# North Burbank Unit (NBU)
# $CO_2$ Monitoring, Reporting, and Verification (MRV) Plan

Perdure Petroleum

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# Introduction

Perdure Petroleum LLC (Perdure) operates the North Burbank Unit (NBU) located near Shidler, Oklahoma for the primary purpose of enhanced oil recovery (EOR) using carbon dioxide ($CO_2$) with a subsidiary or ancillary purpose of geologic sequestration of $CO_2$ in a subsurface geologic formation. Perdure has been operating the NBU since 2017. Perdure acquired the NBU from Chaparral Energy LLC, which initiated the $CO_2$-EOR project in 2013. Perdure intends to continue $CO_2$-EOR operations until the end of the economic life of the $CO_2$-EOR program.

Perdure has developed this monitoring, reporting and verification (MRV) plan in accordance with the rules and regulations in Subpart RR of the Mandatory Greenhouse Gas Reporting Program, 40 CFR Sections 98.440-98.449,[1] to provide for the monitoring, reporting and verification of geologic sequestration in the Burbank reservoir during the injection period in the geographic area defined as the unit boundary of the NBU. This MRV Plan meets the requirements of Section 98.440(c)(1).

This MRV Plan contains the following 12 sections:

- Section 1 contains facility information.
- Section 2 contains the project description. This section estimates the years of $CO_2$ injection, provides the estimated tons of $CO_2$ to be injected and stored at the NBU, describes the geology of the NBU, details the operational history of the NBU, and provides an overview of the injection program and project facilities. This section also demonstrates the suitability for secure geologic storage in the reservoir.
- Section 3 contains the delineation of the monitoring areas.
- Section 4 evaluates the potential leakage pathways and demonstrates that the risk of $CO_2$ leakage through the identified pathways is minimal.
- Section 5 provides information on the detection, verification and quantification of leakage. Leakage detection incorporates several monitoring programs, each of which are described. Detection efforts will be focused towards managing potential leaks through the injection wells and surface equipment due to the improbability of leaks through the seal or faults and fractures.
- Section 6 describes the determination of expected baselines to identify excursions from expected performance that could indicate $CO_2$ leakage.
- Section 7 provides the mass balance equations and the methodology for calculating volumes of $CO_2$ stored or sequestered.
- Section 8 provides the estimated schedule for implementation of the MRV Plan.
- Section 9 describes the quality assurance program.

[1] Any "Subpart" referenced in this Plan is a subpart of 40 CFR Part 98, and any reference in this Plan to a "Section 98.xxx" refers to that section in 40 CFR Part 98.

- Section 10 describes some methods for revising this MRV Plan.
- Section 11 describes the records retention process.
- Section 12 includes several Appendices.

In addition to complying with the rules and regulations in Subpart RR for the monitoring, reporting and verification of geologic sequestration in the reservoir during the injection period in the geographic area defined as the NBU, the rules and regulations in Subpart W will inform the activities described in this MRV Plan as explained in more detail in Section 5.5 below.

# 1. Facility Information

## 1.1. Reporter Number

The North Burbank Unit facility reports under Greenhouse Gas Reporting Program Identification number 553337. The facility is located at or near 36.82491, -96.73257, Webb City, Oklahoma.

## 1.2. UIC permit class: Class II

The NBU is located in Osage County, Oklahoma. While the Oklahoma Corporation Commission regulates oil and gas activities in 76 of the 77 counties in Oklahoma, the UIC program for Osage County, Oklahoma is different. For purposes of the Environmental Protection Agency (EPA) Underground Injection Control (UIC) program, UIC Class II wells for the Osage Mineral Estate are permitted pursuant to 40 CFR Part 147 Subpart GGG Sections 147.2901-147.2929.[2] As a result of these regulations, UIC Class II permits in the Osage Mineral Estate are regulated by the Osage UIC office, as well as the EPA Region 6 Administrator. All of the injection wells in the NBU are classified as UIC Class II wells under these regulations.

## 1.3. UIC injection well identification numbers

Wells in the NBU are identified by name and API number. The API numbers for the injection wells in the NBU, as of January 1, 2020, are listed in Section 12.7. Any new wells in the NBU will be indicated in the annual report.

# 2. Project Description

Perdure exclusively operates all wells within the North Burbank Unit (NBU), which produces oil (and sometimes gas) from the geologic reservoir. Numerous aspects of the geology, facilities, equipment, and operational procedures are similar throughout the NBU. Because of these similarities, one MRV Plan is being prepared for the entire NBU. This section describes the geologic setting and characteristics of the NBU, the estimated years of $CO_2$ injection, the tons of $CO_2$ to be injected and stored at the NBU, and the injection process and $CO_2$-EOR project facilities.

[2] All of the mineral estate in the 1.47 million-acre Osage County, including the oil, gas and other subsurface minerals in Osage County, is known as the Osage Mineral Estate. According to the Osage Allotment Act of June 28, 1906, the United States holds title to the Osage Mineral Estate in trust for the Osage Nation, which is the beneficial owner of the Osage Mineral Estate.

## 2.1. Estimated years of $CO_2$ injection

A long-term performance forecast for the NBU has been conducted using the reservoir modeling approaches described in Section 4.1 below. In general, that forecast includes the estimated years of $CO_2$ injection and the estimated amounts of $CO_2$ anticipated to be injected and stored in the NBU as a result of current and planned $CO_2$-EOR operations during the modeling period, based on historic and predicted data. The forecast is based on results from a reservoir model that is used to develop injection plans for each injection pattern. This forecast is merely that: a forecast or prediction; actual data will be collected, assessed and reported as described in other portions of this MRV Plan to demonstrate the tons of $CO_2$ injected and stored at the NBU. The receipt and injection of $CO_2$ into the NBU commenced in 2013 and has continued since that time. The forecast anticipates that $CO_2$ will continue to be received at the NBU until at least 2060.

Figure 1 is a visual representation of a portion of the long-term performance forecast. Figure 1 reflects the actual (historic) amount of $CO_2$ injection and stored volumes in the NBU for the period beginning in 2013 when $CO_2$-EOR flooding was commenced in the NBU through 2019, as well as the projected tons to be injected and stored through 2040.

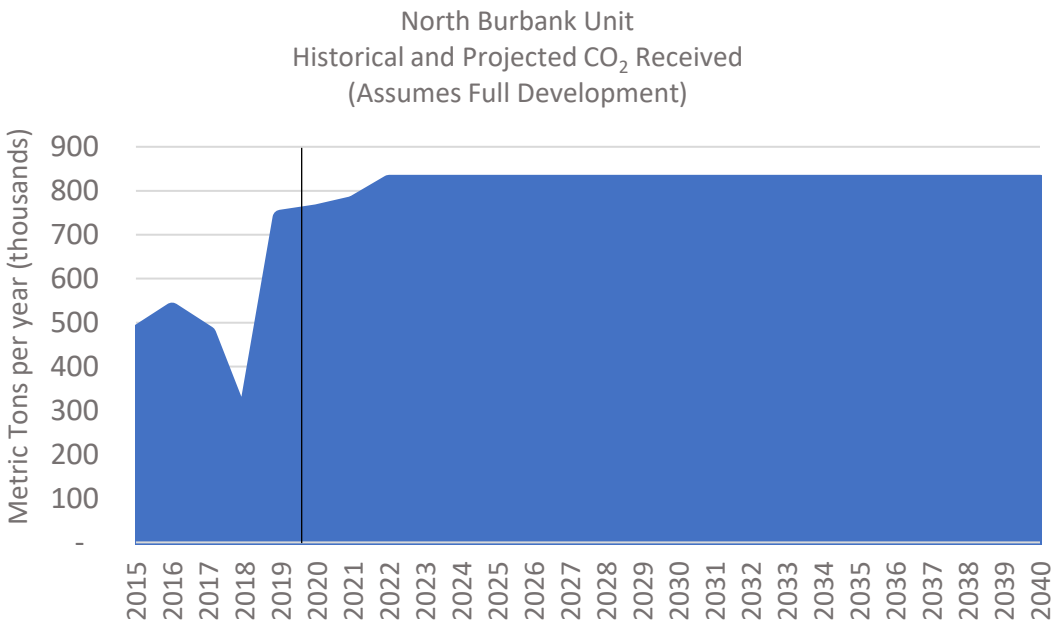



**Figure 1 –Historic and Forecast $CO_2$ Injection and Storage at the NBU**

## 2.2. Estimated tons of $CO_2$ injected and stored

The amount of $CO_2$ injected at the NBU is adjusted periodically to maintain reservoir pressure and to increase recovery of oil by extending or expanding the EOR project. The amount of $CO_2$ injected is the amount needed to balance the fluids removed from the reservoir and to increase oil recovery. While the model output shows $CO_2$ injection and storage through 2060, this data is for planning purposes only and may not necessarily represent the actual operational life of the NBU EOR project. As of the end of 2019, 143.8 BCF (7.58 million metric tons (MMT)) of $CO_2$ has been injected into the NBU. Of that amount, 77.6 BCF (4.09 MMT) was produced and recycled.

While tons of $CO_2$ injected and stored will be calculated using the mass balance equations described in Section 7, the forecast described above reflects that the total amount of $CO_2$ injected and stored over the modeled injection period to be 514 BCF (27.11 MMT). This represents approximately 46.7% of the theoretical storage capacity of the NBU.

## 2.3. Geologic Setting

The project site for this MRV Plan is the North Burbank Field, located in Osage County, Oklahoma. See Figure 2 for a general location of Osage County, Oklahoma.

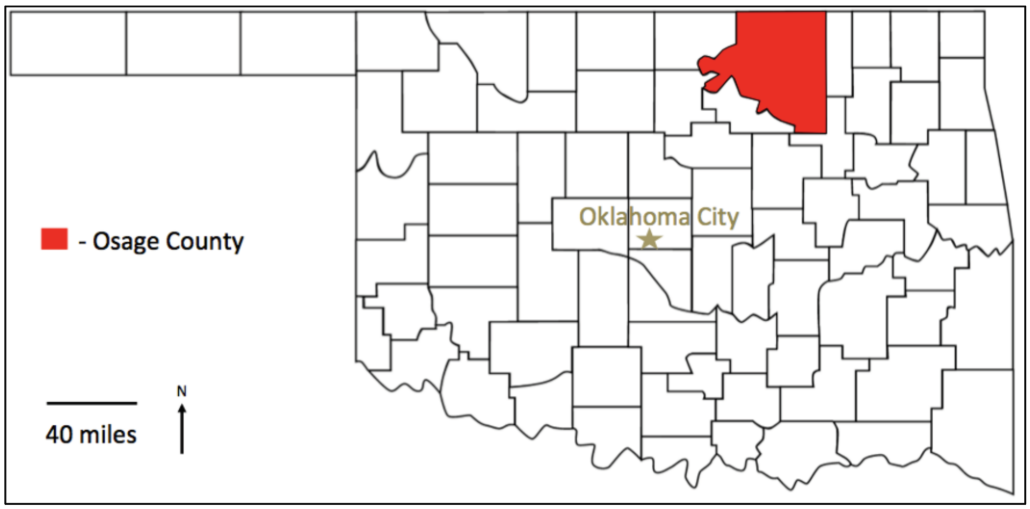



**Figure 2 – General Location of Project[3]**

The North Burbank Field is a sandstone reservoir that is a large oil trap. The oil producing zone is a large sand body comprised of many overlapping sand bars deposited along the southern shore of the Cherokee sea of Pennsylvania Age. The oil trap is an updip pinch-out of multistoried sands deposited into channels, eroded into underlying marine shales. The overlapping and erosional contact between these channels produced a net effect of a wide, single sand body. Intermittent marine incursions spread the reservoir in an east-west direction, further widening the sand body. The channels have a north-south trend. The reservoir is a well-consolidated sand and is rather strongly oil-wet. It is a Fluvial dominated deltaic (Class 1) reservoir. The reservoir is heterogeneous horizontally and vertically.[4] The Cherokee platform is a province with a relatively stable geologic history.[5]

The Burbank Sandstone includes the Red Fork and Bartlesville formations. "The Bartlesville and Burbank sands are so similar in composition and physical characteristics that they cannot be differentiated with certainty."[6] For convenience, this MRV Plan will refer to the Burbank Sandstone, the Red Fork formation and the Bartlesville formation collectively as the "reservoir". At the Burbank Field, the reservoir is about 3,000 feet below the surface, located in Ranges 5E-6E and Townships 26N-27N in Osage County, Oklahoma. The Burbank Field is 12 miles long, 4.5 miles wide, and trends in a southeast-northwest

[3] West (2015).
[4] Lorenz (1986).
[5] West (2015); Kleinschmidt (1976).
[6] Leatherock (1937).

direction. The sand is largely composed of fine- and medium-grained quartz cemented with silica, dolomite, ankerite and calcite.

The Burbank Field was discovered in 1920. The Burbank Field is located in western Osage County, in north-central Oklahoma (see Figure 3). The Burbank Field is approximately 25 miles east of Ponca City, Oklahoma, and 60 miles northwest of Tulsa, Oklahoma, as indicated by the red dot in Figure 3.

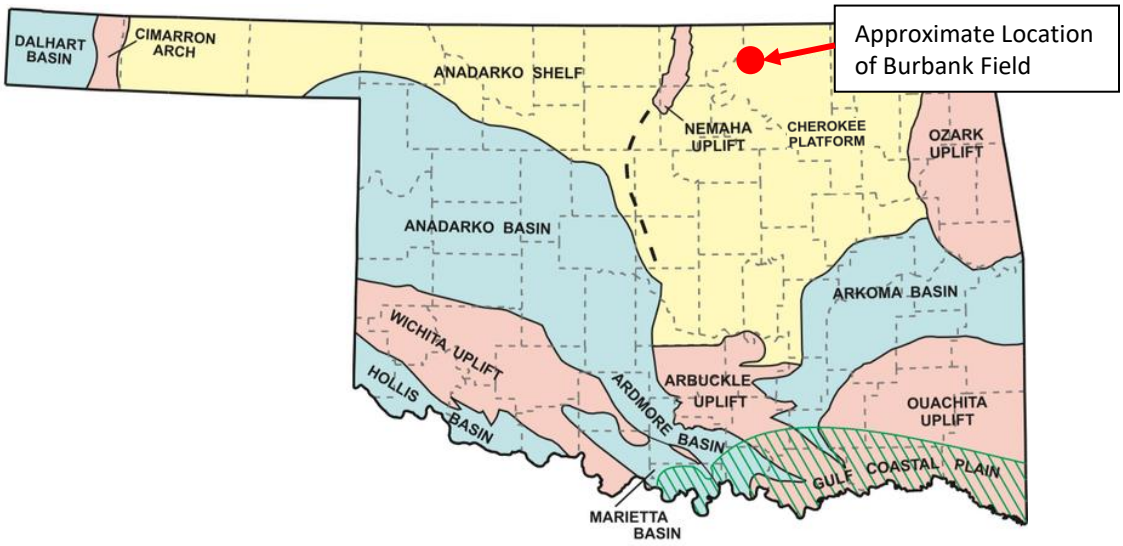



**Figure 3 – Paleogeographic Map of Oklahoma**[7]

As shown in Figure 3, Osage County, and the NBU, is bound to the east by the Ozark Uplift, and to the west by the Nemaha Uplift. In Osage County, regional dip of the strata is to the west-southwest.[8]

The Burbank Field is one of the largest oil fields in the United States and has approximately 824 million barrels of Original Oil In Place (OOIP). Since first discovered in the 1920s, the Burbank Field has produced approximately 360 million barrels of oil, or 39% of the OOIP. The reservoir has been buried underneath thick layers of impermeable rock. Over time, subsurface elevations within the reservoir have become uneven, creating variations in elevations and relatively higher subsurface elevations in locations such as the Burbank Field where oil and natural gas have accumulated.

The reservoir (highlighted in green in Figure 4 on page 6) now lies beneath approximately 3,000 feet of overlying sediments. There are numerous formations above the reservoir that are impermeable and serve as reliable barriers to prevent fluids from moving upwards towards the surface. These barriers, or "seals", effectively seal fluids into the formation(s) beneath them. In the Burbank Field, the first seal is the Pink Limestone member of the Cabaniss formation in the Cherokee Group. Above this lie over 10 additional intervals of impermeable rock layers of various thicknesses, including the Verdigris Lime, the "Big Lime" and the Avant/Iola Lime formations or members. These formations and members are highlighted in brown in Figure 4 (on page 6).

[7] Villalba (2016).
[8] West (2015).

| Depth | System | Series | Group | Formation | Member |
|---|---|---|---|---|---|
| | Quaternary | Quaternary | Alluvium & Terrace | | |
| | Permian | Leonardian | Sumner | Wellington | |
| | | Wolfcampian | Chase | Oscar | |
| | | | Council Grove | Vanoss | Red Eagle Lime |
| 50′ | | | | Sand Creek | Foraker Lime |
| | | | Admire Group | | Admire Shale |
| ~200′ | Pennsylvanian | Virgilian | Wabaunsee | Ada | Campbell, Ragan, Crews and Ebert Sands |
| | | | | Pawhuska | Burlingame Lime |
| | | | | | Newkirk Sand |
| ~725′ | | | Shawnee | Elgin | Pawhuska (Deer Creek) Lime |
| ~900′ | | | | | Hoover, Elgin, and Carmichael Sands |
| ~1000′ | | | | Nelagoney (Vamoosa) | Oread Lime |
| ~1150′ | | | | | Endicott & Lovell Sands |
| | | | Douglas | | Haskell Lime |
| ~1400′ | | | | | Fourmile, Cheshewalla, Revard, Bigheart and Tonkawa Sands |
| | | Missourian | Ochelata | | Wildhorse Lime |
| `1700′ | | | | Barnsdall | Okesa Sand (Suitcase Sands) |
| | | | | | Lane-Vilas Shale |
| | | | | Torpedo | Torpedo Sand |
| | | | | Wann | Clem Creek (Perry Gas) Sand |
| ~1875′ | | | | Iola | Avant/Iola Lime |
| | | | | | Muncie Creek Shale |
| | | | | | Paola (Loula) Lime |
| ~1950′ | | | | Chanute | Osage Layton (Cottage Grove) Sand |
| | | | Skiatook | Dewey Lime | Dewey/Drum Limestone |
| | | | | Nellie Bly | Cherry Vale Shale |
| | | | | | Layton (Shell Creek), Mussellem and |
| | | | | | Hogshooter (Dennis) Limestone |
| ~2250′ | | | | Coffeyville | True Layton (Dodd Creek) Sand |
| ~2400′ | | | | | Checkerboard Lime |
| ~2450′ | | | | Seminole | Cleveland Sands |
| | | Desmoinesian | Marmaton | Holdenville | |
| | | | | | Memorial Shale |
| | | | | Lenapah | Lenapah Lime |
| | | | | Nowata | Nowata Shale |
| | | | | | Altamont Lime |
| | | | | | Bandera Shale |
| ~2490′ | | | | Oologah | Big Lime (Pawnee Lime) |
| ~2575′ | | | | Labette | Labette (Cherokee) Shale |
| ~2625′ | | | | Fort Scott Lime | Oswego Lime |
| | | | Cherokee | Cabaniss (Senora, Boggy Savanna) | Little Osage, Excello and Oakley Shales |
| ~2750′ | | | | | Prue (Squirrel) Shale and Sand |
| | | | | | Verdigris Lime |
| ~2865′ | | | | | Skinner and Sonner Sands |
| ~2890′ | | | | | Pink or "Hot Pink" Lime |
| ~3000′ | | | | Krebs | Burbank (Red Fork and Bartlesville) Sands |
| | | | | | Brown Lime |
| | | | | | Penn Shales |
| ~3030′ | Mississippian | Osagean | Boone Group | | Boone Lime |
| | | Kinderhookian | St. Joe Lime | | St. Joe Lime |
| ~3300′ | Devonian | | Chattanooga (Woodford) Shale | | Misener Sand |
| | Ordovician | | Sylvan Group | | Sylvan (Maquoketa) Shale |
| | | | Viola Group | | Viola (Fite) Lime |
| | | | Simpson Group | | Wilcox Sand |
| | | | | | Tyner Shales and Sands |
| | | | | | Burgen Sand |
| ~3525′ | Cambrian | | Arbuckle Group | | |
| ~3800′ | | | Siliceous Lime | | |
| ~3850′ | | | Reagan Sand (Timbered Hills) & Granite Wash | | |
| ~4400′ | Pre-Cambrian | | Spavinaw Granite & Washington County / Rhyolite | | |

**Figure 4 – Generalized Stratigraphic Column for Osage County, Oklahoma** (compiled from Keeling (2016); Suneson (2010); West (2015); Jennings (2014); Li (2014); Reeves (1999); Stafford (2014); and Bass (1942)

The Burbank Field includes formations that involve incised valley fill sequences. The geologic depositional model of the Burbank Field is depicted in Figure 5 below.

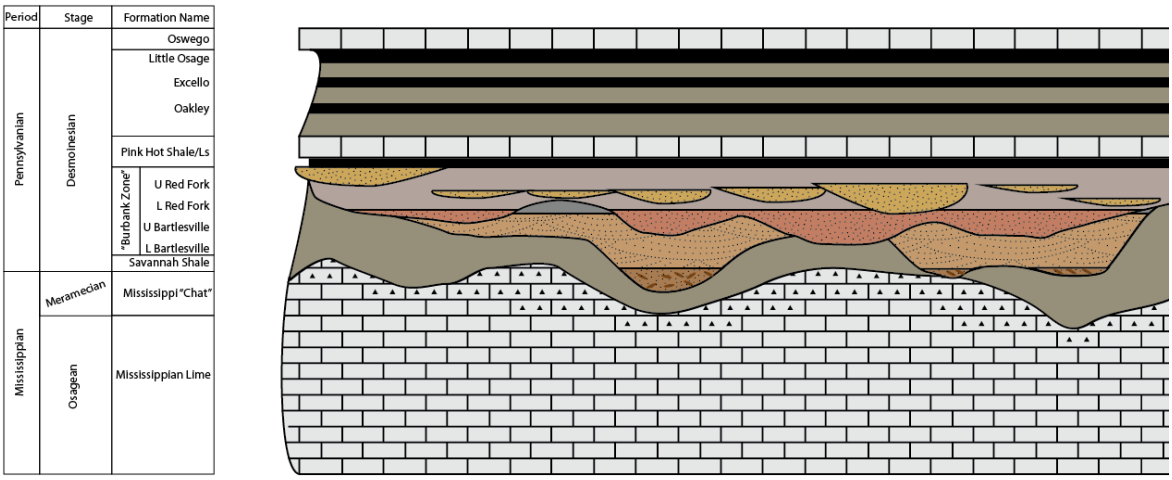



**Figure 5 – Geological Depositional Model, NBU**

As shown in Figure 5, multiple layers of caprock or "seals" are naturally provided above the reservoir, which is depicted as the "Burbank Zone" in Figure 5. These seal formations include the Hot Pink Limestone and the Oswego Limestone, each of which are impermeable and provide a reliable barrier to prevent injected $CO_2$ from moving upward towards the surface. These seal layers are depicted as "Marine Shales" in Figure 6 below, and the reservoir or "Burbank Zone" is indicated as "Channel Sandstones" in Figure 6.

