Mountain Group.

Tom Tomastik

October 19, 2023

Tom Tomastik

Date

Chief Geologist and Regulatory Specialist

ALL Consulting LLC

Attachment 7

Public Notice Affidavit and Notice of Application Confirmations

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That Raz Oil and Gas L.L.C., P.O. Box 1180 Eunice, NM 88231, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

PURPOSE: The intended purpose of the injection well is to dispose of salt water produced from permitted oil and gas wells.

WELL NAME AND LOCATION: YO State SWD #1
Located 12.24 miles northwest of Eunice, NM
NW ¼ NW ¼, Section 15, Township 21S, Range 35E
660' FNL & 840' FWL
Lea County, NM

NAME AND DEPTH OF DISPOSAL ZONE: Delaware Mountain Group (5,540' – 6,930')
EXPECTED MAXIMUM INJECTION RATE: 20,000 Bbls/day
EXPECTED MAXIMUM INJECTION PRESSURE: 1,108 psi (surface)

Objections or requests for hearing must be filed with the New Mexico Oil Conservation Division within fifteen (15) days. Any objection or request for hearing should be mailed to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505.

Additional information may be obtained by contacting Joshua Ticknor at (580)-916-2126.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher 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
October 24, 2023
and ending with the issue dated
October 24, 2023.

Publisher

Sworn and subscribed to before me this 24th day of October 2023.

Notary LeAnn Whitehead

My commission expires
June 07, 2024
(Seal)

OFFICIAL SEAL
LEANN WHITEHEAD
Notary Public State of New Mexico
My Commission Expires 6-7-24

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 publication has been made.

LEGAL NOTICE
October 24, 2023

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That Raz Oil and Gas L.L.C., P.O. Box 1180 Eunice, NM 88231, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

PURPOSE: The intended purpose of the injection well is to dispose of salt water produced from permitted oil and gas wells.

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Additional information may be obtained by contacting Oliver Seekins at 918-382-7581.
#00284109

67115320 00284109

DANIEL ARTHUR
ALL CONSULTING
1718 S. CHEYENNE AVE.
TULSA, OK 74119

Raz Oil and Gas L.L.C - YO State SWD #1 - Affected Persons

Affected Party Classification	Entity - Proof of Notice	Entity - As Mapped/Exhibited	Address	City	State	Zip Code
Mineral / Surface Owner	New Mexico State Land Office	NMSLO	310 Old Santa Fe Trail	Santa Fe	NM	87501
NMOCD District Office	New Mexico Oil Conservation District 1	N/A	1625 N. French Drive	Hobbs	NM	88240
NMSLO Lessee	Federal Abstract Company	Federal Abstract Company	P.O. Box 4362	Houston	TX	77210-4362
NMSLO Lessee	Devon Energy Production Company Limited Partnership	Devon Energy Production Co. LP	333 W Sheridan Avenue	Oklahoma City	OK	73102
NMSLO Lessee	James D. Finley	James D Finley	1308 Lake Street Suite 200	Fort Worth	TX	76102
NMSLO Lessee	Apache Corporation	Apache Corporation	303 Veterans Airpark Ln #1000	Midland	TX	79705
NMSLO / Fee Lessee	Kaiser-Francis Oil Company	Kaiser-Francis Oil Co	P.O. Box 21468	Tulsa	OK	74121
NMSLO Lessee	Matador Resources Company	Matador Pet. Etal.	5400 LBJ Freeway, Suite 1500	Dallas	TX	75240
Fee Lessee	Tom Brown Incorporated	Tom Brown, Inc.	508 W Wall, Suite 500	Midland	TX	79701
Fee Lessee						

Notes: The affected parties above received notification of this C-108 application.

