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

APPLICATION OF OVERFLOW ENERGY, LLC FOR APPROVAL OF A SALTWATER DISPOSAL WELL, EDDY COUNTY, NEW MEXICO

CASE NO. 20964

APPLICANT'S EXHIBITS

Continued Hearing on Fault Slip Potential

December 18, 2020

TABLE OF CONTENTS

Tab 1

OVERFLOW ENERGY, LLC
AFFIDAVIT OF REED JAMESON DAVIS
Case No. 20964

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

APPLICATION OF OVERFLOW ENERGY, LLC FOR APPROVAL OF A SALT WATER DISPOSAL WELL, EDDY COUNTY, NEW MEXICO

CASE NO. 20964

AFFIDAVIT OF GEOPHYSICIST REED JAMESON DAVIS

IN SUPPORT OF APPLICANT'S FAULT SLIP POTENTIAL ANALYSIS

I, being duly sworn on oath, state the following:

1. I am over the age of 18 and have the capacity to execute this Affidavit, which is based on my personal knowledge.

2. I am employed by ALL Consulting ("ALL"), located at 1718 S. Cheyenne Avenue, Tulsa, OK 74119, as a geophysicist. ALL was engaged by the Applicant, Overflow Energy, LLC, to consider fault slip potential that could result from salt water disposal ("SWD") in the well at issue in this application, the Rita SWD #1. In the course of my employment at ALL Consulting, I have become familiar with the subject application and the related fault slip potential.

3. I have not previously testified before the New Mexico Oil Conservation Division as an expert witness. My education and work experience are as follows: I received my Bachelor's degree in geophysics from the University of Tulsa in 2018. Since beginning work at ALL in 2017, my primary focus has been on evaluating the relationship between oil and gas activities and seismicity, specifically evaluating induced seismicity associated with SWD operations across the

country. As a part of numerous induced seismicity litigation cases, I have evaluated the relationships between faults, seismic events, and injection for over 200 SWDs to identify possible correlations and assisted in the preparation of the associated expert reports. Additionally, I have supported Dan Arthur and Tom Tomastik in preparing Seismic Potential Letters for over 75 SWD applications in New Mexico and Texas. I have performed over 50 Fault Slip Potential (FSP) models using the Stanford Model, many of which were prepared for and accepted at NMOCD hearings, and also gave a presentation at a Ground Water Protection Council (GWPC) meeting regarding the use of Stanford's FSP model for determining fault slip probabilities associated with SWD activities. Further, I currently monitor and assist with the maintenance of two private seismic monitoring networks in Pennsylvania and Ohio. Exhibit 1 attached hereto is my resumé, which details my education and experience.

4. Exhibit 2 attached hereto consists of a Powerpoint with pertinent slides that I prepared for this presentation. Slide 2 explains the methodology that we employed in our analysis. As the Division is aware, the fault slip potential ("FSP") model methodology provides a probabilistic estimate of fault slip due to nearby fluid injection. It calculates probability of a fault exceeding the Mohr-Coulomb slip criteria, which is the failure point between normal and shear stresses. It also utilizes Monte Carlo simulation to account for potential errors in input parameters.

5. Slide 3 depicts the parameters used in the model, values for each parameter, and the source of the values. As you will see, the following values were used for each parameter: vertical stress gradient (1.05 psi/ft), horizontal stress direction (20 degrees azimuth), reference depth (13,700 ft), initial reservoir pressure gradient (0.43 psi/ft), minimum horizontal stress

gradient (0.71 psi/ft), maximum horizontal stress gradient (0.86465 psi/ft), friction coefficient (0.6), Injection interval thickness (304 ft), porosity (5%), fault strike (45 degs.), fault dip (80), fluid density (1000 kg/m^3), dynamic viscosity (0.0003 Pa*s), fluid compressibility (4.70E-10 Pa^-1), rock compressibility ((8.70E-10 Pa^-1).

6. With respect to the sources of the values used in the analysis, ALL obtained information from the Lund Snee (2020) publication for the horizontal stress direction and the friction coefficient. ALL used a nearby frac report provided by Overflow to obtain values for the stress and pore pressure gradients. ALL's Chief Geologist Tom Tomastik reviewed nearby geophysical logs obtained by ALL Consulting and Overflow for the injection interval thickness, porosity, and permeability. The values for the fluid density, dynamic viscosity, fluid compressibility, and rock compressibility were obtained through previous research conducted by ALL Consulting and from Reynolds (2020).

7. Some of the information provided to ALL by Overflow is contained in Overflow's C-108. Overflow obtained the remaining values from a Post Treatment Report provided to Devon Energy for the Sito 27 Fee No. 1 ("Sito Report"), which is located about 3,050 feet northwest of the proposed location for the Rita SWD #1. Mewbourne is the current operator for the Sito 27 Fee No. 1 and provided the Sito Report to Overflow. I've attached the Sito Report to my testimony as Exhibit 3.

8. The data from the Sito Report is better than that previously used by Overflow and by Marathon in their respective analyses because the data was acquired from a well approximately

3,050 ft east of the Rita SWD #1. Previous stress gradient data utilized by Overflow and Marathon was based on a well located more than 10 miles from the Rita SWD #1.

9. The current FSP analysis differs from the previous FSP analyses with respect to four parameters. The first concerns horizontal stress direction. If you will turn to Slide 4 of Exhibit 2, you will see that in Overflow's first analysis, it used 155 degrees azimuth based on individual research by the person who prepared the previous FSP model. In turn, Marathon used 35 degrees azimuth which came from Stanford's data available at the time. In the FSP analysis presented today on behalf of Overflow, we used 20 degrees azimuth, based on a review of recently updated Stanford stress data (updated in 2020) indicating the stress field is oriented approximately N20E. The second concerns the minimum horizontal stress gradient. Previously, both Overflow and Marathon used 0.62875 psi/ft for this value. However, review of the Sito Report, regarding a well within one mile of the proposed Rita SWD #1, indicated the minimum horizontal stress gradient is slightly higher at 0.71 psi/ft.

10. With respect to the third parameter, Overflow modeled the true location of the fault but only included the northeast extension of the fault, whereas Marathon modeled the fault directly beneath the proposed SWD. Today, we have modeled the fault in its true location, based on seismic data provided by Overflow and available published research which results in the fault extending further to the southwest than in the original model. Finally, both Overflow and Marathon modeled the injection interval thickness at 200 feet. However, in today's analysis, ALL used a thickness of 304 feet, based on ALL Consulting's Chief Geologist's review of nearest geophysical logs for API# 30-015-44530.

11. Turning back to Exhibit 2, Slide 5 is a graphic depiction of the fault at approximately 3,800 feet east of the proposed Rita SWD #1, which is based on seismic data obtained from another operator.

12. Slide 6 is a map illustrating the stress orientation data points as they relate to the proposed location of the Rita SWD #1 and the fault at issue. As you can see, available stress data from Stanford within one mile of the Rita SWD #1 indicates that the maximum horizontal stress field orientation in this region is approximately N20°E.

13. There are seven other Devonian-Silurian Class II injection wells located within the 100 square mile area of review, which were included in the model. Five of these wells are currently active ("Active SWDs"), and two are not. Of the two that are not currently active, one is permitted but not yet drilled, and another is an existing well in the process of being permitted ("Inactive SWDs").

14. With respect to injection rates that were used in the model, the proposed Rita SWD #1 was modeled at 25,000 barrels of water per day based on the maximum injection rate included in its C-108. The Active SWDs were also modeled at 25,000 BWPD, in light of the actual injection volumes that were reviewed for those SWDs, none of which reported volumes greater than 25,000 BWPD in a single month. The Inactive SWDs were modeled at 30,000-35,000 BWPD based on the maximum injection rates included in their C-108s. Each SWD was modeled at the foregoing constant rates from 2020-2045. This assumption is used as a very conservative methodology as no disposal can attain a continuous maximum daily rate of injection for 25 years.

15. Slide 8 is a map depicting the 100 square mile area of review, including the fault and the active and inactive SWDs.

16. Slide 9 illustrates the geomechanics probability analysis. The model uses a Monte Carlo simulation to estimate the amount of pore pressure increase a given fault will be able to sustain before slipping. The plot on this slide represents the relationship between said pore pressure increase and the probability that a given amount of pore pressure increase will lead to fault slip. In this case, we can see that the fault is estimated to have a 10% slip probability at 2,007 psi, 50% slip probability at 2,560 psi, and 90% slip probability at 2,974 psi.

17. ALL ran two scenarios. The first included only the impacts of the Rita SWD #1, which can be seen in Slide 11. The model estimates that after 25 years, the Rita SWD #1 will have contributed 166 psi pore pressure increase at the fault location. As we discussed previously on the geomechanics slide, this pore pressure increase is far below the values which would be expected to lead to fault slip. As is evident in Slide 11, modeling for Scenario 1 reveals a 0.00% fault slip potential after 25 years.

18. Slides 12 and 13 reflect Scenario Two. Slide 12 identifies each of the SWD wells within the 100 square mile area that were included in the model. The cumulative modeled impacts of these wells, along with the proposed Rita SWD #1 is illustrated in Slide 13. The model estimates that the cumulative injection from these SWD wells would increase pore pressure at the fault by 1,619 psi after 25 years. Once again, this value is less than what the model predicts will cause potential fault slip at this location. As is evident in Slide 13, modeling for Scenario 2 also reveals a 0.00% fault slip potential after 25 years.

19. In light of ALL's analysis described herein, I have reached the following conclusions: First, there is only one known Precambrian fault in the 100 square mile area of review. That known fault does *not* align with the horizontal stress field and therefore is not likely to slip. The modeling that we have conducted through 25 years was performed with injection rates that are likely overestimated. That modeling shows no risk of potential fault slip in the area. Thus, the area presents little to no risk for injection induced seismicity.

20. Slide 14 of Exhibit 2 indicates the resources that were used by ALL in the current analysis.

21. In light of the analysis, it is my opinion is that the drilling of and disposal of salt water in the proposed Rita SWD #1 will protect correlative rights, prevent waste, and be in the interest of conservation.

22. The attached exhibits were prepared by me or under my supervision.

OVERFLOW ENERGY, LLC
AFFIDAVIT OF REED JAMESON DAVIS
Case No. 20964

FURTHER AFFIANT SAYETH NAUGHT

Reed Jameson Davis

STATE OF OKLAHOMA)
)ss
COUNTY OF TULSA)

Subscribed to and sworn before me this 11th day of December, 2020.

Notary Public

My Commission expires 09-10-2022

OFFICIAL SEAL
TREVOR ELLIS
NOTARY PUBLIC OKLAHOMA
TULSA COUNTY
COMM. EXP. 09-10-2022
COMM. NO. 18009178

Reed J. Davis, B.S.

Geophysicist

Education

B.S., Geophysics, University of Tulsa (2018)

Professional Organizations

- American Association of Petroleum Geologists (AAPG)
- American Geophysical Union (AGU)
- Geological Society of America (GSA)
- Geophysical Society of Tulsa (GST)
- Society of Exploration Geophysicists (SEG)
- Seismological Society of America (SSA)

Distinguishing Qualifications

Mr. Davis holds a bachelor's degree in geophysics. Since beginning work with ALL in 2017, Mr. Davis has gained experience in both environmental and petroleum industry applications of geophysics. He has a professional focus on induced seismicity, seismic data acquisition and interpretation, structural interpretation, and technical document preparation. Mr. Davis' effectiveness in his work is based on strictly data-driven technical analysis. He is adept in using programming languages such as Matlab, Mathematica, and Python to assist in data analysis.

Relevant Experience

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

For New Dominion, Mr. Davis assisted in calculation and analysis of b-values for earthquake sequences across Oklahoma to evaluate the potential of induced seismicity. Mr. Davis also assisted with analysis and characterization of research by opposing expert witnesses, covering topics such as induced seismicity, 3D reservoir modeling, and pore-pressure perturbation. In addition, Mr. Davis researched and analyzed the characteristics of stress drop, ground motions, and aftershock properties for Oklahoma earthquakes, to investigate potential relationships with induced events. These efforts were used by New Dominion to address concerns of the OCC regarding the potential for wastewater injections to induce earthquakes. Mr. Davis also assisted in research and development of an expert report covering structural damages to homes as a result of seismic activity in northeast Oklahoma. The report revealed that New Dominion was not responsible for the seismic activity.