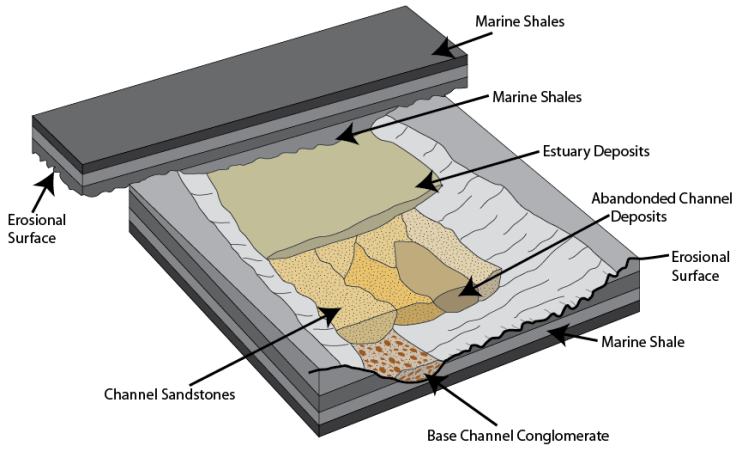



**Figure 6 – 3D Rendering of Geological Depositional Model, NBU**

Other than as described below, there are no known faults or fractures in the Burbank Field that provide a potential pathway for upward fluid flow. The fact that significant amounts of oil and natural gas have been produced from the reservoir is one confirmation of this fact and is indicative that a good quality natural seal exists. Oil and natural gas tend to migrate upward over time because they are less dense than brine found in various rock formations. Locations where oil and natural gas have been trapped in

the deep subsurface provide positive proof that faults and fractures do not provide a potential pathway for upward flow of injected $CO_2$ from the reservoir.

The operating history of the Burbank Field also demonstrates that there are no faults or fractures penetrating the reservoir, other than as described below. Fluids including water, carbon dioxide and polymers have been successfully injected into the NBU since 1950. The reservoir is characterized by east-west jointing, or fracturing, such that the effective permeability in the east-west direction is five times as great as that in the north-south direction. This results in a preferential east-west movement of injected fluids. For this reason, flooding operations in the NBU has generally developed by injecting water in east-west rows of wells and producing alternate rows of wells.[9] $CO_2$ injection has been similarly initiated, beginning in 2013. $CO_2$ and water are both injected in the $CO_2$-EOR portion of the NBU in a water alternating gas (WAG) process, where water is injected for a certain time period, followed by $CO_2$ for a certain time period, and then repeating the process. Water curtain injection (WCI) described below is the historic method used for decades during the waterflood in the NBU to address the flow of fluids within and external to the NBU unit boundary, and continues to be used during the $CO_2$-EOR flood operations. Other than as described above, there is no evidence of any interaction with existing or new faults or fractures. The absence of these faults and factures is one of the reasons why the NBU is such a strong candidate for water-flooding and now $CO_2$-flooding operations.

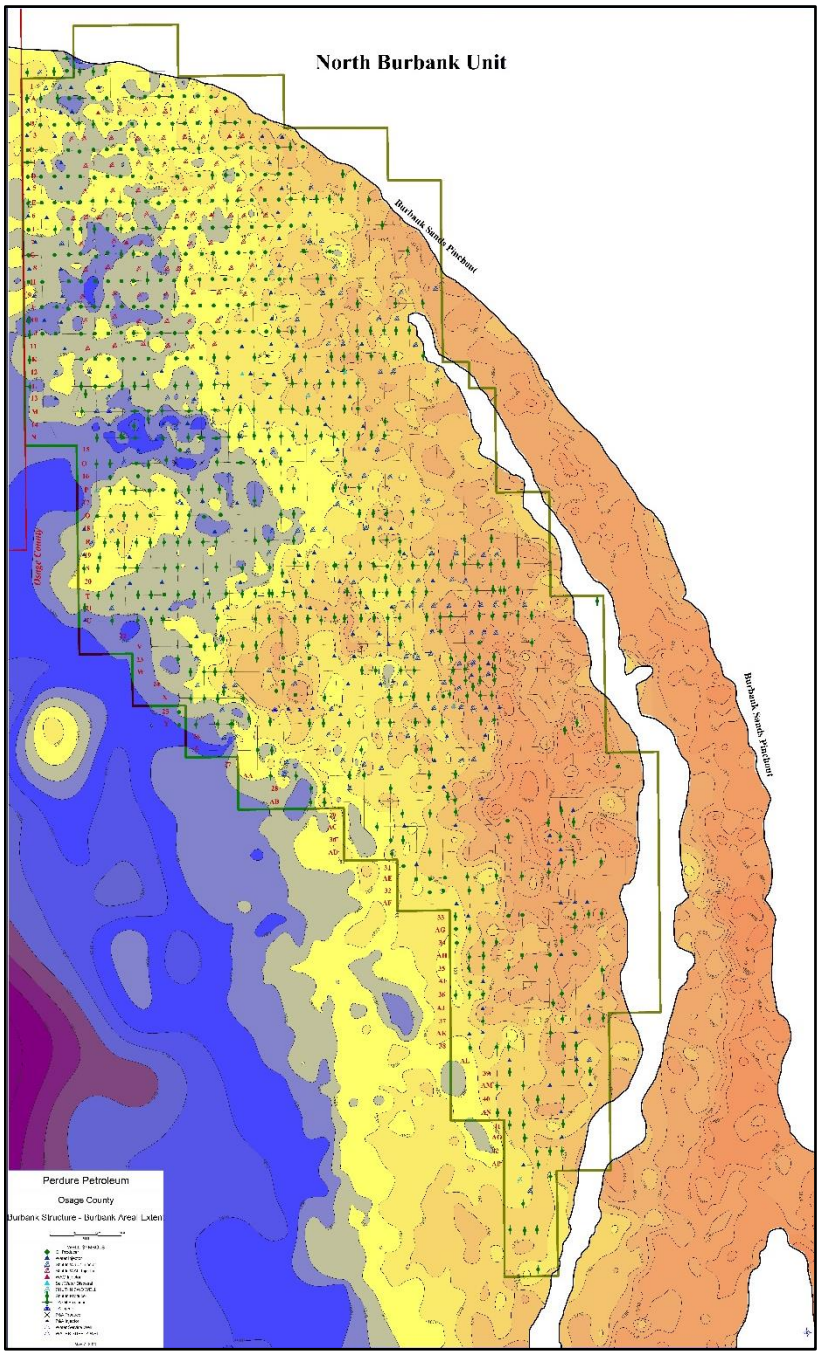



Figure 7 provides an overhead view of the geologic structure of the reservoir at the NBU, and the colors indicate changes in

[9] Kleinschmidt (1976).

subsurface elevation. In Figure 7 (on page 8), red/orange represents the higher elevations (i.e. the level closest to the surface) and blue/magenta represents the lower elevations (i.e. the level furthest below the surface). In the NBU, the higher elevations of the reservoir are to the east, southeast and south. The north half of the reservoir dips down in elevation to the west.

Buoyancy dominates the interaction of fluids in a reservoir. Gas is the lightest and rises to the top. Water is heavier and sinks to the bottom. Since oil is heavier than gas but lighter than water, it lies in between. Mobile $CO_2$ that is not miscible with the oil in the reservoir, whether in its gaseous phase or in its dense or supercritical fluid phase, is driven by buoyancy forces and gradually rises upward over time. Fluids including $CO_2$ and oil rise vertically until reaching the highest elevation in the structure. In the NBU, that highest elevation is to the east. Operationally, the reservoir boundaries of the NBU are maintained with a "water curtain".

Water curtain injection (WCI) is a common operations method in the $CO_2$-EOR industry involving continuous $CO_2$ injection in a selected area, with the addition of peripheral continuous water injection (commonly along the oil-water contact). WCI operations are conducted to create a pressure barrier or "curtain" to contain the injected $CO_2$ within the desired reservoir or rock volume, to focus the injected $CO_2$ to the area selected for production, to maintain the $CO_2$ within the confines of a $CO_2$-EOR project, and to prevent the $CO_2$ from impacting areas in the reservoir that are not under $CO_2$ flooding operations. WCI operations are efficient methods of maintaining and controlling lateral migration of fluids to assure that $CO_2$ does not cross structurally deficient locations.[10]

Active reservoir management is permissible within the NBU unit boundary through the use of WCI operations to manage reservoir pressures of all injected fluids. While WCI operations at certain pressures maintain the injected $CO_2$ within the WAG area, $CO_2$ injection operations at certain pressures ensure the water injected via WCI operations does not interfere with active $CO_2$-EOR operations. WCI operations at the NBU allow pressure maintenance within the reservoir of all injected fluids for harmonized management of the entire reservoir.

Because of the WCI operations employed at the NBU unit boundaries, injected fluids (including $CO_2$) stay in the reservoir within the NBU unit boundary and do not move to adjacent areas. When water and supercritical $CO_2$ are injected into an oil reservoir, they are pushed from injection wells to production wells by the high pressure of the injected fluids. WCI operations are only required during dynamic conditions at the NBU such as injection into and production from the reservoir. When active WCI operations conclude, the $CO_2$ plume will be governed by gravity. When the $CO_2$-EOR operation is complete and injection of $CO_2$ is terminated, the injected $CO_2$ that is not dissolved in the remaining oil or water in reservoir will remain in the reservoir and will rise slowly upward due to buoyancy forces. However, at the NBU, the amount of $CO_2$ stored in the reservoir at that time will not exceed the secure storage capacity of the NBU reservoir. As explained in Section 2.2 above, the $CO_2$ stored in the NBU will fill approximately 46.7% of the total calculated storage capacity of the reservoir. As a result, there is more than enough pore space to retain the projected amount of stored $CO_2$.

[10] Nunez-Lopez (2017); Davis (2019); Hvorka (2015); Gaines (2009); and APGTF (2002).

Certain attributes of the reservoir are summarized in Table 1 below.

| **NBU Reservoir Characteristics (historic or current)** | |
|---|---|
| Unitized Area, acres | 23,240 |
| Area, square miles | ~36.3 |
| Depth, feet (average) | ~2,900 |
| Thickness, feet (average) | 45 – 60 |
| Dip | W-SW @ ~ 0.5$^{o}$ |
| Porosity, percent average | 16.8 – 22% |
| Permeability, millidarcies (md) | 32 – 313 |
| Water Saturation (Initial) | 0.27 – 0.34 |
| Viscosity of Oil, centipoise (cP) | ~3 |
| Permeability Variation (Dykstra-Parsons) | 0.48 – 0.81 |
| Boi (reservoir volume factor, reservoir bbls/stock) | 1.23 |
| Solution GOR (original), cf/STB | 472 |
| Reservoir Temperature, $^{o}$F | 122 |
| API Stock Tank Oil Gravity | ~39 |
| Unit OOIP, MMSTBO | 824 |
| Fracture Pressure (at MMP), psig | ~2,030 |
| Original Reservoir Pressure, psia | 1,350 |
| Minimum Miscibility Pressure (MMP) (Slimtube), psia | ~1,670 |
| Pattern Size, acres | 40 |
| Primary Recovery, %OOIP | ~18.1 |
| Secondary Recovery, %OOIP | ~20.7 |
| Secondary to Primary Ratio | 1.14 |
| Tertiary (technically recoverable), %OOIP | 12.6 |
| Cumulative Oil Production, MMSTBO | ~320 |
| Cum Tertiary ($CO_2$-EOR) Production (to date), MMSTBO | 3.4 |
| Pore Volume, MM BBL | 1,492.3 |

**Table 1 – NBU Reservoir Historic or Current Characteristics**

When wells are drilled, a detailed record of the geological formation is prepared either by taking samples through visual inspections or with the aid of measurement instruments lowered into the borehole. This detailed record, known as a well log, provides vital information regarding the rocks, fluids and other characteristics of the geology above, in, and below the target reservoir. Sometimes the drilling of a well also includes obtaining a rock sample (or core) from the wellbore at various elevations or formations. Numerous NBU wells have been drilled, logged and cored. NBU Well Nos. 22-42W and 22-27W are exemplar wells, and their core and log are provided below in Figure 8 (on page 11). Another type well log is for NBU Well No. 33-41W and is provided below in Figure 9 (on page 11).

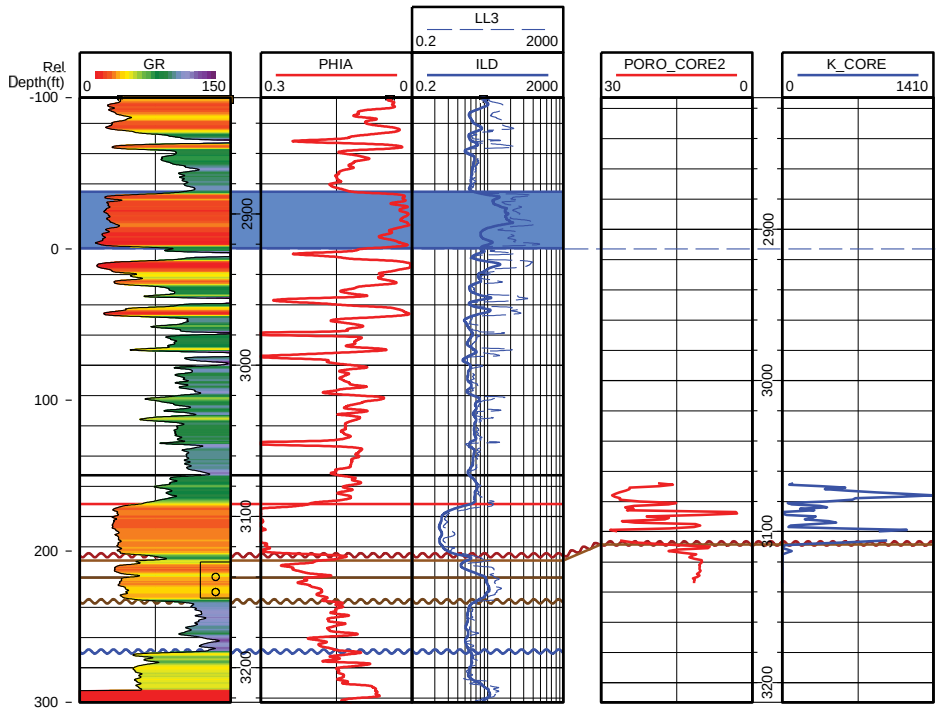



**Figure 8 – Exemplar Conventional NBU Well Log and Core**

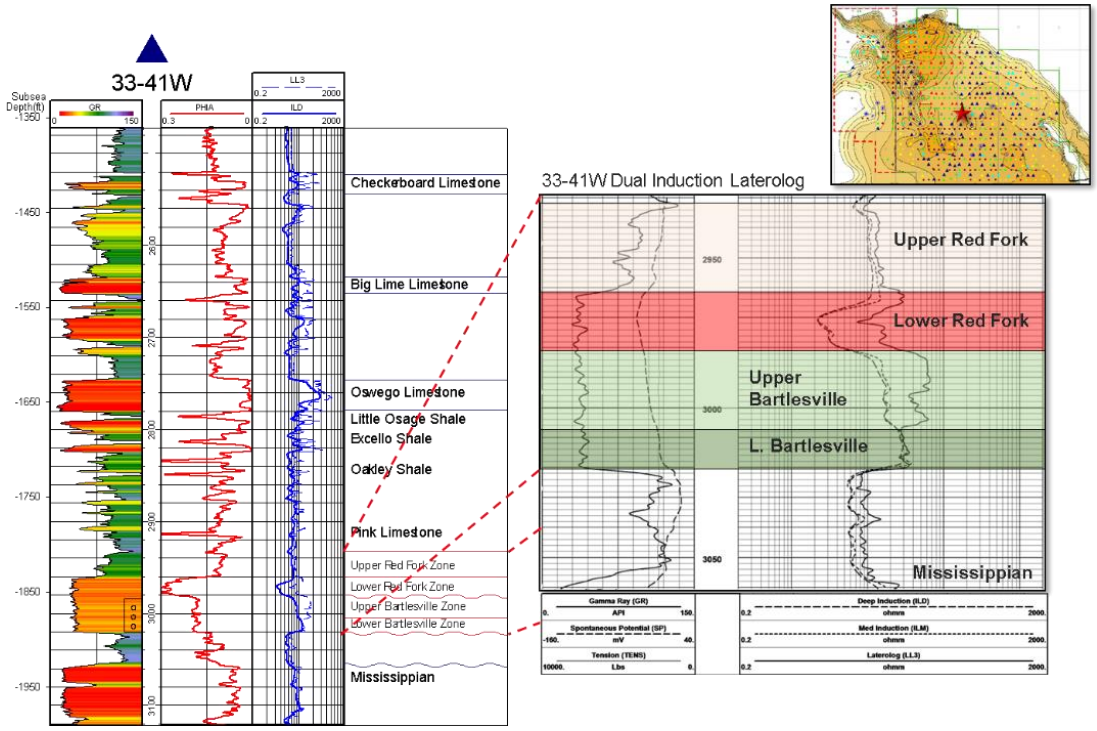
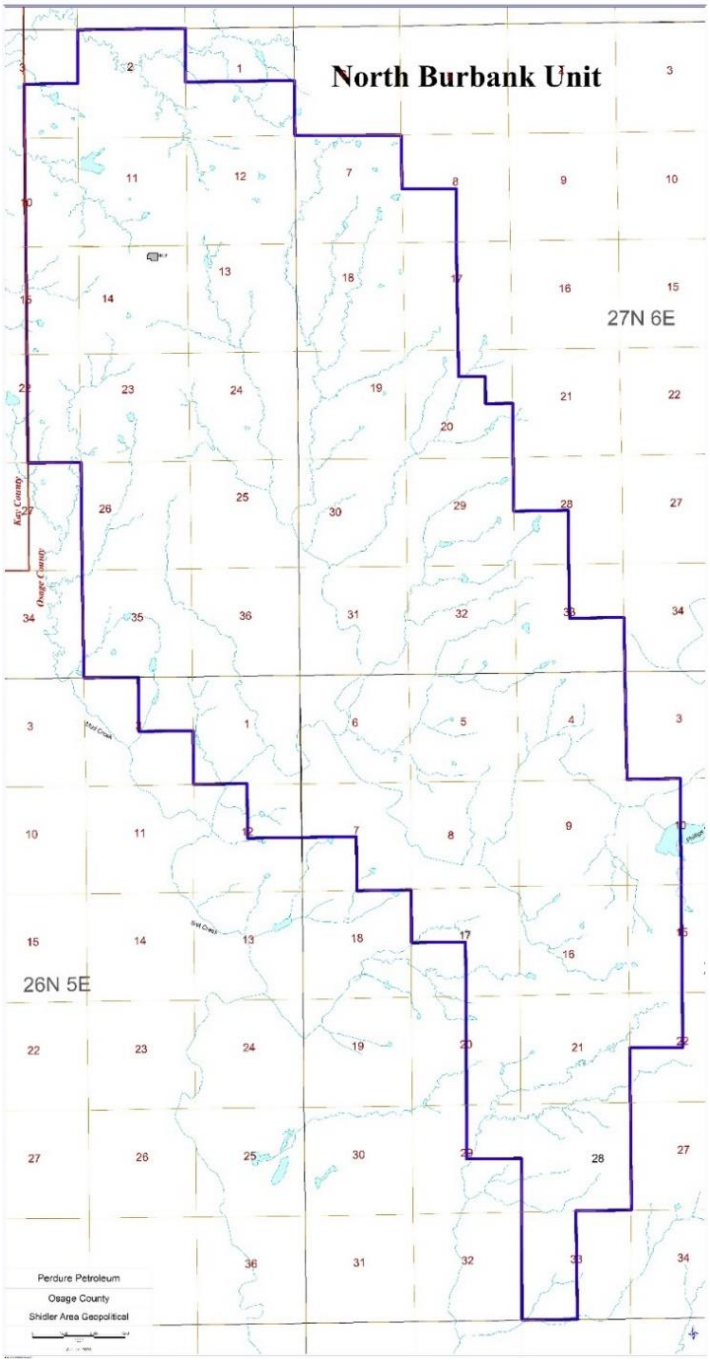



**Figure 9 – Type Log of NBU Well**

## 2.4. Operational History[11]




The Burbank Field in Osage County, Oklahoma, was discovered by the Marland Oil Company in May 1920. The Burbank Field was extended several miles to the southeast when The Carter Oil Company completed the second well in in September 1920. The Burbank Field was developed rapidly. Wells were drilled with cable tools and, upon completion, were produced wide open by flowing, swabbing, or pumping to capacity.[12] The wells were heavily shot upon completion or as soon thereafter as they quit flowing. Peak production of 122,000 barrels of oil per day was reached in July 1923. By 1924, 75% of the wells in the main part of the NBU had been drilled. Production declined rapidly because of the large volume of fluid being produced from the reservoir without any injection support.

The practice of pulling vacuum on wells began in 1924 to increase production. Vacuum was discontinued in 1939. Repressuring was inaugurated on a limited scale in 1926. Repressuring using natural gas purchased from outside the NBU was commenced in 1935 and continued for many years.[13]

The NBU was originally developed by numerous individuals and companies under various separate leases from the Bureau of Indian Affairs (BIA) and the Osage Nation in Osage County. Over time, to improve efficiency, several smaller leases were combined or unitized into larger units which are operated without the operational restrictions imposed by the former lease boundaries. The NBU was formed in 1950. The NBU is the single largest oil recovery unit in the state of Oklahoma. The boundaries of the NBU are reflected in Figure 10.

[11] Compiled from various reports including Bass Report 10 (1942); Hunter (1956), Li (2014); and Stafford (2014).
[12] "When gushers came in, earthen dikes were used to hold the oil until storage tanks could be built." http://www.tgp-docents.com/docent/osage.html
[13] Hunter (1956).

The NBU was unitized in 1950, coordinating 20 leaseholders with a unitized area of 23,240 acres. The boundaries of the NBU include the small unincorporated town of Webb City, Oklahoma, a booming oil camp in the 1920s, but with a population of less than 50 people today.

When oil was discovered in the Burbank Field in the 1920s, oil was found at the top of the sand in practically all wells, and there is no evidence of an initial gas cap. The reservoir energy was supplied almost entirely by dissolved gas in the oil. This type of oil reservoir offers good waterflooding opportunities.

Waterflooding was initiated in the NBU over a 15-year period beginning in 1949. Waterflooding the NBU was one of the world's largest waterflooding projects at that time.[14] Waterflooding began on the southern portion of the unit and was gradually extended toward the north until 1964 when it reached the northern edge.[15] Initial waterflood design of a 5-spot 20-acre spaced pattern quickly changed to a north-south elongated 5-spot 20-acre pattern developed in alternate east-west rows, accounting for a preferential east-west movement of injected fluid.[16] Phillips Petroleum Company operated the NBU beginning in 1950 upon unitization, and implemented the waterflood.

Starting in 1965, a steam drive pilot was conducted, but results were disappointing.[17] A successful polymer flood pilot test was conducted from August 1970 through 1979 on two particular tracts.[18] In the late 1970s, NBU Tract 97 was part of a multi-year Department of Energy (DOE) surfactant polymer pilot.[19] A commercial scale freshwater polymer flood was conducted in the Webb City area of the NBU beginning in 1980.[20]

$CO_2$-EOR operations began in the NBU on June 6, 2013 and has continued and expanded since that time. The experience at NBU of operating and refining the waterflood since 1950 and the $CO_2$-EOR flood since 2013 has created a strong understanding of the reservoir and its capacity to store $CO_2$.