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Devon Energy Production Company
Limited Partnership
333 W SHERIDAN AVE
OKLAHOMA CITY OK 73102-5010

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Tulsa OK 74119

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District 1
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HOBBS NM 88240-9273

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1	9314 8699 0430 0129 4549 86	New Mexico State Land Office 310 Old Santa Fe Trail Santa Fe NM 87501	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
2	9314 8699 0430 0129 4549 93	Federal Abstract Company PO Box 4362 Houston TX 77210	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
3	9314 8699 0430 0129 4550 06	Devon Energy Production Company Limited Partnership 333 W. Sheridan Avenue Oklahoma City OK 73102	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
4	9314 8699 0430 0129 4550 13	James D. Finley 1308 Lake Street Suite 200 Fort Worth TX 76102	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
5	9314 8699 0430 0129 4550 20	Apache Corporation 303 Veterans Airpark Ln #1000 Midland TX 79705	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
6	9314 8699 0430 0129 4550 37	Kaiser-Francis Oil Company P.O. Box 21468 Tulsa OK 74121	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
7	9314 8699 0430 0129 4550 44	Matador Resources Company 5400 LBJ Freeway, Suite 1500 Dallas TX 75240	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
8	9314 8699 0430 0129 4550 51	Tom Brown Incorporated 508 W. Wall, Suite 500 Midland TX 79701	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
9	9314 8699 0430 0129 4550 68	Marshall & Winston 6 Desta Dr. #3100 Midland TX 79705	$2.59	$4.85	$2.62	$0.00	Raz Oil Notice
		Totals:	**$23.31**	**$43.65**	**$23.58**	**$0.00**	
					Grand Total:	**$90.54**	

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9314869904300129455051	2024-12-16 1:35 PM	Raz Oil	Tom Brown Incorporated		Midland	TX	79701	Undelivered - To Be Returned	Return Receipt - Electronic, Certified Mail	299086	
9314869904300129455044	2024-12-16 1:35 PM	Raz Oil	Matador Resources Company		Dallas	TX	75240	Delivered	Return Receipt - Electronic, Certified Mail	299086	2024-12-19 11:02 AM
9314869904300129455037	2024-12-16 1:35 PM	Raz Oil	Kaiser-Francis Oil Company		Tulsa	OK	74121	Delivered	Return Receipt - Electronic, Certified Mail	299086	2024-12-23 5:49 AM
9314869904300129455020	2024-12-16 1:35 PM	Raz Oil	Apache Corporation		Midland	TX	79705	Delivered	Return Receipt - Electronic, Certified Mail	299086	2024-12-19 9:46 AM
9314869904300129455013	2024-12-16 1:35 PM	Raz Oil	James D. Finley		Fort Worth	TX	76102	Delivered	Return Receipt - Electronic, Certified Mail	299086	2024-12-19 12:18 PM
9314869904300129455006	2024-12-16 1:35 PM	Raz Oil	Devon Energy Production Company	Limited Partnership	Oklahoma City	OK	73102	Delivered	Return Receipt - Electronic, Certified Mail	299086	2024-12-19 7:25 AM
9314869904300129454993	2024-12-16 1:35 PM	Raz Oil	Federal Abstract Company		Houston	TX	77210	Delivered	Return Receipt - Electronic, Certified Mail	299086	
9314869904300129454986	2024-12-16 1:35 PM	Raz Oil	New Mexico State Land Office		Santa Fe	NM	87501	Delivered	Return Receipt - Electronic, Certified Mail	299086	2024-12-19 7:45 AM

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EXHIBIT
P. 3

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Andy Brosig, 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 19, 2024
and ending with the issue dated
December 19, 2024.

Editor

Sworn and subscribed to before me this
19th day of December 2024.

Business Manager

My commission expires
January 29, 2027
(Seal)

STATE OF NEW MEXICO
NOTARY PUBLIC
GUSSIE RUTH BLACK
COMMISSION # 1087526
COMMISSION EXPIRES 01/29/2027

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 publication has been made.