For a confidential client, Mr. Davis assisted in analysis and research for an expert report covering structural damages to a home as a result of seismic activity in northeast Oklahoma. The report

revealed that the damages to the home were the result of both poor structural integrity prior to the seismic event and the seismic event itself.

For Seneca Resources, Mr. Davis assisted with the installation of monitoring equipment and the analysis of data from the first active seismic monitoring network installed at a Class II disposal site in Pennsylvania. Mr. Davis was tasked with ensuring the monitoring equipment was properly functioning, the reporting of any abnormal seismic activity was automated, and the training of others on how to monitor the network. Monitoring equipment employed consisted of Institute of Earth Science and Engineering (IESE) Shallow Posthole Seismometer Sensors: Model S31f-2.0, REF TEK RT 130S-01 Broadband Seismic Recorders, and a Trimble REF TEK147A strong motion accelerometer. In addition, Mr. Davis has been responsible for annual reports regarding the status of network maintenance and recorded seismic events.

For Pennsylvania General Energy, Mr. Davis assisted with analysis and research for an expert report regarding the viability and safety of a disposal well near central Pennsylvania. The viability and safety research addressed Pennsylvania Department of Environmental Protection (PADEP) concerns associated with the target formations ability to receive the injectate and potential breaches which might result in groundwater contamination from induced seismicity if the injected waste were to reach the crystalline basement. Mr. Davis also assisted in research and analysis of the geologic characteristics of the region, including the potential of an evaporate formation as a fluid seal. This research indicated that the Salina salt group present throughout the region would prevent fluid pressure resulting from injection activity from propagating to the basement rock.

For Marathon Oil, Mr. Davis assisted in analysis and research for a geologic assessment of the SCOOP and STACK plays within the Anadarko Basin in Oklahoma for the purpose of locating potential disposal sites. Mr. Davis was tasked with gathering detailed technical resources, such as cross sections, stratigraphic columns, and subsurface topographic maps. This information was used to evaluate potential locations for Class II salt water disposal wells based on the ability of formations to accept injectate, proximity to faults, and depth to the crystalline basement.

For Crown Energy, Mr. Davis assisted in analysis and characterization of research by opposing expert witnesses, covering topics such as induced seismicity, 3D reservoir modeling, and pore-pressure perturbation. In addition, Mr. Davis researched and analyzed the characteristics of stress drop, ground motions, and aftershock properties for Oklahoma earthquakes, to investigate potential relationships with induced events. These efforts were used by Crown Energy to address concerns of the OCC regarding the potential for wastewater injections to induce earthquakes.

For Blackbuck Resources, Mr. Davis assisted in geological analysis for injection applications at seventeen proposed saltwater disposal locations within the Delaware Basin in New Mexico and Texas. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the proposed saltwater disposal locations.

Mr. Davis also developed seismicity statements for each of these seventeen proposed saltwater disposal locations utilizing fault data, geophysical logs, and regional structure to address NMOCD and TXRRC concerns of potential induced seismicity within the Delaware Basin.

For EVX Midstream Partners, Mr. Davis performed environmental site assessments for the potential acquisition of six saltwater disposal wells within the Eagle Ford shale play in southeast Texas. Mr. Davis was tasked with interviewing site personnel, gathering technical specifications of the equipment present, capturing photographs of the locations, and reviewing electronic site records for evicence of spills, fires, remedial actions, etc. This information was used to compile a comprehensive environmental site assessment report for the client.

For Cereris Resource Development, Mr. Davis assisted with tier II reporting of chemicals, oil, and water stored at oil and gas production facilities throughout Texas. Mr. Davis was tasked with submitting applications to acquire RN numbers for unregistered locations, recording presence of oil, water, and chemicals for each location, and determining the volumes of such liquids present to determine which locations required reports.

For Layne Water Midstream, Mr. Davis assisted with Construction Management for a produced water gathering facility in west Texas. The project involved planning, design and construction of produced water gathering, treatment, recycling and disposal. The initial phase of the project included construction of a central treatment facility with an advanced water treatment facility, a 70,000 barrel upset impoundment, and conveyance to three separate saltwater disposal wells.

For FQ Energy Services, Mr. Davis assisted in analysis and characterization of geology within the Appalachain Basin in West Virginia. Mr. Davis was tasked with gathering technical documents to determine hydrogeological properties of the Oriskany Sansdstone formation for the purpose of calculating the Zone of Endangering Influence over a ten-year period at a saltwater disposal facility, for a permit renewal application.

For Blackbuck Resources, Mr. Davis performed fault-slip potential modeling in support of a saltwater disposal permit application hearing in the Delaware Basin of New Mexico. Mr. Davis utilized geophysical logs, fault data, injection data, and physical reservoir properties to model the induced seismic risk associated with the potential saltwater disposal well. The modeling results and associated exhibits were presented to the NMOCD at hearing in Santa Fe, New Mexico.

For Expedition Water Solutions, Mr. Davis performed a geological assessment and analysis of data provided by Expedition for five potential saltwater disposal facilities located within the Powder River Basin of Wyoming. Mr. Davis analyzed geophysical logs, structural cross sections, subsurface isopach maps, and regional injection trends to assess the potential injection capacity of the Teckla, Teapot, and Minnelusa sandstone reservoirs for each of the five facilities. Mr. Davis provided recommendations for the preferred reservoir at each location and estimates of potential injection volumes.

For Felix Energy, Mr. Davis assisted in development of an Operation & Maintenance Plan for a water impoundment dam. The Operation & Maintenance plan covered topics such as regulatory requirements, general dam information, vital dam statistics, emergency action planning, initial and ongoing agency inspections, maintenance, security, and records.

For Goodnight Midstream, Mr. Davis assisted in geological analysis for injection applications at eleven proposed saltwater disposal locations within the Delaware Basin in New Mexico. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the proposed saltwater disposal locations. Mr. Davis also developed seismicity statements for each of these eleven proposed saltwater disposal locations utilizing fault data, geophysical logs, and regional structure to address NMOCD concerns of potential induced seismicity within the Delaware Basin.

For Goodnight Midstream, Mr. Davis performed fault-slip potential modeling in support of two saltwater disposal permit application hearings in the Delaware Basin of New Mexico, covering eleven saltwater disposal permit applications in total. Mr. Davis utilized geophysical logs, fault data, injection data, and physical reservoir properties to model the induced seismic risk associated with the eleven potential saltwater disposal wells. The modeling results and associated exhibits were presented to the NMOCD at hearings in Santa Fe, New Mexico.

For Marathon Oil, Mr. Davis assisted in with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations for a proposed Eagle Ford Basin saltwater disposal well. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, develop wellbore designs at the proposed saltwater disposal location, and assess seismic risk at the proposed saltwater disposal location.

For Petrobal Omega 1 LLC, Mr. Davis assisted in geological analysis for an injection application at a proposed saltwater disposal location within the Fort Worth Basin in Texas. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the proposed saltwater disposal location. Mr. Davis also developed a seismicity statement for the proposed saltwater disposal location utilizing fault data, geophysical logs, and regional structure to address TXRRC concerns of potential induced seismicity within the Fort Worth Basin.

For Republic Services, Mr. Davis performed fault-slip potential modeling at two potential saltwater disposal well locations within the Fort Worth Basin in Texas. Mr. Davis utilized

geophysical logs, fault data, injection data, and physical reservoir properties to model the induced seismic risk associated with the two potential saltwater disposal wells. The modeling results and associated exhibits were used by Republic Services to determine which of the two potential locations would incur the least amount of induced seismic risk.

For Select Energy, Mr. Davis assisted in geological analysis for injection applications at twelve proposed saltwater disposal locations within the Delaware Basin in New Mexico. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the twelve proposed saltwater disposal locations. Mr. Davis also developed seismicity statements for the proposed saltwater disposal locations utilizing fault data, geophysical logs, and regional structure to address NMOCD concerns of potential induced seismicity within the Delaware Basin.

For Spitfire Energy Group LLC, Mr. Davis developed a technical memorandum in support of a potential saltwater disposal well in Stephens County, Oklahoma. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the Teckla sandstone for the purpose of estimating its potential as an injection reservoir.

For Trove Energy and Water LLC, Mr. Davis performed fault-slip potential modeling in support of a saltwater disposal permit application hearings in the Delaware Basin of New Mexico, covering fourteen saltwater disposal permit applications in total. Mr. Davis utilized geophysical logs, fault data, injection data, and physical reservoir properties to model the induced seismic risk associated with the fourteen potential saltwater disposal wells. The modeling results and associated exhibits were presented to the NMOCD at hearings in Santa Fe, New Mexico.

For Vista Disposal Solutions, Mr. Davis assisted in geological analysis for injection applications at eleven proposed saltwater disposal locations within the Delaware Basin in New Mexico. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the eleven proposed saltwater disposal locations. Mr. Davis also developed seismicity statements for the proposed saltwater disposal locations utilizing fault data, geophysical logs, and regional structure to address NMOCD concerns of potential induced seismicity within the Delaware Basin.

For Vista Disposal Solutions, Mr. Davis performed fault-slip potential modeling in support of two saltwater disposal permit application hearings in the Delaware Basin of New Mexico, covering eleven saltwater disposal permit applications in total. Mr. Davis utilized geophysical logs, fault data, injection data, and physical reservoir properties to model the induced seismic

risk associated with the eleven potential saltwater disposal wells. The modeling results and associated exhibits were presented to the NMOCD at hearings in Santa Fe, New Mexico.

For LilyStream Water Solutions LLC, Mr. Davis assisted in geological analysis for an injection application at a proposed saltwater disposal location within the Delaware Basin in New Mexico. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the proposed saltwater disposal location.

For Anthem Water Solutions LLC, Mr. Davis assisted in with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations for five proposed Delaware Basin saltwater disposal wells. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, develop wellbore designs at the proposed saltwater disposal location, and assess seismic risk at the proposed saltwater disposal locations.

For Probity SWD LLC, Mr. Davis assisted in geological analysis for injection applications at two proposed saltwater disposal location within the Delaware Basin in New Mexico. Mr. Davis was tasked with gathering information to assess geology of the, estimating depths to various geologic formations, depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore designs at the two proposed saltwater disposal locations.

For Overflow Energy LLC, Mr. Davis assisted in geological analysis for revisions to an injection application at a proposed saltwater disposal location within the Delaware Basin in New Mexico. Mr. Davis was tasked with gathering detailed technical resources, such as geophysical logs and existing drilling reports from nearby disposal and production wells, to evaluate the geology of the region for the purpose of estimating depths to various geologic formations. This information was used to determine the depths of drinking water aquifers, disposal formations, crystalline basement, and develop wellbore design revisions at the proposed saltwater disposal location.

Recent Publications and Presentations

Reed Davis, "*FSP Modeling and Its Use in the Permitting / Protested Hearing Process*". Presented at the 2020 Ground Water Protection Council Virtual Annual Forum. September 28 – October 1, 2020.

Short Courses and Continuing Education

Hydrogen Sulfide Awareness Training
OSHA 40 Hour HAZWOPER Training
Seneca Resources/Highland Field Services EHS Site Orientation
IADC RigPass Accreditation

Overflow Energy
Rita SWD #1

Fault Slip Potential Analysis (FSP)

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

EXHIBIT 2 - Reed Affidavit
Overview Energy, LLC
NMOCD Case No. 20964
December 18, 2020

FSP Methodology

Model Methodology

- FSP provides a probabilistic estimate of fault slip due to nearby fluid injection.
  - Calculates probability of a fault exceeding the Mohr-Coulomb slip criteria (failure point between normal and shear stresses).
  - Utilizes Monte Carlo simulation to account for potential errors in input parameters.

Model Inputs

- Stress gradients and pore pressure gradients derived from nearby frac report provided by Overflow Energy.
- Injection interval thickness, porosity, and permeability provided by Overflow Energy and ALL Consulting.
- One known Precambrian fault in the 100 square mile area of review (USGS 2020, Wilson 2018, Overflow Energy).