Phillips Petroleum Company operated the NBU from unitization until November 1995, when Phillips sold the NBU to Calumet Oil Company.[21] Chaparral Energy bought the NBU from Calumet Oil Company on October 31, 2007. The current operator is Perdure Petroleum, which acquired the NBU from Chaparral in November 2017. Perdure Petroleum maintains a 99.25% working interest in the NBU and a 86.85% net revenue interest. The operator also owns significant portions of the surface within the NBU unit boundaries. The Osage Indian Nation owns 100% of the oil and gas minerals in Osage County, including the minerals in the NBU.

[14] Li (2014); see also Reese, L.W., Loughlin, P., *Main Street Oklahoma: Stories of Twentieth-Century America*, p 106 (2013) ("At the time that it was instituted in 1949, the waterflood project in the North Burbank Field was one of the largest secondary recovery efforts in the history of the petroleum industry.")
[15] Pang (1981).
[16] Hunter (1956).
[17] Trantham (1982).
[18] Pang (1981).
[19] Bradford (1980).
[20] Pang (1981); Moffit (1993).
[21] Westermark (2003).

## 2.5. Description of Injection Process and Project Facilities

The injection process for the $CO_2$-EOR operations in the NBU generally consists of three (3) primary processes:

1. $CO_2$ distribution and injection
2. Injection and production wells
3. Produced fluids handling and gas compression

The $CO_2$ distribution and injection process begins with receiving $CO_2$ delivered to the NBU for purposes of injection. The $CO_2$ delivered to the NBU is supplied by one or more sources, such as $CO_2$ delivered from the Coffeyville $CO_2$ Pipeline and $CO_2$ received from the NBU Recycle Compression Facility (RCF). The delivered $CO_2$ is then sent through the injection pipeline distribution system to various $CO_2$ injection wells throughout the NBU.

The produced fluids handling system gathers fluids from the production wells in one or more areas within the NBU. While production wells in the NBU produce a mixture of oil and water fluids, some of the production wells also produce $CO_2$ or other gases. The mixture of produced fluids (oil, water and $CO_2$ and other gases) flows to satellite batteries for separation and/or to centralized tank batteries where gases and fluids are separated. The fluids stream is further separated into oil that is sold by truck or pipeline, and water that is recovered for reuse, reinjection or disposal. The gas stream, consisting of $CO_2$ and other gases, is transported to the RCF.

The produced gas compression process consists of gathering $CO_2$ and other gases that may be produced from the active $CO_2$-EOR portion of the NBU, and compressing the $CO_2$-rich gas stream for ultimate reinjection into the NBU. Currently the RCF is the only facility that performs this function, but additional recycle compression facilities may be installed in the future and would provide the same function. In addition, natural gas liquid (NGL) recovery operations may be installed at the RCF or other recycle compression facilities in the NBU in the future, to separate NGLs from the stream of $CO_2$ and other gases, and the NGLs would be sold by truck or pipeline.

### *2.5.1. $CO_2$ Distribution and Injection*

Currently, $CO_2$ delivered to the NBU for injection is received through many meters. One meter measures the amount of $CO_2$ at each $CO_2$ source location. Another meter measures the amount of $CO_2$ delivered from the Coffeyville $CO_2$ Pipeline. Other meters measure the amount of $CO_2$ at the outlet of the NBU RCF compressors, and a central meter (downstream of all RCF compressors) may be installed at the outlet of the RCF. As the NBU is developed for $CO_2$-EOR purposes, it is anticipated that $CO_2$ delivered to the NBU for injection may be received through additional meters, such as from additional recycle compression facilities in the NBU or other $CO_2$ sources of pipeline delivery points.

All $CO_2$ that flows through the meters is sent through $CO_2$ injection lines to individual injection wells in the NBU, and in many instances through manifolds and distribution lines prior to arriving at the injection well. Currently, each $CO_2$ injection well has the ability to inject either $CO_2$ or water, at various rates and injection pressures, as determined by the EOR operator. A flow meter is used at each injection well to measure the injection rate of the $CO_2$ (or water, as the case may be). Currently, for any given $CO_2$ injection well, the $CO_2$ injected may be sourced from the Coffeyville $CO_2$ Pipeline, the RCF, or a combination thereof.

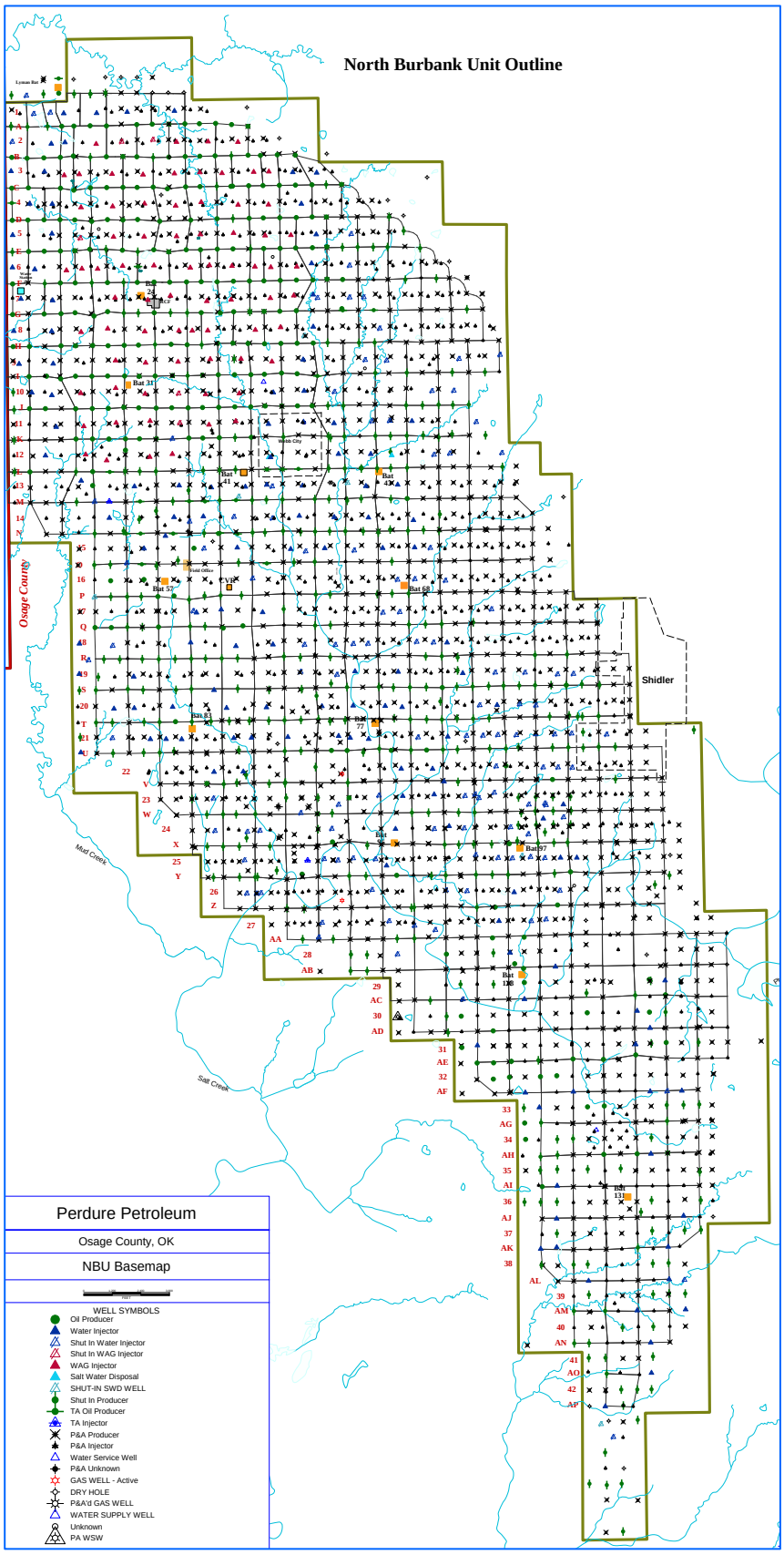



**Figure 11 – North Burbank Unit Wells as of January 2020**

As of January 2020, about 100 MMSCF/d (5,250 MT) of $CO_2$ is injected into the NBU each day, of which approximately 45% is from the Coffeyville $CO_2$ Pipeline and the balance (55%) is recycled $CO_2$ from the RCF. The ratio of $CO_2$ sources is expected to change over time, and eventually the percentage of recycled $CO_2$ will increase, and deliveries of $CO_2$ from the Coffeyville $CO_2$ Pipeline will taper off. There are volume meters at the inlet and the outlet of the RCF.

### *2.5.2. Injection and Production Wells*

As of January 2020, there are approximately 451 active completed wells in the NBU. Those wells consist of about 266 production wells, and about 185 injection wells. In addition, there are about 2,394 wells that are not in use, such as being inactive, temporarily abandoned, shut in, or plugged and abandoned. As a result, the total number of wells in the NBU is currently about 2,845 wells. The location of the NBU wells is indicated in Figure 11.

Wells located in Osage County, Oklahoma are regulated by the EPA Region 6 office. The EPA Region 6 granted authority to inject $CO_2$ into the NBU pursuant to Underground Injection

Control (UIC) permits for the NBU, which state that permit authorization must be obtained from the Bureau of Indian Affairs (BIA) for various activities related to the NBU $CO_2$-EOR operations. Those permits also state that the base of underground sources of drinking water is 245 feet below the surface. Regulations and/or the permit(s) require that all wells drilled through this interval be cased and cemented to prevent the movement of fluids from the injection zone into another zone or to the surface around the outside of a casing string.

### *2.5.3. Produced Fluids Handling and Gas Compression*

Upon injection of $CO_2$ or water into the reservoir, a mixture of oil, gas and water (collectively, "produced fluids") is moved towards a production well. Once produced at the production well, the produced fluids are produced into gathering lines that combine, collect and commingle the produced fluids. In the $CO_2$-EOR portion of the NBU, the produced fluids then flow into a satellite separation facility and then to a battery. Each satellite is equipped with well test equipment to measure production rates of oil, gas and water from individual production wells. In addition, $CO_2$ and liquids are separated at the satellites. In the portion of the NBU where $CO_2$ is not injected (waterflood only area), the produced fluids flow directly into a battery. Production in the NBU is from one of the active production wells, which is sent to one of eight batteries (two in the $CO_2$-EOR area, and six in the waterflood only area). Each battery has a large vessel that performs a gas-liquid separation.

Once any remaining gas and fluids are separated at the batteries in the $CO_2$-EOR portion of the NBU, the gas phase is transported by pipeline to a recycle compression facility ("RCF") for additional separation and then compression, dehydration and pumping as described below. The average composition of this gas mixture is approximately 95-99% $CO_2$ and the remaining portion is composed of hydrocarbons, a trace of nitrogen, and hydrogen sulfide ($H_2S$) at approximately 50-165 parts per million (ppm). This $CO_2$ concentration is likely to change over time as $CO_2$-EOR operations continue and expand. The $CO_2$ at the outlet of the RCF is transported to the injection system described in Section 2.5.1 above.

Produced oil from the NBU is metered through one or more Lease Automatic Custody Transfer (LACT) units located at centralized tank batteries in the NBU, prior to being sold. Currently, the LACT units in the $CO_2$-EOR portion of the NBU are Tank Batteries 24 and 31. This oil contains a small amount of dissolved or entrained $CO_2$. A recent sample of oil indicated that the dissolved $CO_2$ content is approximately 0.26-0.31% by weight in the oil. Any gas that is released from the liquid tanks at Tank Batteries 24 and 31 is collected by one or more Vapor Recovery Units (VRU) that compresses the gas and sends it to an RCF for processing. This gas stream may include trace amounts of $CO_2$.

The oil produced from the NBU is slightly sour, containing small amounts of hydrogen sulfide ($H_2S$), which is highly toxic. All field personnel are required to wear $H_2S$ monitors. Although the primary purpose of those monitors is to detect $H_2S$ and protect employees, monitoring of $H_2S$ will also supplement other $CO_2$ leak detection methods described in this MRV Plan.

### *2.5.4. Modifications to Project Facilities and Injection Processes*

Perdure plans to continue routine business operations in and near the NBU, which may include securing $CO_2$ from additional sources; changing the status of existing wells, adding new wells, closing wells; deepening existing wells or drilling new wells to a deeper formation for $CO_2$ injection into that deeper formation; and adding new facility equipment or pipelines. These modifications represent a continuation of the current integrated configuration and MRV approach and are not a material change that would trigger a revised plan required by Section 98.448(d). Any such changes would be indicated in

the annual monitoring report rather than in a new or amended MRV plan. Prior to any $CO_2$ injection into a deeper formation, Perdure would comply with the statutory and regulatory process for obtaining all necessary permits. New facility equipment additions could include additional recycle compression facilities in the NBU. Any such changes reflected in an annual monitoring report would include, as necessary, a description of how the change is a continuation of the existing project facilities and injection process and would also include any new site characterization, risk assessment, monitoring and mass balance information.

# 3. Delineation of the monitoring areas and time frames

The current active monitoring area (AMA) as well as future AMA are described below. In addition, the maximum monitoring area (MMA) of the free phase $CO_2$ plume and its buffer zone are defined below. Also, the monitoring time frames for both the AMA and the MMA are described.

## 3.1. Active Monitoring Area

Because $CO_2$ is present in the NBU, and is retained within that area, the current active monitoring area (AMA) is defined by the boundary of the NBU. This boundary is reflected in Figure 10 (on page 12). The following factors were considered in defining this boundary:

- $CO_2$ is present in the NBU. More than 143.8 BCF (7.58 MMT) of $CO_2$ has been injected into the NBU since 2013. There has been infill drilling in the NBU to complete additional wells to further optimize production. There has been production of $CO_2$ in the NBU. Operational results thus far indicate that there is $CO_2$ in the NBU.

- $CO_2$ injected into the NBU remains contained within the NBU because of the fluid and pressure management impacts associated with $CO_2$-EOR operations. Managed lease-line injection and production wells are used to retain fluids in the NBU. Water curtain injection (WCI) operations, described in Section 2.3, have been used for decades in the NBU to retain fluids in the NBU, including the $CO_2$-EOR portion of the NBU since $CO_2$ injection began in 2013. There is evidence that operations by the prior EOR operator failed in some instances to maintain the water curtain in the $CO_2$-EOR area of the NBU as a result of over-producing the western edge of the active $CO_2$-EOR area and allowing small amounts of injected $CO_2$ to move outside the west edge of the NBU. Current operations strictly maintain the water curtain so as to prevent such $CO_2$ migration in the reservoir. Current operational results (such as normal pressures in the injection interval and injection and production rates within predicted ranges) indicate that injected $CO_2$ is retained in the NBU. Should future WCI operations fail to adequately maintain sufficiently high injection pressures so as to retain injected $CO_2$ within the $CO_2$-EOR area of the NBU, it is anticipated that small amounts of injected $CO_2$ could possibly move outside that area. In that event, Perdure would respond as described in Section 4.6 and Section 5.5.

- Over geologic timeframes, injected $CO_2$ will remain in the NBU and will not migrate downdip to the western edges of the NBU, because the reservoir in the unit boundary of the NBU is higher in elevation than the reservoir west of the NBU unit boundary. While the reservoir in the Stanley Stringer to the east and northeast of the NBU is higher in elevation than the reservoir in the NBU, water curtain injection (WCI) operations described in Section 2.3 have been used to isolate the Stanley Stringer and the NBU for decades, and will continue to be used. Just as oil and gas were trapped in and contained in the NBU, as demonstrated by the long history of oil and gas production occurring within the NBU, so will the injected $CO_2$.

As $CO_2$ injection operations are expanded beyond the currently active $CO_2$-EOR portion of the NBU into other areas of the NBU, then the AMA is anticipated to expand to include areas within the NBU into which the $CO_2$ is injected. Such expansions will be reported in the Subpart RR Annual Report for the NBU, as required by Section 98.446.

## 3.2. Maximum Monitoring Area

The maximum monitoring area (MMA) is defined in Section 98.449 as equal to or greater than the area expected to contain the free-phase $CO_2$ plume until the $CO_2$ plume has stabilized, plus an all-around buffer zone of one-half mile. Section 4.1 states that the maximum extent of the injected $CO_2$ is anticipated to be bounded by the NBU unit boundary. Therefore, the MMA is the NBU plus the one-half mile buffer as required.

## 3.3. Monitoring time frames

The primary purpose for injecting $CO_2$ in the NBU is to produce oil that would otherwise remain trapped in the reservoir. The primary purpose for injecting $CO_2$ in the NBU is not, as stated in UIC Class VI regulations at 40 CFR 146.81(b), "specifically for the purpose of geologic storage." During a Specified Period, there will be a subsidiary or ancillary purpose of establishing the long-term containment of a measurable quantity of $CO_2$ in the reservoir. The Specified Period will be shorter than the period of oil production from the NBU. This is in part because the delivery of $CO_2$ for injection from sources other than a recycle compression facility is projected to taper off significantly before oil production ceases in the NBU, which is modeled through 2060. At the conclusion of the Specified Period, a request for discontinuation of reporting under Subpart RR will be submitted. This request will be submitted when it can be demonstrated that then-current monitoring and/or model(s) show that the cumulative mass of $CO_2$ reported as sequestered during the Specified Period is not expected to migrate in the future in a manner likely to result in surface leakage. It is expected that it will be possible to make this demonstration within three years after injection for the Specified Period ceases. The demonstration will rely on at least the following three principles: (1) the amount of $CO_2$ stored in any properly P&A'd wells will be considered unlikely to migrate to the surface; (2) the continued process of fluid management during the years of $CO_2$-EOR operation after the Specified Period will contain injected fluids in the NBU; and (3) the cumulative mass reported as sequestered during the Specified Period is a fraction of the theoretical storage capacity of the NBU.

# 4. Evaluation of Leakage Pathways

The reservoir in the NBU has been studied and documented extensively for decades, including through the publications listed in Section 12.6. Knowledge gained through the 100+ year history of oil and gas production in the NBU has been used to identify and assess potential pathways for leakage of $CO_2$ to the surface. The following potential pathways are reviewed below:

- Well bores
- Faults and fractures
- Natural and induced seismic activity
- Prior operations
- Pipeline and surface equipment
- Lateral migration outside the NBU
- Drilling through the $CO_2$ area

- Diffuse leakage through the seal

## 4.1. Well Bores

As of January 2020, there are approximately 451 active completed wells in the NBU. About 266 of those wells are production wells and about 185 are injection wells. In addition, there are approximately 2,394 wells not in use that penetrate the reservoir, as described in Section 2.5.2 above. Leakage through existing and future well bores is a potential risk in the NBU that Perdure works to prevent by:

- adhering to regulatory requirements for well drilling and testing
- implementing best practices that Perdure has developed through its extensive operating experience
- monitoring performance of injection and production operations
- monitoring wellbore integrity and surface operations
- maintaining surface equipment

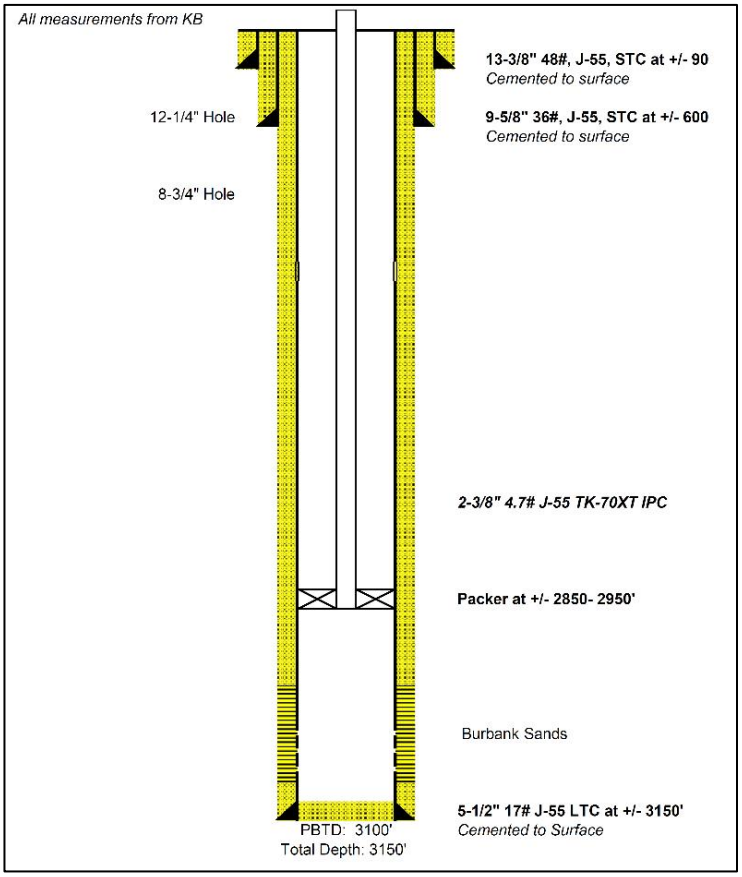
Regulations governing wells in the NBU require that wells be completed and operated so that fluids are contained in the strata in which they are encountered and that well operation does not pollute subsurface and surface waters. The regulations establish the requirements with which all wells must comply, whether they are injection, production or disposal wells. Depending on the purpose of the well, the regulatory requirements can impose additional standards for evaluation of area of review (AOR). $CO_2$ injection well permits are authorized only after an application, notice and opportunity for a hearing. As part of the application process, Perdure conducts an AOR that includes wells within the NBU and one-quarter mile from the set of wells considered in that AOR. Pursuant to Environmental Protection Agency regulations, all wells within the AOR that penetrated the injection interval were located and evaluated.

Regulatory requirements can also impose additional standards for mechanical integrity testing (MIT). All active injection wells must undergo a periodic MIT, depending on various dates and activities associated with the well. MIT tests include inspection of wells and associated surface facilities to ensure they are in good repair, free of leaks, and conform with various rules and permit conditions. MIT tests also include the use of a pressure recorder and pressure gauge and testing the casing-tubing annulus for a minimum amount of time at a minimum pressure.

In implementing those regulations, Perdure has developed operating procedures based on its experience as a $CO_2$-EOR operator. Perdure's operations include developing detailed modeling at the pattern level to guide injection pressures and performance expectations, as well as utilizing experts in diverse disciplines to operate EOR projects based on specific site characteristics. Perdure's field personnel are trained to operate wells in a manner to look for and address issues promptly, and to implement corrosion prevention techniques to protect wellbores as needed. Field personnel also are required to wear $H_2S$ detectors and, because $H_2S$ is entrained in the $CO_2$, the $H_2S$ detector would alarm if field personnel are near equipment that leaked $CO_2$. Perdure's operations are designed to comply with the applicable regulations and to ensure that all fluids (including oil, water and $CO_2$) remain in the NBU until they are produced through a Perdure well.