LEGAL LEGAL

LEGAL NOTICE
December 19, 2024

CASE NO. 25081: Notice to all affected parties, as well as heirs and devisees of: New Mexico State Land Office; Federal Abstract Company; Devon Energy Production Company Limited Partnership; James D. Finley; Apache Corporation; Kaiser-Francis Oil Company; Matador Resources Company; Tom Brown Incorporated; Marshall & Winston Inc. of the Application of Raz Oil and Gas L.L.C. for approval of a salt water disposal well in Lea County, New Mexico. The State of New Mexico through its Oil Conservation Division hereby gives notice that the Division will conduct a status conference at 9:00 a.m. on **January 9, 2025** to consider this application. The conference will be conducted in a hybrid fashion, both in-person at the Energy, Minerals, Natural Resources Department, Wendell Chino Building, Pecos Hall, 1220 South St. Francis Drive, 1st Floor, Santa Fe, NM 87505 and via a virtual meeting platform. To participate in the electronic hearing, see the instructions posted on the docket for the hearing date: https://www.emnrd.nm.gov/ocd/hearing-info/. Applicant seeks an order authorizing applicant to plug back the YO State SWD #1 well to the Delaware Mountain Group and authorizing applicant to inject produced water into the Delaware Mountain Group at a depth of approximate 5,540 feet to 6,930 feet. Applicant currently operates the YO State SWD #1 (API 30-025-38162), at a surface location 660' from the North line and 840' from the West line, Lot D, Section 15, Township 21 South, Range 35 East, NMPM, Lea County, New Mexico. Applicant further requests that the Division approve a maximum daily injection rate for the well of 20,000 bbls per day. Said area is located approximately 12.24 miles northwest of Eunice, New Mexico.
#00296933

01104570 00296933

DOLORES SERNA
MODRALL, SPERLING, ROEHL, HARRIS &
P. O. BOX 2168
ALBUQUERQUE, NM 87103-2168

EXHIBIT
tabbies
D-4

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF RAZ OIL AND GAS L.L.C.
TO APPROVE SALT WATER DISPOSAL
WELL IN LEA COUNTY, NEW MEXICO.

CASE NO. 25081

NOTICE OF FILING REVISED EXHIBIT PACKET

Pursuant to the discussion at the February 13, 2025 Examiner Docket and the Technical Examiner's requests, Raz Oil and Gas L.L.C. is providing a revised exhibit packet, revised as follows:

1) Exhibit A-3: Exhibit A-3 previously contained a revised Wellbore Diagram, but Exhibit A-3 has been revised to include the revised C-108, which includes the revised Wellbore Diagram. The C-108 has been revised to reflect the change to the injection interval to 5,540 feet to 6,104 feet and to limit the maximum requested injection volume to 8000 bwpd.

2) New Exhibit A-6: Raz has included a new Exhibit A-6, which contains an economics analysis regarding why it is uneconomical to continue to operate the YO State #1 SWD as a Devonian injector.

3) New Exhibit A-7: Raz has included a new Exhibit A-7, which contains the entire Cardinal Water Report, as requested.

4) New Exhibit B-2: Raz has included a new Exhibit B-2, which summarizes Raz's understanding of the Division's conditions of approval and Raz's proposed next steps in response to requests from the Division regarding the Well's casing from approximately 8,700 feet back to approximately 5,300 feet

5) Revised Exhibit C-1: Exhibit C-1 has been revised to eliminate references to the Upper Cherry Canyon formation because the revised injection interval does not include that formation.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS
& SISK, P.A.

By: Deana M. Bennett

Earl E. DeBrine, Jr.
Deana M. Bennett
Yarithza Peña
Post Office Box 2168
500 Fourth Street NW, Suite 1000
Albuquerque, New Mexico 87103-2168
Telephone: 505.848.1800
earl.debrine@modrall.com
deana.bennett@modrall.com
yarithza.pena@modrall.com
Attorneys for Raz Oil and Gas L.L.C.

CERTIFICATE OF SERVICE

I hereby certify that on March 10, 2025, I served a copy of the foregoing document to the following counsel of record via Electronic Mail to:

Michael H. Feldewert
Adam G. Rankin
Paula M. Vance
P.O. Box 2208
Santa Fe, NM 87504
(505) 988-4421
mfeldewert@hollandhart.com
agrankin@hollandhart.com
pmvance@hollandhart.com
Attorneys for Mewbourne Oil Company

Deana M. Bennett