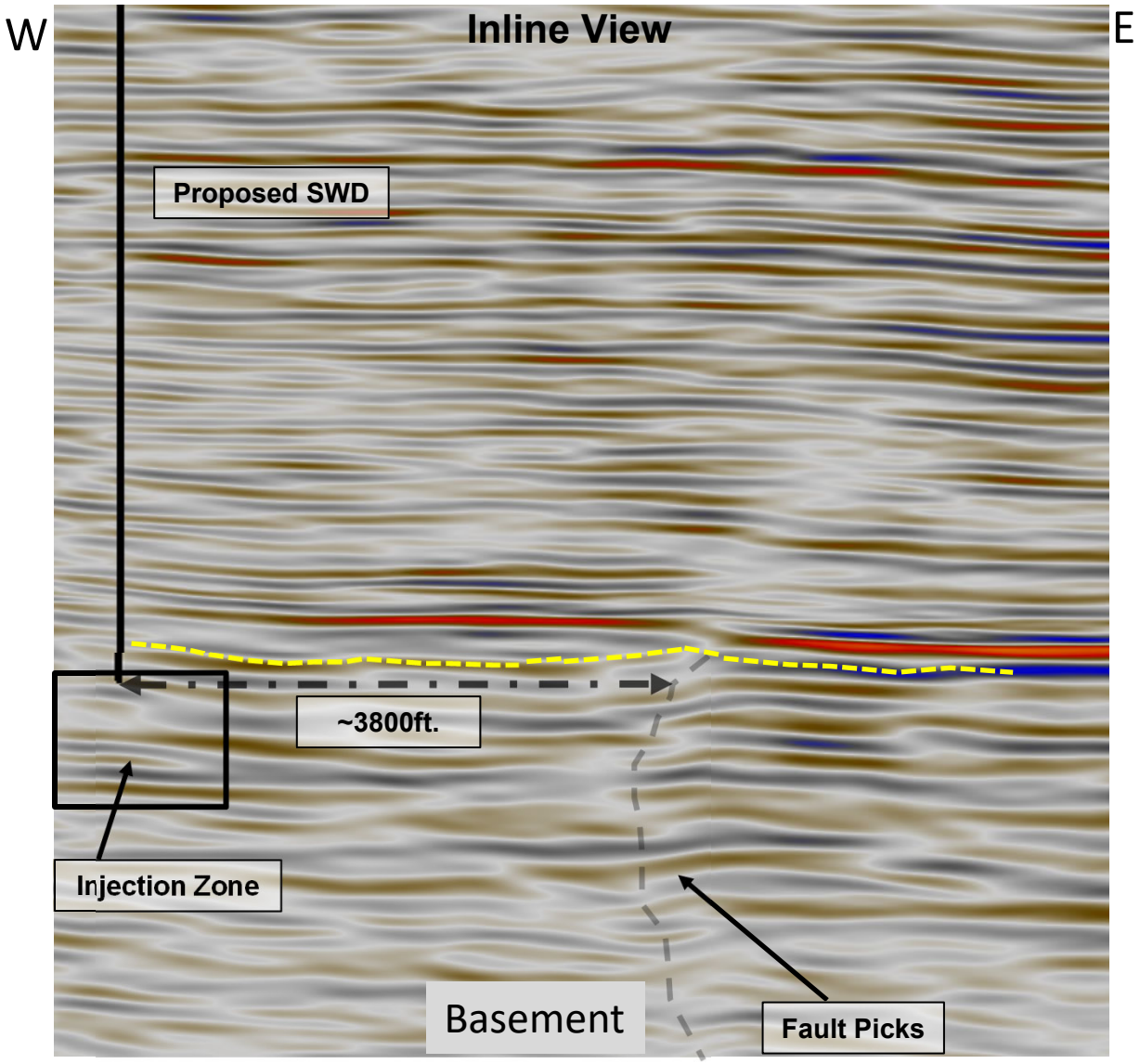
Parameters

Parameter	Value	Source
Vertical Stress Gradient (psi/ft)	1.05	Overflow Energy (2020)
Horizontal Stress Direction (degrees azimuth)	20	Lund Snee (2020)
Reference Depth (ft)	13,700	Overflow Energy (2020)
Initial Reservoir Pressure Gradient (psi/ft)	0.43	Overflow Energy (2020)
Min. Horizontal Stress Gradient (psi/ft)	0.71	Nearby Frac Report (2020)
Max Horizontal Stress Gradient (psi/ft)	0.86465	Overflow Energy (2020)
Friction Coefficient	0.6	Lund Snee (2020)
Injection Interval Thickness (ft)	304	Nearby Geophysical Logs - ALL (2020)
Porosity (%)	5	Overflow Energy (2020)
Permeability (mD)	35	Overflow Energy (2020)
Fault Strike (degrees)	45	Overflow Energy (2020)
Fault Dip	80	Overflow Energy (2020)
Fluid Density (kg/m^3)	1000	ALL Research and Reynolds (2020)
Dynamic Viscosity (Pa*s)	0.0003	ALL Research and Reynolds (2020)
Fluid Compressibility (Pa^-1)	4.70E-10	ALL Research and Reynolds (2020)
Rock Compressibility (Pa^-1)	8.70E-10	ALL Research and Reynolds (2020)

Parameter Changes from Previous FSP

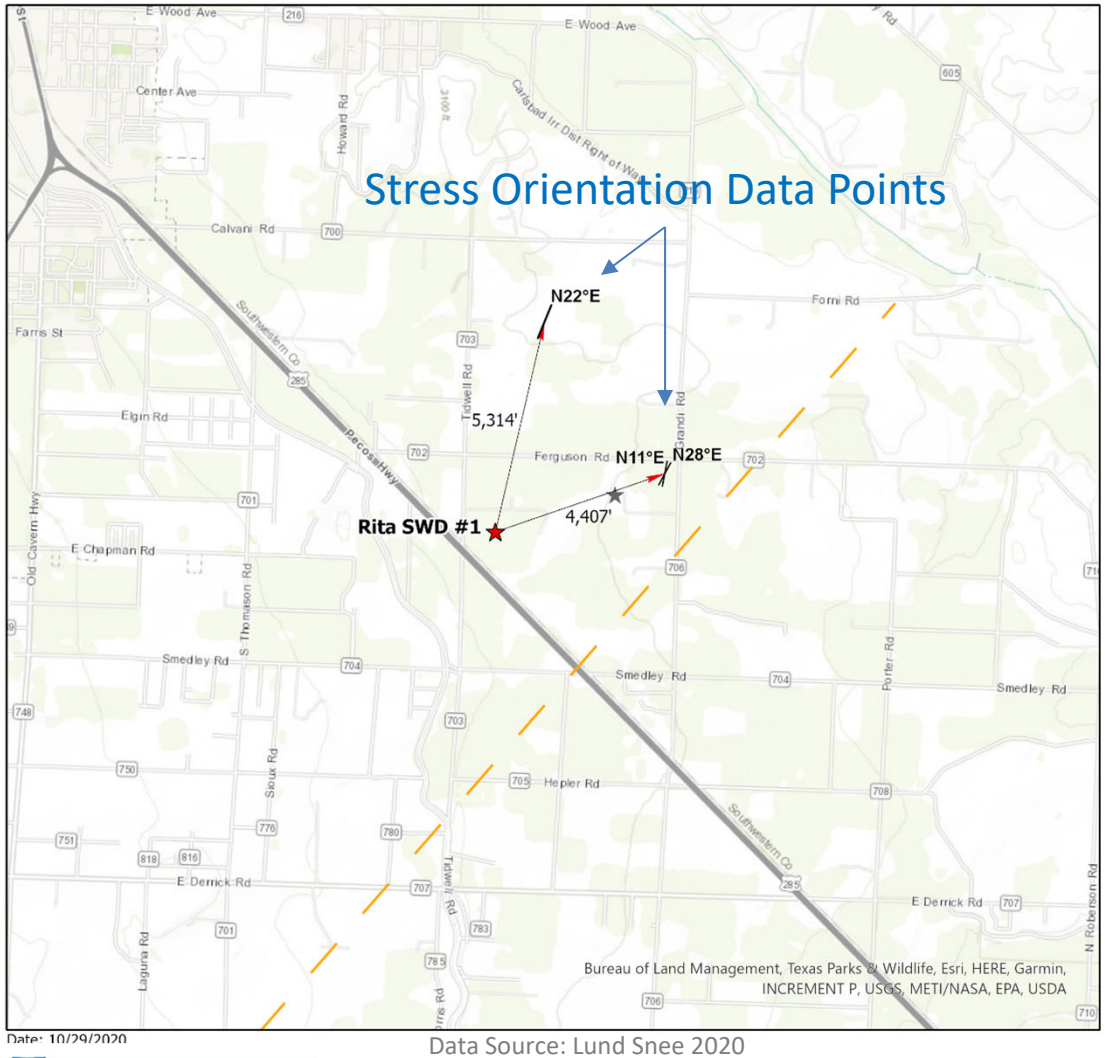
Parameter	Overflow Value	Marathon Value	ALL Value	Notes & Sources
Horizontal Stress Direction (degrees azimuth)	155	35	20	**Overflow:** Initial Overflow stress orientation based on a distant old frac report. **Marathon:** Orientation based on Stanford stress data. **ALL:** Review of recently updated Stanford stress data indicates stress field is oriented approximately N20E (see following slide).
Min. Horizontal Stress Gradient (psi/ft)	0.62875	0.62875	0.71	**Overflow:** Min. stress gradient set per distant old frac report. **Marathon:** Used value provided by Overflow. **ALL:** Further discussion between Overflow & ALL revealed a slightly higher minimum horizontal stress gradient, per new frac report data within one mile of Rita SWD.
Fault Details	Northeast extension of fault modeled in true location	Fault modeled directly beneath Rita SWD #1	Fault modeled in true location	**Overflow:** Fault modeled via nearby seismic data. **Marathon:** Fault modeled directly beneath Rita SWD #1. **ALL:** Fault modeled via nearby seismic data provided by Overflow & available published research.
Injection Interval Thickness (ft)	200	200	304	**Overflow:** Estimated from nearby wells. **Marathon:** Used value provided by Overflow. **ALL:** Review of nearest geophysical logs (API# 15-44530).

Seismic Data



Near vertical faults observed on seismic on inline (E-W) view at ~3800 ft. east of proposed Rita SWD #1.

Stanford Stress Orientation Data Near Rita SWD #1



Date: 10/29/2020

Prepared for:

OVERFLOW ENERGY

Legend

- Proposed SWD
- Fracture Gradient Data Point 30-015-32847
- Fault

S_{Hmax} orientation quality:

- A (1)
- B (2)

0 0.25 0.5 1

Miles

1 inch equals 1 miles

Prepared by:

ALL CONSULTING

Data Source: Lund Snee 2020

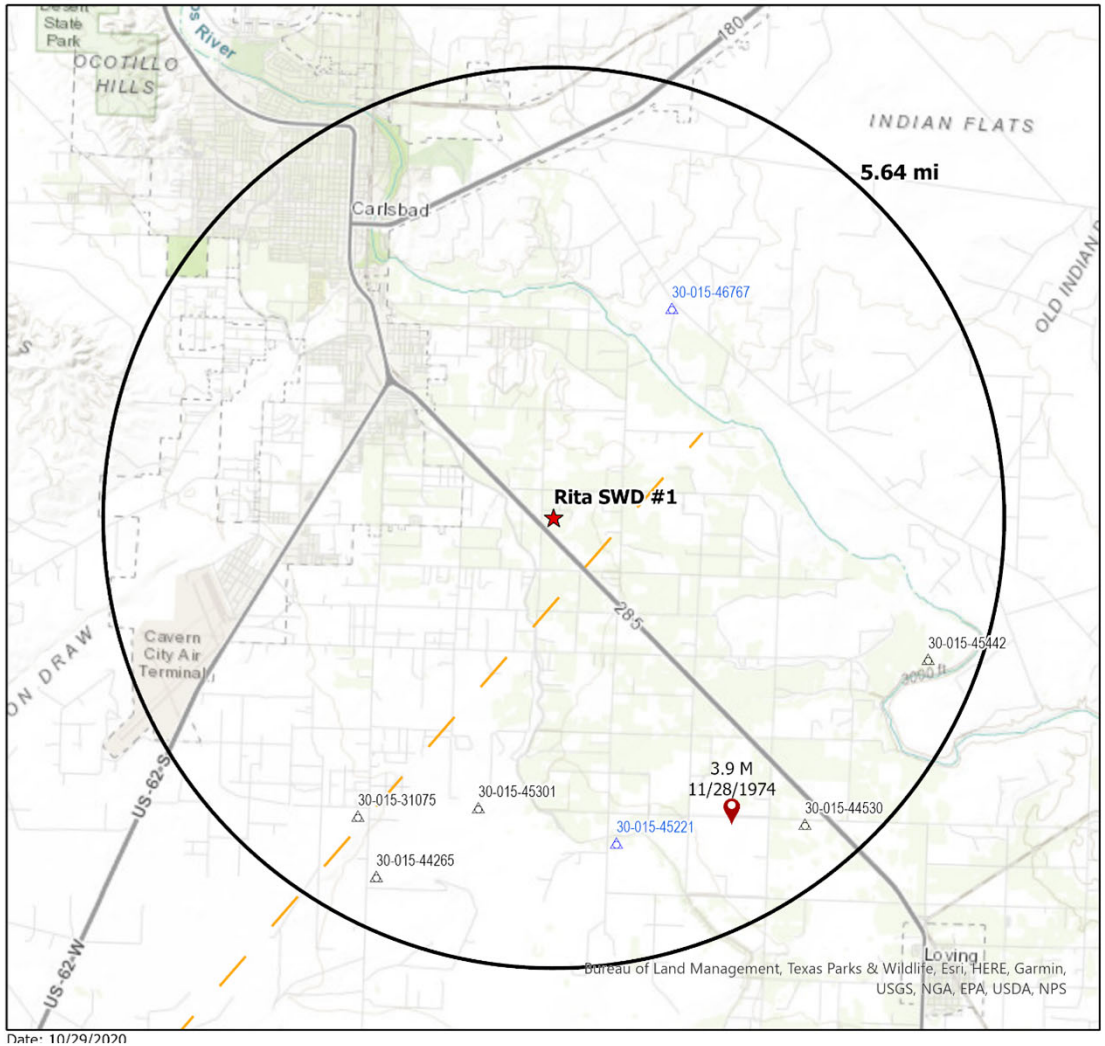
ALL CONSULTING

GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

Injection Data

- **Modeled SWDs:** 7 permitted Class II Injection Wells (5 Active, 2 Inactive) are located within the 100 square mile area of review (AOR) and were included in this model.
- **Modeled Injection Rates:**
  - Subject SWD: the Rita SWD #1 was modeled at 25,000 barrels of water per day (BWPD) based on the maximum injection rate included in its C-108.
  - Inactive SWDs (Not-Permitted/Not-Drilled): the two Inactive SWDs were modeled at 30,000 BWPD (Rose SWD #001) and 35,000 BWPD (Pecos River 11 SWD #001) based on the maximum injection rates included in their C-108s.
  - Active SWDs: actual injection volumes were reviewed for the active SWDs and none reported volumes >25,000 BPWD in a single month. A rate of 25,000 BWPD was used to provide a conservative scenario.
- **Modeled Injection Timeframe:** Each SWD was modeled at the constant rate listed above from 2020 – 2045.

Rita SWD #1 FSP Area Map



Date: 10/29/2020

Prepared for:

OVERFLOW ENERGY

Legend

- Proposed SWD
- USGS Seismic Events
- Fault

Deep SWDs

- Salt Water Injection, Active (5)
- Salt Water Injection, New (2)

0 0.75 1.5 3

Miles

1 inch equals 2 miles

Prepared by:

ALL CONSULTING

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

Geomechanics Probability

Calculations:

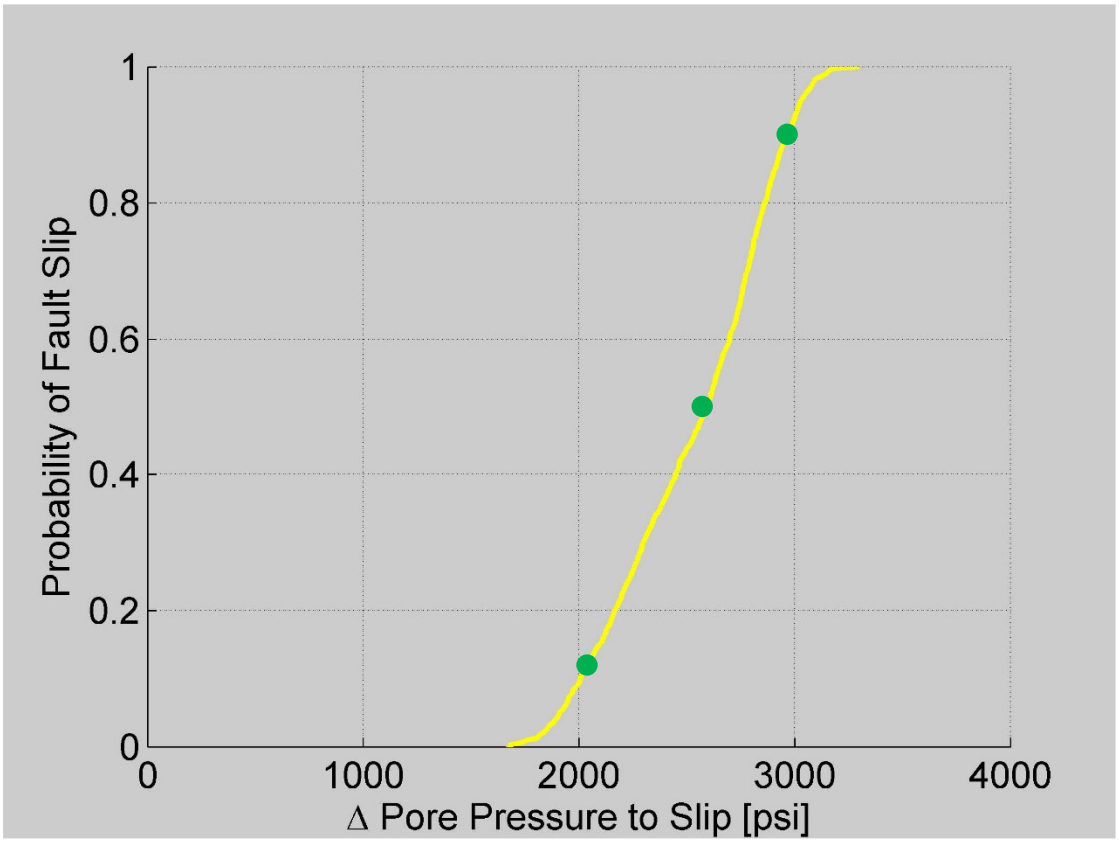
- (psi/12,200 ft) + 0.44 psi/ft
- 12,200 ft used as TVD for consistency with frac report – leads to more conservative estimate than 13,700 ft reference depth.
- 0.44 psi/ft used as estimate for 60,000 TDS brine.