New wells that are drilled into the reservoir are designed to be cemented all the way from the formation to the surface. Figure 12 (on page 20) depicts a diagram of a typical new well drilled in the NBU, and provides an example of well construction showing intervals of cement over crucial formations. As of

January 1, 2020, approximately 17 of the 451 active completed wells have been drilled in this manner, and 100% of the new wells that have been drilled since Perdure took over operations of the NBU in 2017 have been drilled in this manner.




Well pressure in injection wells is monitored on a continual basis. The injection plans for each pattern are programmed into the injection WAG satellite, as discussed in Section 6.4, to govern the rate, pressure, and duration of either water or $CO_2$ injection. Pressure monitors on the injection wells are programmed to flag pressures that significantly deviate from the plan. Leakage on the inside or outside of the injection wellbore would affect pressure and be detected through this approach. If such excursions occur, they are investigated and addressed. It is the company's experience that few excursions result in fluid migration out of the intended zone and that leakage to the surface is very rare.

In addition to monitoring well pressure and injection performance, Perdure uses the experience gained over time to strategically approach well maintenance and updating. Perdure maintains well maintenance and workover crews onsite for this purpose. For example, well classifications by age and construction method inform Perdure's plan for monitoring and updating wells. Perdure uses all of the information at hand including pattern performance, and well characteristics to determine well maintenance schedules.

Production well performance is monitored using the production well test process conducted when produced fluids are gathered and sent to a satellite battery. There is a routine cycle for each satellite battery, with each well being tested approximately once every two months. During this cycle, each production well is diverted to the well test equipment for a period of time sufficient to measure and sample produced fluids (generally 8-12 hours). This test allows Perdure to allocate a portion of the produced fluids measured at the satellite battery to each production well, assess the composition of produced fluids by location, and assess the performance of each well. Performance data are reviewed on a routine basis to ensure that $CO_2$ flooding is optimized. If production is off plan, it is investigated and any identified issues addressed. Leakage to the outside of production wells is not considered a major risk because of the reduced pressure in the casing. Also, personal $H_2S$ monitors are designed to detect leaked $H_2S$ around production wells.

Field inspections are conducted on a routine basis by field personnel. On any day, Perdure has approximately 32 personnel in the field in the NBU, as of January 2020. Leaking $CO_2$ is very cold and leads to formation of bright white clouds or dry ice, either of which is easily spotted. All field personnel are trained to identify leaking $CO_2$ and other potential problems at wellbores and in the field. Any $CO_2$ leakage detected will be documented and reported, quantified and addressed as described in Section 5.

Continual and routine monitoring of well bores and site operations will be used to detect leaks, as further described in Section 6.1. Based on these activities, Perdure will mitigate the risk of $CO_2$ leakage through existing well bores by detecting problems as they arise and quantifying any leakage that does occur. Section 5 summarizes how $CO_2$ leakage from various pathways will be monitored and responded to. Section 6 describes how any such leakages will be input into the mass-balance equation.

## 4.2. Faults and Fractures

Other than as described in Section 2.3 above, there are no known faults or fractures in the reservoir that provide a potential pathway for upward fluid flow. Locations where oil and natural gas have been trapped in the deep subsurface provide positive proof that faults and fractures do not provide a potential pathway for upward flow of injected $CO_2$ from the reservoir. As described in Section 2.3, the reservoir is characterized by east-west fracturing, which results in a preferential east-west movement of injected fluids. This fact led to early adjustments of the waterflood in the 1950s, and all flooding operations since that time. The waterflood and the $CO_2$-EOR operations in the NBU is generally developed by injecting water/$CO_2$ in east-west rows of wells and producing alternate rows of wells. Water curtain injection (WCI) described in Section 2.3 is the historic method used for decades during the waterflood in the NBU to address the flow of fluids within and external to the NBU unit boundaries, and continues to be used during the $CO_2$-EOR flood operations. Other than as described above, there is no evidence of any interaction with existing or new faults or fractures.

Perdure has extensive experience in designing, implementing and operating EOR projects to ensure that injection pressures will not damage the oil reservoir by inducing new fractures or creating shear. Injection pressures are monitored so that injection pressures will not exceed fracture pressures, even if injection well permits authorize injection pressures that exceed fracture pressures.

## 4.3. Natural and Induced Seismic Activity

There is no direct evidence that natural seismic activity poses a significant risk for loss of $CO_2$ to the surface in the NBU.

Determining whether seismic activity is induced, or triggered by human activity, is difficult. In the past 10-15 years, north central Oklahoma has experienced a significant increase in earthquakes. This increase is depicted in Figure 13 (on page 22), which show the earthquake densities in Oklahoma prior to 2009, and then again from 2009-2018. Osage County is outlined in blue, and there are very few if any of these recent earthquakes in Osage County.

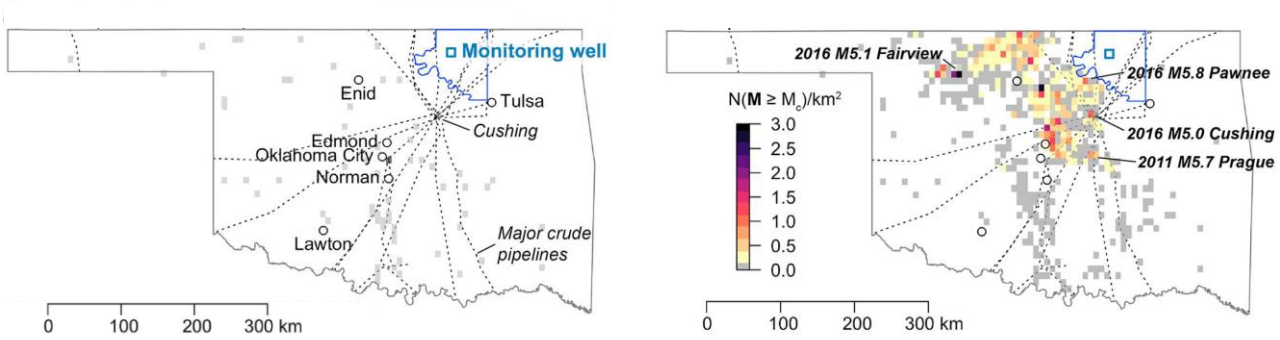



**Figure 13 – Oklahoma Earthquake Densities: Prior to 2009 (left) and 2009 – 2018 (right)[22]**

Over the past 10-15 years, the Cherokee Platform in north central Oklahoma was targeted by many oil and gas companies for horizontal shale oil drilling. Many of these production wells, including those from the Mississippi Limestone formation, yielded significant volumes of saltwater along with the hydrocarbons, and the produced saltwater was commonly disposed of into deeper formations such as those in the Arbuckle Group. Injection of this produced saltwater into the Arbuckle, which directly overlies crystalline basement rock in areas outside the NBU, has been proposed to perturb the stresses on basement faults, causing them to slip and contributing to at least some increased density of earthquakes. "The majority of the observed earthquakes [from 2009 to 2016] were traced to the crystalline basement."[23]

However, Osage County has a much different experience to report:

> "An Oklahoma seismicity map shows Osage County as an anomalously "quiet" region. Seismicity in counties surrounding Osage County experienced hundreds of earthquakes during the past couple of years, yet the area of Osage experienced less than a dozen earthquakes in the decades-long history of the Oklahoma seismic network."[24]

In a recent study focused on the injection of produced saltwater in Osage County into the Arbuckle formation, the study agreed that Osage County is a "seismically quiet location with a high density of active disposal wells".[25] The study also demonstrates that the Arbuckle is more thick on the western edge of Osage County where the NBU unit boundary is located, and is less thick both to the east and to the west of the western edge of Osage County,[26] indicating that western Osage County (and the NBU area) has a lower seismic risk than the surrounding area related to injection into the Arbuckle.

In some instances of induced seismic activity in Oklahoma over the past 15 years, the water was injected into a saline aquifer formation immediately above or very near the basement rock. However, as a recent study noted, the details of how the Arbuckle contacts with the Precambrian basement rock tends to vary spatially.[27]

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[22] Barbour (2019).
[23] Kibikas (2019).
[24] Crain (2017).
[25] Barbour (2019).
[26] Barbour (2019).
[27] Barbour (2019).

Documented instances of induced seismicity have not been reported within the NBU boundary. A primary reason is demonstrated in Figure 4 (on page 6), which shows that the reservoir into which the water (and now $CO_2$) is approximately 3,000 feet deep, but the basement granite is located half again as deep, at approximately 4,400 feet. The reservoir into which the $CO_2$ is injected (the Burbank) is well above the basement rock. During the specified period, Perdure's injection of $CO_2$ into the reservoir within the NBU unit boundary will not involve injection into a formation immediately above or near the basement rock.

Perdure is injecting $CO_2$ into the Burbank reservoir, which is shallower than the deeper Arbuckle formation. Perdure is not injecting $CO_2$ into the Arbuckle formation. The injection of $CO_2$ by Perdure into the reservoir within the NBU is not only for EOR purposes but also for the additional purpose of maintaining pressures in the reservoir as other fluids are produced from the reservoir. This is a very different operation than injecting produced water to constantly increase pore pressure.

Controlled high pressure injection of water into the reservoir has been ongoing since 1949 without any documented instances of induced seismicity. This history of over 70 years of injection into the reservoir tends to demonstrate the low seismic risk associated with reservoir operations.

Since 2014, the State of Oklahoma's Coordinating Council on Seismic Activity (CCSA) has organized state resources and other activities related to increased seismic activity in the State, and provides collaboration among interested stakeholders including industry, regulators, academia, non-governmental organizations, and environmental-focused associations. The CCSA shares data, studies, developments, and proposed actions related to earthquakes in Oklahoma. The State of Oklahoma maintains one of the nation's most robust seismic monitoring systems, and that system (along with actions taken by regulators and industry participants) has resulted in a dramatic decrease in the incidence of significant earthquakes in Oklahoma. This is shown in four separate figures in Section 12.4, showing the increase and then the decrease in the number of significant earthquakes in the geographic area around and including the NBU. This trend of induced seismic activity demonstrates that actions taken in recent years have significantly reduced the risk of earthquakes caused by injection of produced water into the Arbuckle formation – none of which involves the NBU unit boundary geographic area, and none of which involves the reservoir which is approximately 1,400 less deep compared to the Arbuckle formation.

Section 12.4 demonstrates that, since 1980, the nearest earthquake to the NBU was south of White Eagle, Oklahoma, approximately 25 miles from the NBU. The nearest large earthquake was in Pawnee, Oklahoma in 2016, which is nearly 35 miles away from the NBU. Perdure is not aware of any reported loss of $CO_2$ or water to the surface in the NBU associated with any seismic activity.

A concern about induced seismicity is that it could lead to fractures in the seal, providing a pathway for $CO_2$ leakage to the surface. However, the subject wells injecting produced wastewater into the Arbuckle formation are injecting fluids at approximately 3,500 feet deep, which is about 500 feet lower than the reservoir in the NBU that contains the injected $CO_2$. Moreover, there have been no reports of loss of injectant (wastewater or $CO_2$) to the surface associated with any seismic activity.

Therefore, there is no direct evidence to suggest that natural seismic activity poses a significant risk for loss of $CO_2$ to the surface from the NBU. If induced seismicity resulted in a pathway for material amounts of $CO_2$ to migrate from the injection zone, then other reservoir fluid monitoring methods (such as reservoir pressure, well pressure and pattern monitoring) would lead to further investigation.

## 4.4. Prior Operations

In 2013, $CO_2$ flooding began in the NBU. Perdure and prior operators have maintained records of the NBU, including active and abandoned wells. Perdure's standard practice in drilling new wells includes a review of records to ensure that drilling will not cause damage to any nearby active or abandoned well. AOR requirements include identification of all active and abandoned wells in the AOR, and implementation of procedures to ensure integrity of active wells. Perdure and prior operators have checked for the presence of old, unknown wells throughout the NBU over many decades. These practices ensure that identified wells are sufficiently isolated and do not interfere with the $CO_2$ injection, enhanced oil recovery, and reservoir pressure maintenance operations. This operational experience supports the conclusions that there are no unknown wells within the NBU and that the risk of migration from older wells has been sufficiently mitigated. To Perdure's knowledge, no prior operations have impaired the $CO_2$ injection confining zone.

## 4.5. Pipeline and Surface Equipment

Leakage of $CO_2$ through pipelines and surface equipment in the NBU is a potential risk. The risk of unplanned losses of $CO_2$, including damage to or failure of pipelines and surface equipment, is reduced to the maximum extent practicable through the use of prevailing design and construction practices, routine maintenance, periodic inspection procedures as well as maintaining compliance with applicable regulations. The facilities and pipelines currently utilize and will continue to utilize materials of construction and control processes that are standard for $CO_2$-EOR projects in the oil and gas industry. Operating and maintenance practices currently follow and will continue to follow demonstrated industry standards. In addition, Perdure's field operations include frequent routine visual inspection of surface facilities, which will provide an additional way to detect leaks and further support Perdure's efforts to detect and remedy any leaks in a timely manner. Finally, amounts of $CO_2$ lost through this potential leakage pathway will be determined by: (a) following the Subpart W Methodology Approach described in Section 5.5 below; (b) using direct metering to measure specific venting events, and (c) using engineering best practices to estimate a loss in the rare event of an extreme event.

## 4.6. Lateral Migration

There is a potential risk of injected $CO_2$ in the NBU migrating in the reservoir to an area outside the unit boundary of the NBU. However, as described in Section 2.4, the NBU waterflood design was adjusted in the 1950s to account for a preferential east-west movement of injected fluid in the reservoir. For many decades, the injection pattern in the NBU has been a north-south elongated 5-spot 20-acre pattern on alternating east-west rows. Currently, the $CO_2$-EOR area of the NBU is operated on 5-spot 40-acre injection patterns, with alternating east-west rows of injectors and producers. This operations method has successfully maintained injected water and $CO_2$ in the reservoir within the NBU unit boundary. Because Perdure has no intentions of changing this operational injection pattern, this risk of lateral migration is significantly reduced.

Water curtain injection (WCI) methods are also deployed during $CO_2$-EOR operations to prevent $CO_2$ lateral migration out of the unit boundary. As described in Section 2.3, continuous WCI operations are conducted at the NBU unit boundaries to create a pressure barrier to contain injected fluids within the NBU. WCI operations efficiently and effectively maintain and control lateral migration of fluids to assure that the $CO_2$ does not cross NBU unit boundaries. $CO_2$ injection and production operations are conducted based on lessons learned from prior operations and provide added measures of protection against any potential leakage of $CO_2$ from the reservoir. An earlier operator's over production of the western water curtain, described in Section 3.1, demonstrates the importance of managing WCI

operations in the NBU. Upon assuming ownership of the NBU in 2017, Perdure modified the $CO_2$ injection and production operations to prevent over production of the water curtain on the NBU's western edge, which is downdip in the reservoir. Due to Perdure's WCI operations at the NBU unit boundaries, injected fluids (including $CO_2$) are maintained in the reservoir within the NBU unit boundary and do not move to adjacent areas, much like how operations were successfully conducted during decades of the waterflood (1950s-2013). As a result, it is unlikely that injected $CO_2$ will migrate downdip and laterally outside the NBU because of the nature of the geology and Perdure's approach used for injection. Should such leakage occur, Perdure plans to determine the most appropriate methods for quantifying the volume leaked, which would likely include measured or engineering estimates of relevant parameters (e.g. $CO_2$ flow rate, concentration, duration), and will report it as required as part of the annual Subpart RR submission.

## 4.7. Drilling Through the $CO_2$ Area

There is a risk, albeit small, that future drilling through the Burbank formation could occur and inadvertently create a leakage pathway. However, the risk is very low because of regulatory requirements, routine inspections, and operational drivers. EPA UIC regulations regarding Class II injection wells require that any fluids be contained in strata in which they are encountered.[28] In addition, Perdure's visual inspection process is designed to identify unapproved drilling activity in the NBU, especially where Perdure owns substantial portions of the surface estate. Finally, Perdure plans to conduct $CO_2$-EOR operations in the NBU for decades and inherently has a commercial interested in protecting the integrity of its assets and maximizing resources.

## 4.8. Diffuse Leakage Through the Seal

In the NBU, for $CO_2$ injected into the reservoir, the natural seal is the Pink Limestone member of the Cherokee formation. Diffuse leakage of the injected $CO_2$ through the seal is highly unlikely and improbable.

The seal is composed of several feet of salt, shale and tight carbonate. The seal is highly impermeable where unperforated, and the seal is cemented across in any horizons where the seal is perforated by wells. If $CO_2$ were to migrate through the seal, it would be encountered and trapped by the secondary seal which is the Oswego Limestone member of the Marmaton formation, or any of the additional shallower seals indicated in brown in Figure 4 (on page 6).

Oil and gas production in the NBU from the reservoir also confirms the successful trapping of fluids by the seal over geologic time. The natural seal is the reason the reservoir exists in the first place. Additional pressure monitoring and geo-mechanical modeling of the seal in the NBU also confirms the efficiency and integrity of the confining system.

In addition, each $CO_2$ injection well is assigned a maximum surface injection pressure by the EPA. This limitation is imposed as part of the EPA UIC permitting process and has the purpose of ensuring that the reservoir fracture pressure is not exceeded.

Additionally, geo-mechanical analyses were conducted using wireline logs and core tests for certain wells in the NBU. Analytical techniques were used to estimate changes in minimum horizontal stress, $\sigma h$, caused by changes in pressure and temperature during $CO_2$ injection, and to determine whether the stress state compromises the ability of the reservoir for safe and effective $CO_2$ storage. It was found

[28] 40 CFR § 146.22(b)(1).

that fracturing of the reservoir or caprock is not likely, as long as the injection pressure is maintained below the EPA UIC permit pressure limit.

# 5. Monitoring

## 5.1. Monitoring Generally

As part of its ongoing operations, Perdure monitors and collects flow, pressure, temperature, and gas composition data from wells and facilities in the NBU, and stores that information in the company's data management system. Some information is collected electronically by equipment connected to a supervisory control and data acquisition (SCADA) system, while other information is collected manually by operations personnel physically present at the well or facility. Meters are used throughout the NBU for measurement purposes. However, accuracy of meters – even though installed, operated, maintained and calibrated according to industry standards – are inherently suspect due to variances between meters, such as factor settings, meter calibrations, operation conditions, elevation differences, changes in temperature during a day, pressure changes over short time periods, and fluid composition differences (especially in multi-component or multi-phase flows). The NBU includes 439 active completed injection and production wells, and a comparable number of meters, each with an acceptable range of error. This is a site-specific factor that is considered in the mass balance calculations described in Section 7.

Leakage detection for the NBU facilities includes visual inspection of wellheads and surface facilities, injection well monitoring, and Mechanical Integrity Tests (MIT). Some of the potential leakage pathways include surface equipment and wells. Detection monitoring program techniques include visual inspections, pipeline inspections, gas alarms, personal $H_2S$ monitors, and MITs. Areas that are monitored for such leaks include the area from the injection flow meter to the injection wellhead, and from that wellhead to the injection formation. Detection of $CO_2$ from these potential leakage pathways are described in Section 5.2 through Section 5.5 below. While faults, fractures, formation seal and lateral migration could be additional leakage pathways, the likelihood of such leaks are highly improbable, as described in more detail in Sections 4.2, 4.6, and 4.8 above.

## 5.2. $CO_2$ Received

The amount of $CO_2$ received will be calculated using one or more custody-transfer meters at the point at which custody of the $CO_2$ is transferred to the NBU. Currently, the sole source of $CO_2$ received by the NBU is $CO_2$ from the Coffeyville $CO_2$ Pipeline. These custody transfers are commercial transactions that are documented. $CO_2$ composition is governed by the contract, and the $CO_2$ is periodically sampled to determine composition. Perdure uses flowmeters for measurements at custody transfer locations, and these flowmeters measure flow rate continually. Any additional $CO_2$ received into the NBU would be measured using similar flowmeters. No $CO_2$ is currently received in containers.

## 5.3. $CO_2$ Injected

The amount of injected $CO_2$ is calculated using the flow meter volumes at the operations meters at the outlet of the numerous compressors at the RCF, and each of the meters at each $CO_2$ off-take point from a $CO_2$ source (currently there is only one such off-take point, the Coffeyville $CO_2$ Pipeline).

## 5.4. $CO_2$ Produced, Entrained and Recycled

$CO_2$ produced is calculated using flowmeters at the production satellites and any flowmeters at the inlet of the RCF. For purposes of reporting under Subpart RR, Perdure will measure the mass of $CO_2$

produced through these volumetric flowmeters. For any new production facilities that may be added in the NBU (as indicated in Section 2.5.4), the mass of $CO_2$ produced would similarly be measured using one or more volumetric flowmeters.

$CO_2$ is produced as entrained (or dissolved) $CO_2$ in produced oil. As the oil passes through low-pressure separation to a gathering tank, a small amount of the $CO_2$ is released. The mass of this amount of $CO_2$ will be determined as described in Section 7.3 below.

Recycled $CO_2$ is calculated as $CO_2$ that is produced from the NBU, recaptured, and reinjected into the NBU. Recycled $CO_2$ is calculated using the flowmeters on the downstream side of the RCF.

## 5.5. $CO_2$ Emitted by Surface Leakage

Perdure uses an event-driven process to assess, address, track and (if applicable) quantify potential $CO_2$ leakage to the surface. The multi-layered, risk-based monitoring program for event-driven incidents has been designed to meet two objectives, in accordance with the leakage risk assessment in Section 4: (1) to detect problems before $CO_2$ leaks to the surface; and (2) to detect and quantify any leaks that do occur. Section 5.5.1 through Section 5.5.3 (below) discuss how this monitoring will be conducted and used to quantify the volumes of $CO_2$ leaked to the surface.

The emissions from the field associated with the NBU have historically not met or exceeded the Subpart W reporting threshold. Because Perdure believes this historical trend will continue, Perdure does not anticipate reporting under Subpart W for the field associated with the NBU. In the event emissions from the field associated with the NBU trigger a reporting requirement under Subpart W, Perdure will comply with Subpart W regulations. For purposes of this MRV Plan, certain Subpart W methodologies will be utilized for certain emission calculations regardless of whether Subpart W reporting is required by regulation. We call this the Subpart W Methodology Approach, which is referenced throughout this MRV Plan. Perdure will reconcile any results of the Subpart W Methodology Approach[29] and results from any event-driven quantification to assure that surface leaks are not counted multiple times.

### *5.5.1. Monitoring for Potential Leakage from the Injection/Production Zone*

Perdure monitors both injection into, and production from, the reservoir as a means of early identification of potential anomalies that could indicate leakage of $CO_2$ from the subsurface. The following surface data is routinely tracked and reported on a daily basis: injection rate (barrels of water, MCF of $CO_2$), production rates (barrels of oil, barrels of water, MCF of $CO_2$), tubing pressure (psig), casing pressure (psig), wellhead temperature (°F), and runtime (hours). At certain locations, instruments exist that collect data more frequently, but most if not all of that information is reduced to daily totals or averages which is a standard and custom in the oil and gas industry. The collected information is used

[29] As part of the Subpart W Methodology Approach, certain monitoring and QA/QC procedures specified in Subpart W will be used to estimate surface leaks from equipment in the NBU. Subpart W uses a factor-driven approach to estimate equipment leakage. Perdure evaluates and estimates leaks from equipment, the $CO_2$ content of produced oil, and vented $CO_2$ – including for $CO_2$ emitted from equipment leaks and vented emissions of $CO_2$ from surface equipment located between (a) the injection flowmeter and the injection wellhead, and (b) the production flowmeter and the production wellhead. See Section 7.5 below.

primarily for operational oversight and monitoring of $CO_2$-EOR projects, but it is intended that this data also be used to determine when additional investigation is warranted of any potential $CO_2$ leakage.

Perdure uses reservoir modeling based on extensive history-matched data, as well as permit conditions and operational performance of $CO_2$-EOR operations by the prior operator and by Perdure, to develop daily and/or monthly injection rates, pressures, and volumes for each injection well. If injection pressure or rate measurements exceed specified set points determined as part of each pattern injection plan, then a flag is automatically generated, and operations personnel will investigate and resolve the matter. These anomalies are reviewed by operations personnel, and may include engineering personnel, to determine if $CO_2$ leakage is occurring. These kinds of anomalies are not necessarily indicators of leaks. Instead, they may simply indicate that injection rates and pressures are not conforming to the pattern injection plan. In many cases, flagged conditions present problems are straightforward to remedy, such as recalibration of a meter or some other minor action, and there is no threat of $CO_2$ leakage. If the issue is not readily resolved, a more detailed investigation is initiated, and additional Perdure personnel and perhaps industry support would provide additional assistance and evaluation. If a leak occurs, Perdure would quantify its magnitude.

In addition to developing daily and/or monthly injection plans, Perdure also uses collected data to forecast production volumes of oil, water and $CO_2$, both as to produced volumes and composition. Production wells are assigned to a satellite test facility and are isolated once every quarter for a daily well production test. Such tests are conducted more frequently if overall production or individual well pressure data call for it, or if fewer production wells are assigned to a particular satellite test facility. Production and test data is reviewed on a periodic basis. If there is a significant deviation from past performance or forecast, then operations and engineering personnel will investigate the matter further. If the cause of the deviation cannot be resolved or understood quickly, then a more thorough investigation would be initiated. If a leak to the surface occurs, Perdure would quantify its magnitude.

If leakage in the reservoir or flood zone were detected, Perdure would deploy methods to quantify the volume of $CO_2$ involved. One possible method could be the use of material balance equations based on known injected quantities, and monitored pressures in the reservoir, to estimate the magnitude of the $CO_2$ involved.

If there is a subsurface leak of $CO_2$, it might not lead to a surface leak of $CO_2$. In the event of a subsurface $CO_2$ leak, Perdure would select an appropriate approach for tracking subsurface leakage to determine and quantify $CO_2$ leakage to the surface. To quantify $CO_2$ leakage to the surface, an estimate of the relevant parameters would be deployed, including the rate, concentration, and duration of the leakage. Depending on specific circumstances, these determinations may rely on engineering estimates.

In the event leakage from the subsurface occurred diffusely through the seals up to the surface, then the leaked gas would include $H_2S$, which would trigger the alarm on the personal monitors worn by field personnel. In the event such a leak was detected, operations and engineering personnel would determine how to address the problem. The team might use modeling, engineering estimates and direct measurements to quantify the leakage and otherwise address the matter.

### *5.5.2. Monitoring of Wellbores*

Perdure monitors wells through continual, automated pressure monitoring in the injection zone (as described in Section 4.1), monitoring of the annular pressure in wellheads, and routine maintenance and inspection. In the event a wellbore does not sufficiently satisfy a mechanical integrity test (MIT) then

the wellbore is shut-in until a satisfactory repair in implemented such as a workover. When the repair is made, another MIT is performed and upon satisfying that test, operations on the wellbore are resumed upon receipt of any necessary regulatory approval to re-establish operations again.

Leaks from wellbores would be detected through the follow-up investigation of pressure anomalies, visual inspection, or the use of personal $H_2S$ monitors.

Anomalies in injection zone pressure may not indicate a leak, as discussed in Section 5.5.1 above. However, if an investigation is initiated, Perdure personnel and perhaps industry support would inspect the equipment in question and determine the nature of the problem. If it is a simple matter, the repair would be accomplished, and the volume of leaked $CO_2$ would be included in the Subpart W Methodology Approach. If a more extensive repair is needed, then Perdure would determine the appropriate approach for quantifying leaked $CO_2$ using the relevant parameters (e.g., the rate, concentration, and duration of leakage).

Anomalies in annular pressure or other issues detected during routine maintenance inspections would be treated in a very similar manner. The equipment in question would be inspected for the purpose of determining the nature of the problem. For simple matters, the repair would be made at the time of inspection and the volume of leaked $CO_2$ would be included in the Subpart W Methodology Approach. If a more extensive repair is needed, then Perdure would determine the appropriate approach for quantifying leaked $CO_2$ using the relevant parameters (e.g., the rate, concentration, and duration of leakage). One approach that would be considered is to prorate the most recently daily volume of $CO_2$ involved, compared against the number of hours $CO_2$ leaked from the system.

Because leaking $CO_2$ at the surface is very cold and leads to formation of bright white clouds and ice that are easily spotted, Perdure also employs a visual inspection process in the general area of the NBU to detect unexpected releases from wellbores. One aspect of the visual inspection process is that operations personnel visit NBU surface facilities on a routine basis. Such inspections may include tank volumes, equipment status and reliability, lube oil levels, pressures and flow rates in the facility, valve leaks, checking that injectors are on the proper WAG schedule and observing the facility for visible $CO_2$ or fluid line leaks. In the event a repair is necessary, the time to repair any leak is dependent on several factors, such as the severity of the leak, available manpower, location of the leak, and availability of materials required for the repair. Critical leaks are acted upon immediately.

In addition, Perdure uses data collected by $H_2S$ monitors which are worn by all field personnel as a last method to detect leakage from wellbores. The $H_2S$ monitors' detection limit is 10 ppm. If an $H_2S$ alarm is triggered, the first response is to protect the safety of the personnel, and the next step is to safely investigate the source of the alarm. As noted previously, Perdure considers $H_2S$ as a proxy for potential $CO_2$ leaks in the field. As a result, detected $H_2S$ leaks will be investigated to determine and, if needed, quantify potential $CO_2$ leakage.

### *5.5.3. Other Potential Leakage at the Surface*

Perdure will utilize the same visual inspection process and $H_2S$ monitoring system to detect other potential leakage at the surface as it does for leakage from wellbores. Perdure utilizes routine visual inspections to detect significant loss of $CO_2$ to the surface. Operations personnel routinely visit surface facilities to conduct a visual inspection. Inspections may include review of tank levels, equipment status, lube oil levels, pressures and flow rates in the facility, valve leaks, ensuring that injectors are on the proper WAG schedule, and conducting a general observation of the facility for visible $CO_2$ or fluid line

leaks. If a problem is detected, operations personnel would investigate and, if maintenance is required, perform the maintenance or supervise a work crew to perform the maintenance. In addition to the visual inspections, the results of the personal $H_2S$ monitors worn by operations personnel will be a supplement for smaller leaks that may escape visual detection. If $CO_2$ leakage to the surface is detected, it will be reported to an operations personnel supervisor who will review the report and conduct a site investigation. If maintenance is required, operations personnel will perform the maintenance or supervise a work crew to perform the maintenance. The amount of any $CO_2$ leakage would be quantified.

## 5.6. Metering

Perdure follows industry standard metering protocols for custody transfers, such as those standards for accuracy and calibration issued by the API, the American Gas Association (AGA), and the Gas Processors Association (GPA), as appropriate. This approach is consistent with Section 98.444(e)(3). These meters are maintained routinely, operated continually, and will feed data directly to the centralized data collection systems. $CO_2$ composition is governed by contract and the $CO_2$ is routinely and periodically sampled to determine average composition. These custody meters provide an accurate method of measuring mass flow.

In addition to custody transfer meters, various process control meters are used in the NBU to monitor and manage in-field activities, many times on a real-time basis. These operations meters provide information used to make operational decisions but are not intended to provide the same level of accuracy as the custody-transfer meters. The level of precision and accuracy for operational meters currently satisfies the requirements for reporting in existing UIC permits. Although these meters are accurate for operational purposes, it is important to note that there is some variance between most commercial meters (on the order of 1-5%) which is additive across meters. This variance is due to differences in factory settings and meter calibration, as well as the operating conditions within the NBU or any given field. Meter elevation, changes in temperature (over the course of the day), fluid composition (especially in multi-component or multi-phase streams), and pressure can affect readings of these operational meters. Unlike some $CO_2$ injection operations where there are likely to be only a few injection wells and associated meters, the $CO_2$-EOR operations in the NBU as of January 2020 involves 451 active completed wells and a comparable number of meters, each with an acceptable range of error. This is a site-specific factor that is considered in the mass balance calculations described in Section 7.

## 5.7. Leakage Verification

If there is a report or indication of a $CO_2$ leak, such as from a visual inspection, monitor, or pressure drop, a Perdure employee or supervisor will be dispatched to investigate the leak. Emergency shutdown systems will be utilized as necessary to isolate the leak. If the leak cannot be located without movement of equipment or other substantial work, further involvement of Perdure personnel or management will be involved to make a determination regarding how the leak will be located. Once the leak is located and isolated, pressure from the system will be relieved so that further investigation of the leak area can be performed, and repair work can be estimated and ultimately performed.

## 5.8. Leakage Quantification

Leakage of $CO_2$ on the surface will be estimated once leakage has been detected and confirmed. Leakage quantification will consist of a methodology selected by Perdure. Leakage estimating methods

may potentially consist of modeling or engineering estimates based on operating conditions at the time of the leak, such as temperatures, pressures, volumes and hole size.

### 5.9. Demonstration at End of Specified Period

At the end of the Specified Period, Perdure intends to cease injecting $CO_2$ for the subsidiary or ancillary purpose of establishing the long-term storage of $CO_2$ in the NBU. After the end of the Specified Period, Perdure anticipates that it will submit a request to discontinue monitoring and reporting. The request will demonstrate that the amount of $CO_2$ reported under Subpart RR "is not expected to migrate in the future in a manner likely to result in surface leakage".[30]

At that time, Perdure will be able to support its request with years of data collected during the Specified Period as well as one to three (or more, if needed) years of data collected after the end of the Specified Period. This demonstration will provide the information necessary for the EPA Administrator to approve the request to discontinue monitoring and reporting. This demonstration may include, but is not limited to:

1) An assessment of $CO_2$ injection data for the NBU, including the total volume of $CO_2$ injected and stored as well as actual surface injection pressures;
2) An assessment of any $CO_2$ leakage detected, including discussion of the estimated amount of $CO_2$ leaked and the distribution of emissions by leakage pathway; and
3) An assessment of reservoir pressure in the NBU that demonstrates that the reservoir pressure is stable enough to demonstrate that the injected $CO_2$ is not expected to migrate in a manner to create a potential leakage pathway.

## 6. Determination of Baselines for Monitoring $CO_2$ Surface Leakage

Perdure intends to use the results of daily monitoring of field conditions, operational data (including automatic data systems), routine testing, and maintenance information to identify and investigate excursions from expected performance that could indicate $CO_2$ leakage, and to otherwise monitor for surface leakage. In the event any of those results identify an issue where a $CO_2$ leak has occurred, the event will be documented, and an estimate will be made of the amount of $CO_2$ leaked. The event and estimate will be included in the annual RR reporting. Records of each event will be kept on file for a minimum of 3 years. The methods that Perdure intends to use include the following:

### 6.1. Data System.

Perdure uses onsite management and SCADA data to conduct its $CO_2$-EOR operations. Perdure uses data from these efforts to identify and investigate variances from expected performance that could indicate $CO_2$ leakage. Some $CO_2$ meters are installed with SCADA systems, that transmit data from the meters automatically into a data warehouse. That data, as well as other operational data collected manually, is also used for operational management and controls.

### 6.2. Visual Inspections.

Perdure's field personnel conduct routine weekly if not daily inspections of the NBU facilities, wells and other equipment (such as vessels, piping, and valves). These visual inspections provide an opportunity to identify issues early and to address them proactively, which may preclude leaks from happening

[30] Section 98.441.

and/or minimize any $CO_2$ leakage. Any visual identification of $CO_2$ vapor emission or ice formation will be reported and documented, and a plan will be developed and executed to correct the issue.

## 6.3. Personal $H_2S$ Monitors.

All field personnel are required to wear $H_2S$ monitors which, when alarmed at 10 ppm, trigger an immediate response to make sure that personnel are not at risk (and to verify that the monitor is working properly). Any alarm of an $H_2S$ monitor will indicate a release of $CO_2$, which will be reported and documented, and a plan will be developed and executed to correct the issue.

## 6.4. Injection Target Rates and Pressures.

Perdure manages its $CO_2$-EOR operations by developing and implementing target injection rates and pressures for each $CO_2$ injection well. These target rates and pressures are developed based on various parameters such as historic and ongoing pattern development, WAG operations, $CO_2$ availability, field performance, and permit conditions. Field personnel implement the WAG schedule by manually making choke adjustments at each injection well, allowing for a physical inspection as described in Section 6.2 of the injection well during each adjustment. Typically on a daily basis, injection rates for each $CO_2$ injection well are reported and compared to the target rates. Injection pressures and casing pressures are monitored using SCADA equipment on each $CO_2$ injection well. Injection rates or pressures falling outside of the target rates or pressures to a statistically significant degree are screened to determine if they could lead to $CO_2$ leakage to the surface. If that screening or investigation identifies any indication of a $CO_2$ leakage to the surface in this manner, it will be reported and documented, and a plan will be developed and executed to correct the issue.

## 6.5. Production Wells.

Perdure forecasts the amount of fluids (e.g. oil, water, $CO_2$) that is likely to be produced from each production well in the NBU over various periods of time. Evaluation of these produced volumes, along with other data, informs operational decisions regarding management of the $CO_2$-EOR project, and aid in identifying possible issues that may involve $CO_2$ leakage. These evaluations can direct engineering and/or operational personnel to investigate matters further. If that investigation identifies that a $CO_2$ leak has occurred, it will be reported and documented, and a plan will be developed and executed to correct the issue.

## 6.6. Continuous Plant and Pipeline Monitoring.

Perdure currently owns and operates the sole $CO_2$ supply for the NBU, including the associated $CO_2$ capture, compression and dehydration facility and the $CO_2$ pipeline. The facility includes a monitoring program that monitors the rates and pressures at the facility and on the pipeline on a continuous basis. High and low set points are established in the program, and operators at the plant, pipeline and/or NBU are alerted if a parameter is outside the allowable window. If the flagged parameter is the delivery point on the pipeline, but no other parameter at the plant or pipeline is flagged, then the NBU field personnel are alerted so that further investigation can be conducted in the field to determine if the issue poses a leak threat.

## 6.7. Well Testing.

On a periodic (and in many instances an annual) basis, the NBU injection wells are leak tested for Mechanical Integrity Testing (MIT) as required by the EPA. This consists of regular monitoring of the tubing-casing annular pressure, and conducting a test that pressures up the well and wellhead to verify the well and wellhead can hold the appropriate amount of pressure. Perdure personnel monitor the

pressure, and conduct the tests, in accordance with regulations and permit requirements. In the event of a loss of mechanical integrity, the subject injection well is immediately shut-in and an investigation is initiated to determine what caused the loss of mechanical integrity. If investigation of an event identifies that a $CO_2$ leak has occurred, it will be reported and documented, and a plan will be developed and executed to correct the issue.

# 7. Determination of $CO_2$ Volumes Stored Using Mass Balance Equations

The locations for obtaining volume data for the equations in Section 98.443 are proposed to be modified. The following subsections describe how Perdure will calculate the mass of $CO_2$ injected, emitted, and stored in the NBU.

## 7.1. Mass of $CO_2$ Received

Equation RR-2 will be used to calculate the mass of $CO_2$ received from each delivery point at the NBU ("Mass of $CO_2$ Received"). The volumetric flow at standard conditions will be multiplied by the $CO_2$ concentration and the density of the $CO_2$ at standard conditions to determine mass.

$$\mathrm{CO}_{2T,r} = \sum_{p=1}^{4} \left(Q_{r,p} - S_{r,p}\right) * D * C_{CO_2,p,r} \qquad \text{(Equation RR} - 2\text{)}$$

where:

| | |
|---|---|
| $CO_{2T,r}$ = | Net annual mass of $CO_2$ received through flow meter r (metric tons) |
| $Q_{r,p}$ = | Quarterly volumetric flow through a receiving flow meter r in quarter p at standard conditions (standard cubic meters) |
| $S_{r,p}$ = | Quarterly volumetric flow through a receiving flow meter r that is redelivered to another facility without being injected into a NBU well in quarter *p* (standard cubic meters) |
| D = | Density of $CO_2$ at standard conditions (metric tons per standard cubic meter): 0.0018682 |
| $C_{CO_2,p,r}$ = | Quarterly $CO_2$ concentration measurement in flow for flow meter r in quarter p (vol. percent $CO_2$, expressed as a decimal fraction) |
| *p* = | Quarter of the year |
| *r* = | Receiving flow meter(s) |

All delivery of $CO_2$ to the NBU is currently used within the NBU and not redelivered outside of the NBU, so quarterly flow redelivered, $S_{r,p}$, will be reported as zero ("0") during the time period of that operation. Quarterly $CO_2$ concentration measurement, $C_{CO_2,p,r}$, will be taken.

Equation RR-3 will be used to sum to total Mass of $CO_2$ Received.

$$CO_{2,RE} = \sum_{r=1}^{R} CO_{2T,r} \qquad \text{(Equation RR} - 3\text{)}$$

where:

$CO_{2,RE}$ = Total net annual mass of $CO_2$ received (metric tons)

$CO_{2T,r}$ = Net annual mass of $CO_2$ received (metric tons) as calculated in Equation RR-2 for flow meter r

*r* = Receiving flow meter(s)

## 7.2. Mass of $CO_2$ Injected into the Subsurface

The Mass of $CO_2$ Injected into the Subsurface in the NBU will be determined by Equation RR-6 as modified to be the sum of (1) the Mass of $CO_2$ Recycled as described below and (2) the Mass of $CO_2$ Received as determined in Section 7.1 above.

Equation RR-5 will be used to calculate the Mass of $CO_2$ Recycled using measurements taken from the volumetric flow meter(s) located on the downstream side of the RCF. Using data from these meters will be more accurate than using data at each injection well, because the latter would give an inaccurate estimate of total injection volume due to the large number of injection wells and the potential for propagation of error due to allowable calibration ranges for each meter. The Mass of $CO_2$ Recycled is determined as follows:

$$CO_{2,u} = \sum_{p=1}^{4} Q_{p,u} * D * C_{CO_2,p,r} \qquad \text{(Equation RR} - 5\text{)}$$

where:

$CO_{2,u}$ = Annual $CO_2$ mass injected as measured by flow meter(s) u (metric tons)

$Q_{p,u}$ = Quarterly volumetric flow rate measurement for flow meter(s) u in quarter p at standard conditions (standard cubic meters per quarter)

D = Density of $CO_2$ at standard conditions (metric tons per standard cubic meter): 0.0018682

$C_{CO_2,p,u}$ = $CO_2$ concentration measurement in flow for flow meter(s) u in quarter p (vol. percent $CO_2$, expressed as a decimal fraction)

*p* = Quarter of the year

*u* = Flow meter(s)

The Mass of $CO_2$ Injected is the sum of (1) the Mass of $CO_2$ Recycled (Equation RR-5 above) and (2) the Mass of $CO_2$ Received (described in Section 7.1 above):

$$CO_{2,I} = CO_{2,u} + CO_2 \qquad \text{(Equation RR} - 6\text{)}$$

where:

$CO_{2,I}$ = Annual $CO_2$ Mass Injected (metric tons)

$CO_{2,u}$ = Annual $CO_2$ mass injected as measured by flow meter u (metric tons)

$CO_2$ = Total net annual mass of $CO_2$ received (metric tons)

## 7.3. Mass of $CO_2$ Produced

The Mass of $CO_2$ Produced in the NBU will be determined by using measurements from (1) the flow meters at the production satellites and any meters at the inlet to the RCF and (2) the custody transfer meters for oil sales. As with injection well data, using the data at each production well would give an inaccurate estimate of the total mass of $CO_2$ produced due to the large number of wells and the potential for propagation of error due to allowable calibration ranges for each meter.

Equation RR-8 (as modified) will be used to calculate the mass of $CO_2$ produced from the production wells (other than the mass of $CO_2$ entrained in produced oil).

$$\mathrm{CO}_{2,w} = \sum_{p=1}^{4} Q_{p,w} * D * C_{CO_2,p,w} \qquad \text{(Equation RR} - 8\text{)}$$

where:

$CO_{2,w}$ = Annual $CO_2$ mass produced through meter(s) w (metric tons)

$Q_{p,w}$ = Volumetric gas flow rate measurement for meter(s) w in quarter p at standard conditions (standard cubic meters)

D = Density of $CO_2$ at standard conditions (metric tons per standard cubic meter): 0.0018682

$C_{CO_2,p,w}$ = $CO_2$ concentration measurement in flow for meter(s) w in quarter p (vol. percent $CO_2$, expressed as a decimal fraction)

*p* = Quarter of the year

*w* = Flow meters

Equation RR-9 (as modified) is used to aggregate (1) the flow meters at the production satellites or any meters at the inlet to the RCF and (2) the custody transfer meters for oil sales.

$$\mathrm{CO}_{2,\mathrm{P}} = \sum_{w=1}^{W} CO_{2,w} + X_{oil} \qquad (\text{Equation RR} - 9)$$

where:

$CO_{2,P}$ = Total annual $CO_2$ mass produced through all meters in the reporting year (metric tons)

$CO_{2,w}$ = Annual $CO_2$ mass produced through meters w in the reporting year (metric tons)

$X_{oil}$ = Mass of entrained $CO_2$ in oil in the reporting year, measured utilizing commercial meters and electronic flow measurement devices at each point of custody transfer, with such mass of $CO_2$ calculated by multiplying the total volumetric rate by the $CO_2$ concentration

*w* = Flow meters

## 7.4. Mass of $CO_2$ Emitted by Surface Leakage

The total annual Mass of $CO_2$ Emitted by Surface Leakage will be calculated and reported using an approach that is tailored to specific leakage events. Potential leakage events in a variety of settings are identified in other portions of this plan. Estimates of the mass of $CO_2$ Emitted by Surface Leakage will likely depend on a number of site-specific factors, including measurements, engineering estimates, emission factors, source of the leakage, nature of the leakage, and other factors. The process for quantifying leakage will entail using state of the art engineering principles or emission factors or both. It is not possible to predict in advance the types of leaks that may or will occur. However, some approaches to quantification are described in Section 5.1 above. In the event of a Surface Leakage, the mass of $CO_2$ Emitted would be quantified and reported, and the records would be maintained that describe the methods used to estimate or measure the Mass of $CO_2$ Emitted by Surface Leakage. In addition, information from the Subpart W Methodology Approach will be taken into consideration, and will be reconciled to ensure that surface leakage of $CO_2$ emissions is not double counted. Equation RR-10 will be used to calculate the Mass of $CO_2$ Emitted by Surface Leakage:

$$\mathrm{CO}_{2,\mathrm{E}} = \sum_{x=1}^{X} CO_{2,x} \qquad (\text{Equation RR} - 10)$$

where:

$CO_{2,E}$ = Total annual $CO_2$ mass emitted by surface leakage in the reporting year (metric tons)

$CO_{2,x}$ = Annual $CO_2$ mass emitted at leakage pathway x in the reporting year (metric tons)

*x* = Leakage pathway

## 7.5. Mass of $CO_2$ Sequestered

Equation RR-11 is used to calculate the Mass of $CO_2$ Sequestered in subsurface geologic formations in the reporting year.

$$\mathrm{CO_2} = CO_{2,I} - CO_{2,P} - CO_{2,E} - CO_{2,FI} - CO_{2,FP} \quad (\text{Equation RR} - 11)$$

where:

$CO_2$ = Total annual $CO_2$ Mass Sequestered in subsurface geologic formations at the facility in the reporting year (metric tons)

$CO_{2,I}$ = Total annual $CO_2$ Mass Injected in the well or group of wells covered by this source category in the reporting year (metric tons)

$CO_{2,P}$ = Total annual $CO_2$ Mass Produced net of $CO_2$ entrained in oil in the reporting year (metric tons)

$CO_{2,E}$ = Total annual $CO_2$ Mass Emitted by surface leakage in the reporting year (metric tons)

$CO_{2,FI}$ = Total annual $CO_2$ Mass Emitted from equipment leaks and vented emissions of $CO_2$ from equipment located on the surface between the flow meter used to measure injection quantity and the injection wellhead, for which a calculation procedure is provided in GHGRP Subpart W (metric tons)

$CO_{2,FP}$ = Total annual $CO_2$ Mass Emitted from equipment leaks and vented emissions of $CO_2$ from equipment located on the surface between the production wellhead and the flow meter used to measure production quantity, for which a calculation procedure is provided in GHGRP Subpart W (metric tons)

## 7.6. Cumulative Mass of $CO_2$ Reported as Sequestered

The total annual $CO_2$ Mass Sequestered in subsurface geologic formations at the facility in the reporting year, using Equation RR-11, will be summed to calculate the Cumulative Mass of $CO_2$ Sequestered in subsurface geologic formations.