10% Slip Probability : 2,007 psi - .60 psi/ft

50% Slip Probability : 2,560 psi - .65 psi/ft

90% Slip Probability : 2,974 psi - .68 psi/ft

Monte Carlo Simulation



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

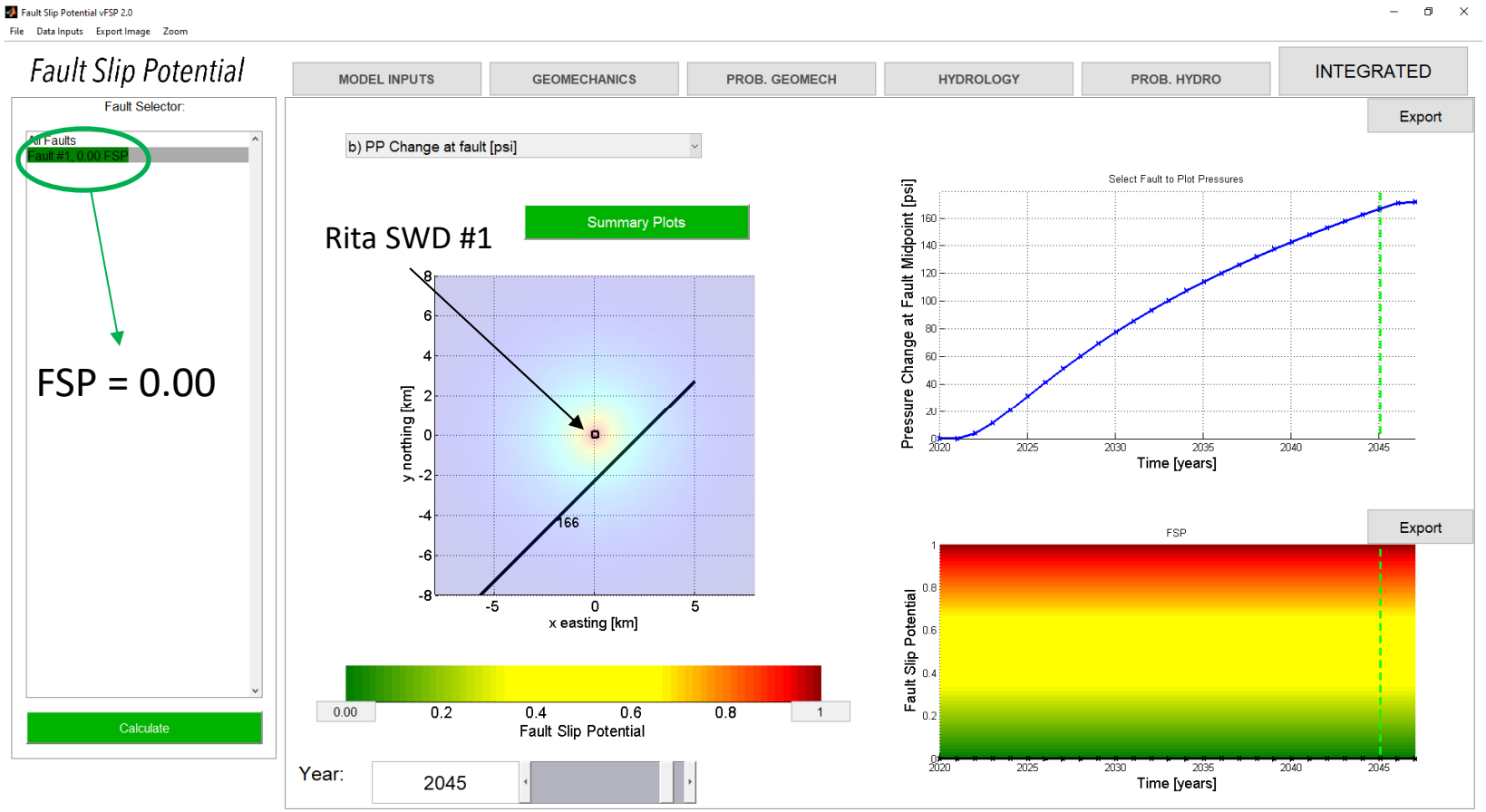
Scenario 1

Rita SWD #1 Only

SWD	Injection Rate (bpd)	Modeled Time Period
Rita SWD #1	25,000	2020 - 2045

FSP After 25 Years

Rita SWD #1 Only



Scenario 2

All deep SWDs within 100 square miles of Rita SWD #1

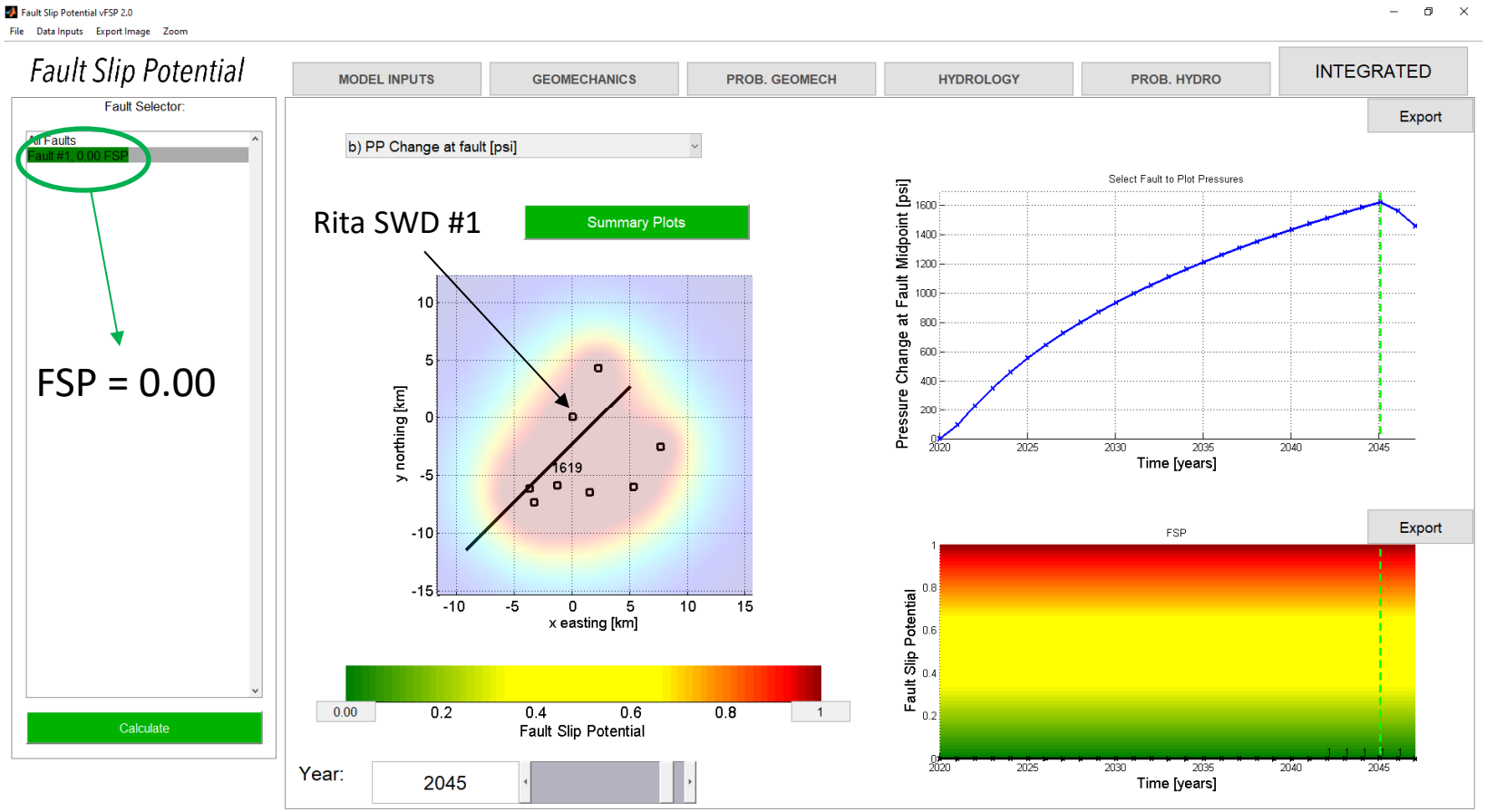
SWD Name	SWD Status	Injection Rate (bpd)	Modeled Time Period
Rita SWD #1	Proposed	25,000	2020 - 2045
Rose SWD #001 (15-45221)	Drilled/Not-Permitted	30,000	2020 - 2045
Pecos River 11 SWD #001 (15-46767)	Permitted/Not-Drilled	35,000	2020 - 2045
Faulk SWD #007 (15-45442)	Active	25,000	2020 - 2045
Alpha SWD #002 (15-44530)	Active	25,000	2020 - 2045
Patriot SWD #008 (15-45301)	Active	25,000	2020 - 2045
Iceman State SWD #001 (15-44265)	Active	25,000	2020 - 2045
Top Gun Federal SWD #001 (15-31075)	Active	25,000	2020 - 2045

Notes:

- Injection rates for the Active SWDs are estimated based on review of injection history. None of the active SWDs in the area have reported >25,000 BWPD in a single month.
- Injection rates for Proposed or Permitted/Not-Drilled SWD are based on the maximum injection rate included in the C-108 application.

FSP After 25 Years

All deep SWDs within 100 square miles of Rita SWD #1



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

Conclusions

- There is only one known Precambrian fault in the 100 square mile area of review.
- Known fault in the area of review does not align with the horizontal stress field and is not likely to slip.
- FSP modeling through 25 years, with injection rates that are likely overestimated, show no risk of potential fault slip in the area.
- This area presents little to no risk for injection induced seismicity.

References

U.S. Geological Survey. “Information by Region-New Mexico.” https://earthquake.usgs.gov/earthquakes/byregion/newmexico.php (Accessed October 14, 2020)

U.S. Geological Survey. "Faults." https://earthquake.usgs.gov/hazards/qfaults/ (Accessed October 15, 2020)

EMNRD Oil Conservation Division. “Welcome to the New Mexico Mining & Minerals Division.” http://www.emnrd.state.nm.us/OCD/ocdonline.html (Accessed October 27, 2020)

Lund Snee, Jens-Erik, 2020, State of Stress in North America: Seismicity, Tectonics, and Unconventional Energy Development [Ph.D. thesis]: Stanford University, 254p.

Wilson, Scott J. 2018. “Affidavit of Scott J. Wilson, Amended Applications of NGL Water Solutions Permian, LLC for Approval of Saltwater Disposal Wells in Lea County, New Mexico.” New Mexico Oil Conservation Division Case No, 16438 and Case No. 16440.

Reynolds, Todd. 2019. “FSP Analysis (Fault Slip Potential) Exhibits.” New Mexico Oil Conservation Division Case No. 20313, Case No. 20314, and Case No. 20472.

Proposal No: 335550612 A
Field Receipt: 271611545

POST TREATMENT REPORT

Devon Energy Production Co.LP

Sito 27 Fee #1

Carlsbad South

Eddy

New Mexico

API # 30-015-32847-0000

Treatment Date 12/13/03

POWERVISION™

Pr1100

December 14, 2003

POST TREATMENT REPORT
Devon Energy Corp.,
Sito 27 Fee No. 1
Eddy County, New Mexico
Treatment date December 13, 2003

Mr. Tom Pepper
Devon Energy Corp.,
20 N. Broadway, Suite 1500
Oklahoma City, OK 73102-8260

Mr. Pepper,

Please find attached our report of the fracture-stimulation treatment on the Morrow formation in the above-mentioned wellbore.

The treatment consisted of 8,583 gallons of Medallion 4000 fluid, 42 tons of CO2, 347 Mscf of Nitrogen, and 34,000 pounds of 20/40 mesh Sintered Bauxite. It was pumped down 2-7/8" tubing at an average rate of 14 bpm and 9,745 psi. The ISDP was 6,210 psi, with a final shut-in pressure of 3,864 psi. The load to recover was 266 bbls.

BJ Services appreciates the opportunity to perform pumping services for you in a cost-effective manner that focuses on safety, quality and the enhancement of your property's value.

Please let me know if you have any questions,

Craig Bailey

District Technical Supervisor
(505) 746-3140

POST JOB WELL DATA

RESERVOIR DATA

Formation	MORROW
Formation Type	
Pay Zone Height	10 ft
M D Depth to Middle Perforation	11885 ft
T V D Depth to Middle Perforation	11885 ft
Reservoir Pressure	
Permeability	
Porosity	
Fracture Gradient	.71 psi/ft
Bottom Hole Fracture Pressure	8438.35 psi
Bottom Hole Static Temperatire	180.965 f
Net Fracture Height	
Gross Fracture Height	

PERFORATED INTERVAL

DEPTH (ft)		Shots Per Foot	Diameter Of Perf (in)	Total Perfs
MEASURED	TRUE VERTICAL			
11,880 - 11,884	11,880 - 11,884	6	.43	24
11,886 - 11,890	11,886 - 11,890	6	.43	24

Total Number of Perforations **48**

Total Feet Perforated **8 ft**

TUBULAR GEOMETRY

				Top	Bottom
TBG	2 7/8" O.D.	(2.441" I.D.)	6.5#	0	11826
LNR	5" O.D.	(4.276" I.D.)	18#	11826	12020

End of Tubing **11826 ft**

Pump Via **Tubing**

Treatment Report (Energized)

Date 13-DEC-03 District Artesia F.Receipt 271611545 Customer Devon Energy Production Co.LP
Lease Sito 27 Fee #1 Well Name Sito 27 Fee #1
Field Carlsbad South Location Sec.27 - 22S - 27E
County Eddy State New Mexico Stage No 1 Well API - API 30015328470000

WELL DATA Well Type: NEW Well Class: GAS Depth TD/PB: 12020 Formation: MORROW

Geometry Type	Tubular Type	OD	Weight	ID	Grade	Top	Bottom
TUBULAR	TBG	2.875	6.5	2.441		0	11826
TUBULAR	LNR	5	18	4.276		11826	12020

Perf Intervals

Top	Bottom	SPF	Diameter
11880	11884	6	.43
11886	11890	6	.43

Packer Type N/A Packer Depth 11803 FT

TREATMENT DATA

Fluid Type	Fluid Desc	Pumped Volume(Gals)
TREATMENT FLUID	7.5% HCL ACID	2,000
TREATMENT FLUID	70 DHSQ BINARY	8,583
TREATMENT FLUID	57 DHSQ FLUSH	1,236

Prop. Description	Volume Pumped(Lbs)
Sintered Bauxite, 20/40	34,000
Total Prop Qty:	34,000

Previous Treatment NONE Previous Production N/A
Foam Qual: 70 Foam Type SLURRY
Hole Loaded With GAS Treat Via: Tubing [X] Casing [ ] Anul. [ ] Tubing & Anul. [ ]
Ball Sealers: 0 In 0 Stages Type
Auxiliary Materials X-CIDE 207, INFLO-150, FLO-BACK 30, XLFC-3, FAW-4, HIGH PERM CRB, ENZYME G-III, CI-27 .5, CLAYMASTER-5C, FERROTROL-280L, METHANOL.

LIQUID PUMPED AND CAPACITIES IN BBLS.

Tubing Cap.	68.47
Casing Cap.	1.14
Annular Cap.	0
Open Hole Cap.	0
Fluid to Load	0
Pad Volume	96
Treating Fluid	116
Flush	68.222
Overflush	-1.5
Fluid to Recover	266
Total N_2	3468
Total CO_2	42