# 8. Estimated Schedule for Implementation of MRV Plan

This plan will be effective as of January 1, 2020, which is also the proposed date for beginning to collect data under this plan. Other GHG reports are filed on March 31 of the year after the reporting year and it is anticipated that the Annual Subpart RR Report will be filed at the same time. As described in Section 3.3 above, it is anticipated that the MRV program will be in effect during the Specified Period, during which time the NBU will be operated with the subsidiary or ancillary purpose of establishing long-term containment of a measurable quantity of $CO_2$ in the reservoir at the NBU. It is anticipated that Perdure will establish that a measurable amount of $CO_2$ injected during the Specified Period will be stored in a manner not expected to migrate in the future in a manner likely to result in surface leakage. At such time, a demonstration will be prepared that will supporting the long-term containment determination, and a request will be submitted to discontinue reporting under this MRV plan. See Section 98.441(b)(2)(ii).

# 9. Quality Assurance Program

## 9.1. Monitoring

The requirements of Sections 98.444(a) – (d) are incorporated into the mass balance calculations in Section 7 above. These include the following:

$CO_2$ Received and Injected

- The quarterly flow rate of $CO_2$ received by pipeline is measured with volumetric flow meter(s) at the receiving custody transfer point(s).
- The quarterly $CO_2$ flow rate for recycled $CO_2$ is measured with volumetric flow meter(s) at the outlet of the RCF.

$CO_2$ Produced

- The point of measurement for the quantity of $CO_2$ produced from oil or other fluid production wells is a volumetric flow meter directly downstream of separation, sending a stream of gas into a recycle system or end use system.
- The produced gas stream is sampled at least once per quarter immediately downstream of the flow meter used to measure flow rate of that gas stream, and the $CO_2$ concentration of the sample is measured.
- The quarterly flow rate of the produced gas is measured with volumetric flow meter(s) located at the inlet of the RCF.

$CO_2$ emissions from equipment leaks and vented emissions of $CO_2$

- These volumes are measured in conformance with the monitoring and QA/QC requirements specified in Subpart W.

Flow meter provisions

The volumetric flow meters used to generate data for the mass balance equations in Section 7 are:

- Operated continuously except as necessary for maintenance and calibration.
- Operated using the calibration and accuracy requirements in Section 98.3(i).
- Operated in conformance with American Petroleum Institute (API) standards.
- National Institute of Standards and Technology (NIST) traceable.

Concentration of $CO_2$

- As required by Section 98.444(f)(1) and as indicated in Section 12.1, $CO_2$ concentration is measured using an appropriate standard method. Unless stated otherwise in the annual report, the standard method will be the use of a gas analyzer, which is an industry standard practice.
- As required by Section 98.444(f)(2), all measured volumes of $CO_2$ for Equations RR-2, RR-5 and RR-8 in Section 7 will be converted to standard cubic meters at a temperature of 60 degrees Fahrenheit and at an absolute pressure of 1 atmosphere.

## 9.2. Procedures for Estimating Missing Data

In the event any of the data needed for the mass balance calculations in Section 7 is unable to be collected, then the procedures for estimating missing data in §98.445 will be used. Those procedures include the following:

- A quarterly flow rate of $CO_2$ received that is missing would be estimated using invoices, purchase statements, or using a representative flow rate value from the nearest previous time period.
- A quarterly $CO_2$ concentration of a $CO_2$ stream received that is missing would be estimated using invoices, purchase statements, or using a representative concentration value from the nearest previous time period.
- A quarterly quantity of $CO_2$ injected that is missing would be estimated using a representative quantity of $CO_2$ injected from the nearest previous period of time at a similar injection pressure.
- For any values associated with $CO_2$ emissions from equipment leaks and vented emissions of $CO_2$ from surface equipment at the facility that are reported in Subpart RR, missing data estimation procedures specified in Subpart W would be followed.
- The quarterly quantity of $CO_2$ produced from subsurface geologic formations that is missing would be estimated using a representative quantity of $CO_2$ produced from the nearest previous period of time.
- When estimating the amount of $CO_2$ (due to an interruption in data collection, mechanical failure of a meter, mechanical failure of other equipment, or otherwise), the amount of $CO_2$ is to be estimated by using the most recent periodic (i.e. daily) volume of $CO_2$ associated with the meter or equipment and calculating the proportionate volume of "missing" $CO_2$ based on the number of hours involved in the data gap or until meter/equipment repair.

# 10. MRV Plan Revisions

In the event there is a material change to the monitoring and/or operational parameters of $CO_2$-EOR operations in the NBU that is not anticipated in this MRV plan, or if Perdure chooses to revise the MRV plan for any other reason, the MRV plan will be revised and submitted to the EPA Administrator within 180 days as required in Section 98.448(d). The proposed revision to this MRV plan will be submitted in the same manner and format as this MRV plan.

# 11. Records Retention

Records will be maintained as required under Section 98.3(g) and Section 98.447(a)(1) – (6). These records may be maintained electronically, in paper copies, or both. Data will be collected from these records and aggregated as required for reporting purposes.

# 12. Appendices

## 12.1. Conversion Factors

For purposes of this MRV Plan, $CO_2$ volumes are stated at Oklahoma standard conditions of temperature and pressure: 60°F and 14.65 psia.[31]

To convert these volumes into metric tons (tonnes), a density is calculated using the Span and Wagner equation of state as recommended by the EPA.[32] Density is calculated using the database of thermodynamic properties developed by the National Institute of Standards and Technology (NIST), available at http://webbook.nist.gov/chemistry/fluid/.

At State of Oklahoma standard conditions, the Span and Wagner equation of state gives a density of 0.0026417 lb-moles per cubic foot. Using a molecular weight for $CO_2$ of 44.00950, 2204.623 lbs/metric ton and 35.314667 $ft^3/m^3$, gives a $CO_2$ density of 5.2734289 x $10^{-2}$ MT/MCF or 0.001862294 $MT/m^3$.

The conversion factor 5.2734289 x $10^{-2}$ MT/MCF has been used throughout to convert $CO_2$ volumes to metric tons.

## 12.2. Acronyms

AGA – American Gas Association
AMA – Active Monitoring Area
AOR – Area of Review
API – American Petroleum Institute
BIA – US Bureau of Indian Affairs
BCF – billion cubic feet
cf – cubic feet
$CO_2$ – Carbon Dioxide
DOE – US Department of Energy
EOR – Enhanced Oil Recovery
EPA – US Environmental Protection Agency
GPA – Gas Processors Association
GHGRP – Greenhouse Gas Reporting Program
$H_2S$ – Hydrogen Sulfide
LACT – Lease Automatic Custody Transfer
MIT – Mechanical Integrity Test
MMA – Maximum Monitoring Area
MCF – Thousand cubic feet
MMCF – Million cubic feet
MMP – Minimum Miscibility Pressure
MMT – Million metric tonnes
MRV – Monitoring, Reporting, and Verification
MMSTBO – Million stock tank barrels of oil
MT – Metric Ton (Tonne)

[31] 52 Okla. Stat. § 52-472.
[32] General Technical Support Document for Injection and Geologic Sequestration of Carbon Dioxide: Subparts RR and UU, EPA Greenhouse Gas Reporting Program, Office of Air and Radiation, November 2010, pg 25.

NIST – National Institute of Standards and Technology
NBU – North Burbank Unit
NGL – Natural Gas Liquid
OOIP – Original Oil-In-Place
PPM – Parts Per Million
PSIG – Pound per Square Inch, Gauge
RCF – NBU $CO_2$ Recycling and Compression Facility
SCADA – Supervisory Control And Data Acquisition
STB – Stock Tank Barrel
UIC – Underground Injection Control
VRU – Vapor Recovery Unit
WAG – Water Alternating Gas
WCI – Water Curtain Injection

## 12.3. Glossary of Terms

This glossary describes some of the technical terms as they are used in this MRV plan.[33]

**Contain / Containment** – having the effect of keeping fluids located within in a specified portion of a geologic formation.

**Dip** -- Very few, if any, geologic features are perfectly horizontal. They are almost always tilted. The direction of tilt is called "dip." Dip is the angle of steepest descent measured from the horizontal plane. Moving higher up structure is moving "updip." Moving lower is "downdip." Perpendicular to dip is "strike." Moving perpendicular along a constant depth is moving along strike.

**Formation** -- A body of rock that is sufficiently distinctive and continuous that it can be mapped.

**Permeability** -- Permeability is the measure of a rock's ability to transmit fluids. Rocks that transmit fluids readily, such as sandstones, are described as permeable and tend to have many large, well-connected pores. Impermeable formations, such as shales and siltstones, tend to be finer grained or of a mixed grain size, with smaller, fewer, or less interconnected pores.

**Phase** -- Phase is a region of space throughout which all physical properties of a material are essentially uniform. Fluids that don't mix together segregate themselves into phases. Oil, for example, does not mix with water and forms a separate phase.

**Porosity** -- Porosity is the fraction of a rock that is not occupied by solid grains or minerals. Almost all rocks have spaces between rock crystals or grains that is available to be filled with a fluid, such as water, oil or gas. This space is called "pore space."

**Primary recovery** -- The first stage of hydrocarbon production, in which natural reservoir energy, such as gas drive, water drive or gravity drainage, displaces hydrocarbons from the reservoir, into the wellbore and up to surface. Initially, the reservoir pressure is considerably higher than the bottom hole pressure inside the wellbore. This high natural differential pressure drives hydrocarbons toward the well and up to surface. However, as the reservoir pressure declines because of production, so does the differential pressure. To reduce the bottom hole pressure or increase the differential pressure to increase

[33] For additional glossaries please see the U.S. EPA Glossary of UIC Terms (http://water.epa.gov/type/groundwater/uic/glossary.cfm) and the Schlumberger Oilfield Glossary (http://www.glossary.oilfield.slb.com/).

hydrocarbon production, it is necessary to implement an artificial lift system, such as a rod pump, an electrical submersible pump or a gas-lift installation. Production using artificial lift is considered primary recovery. The primary recovery stage reaches its limit either when the reservoir pressure is so low that the production rates are not economical, or when the proportions of gas or water in the production stream are too high. During primary recovery, only a small percentage of the initial hydrocarbons in place are produced, typically around 10% for oil reservoirs. Primary recovery is also called primary production.

**Saturation** -- The fraction of pore space occupied by a given fluid. Oil saturation, for example, is the fraction of pore space occupied by oil.

**Seal** – A geologic layer (or multiple layers) of impermeable rock that serve as a barrier to prevent fluids from moving upwards to the surface.

**Secondary recovery** -- The second stage of hydrocarbon production during which an external fluid such as water or gas is injected into the reservoir through injection wells located in rock that has fluid communication with production wells. The purpose of secondary recovery is to maintain reservoir pressure and to displace hydrocarbons toward the wellbore. The most common secondary recovery techniques are gas injection and waterflooding.

**Stratigraphic section** -- A stratigraphic section is a sequence of layers of rocks in the order they were deposited.

## 12.4. Oklahoma Earthquake History Maps

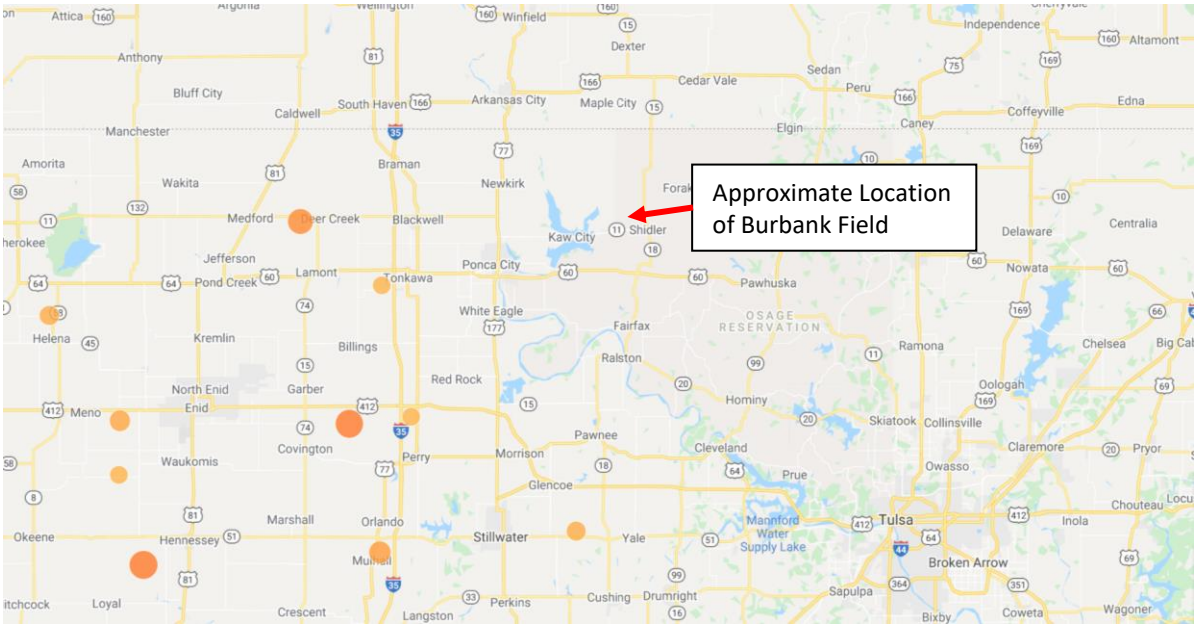


**Figure 14 – Oklahoma Earthquake Densities: 1980-2012**[34]

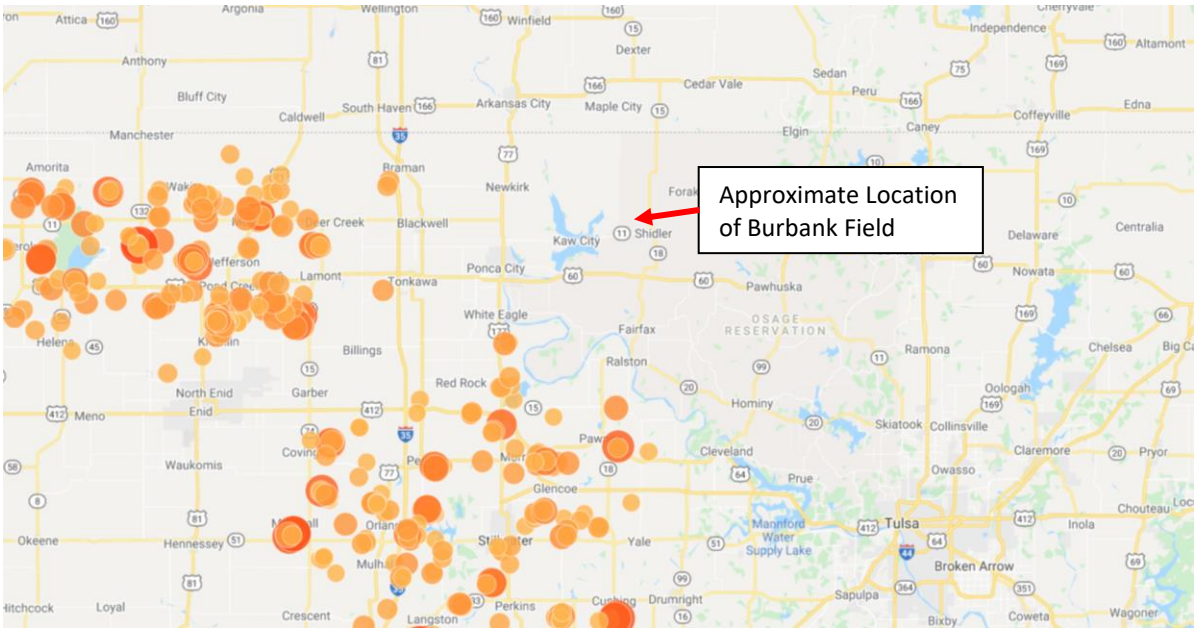


**Figure 15 – Oklahoma Earthquake Densities: 2013-2014**[35]

[34] http://earthquakes.ok.gov/what-we-know/earthquake-map/
[35] http://earthquakes.ok.gov/what-we-know/earthquake-map/

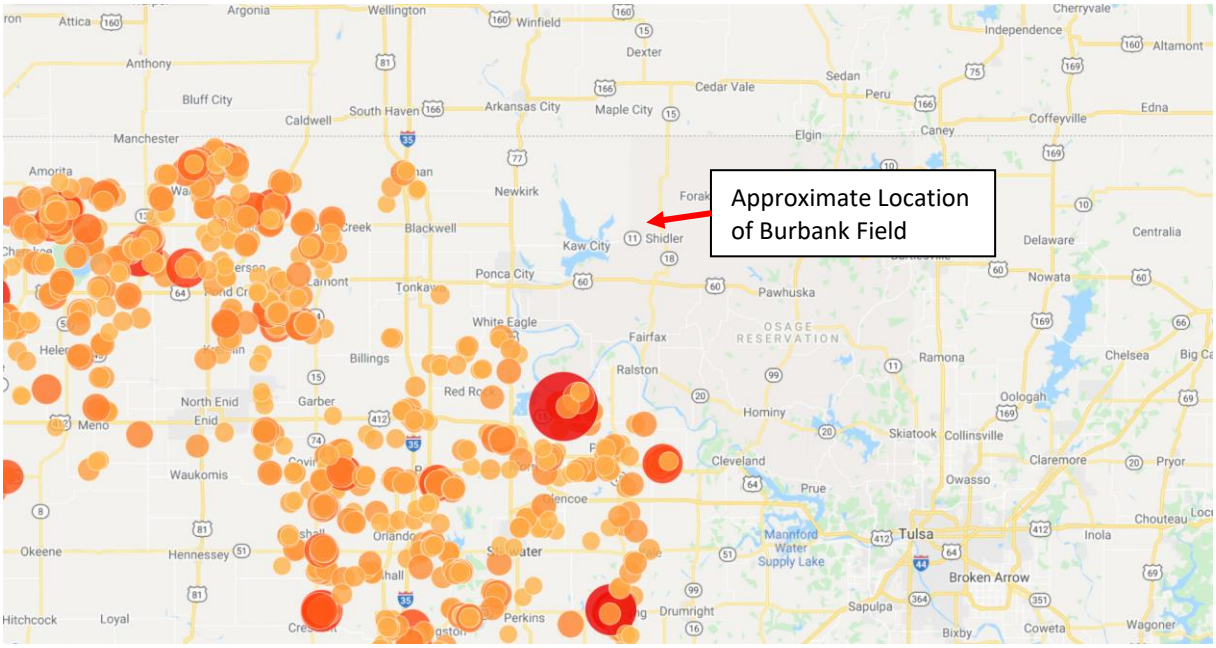


**Figure 16 – Oklahoma Earthquake Densities: 2015-2016**[36]

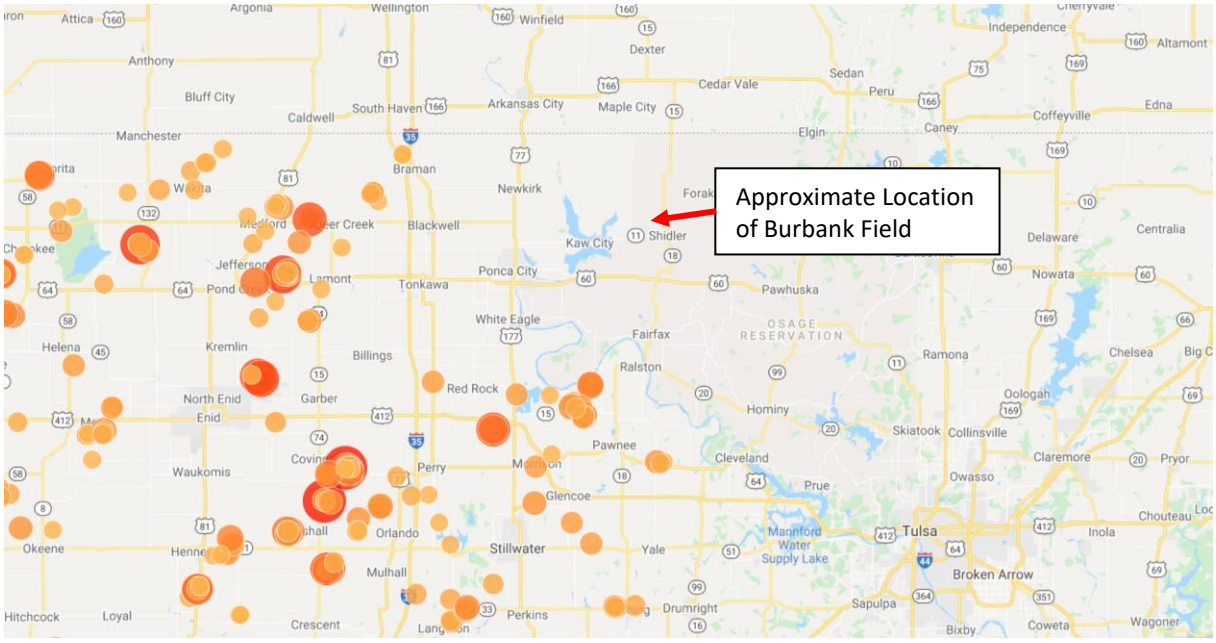


**Figure 17 – Oklahoma Earthquake Densities: 2017-2018**[37]

[36] http://earthquakes.ok.gov/what-we-know/earthquake-map/
[37] http://earthquakes.ok.gov/what-we-know/earthquake-map/

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## 12.6. Reservoir-Related Publications

The NBU has been the subject of over 60 published reports, studies and articles, and the reservoir has been the object of numerous laboratory investigations and field tests of tertiary recovery. Some of the published papers, reports and other documents are listed in the References in Section 12.5 above, while many more are listed below.


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## 12.7. Wells

The following table presents the well name, API number, status and type for the wells in the NBU as of January 2020. The table is subject to change over time as new wells are drilled, existing wells change status, or existing wells are repurposed. The following terms are used:

- DRY refers to wells that were not produced and have been closed (plugged and abandoned)
- OIL refers to active wells that produce oil
- PA_GAS refers to gas production wells that have been closed (plugged and abandoned)
- PA_PROD refers to oil production wells that have been closed (plugged and abandoned)
- P&A_INJ refers to injection wells that have been closed (plugged and abandoned)
- P&A_UNKW refers to wells with an unknown type that have been closed (plugged and abandoned)
- SI_OIL refers to oil production wells that have been temporarily idled or shut-in
- SI_SWD refers to salt-water disposal wells that have been temporarily idled or shut-in
- SI_WINJ refers to water injection wells that have been temporarily idled or shut-in
- SI_WSW refers to water supply wells that have been temporarily idled or shut-in
- SI_WTR_SRVC refers to water service wells that have been temporarily idled or shut-in
- SWD refers to active salt-water disposal wells
- TA_INJ refers to water and $CO_2$ injection wells that have been temporarily abandoned
- TA_OIL refers to oil production wells that have been temporarily abandoned
- UNKNW refers to wells with an unknown status and type
- W_INJ refers to active wells that inject water
- WAG refers to active wells that inject water and $CO_2$
- WAG_TBD refers to wells anticipated to be drilled that inject water and $CO_2$