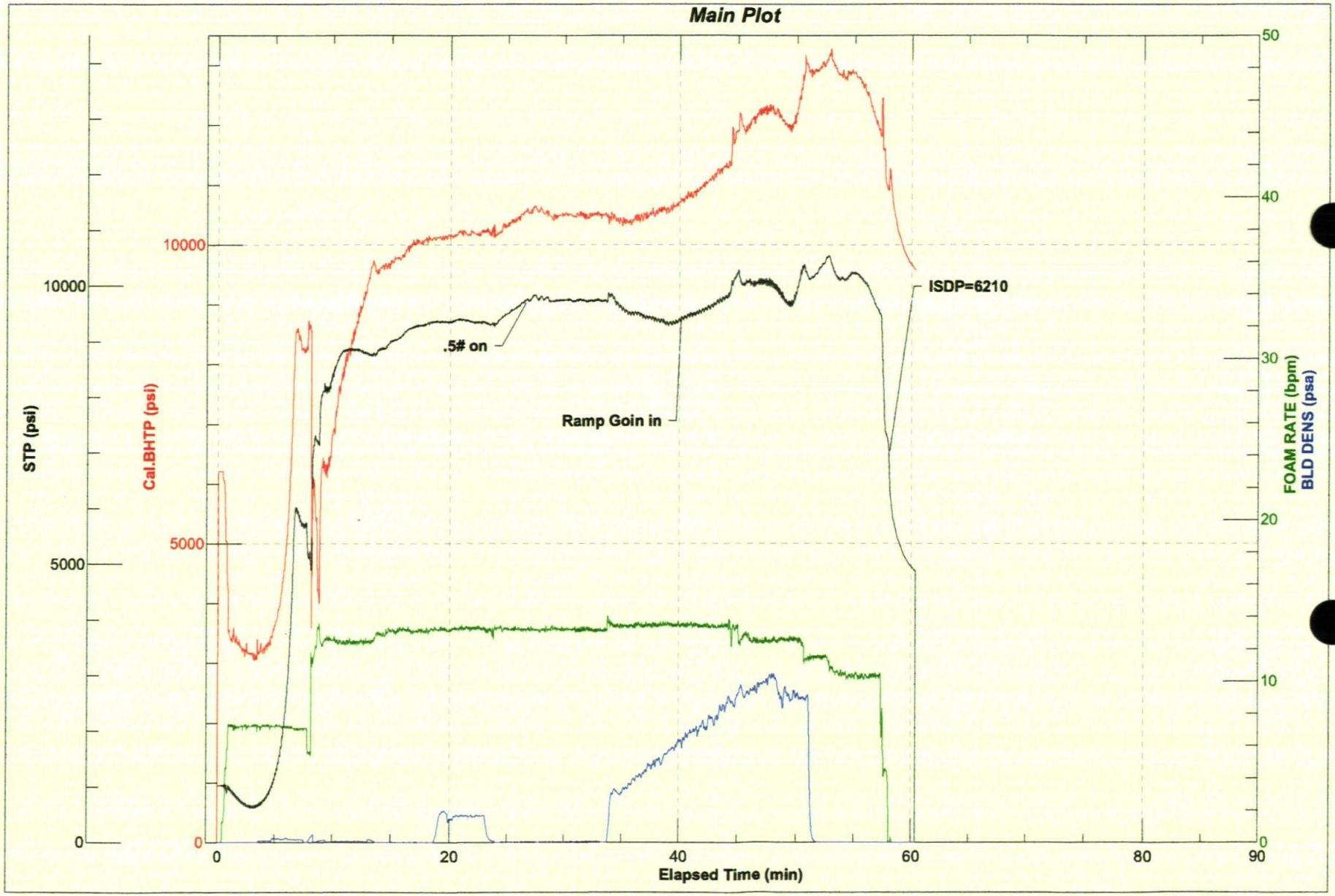
PROCEDURE SUMMARY

Time AM/PM	Treating Pressure-Psi		Surface Slurry BBLS. Pumped		Slurry Rate BPM	Total Surf. CO_2 Bbls Pumped	CO_2 Rate BPM	Total Surf. N_2 MSCF Pumped	N_2 Rate SCFM	DH Rate BPM	DH Foam Pumped	Comments
	STP	Annulus	Stage	Total								
12:20	0	0	0	0	0	0	0	0	0	0	0	SAFETY MEETING
12:45	12056	2522	0	0	0	0	0	0	0	0	0	TEST LINES
01:04	1022	2497	0	0	7	0	0	0	0	0	0	START 7.5% HCL ACID
01:12	6263	2525	53	52	4.2	0	4.8	0	8004	13	0	START 40# 70Q BINARY PAD
01:22	9360	2473	47	100	4.8	54	5.1	855	8147	14.7	202	START .50 PPG 20/40 Bauxite
01:27	9312	2421	23	123	4.5	79	5.1	1255	8698	14.8	274	RESUME PAD
01:38	9713	2525	48	171	5.5	133	5.2	2156	6930	15	428	START 1.0 - 3.0 PPG RAMP
01:49	10156	2411	56	227	5.7	189	4.8	2873	5210	13.3	585	START 3.0 - 4.0 PPG RAMP
01:55	10181	2800	35	262	6	218	3.7	3199	5210	12.2	669	START FLUSH
02:02	6210	3100	38.5	301	0	239	0	3468	0	0	741	SHUTDOWN, ISIP = 6210 PSI.
00:00	0	0	0	0	0	0	0	0	0	0	0	TOTAL MAN HOURS=11x12 HOURS= 132

Treating Pressure		Injection Rates		Shut In Pressures		Customer Rep.	DELTON CADDELL
Minimum	9272	Treating Fluid	14	ISDP	6210	BJ Rep.	Gary Sydow
Maximum	10543	Flush	12.2	5 Min.	4517	Job Number	271611545
Average	9745	Average	14	10 Min.	4142	Rec. ID No.	335550612 A
Operators Max. Pressure	10500			15 Min.	3864	Distribution	
				Final 3864 In 15 Min.			
				Flush Dens. lb./gal.	8.41		

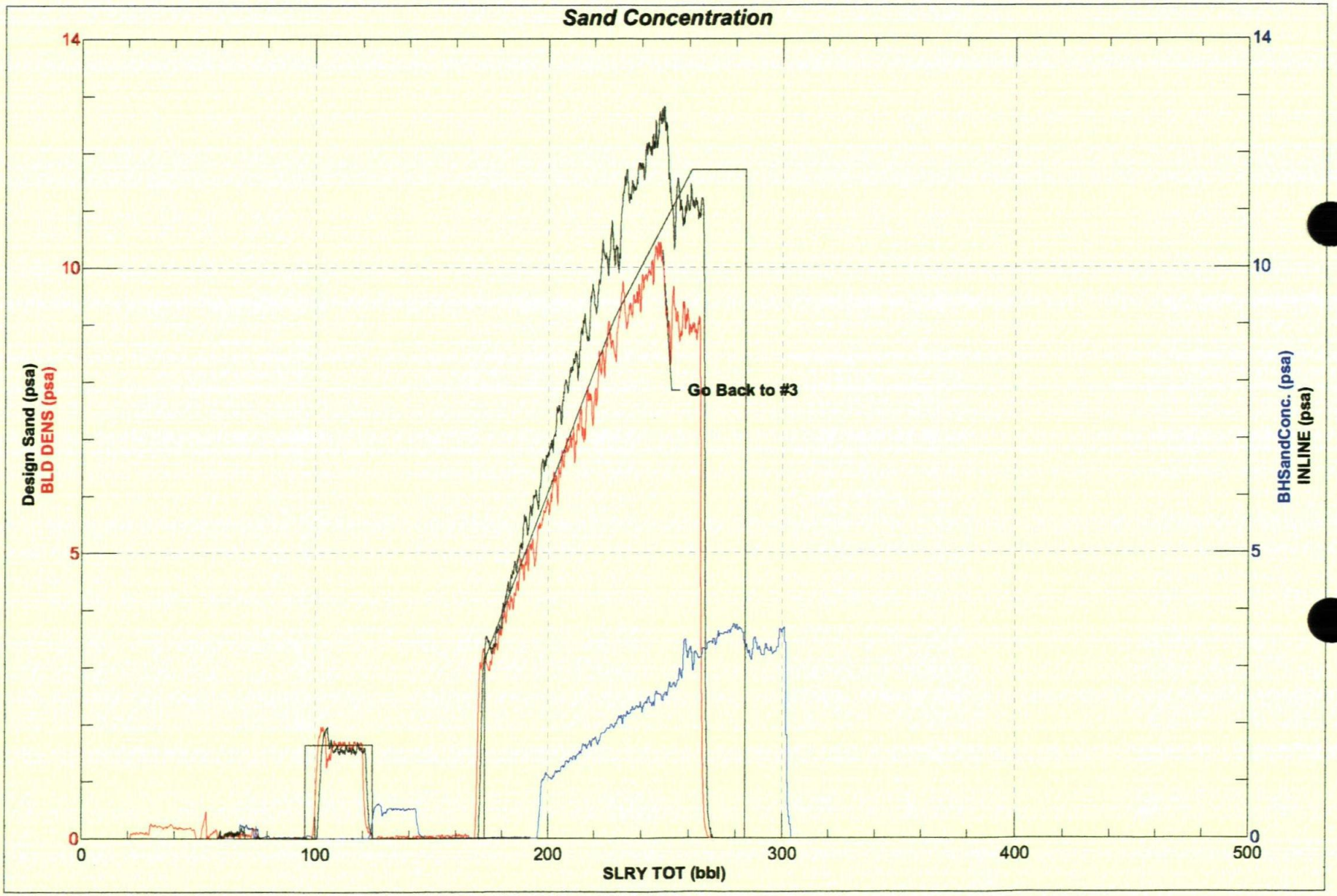
BJ Services JobMaster Program Version 2.61

Job Number: 271611545
Customer: Devon Energy
Well Name: Sito 27 Fee 1



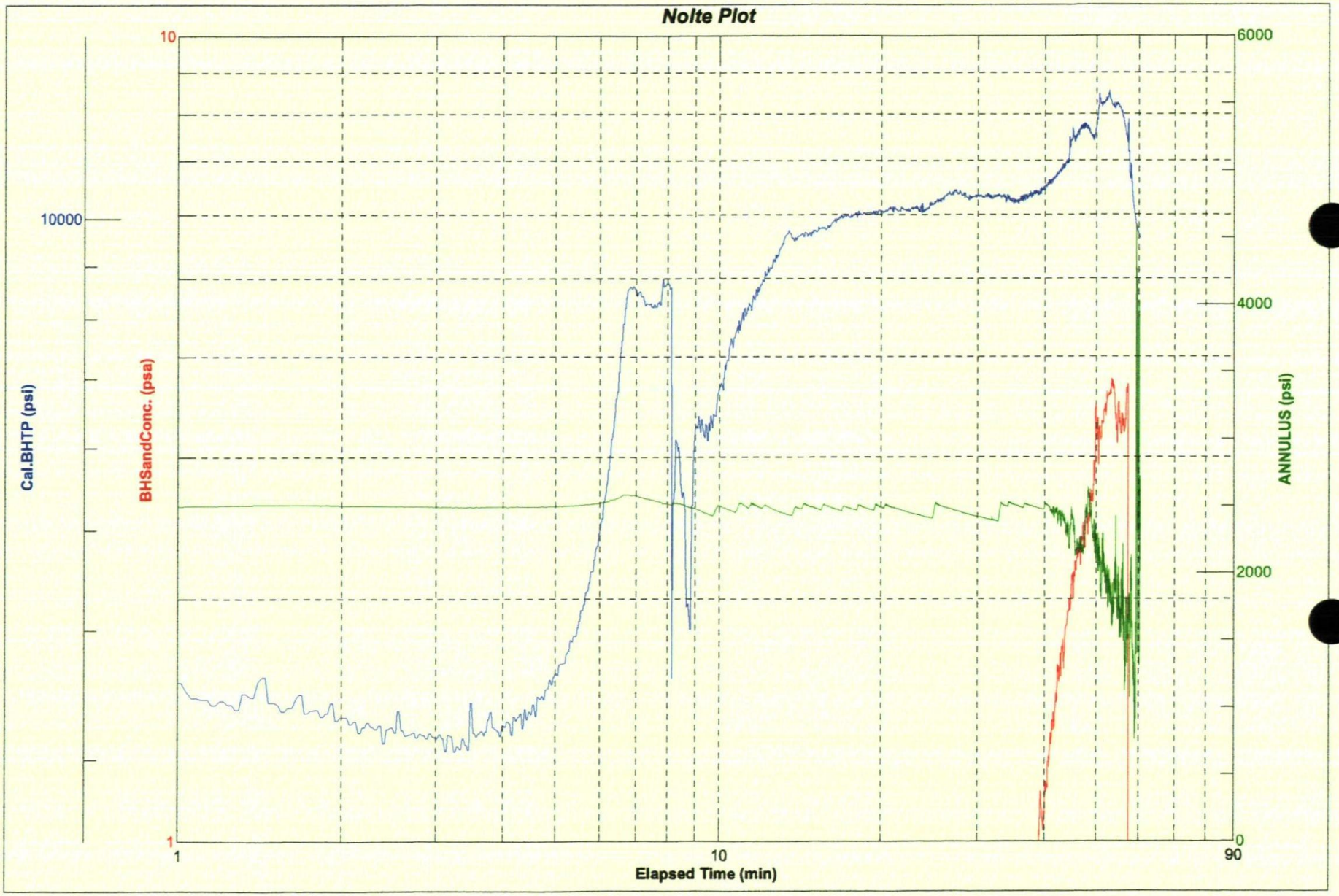
BJ Services JobMaster Program Version 2.61

Job Number: 271611545
Customer: Devon Energy
Well Name: Sito 27 Fee 1



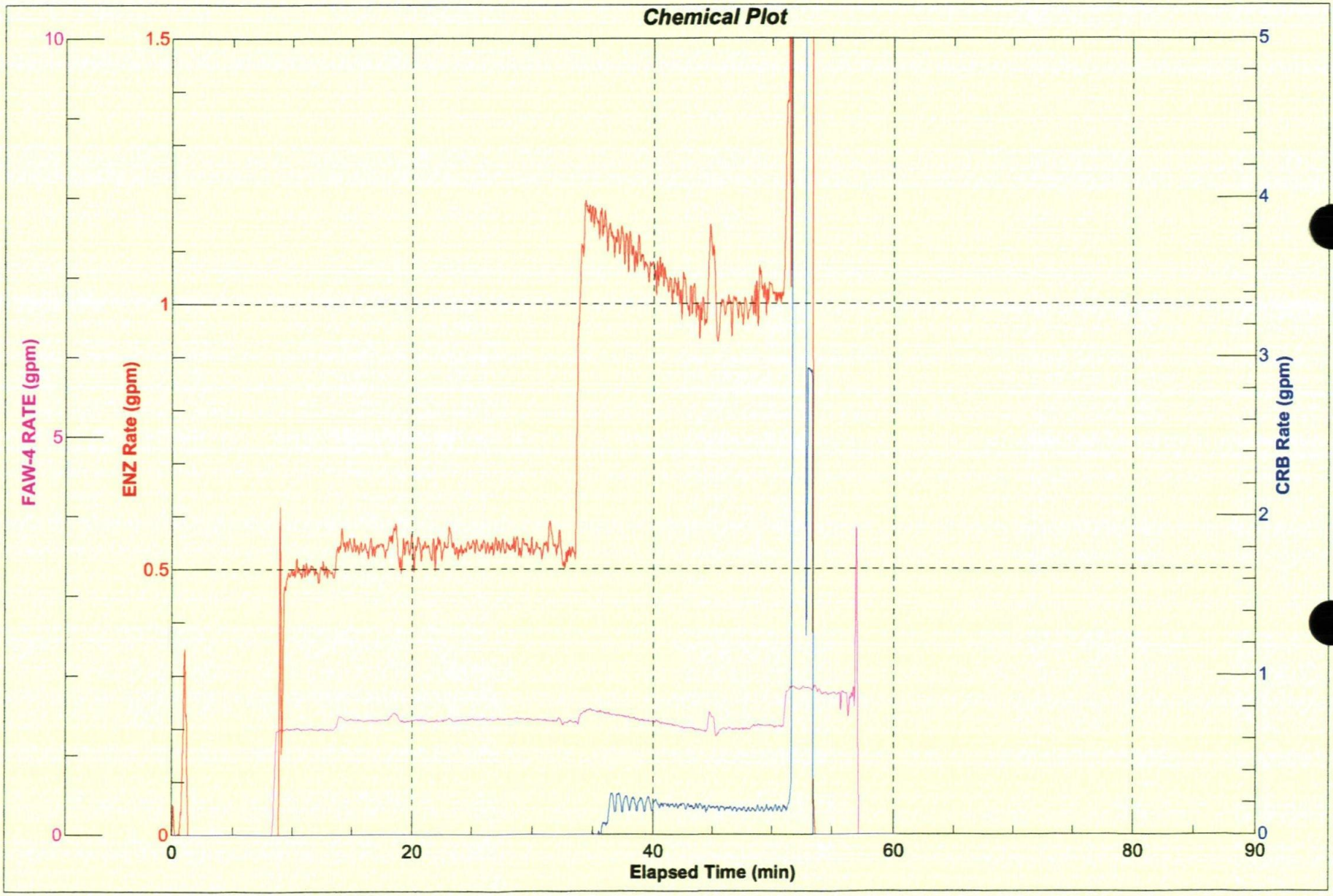
BJ Services JobMaster Program Version 2.61

Job Number: 271611545
Customer: Devon Energy
Well Name: Sito 27 Fee 1



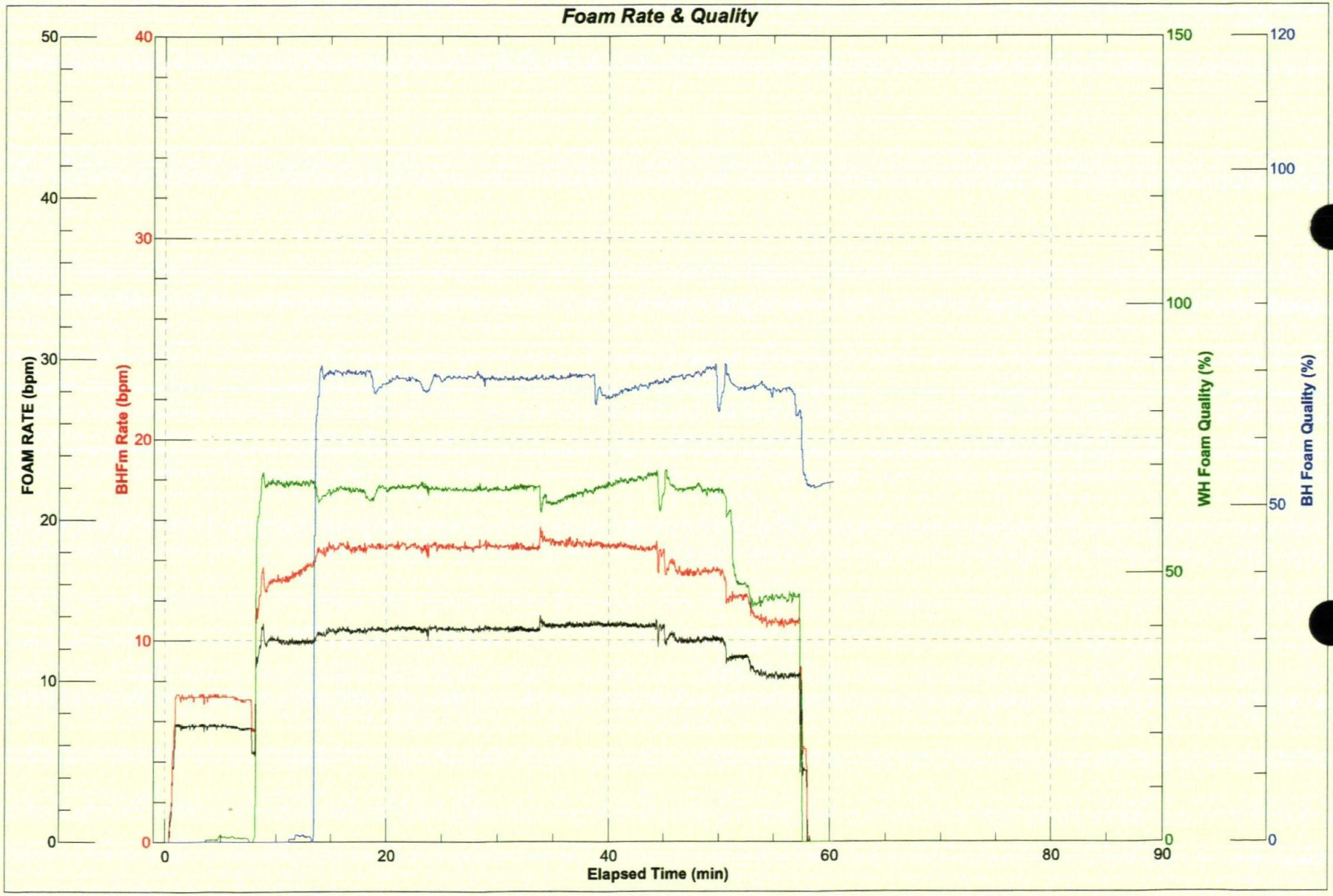
BJ Services JobMaster Program Version 2.61

Job Number: 271611545
Customer: Devon Energy
Well Name: Sito 27 Fee 1



BJ Services JobMaster Program Version 2.61

Job Number: 271611545
Customer: Devon Energy
Well Name: Sito 27 Fee 1



PRODUCT VARIANCE CALCULATIONS

DATE:	12/13/2003	CUSTOMER:	DEVON ENERGY CORP.	FLUID TECH:	THOMPSON
FIELD RECEIPT NO:	271611545	LEASE NAME & WELL NO:	SITO 27 FEE #1	CHEM-ADD OPERATOR:	PEREZ

CHEMICALS

1	2	3	4	5	6	7	8	9	10	11	12
PRODUCT	PROPOSED VOLUME	MEASURED VOLUMES START	HOSES LOADED	END	TOTAL USED	LOSSES	PUMPED DOWNHOLE	PLANNED VOLUME FOR FLUID PUMPED	FLOW METER MEASURED VOLUME	CALCULATED VARIANCE% PLANNED VS. DOWNHOLE	FLOW METER VS. DOWNHOLE
XLFC 3B	173	260	260	100	160	0	160	160	160	0.00%	0.00%
FAW 4	87	154	150	77	77	4	73				
INFLO 150	24	34	34	19	15	0	15	15	15	0.00%	0.00%
FB 30	24	34	34	19	15	0	15	15	15	0.00%	0.00%
HP CRB	5	45	45	40	5	0	5	5	5	0.00%	0.00%
EXIDE 207	6	6	6	0	6	0	6	6	6	0.00%	0.00%
GBW 5	5	45	45	40	5	0	5	5	5	0.00%	0.00%
ENZ G III	20	70	70	0	70	0	70	70	70	0.00%	0.00%

PROPPANT (lbs)

13	14	15	16	17	18	19	20
PROPPANT TYPE	S.G.	PRE-JOB AMOUNT ON LOCATION	POST-JOB AMOUNT IN SAND KING (est.)	SPILLAGE (est.on the ground)	PUMPED DOWNHOLE	DENSIOMETER TOTAL	VARIANCE %
20/40 BAUXITE	3.49	34,000	5,000	5,000	24,000	24,416	1.73%

CLEAN VOLUME (bbls)

21	22	23	24	25	26	27
BASE FLUID DESCRIPTION	BEGINNING VOLUME	AFTER LOADING	ENDING VOLUME	DOWNHOLE VOLUME	FLOW METER VOLUME	VARIANCE %
2% KCL WATER	368	359	132	227	218	-3.96%

SLURRY VOLUME (bbls)

28	29	30	40	41
CLEAN VOLUME	PROPPANT VOLUME	TOTAL SLURRY	FLOW METER SLURRY VOLUME	VARIANCE %
227	24,000	246.6	256.0	3.80%

Comments:

Approved electronic substitute for BJ Services Standard Practices form 1645 (3/99)

WATER BASED FRAC FLUID QUALITY CONTROL

(Attachment to Treatment Report)

DATE:	12/13/2003	FIELD RECEIPT NO:	271611545
CUSTOMER:	DEVON ENERGY CORP.	LEASE NAME & WELL NO:	SITO 27 FEE #1

Tanks Note: Use additional copies of this report for testing additional material lots or tanks. This job will be: Gelled on-the-fly XX Batch Mixed

Tank/Transport No.	20															

Water Quality Date filled: ######## Date water sampled: ######## Source of water: City Well Pond Other

Clarity, color, odor	CLEAR															
Sample Temperature, (F)	50															
Specific gravity	1.025															
Initial pH	8.17															
Iron (Fe++/Fe+++) ppm	1.00															
Reducing Agent (Yes or No)	NO															
Phosphate, ppm	NO BF 7L	PRECIPS.														
Chloride, ppm	>3000															
Calcium, ppm	X															
Magnesium, ppm	X															
Bacteria	Date Biocide Added: ########				Date Biocide Added:						Biocide added before H_2O?		Yes		X No	
Aerobic: No. per ml/time	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
Anaerobic: No. per ml/time	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	

Base Gel Quality Field Pilot Tes Batch Mixed Gel Quality Tes Use additional copies of this form for each series of tests @ 24 hr. intervals & prior to pumping.

Name of product system mixed	40# LIN.															
Gellant loading (lbs/1000 gal.)	10															
Fluid sampling location	BLDR.															
Sampling time	6:30 AM															
Sample Temperature, (F)	50															
pH	8.16															
___5 min.	44 CPS															
Fann reading ___ min.	X															
@ 300 rpm ___ min.	X															
___ min.	X															
X-Link Vortex Closure, min:sec	N/A															
X-Link Crown, min:sec	N/A															
X-Link pH	N/A															
	X															
	X															

Frac Fluid Quality (These measurements are made as the job is pumpec

Stage	PAD															
Viscosity (cp)	44 CPS															
pH	8.11															
XL time @ blender, sec.	N/A															
Sample Temperature	50															
Time fluid pumped	45 MIN.															
	X															

This test data is considered to be a minimum standard. Additional testing or documentation may be required by the customer or for frac quality assurance. Data recorded electronically with Engineering approved monitoring devices may be substituted for applicable portions of this form. This testing data is considered to be the minimum needed for the well file.

Approved electronic substitute for BJ Services Standard Practices form 1512 (2/00)

Tested by: THOMPSON

BATCH MIXED FRAC FLUID BLENDING SCHEDULE

(Attachment to Treatment Report)

DATE:	12/13/2003	CUSTOMER:	DEVON ENERGY CORP.
FIELD RECEIPT NO:	271611545	FLUID SOURCE:	CARLSBAD CITY WATER
LEASE NAME & WELL NO:	SITO 27 FEE #1	NOTES:	

Note: Use additional copies of this report for more tanks or compartments.

Tank/Transport Identification		No. 20							Totals	
Initial/Final Gauge (bbls)		368 / 132	/	/	/	/	/	/	368 / 132	
Total Used (bbls)		236							236	
Product System Trade Name		40# LINEAR							40# LINEAR	
Product System Trade Name & Batch/Lot No. (taken directly from drum/bag label)		Amount To Be Mixed	Amount To Be Mixed	Amount To Be Mixed	Amount To Be Mixed	Amount To Be Mixed	Amount To Be Mixed	Amount To Be Mixed	Total To Be Mixed	Actual Mixed
Base Fluid (gal)		15,456							15,456	15,456
1) XLFC 3	gpt / ppt 10	155							155	160
2) INFLO 150	gpt / ppt 1	15							15	15
3) FB 30	gpt / ppt 1	15							15	15
4) XCIDE 207	gpt / ppt .3	5							5	6
5)	gpt / ppt									
6)	gpt / ppt									
7)	gpt / ppt									
8)	gpt / ppt									
9)	gpt / ppt									
10)	gpt / ppt									

Mixed By: PEREZ

Prepared By: THOMPSON

Approved electronic substitute for BJ Services Standard Practices form 1519 (3/99)

BREAKER TEST REPORT

(Attachment to Treatment Report)

DATE:	12/13/2003	**FIELD RECEIPT NO:**	271611545
CUSTOMER:	DEVON ENERGY CORP.	**LEASE NAME & WELL NO:**	SITO 27 FEE #1
SYSTEM:	40# LINEAR		

ADDITIVE	LOADING	ADDITIVE	LOADING	ADDITIVE	LOADING	ADDITIVE	LOADING
FAW 4	8 gpt ppt	FAW 4	8 gpt ppt		gpt ppt		gpt ppt
INFLO 150	1 gpt ppt	INFLO 150	1 gpt ppt		gpt ppt		gpt ppt
FB 30	1 gpt ppt	FB 30	1 gpt ppt		gpt ppt		gpt ppt

Test No:	1	**Test No:**	2	**Test No:**		**Test No:**	
Gellant Loading:	10	Gellant Loading:	10	Gellant Loading:		Gellant Loading:	
Base Visc. (cp):	44	Base Visc. (cp):	44	Base Visc. (cp):		Base Visc. (cp):	
Sample Temp. (F):	50	Sample Temp. (F):	50	Sample Temp. (F):		Sample Temp. (F):	
Buffer Loading:	SULFAMIC ACID	Buffer Loading:	SULFAMIC ACID	Buffer Loading:		Buffer Loading:	
Crosslinker:	N/A	Crosslinker:	N/A	Crosslinker:		Crosslinker:	
Breaker Loading:	.25 ENZ G 1000:1	Breaker Loading:	1.00 ENZ G 1000:1	Breaker Loading:		Breaker Loading:	
Breaker Loading:	N/A	Breaker Loading:	N/A	Breaker Loading:		Breaker Loading:	
Other Loading:	N/A	Other Loading:	N/A	Other Loading:		Other Loading:	
Pre-XL pH:	4.86	Pre-XL pH:	4.86	Pre-XL pH:		Pre-XL pH:	
XL pH:	N/A	XL pH:	N/A	XL pH:		XL pH:	
Broken pH:	5.67	Broken pH:	5.67	Broken pH:		Broken pH:	
Closure Time:	N/A	Closure Time:	N/A	Closure Time:		Closure Time:	
Crown Time:	N/A	Crown Time:	N/A	Crown Time:		Crown Time:	

Time	Bob Size	Reading	Temp.	Time	Bob Size	Reading	Temp.	Time	Bob Size	Reading	Temp.	Time	Bob Size	Reading	Temp.
5:41 AM	R1-B1	44	181	5:42 AM	R1-B1	7	181								
1	R1-B1	34	181	1	R1-B1	9	181								
2	R1-B1	30	181	2	R1-B1	14	181								
3	R1-B1	26	181	3	R1-B1	20	181								
5	R1-B1	25	181	5	R1-B1	80	181								
10	R1-B1	25	181	10	R1-B1	110	181								
15	R1-B1	24	181	15	R1-B1	51	181								
20	R1-B1	24	181	20	R1-B1	23	181								
30	R1-B1	22	181	30	R1-B1	11	181								
40	R1-B1	18	181			OFF									
50	R1-B1	12	181												
60	R1-B1	12	181												
90	R1-B1	3	181												
		OFF													

Remarks:

Approved electronic substitute for BJ Services Standard Practices form 1657 (2/00)

Tested BY: THOMPSON

QUALITY CONTROL OF PROPPANT/GRAVEL/100 MESH SAND

(Attachment to Treatment Report)

DATE:	12/13/2003	CUSTOMER:	DEVON ENERGY CORP.
FIELD RECEIPT NO:	271611545	UNIT/COMPARTMENT:	4506 COMP. #3, & 4.
LEASE NAME & WELL NO:	SITO 27 FEE #1	DISTRICT PROPPANT SILO:	
VENDOR:			

Propant placed in the district proppant silos shall be tested at a minimum interval of every 250,000 pounds.

XXX Proppant Gravel 100 mesh sand

If proppant, select type		If gravel, select type	
____ Brady	____ Ceramic proppant	____ Ottawa	____ Curable
____ Ottawa	XXX Sintered bauxite	____ Resieved	____ Other (specify)
____ Resin coated sand	____ Other (specify)		

Note: Use additional copies of this form for additional trucks,sizes,or vendors

Truck number			No.	No.	No.	No.	No.
Trucking company			Yes				
Weight slip available? Attach all.		Yes/	Yes				
Net weight delivered			Yes				
Nominal size from list below			Yes				
Total weight , each size	Size 20/40	Weight 34,000 lb	Size	Weight	lb		
Is total weight for each size appropriate for job requirements?			Yes	No			
Is the content of the truck proper?	color right	Yes/No	Yes				
	low dust	Yes/No	Yes				
	appearance right	Yes/No	Yes				
	no contamination	Yes/No	Yes				
Does the manufacturer's	oversize <.1%	Yes/No	Yes				
sieve analysis meet	fines<1%	Yes/No	Yes				
specifications? Attach all.	insize>90%	Yes/No	Yes				
Sample taken?		Yes/No	Yes				
Is the truck content acceptable?		Yes/No	Yes				

If not appropriate, correct problem before sieve analysis. If the manufacturer's sieve analysis does not meet specifications, perform sieve analysis.

Spot check manufacturer's sieve analysis at a minimum of every 250,000 lbs.

Sieve Analysis 20/40 BAUXITE	Combine all samples 35.66 grams of sample			Sieve Analysis	Combine all samples _____ grams of sample		
	Amount Retained				Amount Retained		
Sieve mesh	Gram	%		Sieve mesh	Gram	%	
0	0	0.00					
16	0	0.00	Total				Total
20	1.97	5.52	In-Size				In-Size
30	25.64	71.90	}				}
35	6.13	17.19	} 94.3%				} _____
40	1.87	5.24	}				}
50	0.05	0.14					
Pan	0	0.00	fines	Pan			fines
Total wt. Gram	35.7	100.00		Total wt. Gram			
Turbidity	Y pass		fail	Turbidity	pass		fail
pH	Y pass		fail	pH	pass		fail

Recognized proppant or gravel sizes: 6/12, 8/16, 12/20, 16/20, 16/30, 20/40, 30/50, 40/70, or 50/70 (40/60 for gravel)

*Recombine all proppant samples to represent 100,000 lbs or fraction. Gravel samples should represent 2,000 lbs or fraction.

Tested By: THOMPSON

Tab 2

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

APPLICATION OF OVERFLOW ENERGY, LLC FOR APPROVAL OF A SALTWATER DISPOSAL WELL, EDDY COUNTY, NEW MEXICO

CASE NO. 20964

AFFIDAVIT OF GEOLOGIST THOMAS TOMASTIK

IN SUPPORT OF APPLICANT'S FAULT SLIP POTENTIAL ANALYSIS

I, being duly sworn on oath, state the following:

1. I am over the age of 18 and have the capacity to execute this Affidavit, which is based on my personal knowledge.

2. I am employed by ALL Consulting as Chief Geologist and Regulatory Specialist. My business address is 10811 Keller Pines Court, Galena, Ohio 43021.

3. I have previously testified before the Division and had my credentials accepted as an expert. My education and experience is as follows: I received my bachelor's degree in geology from the Ohio University in 1979 and my master's degree in geology from Ohio University in 1981. I worked as a consulting geologist in the Ohio oil and gas industry from 1982 to 1988 drilling conventional oil and gas wells and converting wells to Class IID saltwater disposal. From December of 1988 to August of 2014, I served as lead geologist with the Ohio Department of Natural Resources, Division of Oil and Gas Resources Management in the Underground Injection Control Section overseeing the issuance of Class II and Class III injection well permits, regulatory oversight, and enforcement actions. I retired from the State of Ohio in August of 2014 and then

began work at ALL Consulting in late August of 2014. My primary focus has been on Class I and Class II saltwater disposal permitting, well workovers, and drilling and completion of new saltwater disposal wells (SWDs). Additionally, I was involved in induced seismicity and seismic monitoring, specifically evaluating induced seismicity associated with SWD operations across the country. As a part of several induced seismicity litigation cases, I have evaluated the relationships between geology, faults, seismic events, and injection for over 100s of SWDs to identify possible correlations between seismicity and geology and have assisted in or prepared associated expert reports.

4. ALL Consulting was engaged by Applicant to do the geologic assessment of surrounding geophysical logs from deep Devonian-Silurian wells to determine or evaluate Devonian-Silurian injection interval thickness, porosity values, and permeability estimates for the fault slip potential (FSP) model for the Rita SWD #1. I am therefore familiar with the subject application.

5. I assisted in the preparation of the revised FSP model exhibit prepared for this hearing. I provided general oversight to the process and specifically reviewed the values and sources of the parameters used in previous FSP models prepared by Overflow and Marathon to make sure they were in line with industry standards and the geologic characteristics we have seen in the region. The values and sources of the parameters are included on Slide 3 of Exhibit 2 attached to the Affidavit of geophysicist Reed Jameson Davis, which was concurrently submitted in support of this application.

6. I revised the following parameters that were previously used in Applicant's FSP analysis as follows: I revised the injection interval thickness, which for the purposes of Stanford's FSP Model is the thickness of rock expected to accept injected fluids. This change more accurately reflects the expected injection interval thickness at the proposed Rita SWD #1 location. To determine the injection interval thickness, I evaluated and assessed multiple Devonian-Silurian open hole geophysical logs to determine the thickness of the proposed injection interval and analyzed average porosity values and estimated permeabilities for the Devonian-Silurian rocks. The C-108 for the Rita SWD #1 indicates that the injection interval is expected to be a total of approximately 1,100 feet thick (12,900' – 14,000'). Based on my evaluation and assessment of the open hole geophysical logs there looks to be approximately 304 feet of viable injection interval. For the purposes of this evaluation, 40 ohms of resistivity was used as the cutoff threshold to define viable injection interval. Exhibit 1 attached hereto includes an annotated snip of the geophysical log for NGL's Alpha SWD #2 located approximately 5 miles southeast of the Rita SWD #1 proposed location. Exhibit 1 will also be submitted as an image file to ensure that the data is readily visible.

OVERFLOW ENERGY, LLC
AFFIDAVIT OF THOMAS EDWARD TOMASTIK
Case No. 20964

FURTHER AFFIANT SAYETH NAUGHT

Thomas Edward Tomastik

STATE OF Ohio)
)ss
COUNTY OF Delaware)

Subscribed to and sworn before me this 11th day of December 2020.

Notary Public

My Commission expires 04/08/2024.

DIANA HIJAZEEN
Notary Public, State of Ohio
My Comm. Expires 04/08/2024

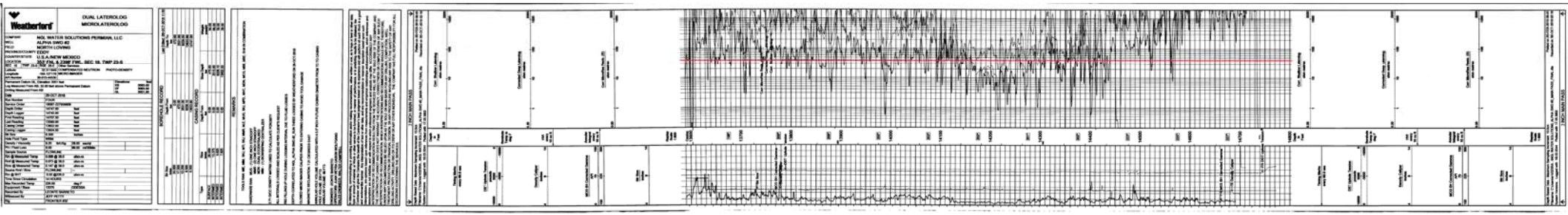


EXHIBIT 1 - Tomastik Affidavit
Overview Energy, LLC
NMOCD Case No. 20964
December 18, 2020