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-110-88510 | 4302A | SI_OIL |
| 35-113-05487 | 13001 | SI_OIL |
| 35-113-05488 | 13002W | P&A_INJ |
| 35-113-05489 | 13003 | OIL |
| 35-113-05490 | 13004W | P&A_INJ |
| 35-113-05491 | 13005 | P&A_INJ |
| 35-113-05493 | 13007 | PA_PROD |
| 35-113-05494 | 13008W | P&A_INJ |
| 35-113-05495 | 13009 | PA_PROD |
| 35-113-05496 | 13010W | PA_PROD |
| 35-113-05497 | 13011 | PA_PROD |
| 35-113-05498 | 13012 | PA_PROD |
| 35-113-05499 | 13013 | PA_PROD |
| 35-113-05500 | 13014W | PA_PROD |
| 35-113-05501 | 13015 | PA_PROD |
| 35-113-05502 | 13016W | P&A_INJ |
| 35-113-05503 | 13007A | PA_PROD |
| 35-113-05504 | 13017W | PA_PROD |
| 35-113-05506 | 13305 | SI_OIL |
| 35-113-05507 | 13306W | P&A_INJ |
| 35-113-05508 | 13307 | P&A_INJ |
| 35-113-05545 | 13605AW | SI_WINJ |
| 35-113-05546 | 13614 | SI_OIL |
| 35-113-05547 | 13615 | SI_OIL |
| 35-113-05548 | 13617W | P&A_INJ |
| 35-113-05549 | 13813 | PA_PROD |
| 35-113-05550 | 13903 | SI_OIL |
| 35-113-05551 | 13601W | PA_PROD |
| 35-113-05552 | 13602 | PA_PROD |
| 35-113-05553 | 13603W | P&A_INJ |
| 35-113-05554 | 13604 | OIL |
| 35-113-05555 | 13605 | PA_PROD |
| 35-113-05556 | 13606W | P&A_INJ |
| 35-113-05557 | 13607W | PA_PROD |
| 35-113-05558 | 13608W | P&A_INJ |
| 35-113-05559 | 13609W | P&A_INJ |
| 35-113-05560 | 13610 | SI_OIL |
| 35-113-05561 | 13611 | PA_PROD |
| 35-113-05562 | 13612W | P&A_INJ |
| 35-113-05563 | 13706 | PA_PROD |
| 35-113-05571 | 13504 | SI_OIL |
| 35-113-05572 | 13508W | P&A_INJ |
| 35-113-05573 | 13512 | SI_OIL |
| 35-113-05574 | 13516W | P&A_INJ |
| 35-113-05685 | 14002W | P&A_INJ |
| 35-113-05687 | 14006 | OIL |
| 35-113-05688 | 14007 | SI_OIL |
| 35-113-06433 | 964 | SI_WINJ |
| 35-113-07263 | 9303 | PA_PROD |
| 35-113-07266 | 9302 | PA_PROD |
| 35-113-07269 | 9308 | SI_OIL |
| 35-113-07271 | 9310 | PA_PROD |
| 35-113-07272 | 9311 | P&A_INJ |
| 35-113-07274 | 9313 | PA_PROD |
| 35-113-07275 | 9314 | P&A_INJ |
| 35-113-07276 | 9315 | P&A_INJ |
| 35-113-07277 | 9316 | PA_PROD |
| 35-113-07279 | 932 | PA_GAS |
| 35-113-07281 | 934 | PA_PROD |
| 35-113-07282 | 9217 | SI_OIL |
| 35-113-07283 | 9317 | P&A_INJ |
| 35-113-07284 | 9318W | SI_WINJ |
| 35-113-07285 | 10002A | SI_OIL |
| 35-113-07286 | 10011 | SI_OIL |
| 35-113-07287 | 10106A | OIL |
| 35-113-07292 | 9101 | PA_PROD |
| 35-113-07293 | 9102 | PA_PROD |
| 35-113-07294 | 9103 | PA_PROD |
| 35-113-07295 | 9104 | PA_PROD |
| 35-113-07296 | 9105 | PA_PROD |
| 35-113-07319 | 10801 | PA_PROD |
| 35-113-07320 | 10802 | PA_PROD |
| 35-113-07321 | 10803 | PA_PROD |
| 35-113-07322 | 10804 | PA_PROD |
| 35-113-07323 | 10805 | PA_PROD |
| 35-113-07324 | 10803AW | SI_WINJ |
| 35-113-07325 | 10806 | SI_OIL |
| 35-113-07326 | 10807 | PA_PROD |
| 35-113-07412 | 1079 | SI_OIL |
| 35-113-07413 | 1062 | PA_PROD |
| 35-113-07414 | 10610 | PA_PROD |
| 35-113-07415 | 1077 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-07416 | 10608 | PA_PROD | 35-113-07457 | 10503 | PA_PROD |
| 35-113-07417 | 10609 | PA_PROD | 35-113-07458 | 10504 | PA_PROD |
| 35-113-07418 | 10602 | PA_PROD | 35-113-07459 | 10505 | PA_PROD |
| 35-113-07419 | 10603 | PA_PROD | 35-113-07460 | 10506 | PA_PROD |
| 35-113-07420 | 10605 | PA_PROD | 35-113-07461 | 10507 | P&A_INJ |
| 35-113-07421 | 10606 | PA_PROD | 35-113-07462 | 10508 | PA_PROD |
| 35-113-07422 | 10611 | PA_PROD | 35-113-07463 | 10509 | PA_PROD |
| 35-113-07423 | 10612 | PA_PROD | 35-113-07464 | 10510 | PA_PROD |
| 35-113-07424 | 10613 | PA_PROD | 35-113-07465 | 10511 | OIL |
| 35-113-07425 | 10614 | P&A_INJ | 35-113-07466 | 10512 | PA_PROD |
| 35-113-07426 | 9801 | PA_PROD | 35-113-07467 | 10513 | PA_PROD |
| 35-113-07427 | 9802 | PA_PROD | 35-113-07468 | 10514 | PA_PROD |
| 35-113-07428 | 9803 | PA_PROD | 35-113-07469 | 10515 | SI_OIL |
| 35-113-07429 | 9804 | PA_PROD | 35-113-07470 | 10516 | PA_PROD |
| 35-113-07430 | 9805 | PA_PROD | 35-113-07471 | 9601 | PA_PROD |
| 35-113-07431 | 9806 | PA_PROD | 35-113-07472 | 9602 | PA_PROD |
| 35-113-07432 | 9807 | PA_PROD | 35-113-07473 | 9603 | PA_PROD |
| 35-113-07433 | 9808 | PA_PROD | 35-113-07474 | 9604 | SI_OIL |
| 35-113-07434 | 9809 | P&A_INJ | 35-113-07475 | 9605 | SI_OIL |
| 35-113-07435 | 9810 | PA_PROD | 35-113-07476 | 9606 | SI_OIL |
| 35-113-07436 | 9811 | PA_PROD | 35-113-07477 | 9607 | PA_PROD |
| 35-113-07437 | 9812 | PA_PROD | 35-113-07478 | 9608 | PA_PROD |
| 35-113-07438 | 9813 | P&A_INJ | 35-113-07479 | 9609 | PA_PROD |
| 35-113-07439 | 9814 | PA_PROD | 35-113-07480 | 9610 | PA_PROD |
| 35-113-07440 | 9815 | PA_PROD | 35-113-07481 | 9611 | PA_PROD |
| 35-113-07441 | 9816 | PA_PROD | 35-113-07482 | 9612 | PA_PROD |
| 35-113-07442 | 10701 | PA_PROD | 35-113-07483 | 9613 | PA_PROD |
| 35-113-07443 | 10702 | PA_PROD | 35-113-07484 | 9614 | PA_PROD |
| 35-113-07444 | 10703 | P&A_INJ | 35-113-07485 | 9615 | PA_PROD |
| 35-113-07445 | 1064 | PA_PROD | 35-113-07486 | 9616 | SI_OIL |
| 35-113-07446 | 10705 | PA_PROD | 35-113-07487 | 9714A | SI_OIL |
| 35-113-07447 | 10706 | PA_PROD | 35-113-07488 | 10409A | PA_PROD |
| 35-113-07448 | 10707 | PA_PROD | 35-113-07489 | 9404A | PA_PROD |
| 35-113-07449 | 10708 | PA_PROD | 35-113-07490 | 9406 | P&A_INJ |
| 35-113-07450 | 10709 | PA_PROD | 35-113-07491 | 9418 | PA_PROD |
| 35-113-07451 | 10711 | PA_PROD | 35-113-07492 | 10305A | PA_PROD |
| 35-113-07452 | 10712 | PA_PROD | 35-113-07493 | 9501 | PA_PROD |
| 35-113-07453 | 9803A | PA_PROD | 35-113-07494 | 9502 | PA_PROD |
| 35-113-07454 | 9805A | PA_PROD | 35-113-07495 | 9504 | SI_OIL |
| 35-113-07455 | 10501 | PA_PROD | 35-113-07496 | 9503 | PA_PROD |
| 35-113-07456 | 10502 | OIL | 35-113-07497 | 9503A | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-07498 | 9505 | PA_PROD | 35-113-07538 | 9516 | PA_PROD |
| 35-113-07499 | 9506 | PA_PROD | 35-113-07539 | 9417 | PA_PROD |
| 35-113-07500 | 9507 | PA_PROD | 35-113-07542 | 10901 | PA_PROD |
| 35-113-07501 | 9508 | PA_PROD | 35-113-07543 | 10902 | PA_PROD |
| 35-113-07502 | 9509W | W_INJ | 35-113-07544 | 10903 | PA_PROD |
| 35-113-07503 | 9510 | PA_PROD | 35-113-07545 | 10904 | SI_OIL |
| 35-113-07504 | 9511 | PA_PROD | 35-113-07546 | 10905 | PA_PROD |
| 35-113-07505 | 9512 | PA_PROD | 35-113-07547 | 10906 | PA_PROD |
| 35-113-07506 | 9513 | SI_OIL | 35-113-07548 | 10907 | PA_PROD |
| 35-113-07507 | 9514 | PA_PROD | 35-113-07562 | 10908W | PA_PROD |
| 35-113-07508 | 9515W | P&A_INJ | 35-113-07563 | 10909 | SI_OIL |
| 35-113-07509 | 9516 | SI_OIL | 35-113-07564 | 10911 | SI_OIL |
| 35-113-07510 | 1028 | SI_OIL | 35-113-07565 | 10913 | SI_OIL |
| 35-113-07511 | 10211W | P&A_INJ | 35-113-07566 | 11009 | SI_OIL |
| 35-113-07512 | 10215 | PA_PROD | 35-113-07567 | 11011 | PA_PROD |
| 35-113-07513 | 10203 | SI_OIL | 35-113-07568 | 11012W | SI_WINJ |
| 35-113-07514 | 10204 | PA_PROD | 35-113-07569 | 11603 | PA_PROD |
| 35-113-07515 | 10205 | PA_PROD | 35-113-07570 | 11604W | P&A_INJ |
| 35-113-07516 | 10206 | PA_PROD | 35-113-07571 | 11605W | P&A_INJ |
| 35-113-07517 | 10207 | PA_PROD | 35-113-07572 | 11606 | PA_PROD |
| 35-113-07518 | 10208 | PA_PROD | 35-113-07573 | 11607 | PA_PROD |
| 35-113-07519 | 10209 | PA_PROD | 35-113-07574 | 11608 | PA_PROD |
| 35-113-07520 | 10210 | PA_PROD | 35-113-07575 | 11609 | PA_PROD |
| 35-113-07521 | 10212 | PA_PROD | 35-113-07576 | 11610 | SI_OIL |
| 35-113-07522 | 10213 | SI_OIL | 35-113-07577 | 11611 | P&A_INJ |
| 35-113-07523 | 10214 | PA_PROD | 35-113-07578 | 11612 | SI_OIL |
| 35-113-07524 | 10216 | PA_PROD | 35-113-07579 | 11601A | SI_OIL |
| 35-113-07525 | 9401W | SI_WINJ | 35-113-07602 | 12001 | PA_PROD |
| 35-113-07526 | 9402 | PA_PROD | 35-113-07603 | 12002W | W_INJ |
| 35-113-07527 | 9402W | SI_WINJ | 35-113-07604 | 12003 | PA_PROD |
| 35-113-07528 | 9403 | SI_OIL | 35-113-07605 | 12004 | P&A_INJ |
| 35-113-07529 | 9404W | P&A_INJ | 35-113-07606 | 12005W | P&A_INJ |
| 35-113-07530 | 9405 | PA_PROD | 35-113-07607 | 12006 | PA_PROD |
| 35-113-07530 | 9405A | SI_OIL | 35-113-07608 | 12007 | P&A_INJ |
| 35-113-07531 | 9409 | PA_PROD | 35-113-07609 | 12008 | PA_PROD |
| 35-113-07532 | 9410W | W_INJ | 35-113-07610 | 12009 | PA_PROD |
| 35-113-07533 | 9411 | PA_PROD | 35-113-07611 | 12010W | W_INJ |
| 35-113-07534 | 9412 | PA_PROD | 35-113-07612 | 12011W | P&A_INJ |
| 35-113-07535 | 9413 | PA_PROD | 35-113-07613 | 12012 | OIL |
| 35-113-07536 | 9414 | PA_PROD | 35-113-07614 | 12013 | SI_OIL |
| 35-113-07537 | 9415 | SI_OIL | 35-113-07615 | 12014 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-07616 | 12015W | P&A_INJ | 35-113-07657 | 11401AW | P&A_INJ |
| 35-113-07617 | 12016 | PA_PROD | 35-113-07658 | 11801 | P&A_INJ |
| 35-113-07618 | 11301 | DRY | 35-113-07659 | 11802 | P&A_INJ |
| 35-113-07619 | 11302 | PA_PROD | 35-113-07660 | 11803 | PA_PROD |
| 35-113-07620 | 11303W | P&A_INJ | 35-113-07661 | 11804 | OIL |
| 35-113-07621 | 11304 | PA_PROD | 35-113-07662 | 11805W | W_INJ |
| 35-113-07622 | 11305 | PA_PROD | 35-113-07663 | 11806 | P&A_INJ |
| 35-113-07623 | 11306 | PA_PROD | 35-113-07664 | 11807 | PA_PROD |
| 35-113-07624 | 11307 | PA_PROD | 35-113-07665 | 11808 | PA_PROD |
| 35-113-07625 | 11308W | P&A_INJ | 35-113-07666 | 11809 | PA_PROD |
| 35-113-07626 | 11309 | P&A_INJ | 35-113-07667 | 11810W | P&A_INJ |
| 35-113-07627 | 11901 | PA_PROD | 35-113-07668 | 11811 | PA_PROD |
| 35-113-07628 | 11902 | PA_PROD | 35-113-07669 | 11812W | P&A_INJ |
| 35-113-07629 | 11903W | P&A_INJ | 35-113-07670 | 11813 | PA_PROD |
| 35-113-07630 | 11904 | SI_OIL | 35-113-07671 | 11814 | P&A_INJ |
| 35-113-07631 | 11905 | PA_PROD | 35-113-07672 | 11815 | PA_PROD |
| 35-113-07632 | 11906 | PA_PROD | 35-113-07673 | 11116 | PA_PROD |
| 35-113-07633 | 11907 | OIL | 35-113-07674 | 11201 | PA_PROD |
| 35-113-07634 | 11908 | PA_PROD | 35-113-07675 | 11202 | PA_PROD |
| 35-113-07635 | 11909W | P&A_INJ | 35-113-07676 | 11203 | PA_PROD |
| 35-113-07636 | 11910W | W_INJ | 35-113-07677 | 11204 | PA_PROD |
| 35-113-07637 | 11911 | P&A_INJ | 35-113-07678 | 11205 | OIL |
| 35-113-07638 | 11912 | PA_PROD | 35-113-07679 | 11206W | SI_WINJ |
| 35-113-07639 | 11913 | PA_PROD | 35-113-07680 | 11207 | OIL |
| 35-113-07640 | 11401 | PA_PROD | 35-113-07681 | 11208 | PA_PROD |
| 35-113-07641 | 11402 | PA_PROD | 35-113-07682 | 11209 | PA_PROD |
| 35-113-07642 | 11403 | PA_PROD | 35-113-07683 | 11103 | PA_PROD |
| 35-113-07643 | 11404 | PA_PROD | 35-113-07684 | 11211W | W_INJ |
| 35-113-07644 | 11405 | PA_PROD | 35-113-07685 | 11212 | P&A_INJ |
| 35-113-07645 | 11406 | PA_PROD | 35-113-07686 | 11213 | PA_PROD |
| 35-113-07646 | 11407 | PA_PROD | 35-113-07687 | 11214 | PA_PROD |
| 35-113-07647 | 11408 | PA_PROD | 35-113-07688 | 11215 | PA_PROD |
| 35-113-07648 | 11409 | P&A_INJ | 35-113-07689 | 11216 | P&A_INJ |
| 35-113-07649 | 11410 | PA_PROD | 35-113-07690 | 11101 | PA_PROD |
| 35-113-07650 | 11303 | DRY | 35-113-07691 | 11102 | PA_PROD |
| 35-113-07651 | 11401A | PA_PROD | 35-113-07692 | 11103W | W_INJ |
| 35-113-07652 | 12006A | P&A_INJ | 35-113-07693 | 11104 | PA_PROD |
| 35-113-07653 | 12008A | P&A_INJ | 35-113-07694 | 11105 | PA_PROD |
| 35-113-07654 | 12009A | P&A_INJ | 35-113-07695 | 11106 | PA_PROD |
| 35-113-07655 | 12014A | OIL | 35-113-07696 | 11107 | PA_PROD |
| 35-113-07656 | 12016A | SI_OIL | 35-113-07697 | 11108 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-07698 | 11109 | PA_PROD | 35-113-07773 | 14504 | PA_PROD |
| 35-113-07699 | 11710 | OIL | 35-113-07775 | 12701 | PA_PROD |
| 35-113-07700 | 11110 | PA_PROD | 35-113-07776 | 12702 | PA_PROD |
| 35-113-07701 | 11111 | PA_PROD | 35-113-07777 | 12703 | SI_OIL |
| 35-113-07702 | 11112 | PA_PROD | 35-113-07778 | 12704 | SI_OIL |
| 35-113-07703 | 11113 | OIL | 35-113-07779 | 12705 | PA_PROD |
| 35-113-07704 | 11114 | SI_OIL | 35-113-07780 | 12706 | PA_PROD |
| 35-113-07705 | 11115W | P&A_INJ | 35-113-07781 | 12707 | PA_PROD |
| 35-113-07707 | 11701 | PA_PROD | 35-113-07782 | 12708 | PA_PROD |
| 35-113-07708 | 11702 | PA_PROD | 35-113-07783 | 12709 | PA_PROD |
| 35-113-07709 | 11704 | P&A_INJ | 35-113-07784 | 12710 | P&A_INJ |
| 35-113-07710 | 11705 | OIL | 35-113-07785 | 12711 | PA_PROD |
| 35-113-07711 | 11706 | PA_PROD | 35-113-07786 | 12712 | PA_PROD |
| 35-113-07712 | 11707W | P&A_INJ | 35-113-07787 | 12713 | PA_PROD |
| 35-113-07713 | 11709W | W_INJ | 35-113-07788 | 12814 | SI_OIL |
| 35-113-07714 | 11711W | P&A_INJ | 35-113-07789 | 12715 | PA_PROD |
| 35-113-07715 | 11712 | SI_OIL | 35-113-07790 | 12716 | SI_OIL |
| 35-113-07716 | 11713W | P&A_INJ | 35-113-07791 | 12801 | PA_PROD |
| 35-113-07717 | 11714 | PA_PROD | 35-113-07792 | 12802 | OIL |
| 35-113-07718 | 11715W | P&A_INJ | 35-113-07793 | 12803 | OIL |
| 35-113-07719 | 11716 | PA_PROD | 35-113-07794 | 12804 | PA_PROD |
| 35-113-07720 | 11501 | PA_PROD | 35-113-07795 | 12805 | OIL |
| 35-113-07721 | 11502 | PA_PROD | 35-113-07796 | 12806 | SI_OIL |
| 35-113-07722 | 11503 | PA_PROD | 35-113-07797 | 12807 | PA_PROD |
| 35-113-07723 | 11504 | DRY | 35-113-07798 | 12808A | PA_PROD |
| 35-113-07724 | 11505 | P&A_INJ | 35-113-07799 | 12809 | SI_OIL |
| 35-113-07725 | 11506 | PA_PROD | 35-113-07800 | 12810 | P&A_INJ |
| 35-113-07726 | 12101 | PA_PROD | 35-113-07801 | 12811W | SI_WINJ |
| 35-113-07727 | 12102W | P&A_INJ | 35-113-07802 | 12812 | PA_PROD |
| 35-113-07728 | 12103 | PA_PROD | 35-113-07803 | 12813W | P&A_INJ |
| 35-113-07729 | 12104W | P&A_INJ | 35-113-07804 | 12814 | PA_PROD |
| 35-113-07730 | 12105W | P&A_INJ | 35-113-07805 | 12815 | PA_PROD |
| 35-113-07765 | 12501 | PA_PROD | 35-113-07806 | 12301 | PA_PROD |
| 35-113-07766 | 12502W | P&A_INJ | 35-113-07807 | 12302 | OIL |
| 35-113-07767 | 12503 | PA_PROD | 35-113-07808 | 12303 | PA_PROD |
| 35-113-07767 | 12503A | PA_PROD | 35-113-07809 | 12304W | P&A_INJ |
| 35-113-07768 | 12504 | PA_PROD | 35-113-07810 | 12305W | P&A_INJ |
| 35-113-07769 | 12505 | P&A_INJ | 35-113-07811 | 12306 | PA_PROD |
| 35-113-07770 | 14501 | PA_PROD | 35-113-07812 | 12307 | OIL |
| 35-113-07771 | 14502 | PA_PROD | 35-113-07813 | 12308W | P&A_INJ |
| 35-113-07772 | 14503 | PA_PROD | 35-113-07814 | 12309 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-07815 | 12311 | P&A_INJ | 35-113-07856 | 12204W | W_INJ |
| 35-113-07816 | 12312W | P&A_INJ | 35-113-07857 | 12205W | P&A_INJ |
| 35-113-07817 | 12313 | PA_PROD | 35-113-07858 | 12206W | P&A_INJ |
| 35-113-07818 | 12314W | P&A_INJ | 35-113-07859 | 12207W | W_INJ |
| 35-113-07819 | 12315 | PA_PROD | 35-113-07860 | 12208 | PA_PROD |
| 35-113-07820 | 12316 | PA_PROD | 35-113-07861 | 12209W | P&A_INJ |
| 35-113-07821 | 12310 | PA_PROD | 35-113-07862 | 12211W | P&A_INJ |
| 35-113-07822 | 12401 | PA_PROD | 35-113-07863 | 12212 | PA_PROD |
| 35-113-07823 | 12402 | PA_PROD | 35-113-07864 | 12213W | P&A_INJ |
| 35-113-07824 | 12403 | SI_OIL | 35-113-07865 | 12214 | OIL |
| 35-113-07825 | 12405W | P&A_INJ | 35-113-07866 | 12215 | SI_OIL |
| 35-113-07826 | 12406W | P&A_INJ | 35-113-07867 | 12216 | PA_PROD |
| 35-113-07827 | 12407 | PA_PROD | 35-113-07868 | 14401 | PA_PROD |
| 35-113-07828 | 12408W | W_INJ | 35-113-07869 | 14402 | PA_PROD |
| 35-113-07829 | 12409 | OIL | 35-113-07870 | 14403 | PA_PROD |
| 35-113-07830 | 12410W | W_INJ | 35-113-07871 | 14404 | PA_PROD |
| 35-113-07831 | 12411W | W_INJ | 35-113-07872 | 14405 | PA_PROD |
| 35-113-07832 | 12412W | P&A_INJ | 35-113-07873 | 14406 | SI_OIL |
| 35-113-07833 | 12413 | PA_PROD | 35-113-07884 | 12207A | SI_OIL |
| 35-113-07834 | 12404 | PA_PROD | 35-113-07885 | 12608W | P&A_INJ |
| 35-113-07835 | 12301AW | W_INJ | 35-113-07886 | 12609 | SI_OIL |
| 35-113-07836 | 12316W | P&A_INJ | 35-113-07887 | 12615 | SI_OIL |
| 35-113-07837 | 12401A | SI_OIL | 35-113-07888 | 12616 | P&A_INJ |
| 35-113-07838 | 12804W | P&A_INJ | 35-113-07889 | 14401A | PA_PROD |
| 35-113-07839 | 12414 | PA_PROD | 35-113-07890 | 14402A | PA_PROD |
| 35-113-07840 | 12416W | P&A_INJ | 35-113-07891 | 14406W | P&A_INJ |
| 35-113-07841 | 12808W | P&A_INJ | 35-113-07892 | 14408 | PA_PROD |
| 35-113-07842 | 12601 | P&A_INJ | 35-113-07893 | 14409 | SI_OIL |
| 35-113-07843 | 12602 | PA_PROD | 35-113-07894 | 14412 | PA_PROD |
| 35-113-07844 | 12603 | OIL | 35-113-07895 | 14413 | PA_PROD |
| 35-113-07845 | 12604 | PA_PROD | 35-113-07896 | 14414 | PA_PROD |
| 35-113-07846 | 12605 | SI_OIL | 35-113-07942 | 13209 | PA_PROD |
| 35-113-07847 | 12606 | SI_OIL | 35-113-07994 | 12902 | OIL |
| 35-113-07848 | 12610 | SI_OIL | 35-113-07995 | 12903 | SI_OIL |
| 35-113-07849 | 12611W | W_INJ | 35-113-07996 | 12904 | PA_PROD |
| 35-113-07850 | 12612 | PA_PROD | 35-113-07997 | 12905W | W_INJ |
| 35-113-07851 | 12613W | P&A_INJ | 35-113-07998 | 12906W | P&A_INJ |
| 35-113-07852 | 12614 | SI_OIL | 35-113-07999 | 12907 | PA_PROD |
| 35-113-07853 | 12201W | P&A_INJ | 35-113-08000 | 12908W | W_INJ |
| 35-113-07854 | 12202 | OIL | 35-113-08001 | 12909 | OIL |
| 35-113-07855 | 12203W | P&A_INJ | 35-113-08002 | 12910 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08003 | 12911 | P&A_INJ | 35-113-08053 | 502 | SI_OIL |
| 35-113-08004 | 12912 | SI_OIL | 35-113-08054 | 521W | P&A_INJ |
| 35-113-08005 | 12913 | PA_PROD | 35-113-08055 | 522W | P&A_INJ |
| 35-113-08006 | 12914 | SI_OIL | 35-113-08056 | 523W | P&A_INJ |
| 35-113-08007 | 13201W | SI_WINJ | 35-113-08057 | 524W | P&A_INJ |
| 35-113-08008 | 13202 | SI_OIL | 35-113-08058 | 526W | P&A_INJ |
| 35-113-08010 | 13204 | PA_PROD | 35-113-08059 | 527W | W_INJ |
| 35-113-08011 | 13207 | PA_PROD | 35-113-08060 | 528W | P&A_INJ |
| 35-113-08012 | 13208 | SI_OIL | 35-113-08061 | 201 | PA_PROD |
| 35-113-08013 | 13211W | SI_WINJ | 35-113-08062 | 202 | DRY |
| 35-113-08022 | 702 | PA_PROD | 35-113-08063 | 203 | DRY |
| 35-113-08023 | 703 | PA_PROD | 35-113-08064 | 204 | DRY |
| 35-113-08024 | 705 | PA_PROD | 35-113-08065 | 205 | DRY |
| 35-113-08025 | 706 | DRY | 35-113-08067 | 503 | OIL |
| 35-113-08026 | 613 | PA_PROD | 35-113-08068 | 401 | PA_PROD |
| 35-113-08027 | 616 | DRY | 35-113-08069 | 407 | PA_PROD |
| 35-113-08028 | 601 | OIL | 35-113-08070 | 104 | PA_PROD |
| 35-113-08029 | 611 | OIL | 35-113-08074 | 301 | OIL |
| 35-113-08030 | 621W | P&A_INJ | 35-113-08075 | 302 | OIL |
| 35-113-08031 | 622W | P&A_INJ | 35-113-08076 | 303 | OIL |
| 35-113-08032 | 623W | WAG | 35-113-08077 | 304 | SI_OIL |
| 35-113-08033 | 624W | P&A_INJ | 35-113-08078 | 305W | SI_WINJ |
| 35-113-08034 | 625W | P&A_INJ | 35-113-08079 | 306A | SI_OIL |
| 35-113-08035 | 721W | P&A_INJ | 35-113-08080 | 307 | PA_PROD |
| 35-113-08036 | 207 | PA_PROD | 35-113-08085 | 308 | SI_OIL |
| 35-113-08037 | 106 | SI_OIL | 35-113-08086 | 309 | SI_OIL |
| 35-113-08038 | 107W | DRY | 35-113-08087 | 310 | OIL |
| 35-113-08039 | 525W | P&A_INJ | 35-113-08088 | 322W | P&A_INJ |
| 35-113-08040 | 104A | SI_OIL | 35-113-08089 | 323W | W_INJ |
| 35-113-08041 | 401A | OIL | 35-113-08090 | 324W | W_INJ |
| 35-113-08042 | 409 | OIL | 35-113-08091 | 325W | P&A_INJ |
| 35-113-08043 | 410 | OIL | 35-113-08092 | 326W | W_INJ |
| 35-113-08044 | 411 | OIL | 35-113-08093 | 327W | SI_WINJ |
| 35-113-08045 | 421W | P&A_INJ | 35-113-08094 | 328W | W_INJ |
| 35-113-08046 | 422W | WAG | 35-113-08095 | 801 | OIL |
| 35-113-08047 | 423W | P&A_INJ | 35-113-08096 | 1401 | OIL |
| 35-113-08048 | 424W | P&A_INJ | 35-113-08097 | 803 | OIL |
| 35-113-08049 | 425W | P&A_INJ | 35-113-08098 | 804 | OIL |
| 35-113-08050 | 426W | W_INJ | 35-113-08099 | 805 | PA_PROD |
| 35-113-08051 | 427W | P&A_INJ | 35-113-08100 | 806 | OIL |
| 35-113-08052 | 428W | W_INJ | 35-113-08101 | 807 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08102 | 808 | P&A_INJ | 35-113-08143 | 1024W | P&A_INJ |
| 35-113-08103 | 809 | P&A_INJ | 35-113-08144 | 1025W | WAG |
| 35-113-08104 | 810W | W_INJ | 35-113-08145 | 1026W | P&A_INJ |
| 35-113-08105 | 811 | OIL | 35-113-08146 | 1027W | WAG |
| 35-113-08106 | 812W | TA_OIL | 35-113-08147 | 1028W | P&A_INJ |
| 35-113-08107 | 813 | PA_PROD | 35-113-08148 | 1510A | OIL |
| 35-113-08108 | 816 | OIL | 35-113-08149 | 1521W | WAG |
| 35-113-08109 | 822W | P&A_INJ | 35-113-08150 | 1522W | WAG |
| 35-113-08110 | 823W | P&A_INJ | 35-113-08151 | 1523W | P&A_INJ |
| 35-113-08111 | 824W | P&A_INJ | 35-113-08152 | 1524W | P&A_INJ |
| 35-113-08112 | 826W | P&A_INJ | 35-113-08153 | 1525W | WAG |
| 35-113-08113 | 827W | P&A_INJ | 35-113-08154 | 1526W | P&A_INJ |
| 35-113-08114 | 828W | WAG | 35-113-08155 | 1527W | WAG |
| 35-113-08115 | 1422W | W_INJ | 35-113-08156 | 1528W | P&A_INJ |
| 35-113-08116 | 1427W | P&A_INJ | 35-113-08157 | 1621W | P&A_INJ |
| 35-113-08117 | 902 | OIL | 35-113-08158 | 1622W | P&A_INJ |
| 35-113-08118 | 903 | PA_PROD | 35-113-08159 | 1623W | P&A_INJ |
| 35-113-08119 | 904 | OIL | 35-113-08160 | 1624W | WAG |
| 35-113-08120 | 905 | PA_PROD | 35-113-08161 | 1625W | WAG |
| 35-113-08121 | 906 | PA_PROD | 35-113-08162 | 1626W | P&A_INJ |
| 35-113-08122 | 907 | PA_PROD | 35-113-08163 | 1627W | WAG |
| 35-113-08123 | 908 | OIL | 35-113-08164 | 1017 | DRY |
| 35-113-08124 | 909 | PA_PROD | 35-113-08165 | 1517W | P&A_INJ |
| 35-113-08125 | 910 | P&A_INJ | 35-113-08166 | 1121W | P&A_INJ |
| 35-113-08126 | 911 | SI_OIL | 35-113-08167 | 1122W | P&A_INJ |
| 35-113-08127 | 912 | OIL | 35-113-08168 | 1123W | WAG |
| 35-113-08128 | 913 | PA_PROD | 35-113-08169 | 1124W | P&A_INJ |
| 35-113-08129 | 914 | PA_PROD | 35-113-08170 | 1125W | P&A_INJ |
| 35-113-08130 | 915 | P&A_INJ | 35-113-08171 | 1126W | WAG |
| 35-113-08131 | 916 | OIL | 35-113-08172 | 1127W | P&A_INJ |
| 35-113-08132 | 921W | WAG | 35-113-08173 | 1128W | WAG |
| 35-113-08133 | 922W | P&A_INJ | 35-113-08174 | 1221W | WAG |
| 35-113-08134 | 923W | WAG | 35-113-08175 | 1222W | P&A_INJ |
| 35-113-08135 | 924W | PA_PROD | 35-113-08176 | 1223W | W_INJ |
| 35-113-08136 | 925W | WAG | 35-113-08177 | 1224W | P&A_INJ |
| 35-113-08137 | 926W | P&A_INJ | 35-113-08178 | 1225W | WAG |
| 35-113-08138 | 927W | WAG | 35-113-08179 | 1226W | P&A_INJ |
| 35-113-08139 | 928W | P&A_INJ | 35-113-08180 | 1227W | P&A_INJ |
| 35-113-08140 | 1021W | P&A_INJ | 35-113-08181 | 1721W | P&A_INJ |
| 35-113-08141 | 1022W | P&A_INJ | 35-113-08182 | 1722W | P&A_INJ |
| 35-113-08142 | 1023W | WAG | 35-113-08183 | 1723W | P&A_INJ |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08184 | 1724W | WAG | 35-113-08226 | 2621W | P&A_INJ |
| 35-113-08185 | 1725W | P&A_INJ | 35-113-08227 | 2622W | P&A_INJ |
| 35-113-08186 | 1726W | P&A_INJ | 35-113-08228 | 2623W | P&A_INJ |
| 35-113-08187 | 1727W | P&A_INJ | 35-113-08229 | 2624W | P&A_INJ |
| 35-113-08188 | 1728W | P&A_INJ | 35-113-08230 | 2625W | WAG |
| 35-113-08189 | 1821W | WAG | 35-113-08231 | 2626 | P&A_INJ |
| 35-113-08190 | 1822W | P&A_INJ | 35-113-08232 | 2627W | P&A_INJ |
| 35-113-08191 | 1823 | P&A_INJ | 35-113-08233 | 2628W | SI_WINJ |
| 35-113-08192 | 1825W | P&A_INJ | 35-113-08234 | 3321W | PA_PROD |
| 35-113-08193 | 1826W | P&A_INJ | 35-113-08235 | 3323W | PA_PROD |
| 35-113-08194 | 1827W | P&A_INJ | 35-113-08236 | 3325W | P&A_INJ |
| 35-113-08195 | 1828W | W_INJ | 35-113-08237 | 3327W | P&A_INJ |
| 35-113-08196 | 1802 | P&A_INJ | 35-113-08238 | 3404 | PA_PROD |
| 35-113-08197 | 1803 | OIL | 35-113-08238 | 3404A | OIL |
| 35-113-08198 | 1804 | PA_PROD | 35-113-08239 | 3421W | P&A_INJ |
| 35-113-08199 | 1805 | P&A_INJ | 35-113-08240 | 3423W | P&A_INJ |
| 35-113-08200 | 1806 | P&A_INJ | 35-113-08241 | 3425W | WAG |
| 35-113-08201 | 1807 | P&A_INJ | 35-113-08242 | 3427W | P&A_INJ |
| 35-113-08202 | 1808 | OIL | 35-113-08243 | 2601 | OIL |
| 35-113-08204 | 1810 | OIL | 35-113-08244 | 2602 | OIL |
| 35-113-08205 | 1811 | OIL | 35-113-08245 | 2603 | OIL |
| 35-113-08206 | 1812 | OIL | 35-113-08246 | 2604 | OIL |
| 35-113-08207 | 1813 | PA_PROD | 35-113-08247 | 2605 | W_INJ |
| 35-113-08208 | 1814 | OIL | 35-113-08248 | 2606 | PA_PROD |
| 35-113-08209 | 1815 | OIL | 35-113-08249 | 2607W | P&A_INJ |
| 35-113-08210 | 1816 | P&A_INJ | 35-113-08250 | 2608 | PA_PROD |
| 35-113-08211 | 1801 | OIL | 35-113-08251 | 2609 | P&A_INJ |
| 35-113-08212 | 1209 | OIL | 35-113-08252 | 2610 | PA_PROD |
| 35-113-08213 | 1210 | OIL | 35-113-08253 | 2611 | OIL |
| 35-113-08214 | 1217 | P&A_INJ | 35-113-08254 | 2612 | PA_PROD |
| 35-113-08215 | 2502A | OIL | 35-113-08255 | 2613 | OIL |
| 35-113-08216 | 2503A | OIL | 35-113-08256 | 2614 | OIL |
| 35-113-08217 | 2511A | OIL | 35-113-08257 | 2615 | PA_PROD |
| 35-113-08218 | 2521W | WAG | 35-113-08258 | 2616 | SI_WINJ |
| 35-113-08219 | 2522W | P&A_INJ | 35-113-08259 | 2501 | OIL |
| 35-113-08220 | 2523W | P&A_INJ | 35-113-08261 | 2503 | PA_PROD |
| 35-113-08221 | 2524W | WAG | 35-113-08262 | 2504 | PA_PROD |
| 35-113-08222 | 2525W | P&A_INJ | 35-113-08263 | 2505 | PA_PROD |
| 35-113-08223 | 2526W | P&A_INJ | 35-113-08264 | 2506 | PA_PROD |
| 35-113-08224 | 2527W | P&A_INJ | 35-113-08265 | 2507 | PA_PROD |
| 35-113-08225 | 2528W | P&A_INJ | 35-113-08266 | 2508 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08268 | 2510 | PA_PROD | 35-113-08312 | 3206 | PA_PROD |
| 35-113-08269 | 2511 | PA_PROD | 35-113-08313 | 3203 | OIL |
| 35-113-08270 | 2512 | PA_PROD | 35-113-08314 | 3208 | PA_PROD |
| 35-113-08271 | 2513 | PA_PROD | 35-113-08315 | 3209 | PA_PROD |
| 35-113-08272 | 2514 | PA_PROD | 35-113-08316 | 3210 | PA_PROD |
| 35-113-08273 | 2515 | OIL | 35-113-08317 | 3211 | SI_OIL |
| 35-113-08275 | 3401 | PA_PROD | 35-113-08318 | 3212 | PA_PROD |
| 35-113-08276 | 3402 | OIL | 35-113-08319 | 3213 | PA_PROD |
| 35-113-08277 | 3403 | PA_PROD | 35-113-08320 | 3214 | PA_PROD |
| 35-113-08277 | 3403A | OIL | 35-113-08321 | 3215 | OIL |
| 35-113-08279 | 3405W | P&A_INJ | 35-113-08322 | 3216 | OIL |
| 35-113-08280 | 3406 | PA_PROD | 35-113-08323 | 3101A | OIL |
| 35-113-08281 | 3407 | PA_PROD | 35-113-08324 | 3101 | PA_PROD |
| 35-113-08282 | 3408 | PA_PROD | 35-113-08325 | 3102 | OIL |
| 35-113-08283 | 3409 | PA_PROD | 35-113-08326 | 3103 | OIL |
| 35-113-08284 | 3410 | OIL | 35-113-08327 | 3104 | DRY |
| 35-113-08285 | 3411 | OIL | 35-113-08328 | 3104A | OIL |
| 35-113-08286 | 3412 | OIL | 35-113-08329 | 3105 | PA_PROD |
| 35-113-08287 | 3413 | PA_PROD | 35-113-08330 | 3106 | OIL |
| 35-113-08288 | 3414 | PA_PROD | 35-113-08331 | 3107 | PA_PROD |
| 35-113-08289 | 3415 | PA_PROD | 35-113-08332 | 3108 | PA_PROD |
| 35-113-08290 | 3416 | PA_PROD | 35-113-08333 | 3109 | PA_PROD |
| 35-113-08291 | 3301 | OIL | 35-113-08334 | 3110 | PA_PROD |
| 35-113-08292 | 3302 | OIL | 35-113-08335 | 3111 | OIL |
| 35-113-08293 | 3303 | OIL | 35-113-08336 | 3112 | PA_PROD |
| 35-113-08294 | 3304 | OIL | 35-113-08337 | 3113 | PA_PROD |
| 35-113-08295 | 3305 | PA_PROD | 35-113-08338 | 3114 | PA_PROD |
| 35-113-08296 | 3306 | OIL | 35-113-08339 | 3115 | OIL |
| 35-113-08297 | 3307 | PA_PROD | 35-113-08340 | 3116 | OIL |
| 35-113-08298 | 3308 | PA_PROD | 35-113-08341 | 2301 | OIL |
| 35-113-08300 | 3310 | PA_PROD | 35-113-08342 | 2302A | OIL |
| 35-113-08301 | 3311 | OIL | 35-113-08343 | 2303 | PA_PROD |
| 35-113-08302 | 3312 | PA_PROD | 35-113-08344 | 2304 | PA_PROD |
| 35-113-08303 | 3313 | PA_PROD | 35-113-08345 | 2305 | PA_PROD |
| 35-113-08304 | 3314 | P&A_INJ | 35-113-08346 | 2306 | PA_PROD |
| 35-113-08305 | 3315 | OIL | 35-113-08347 | 2307W | WAG |
| 35-113-08306 | 3316 | OIL | 35-113-08348 | 2308 | PA_PROD |
| 35-113-08307 | 321 | PA_PROD | 35-113-08349 | 2309 | OIL |
| 35-113-08308 | 3202 | OIL | 35-113-08350 | 2310 | OIL |
| 35-113-08310 | 3204 | OIL | 35-113-08351 | 2311 | PA_PROD |
| 35-113-08311 | 3205 | PA_PROD | 35-113-08352 | 2312 | OIL |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-08353 | 2313 | PA_PROD |
| 35-113-08354 | 2314 | P&A_INJ |
| 35-113-08355 | 2315 | PA_PROD |
| 35-113-08356 | 2316 | PA_PROD |
| 35-113-08357 | 2321W | WAG |
| 35-113-08358 | 2323W | P&A_INJ |
| 35-113-08359 | 2325W | WAG |
| 35-113-08360 | 2326W | P&A_INJ |
| 35-113-08361 | 2327W | P&A_INJ |
| 35-113-08362 | 2328W | WAG |
| 35-113-08363 | 2421W | WAG |
| 35-113-08364 | 2422W | P&A_INJ |
| 35-113-08365 | 2423W | P&A_INJ |
| 35-113-08366 | 2424W | WAG |
| 35-113-08367 | 2425W | P&A_INJ |
| 35-113-08368 | 2426W | P&A_INJ |
| 35-113-08369 | 2427W | P&A_INJ |
| 35-113-08370 | 2428W | P&A_INJ |
| 35-113-08371 | 3121W | P&A_INJ |
| 35-113-08372 | 3123W | P&A_INJ |
| 35-113-08373 | 3125W | WAG |
| 35-113-08374 | 3127W | P&A_INJ |
| 35-113-08375 | 3221W | P&A_INJ |
| 35-113-08376 | 3223W | WAG |
| 35-113-08377 | 3225W | WAG |
| 35-113-08378 | 3227W | WAG |
| 35-113-08394 | 2223W | P&A_INJ |
| 35-113-08395 | 2227W | P&A_INJ |
| 35-113-08396 | 3008A | PA_PROD |
| 35-113-08397 | 3015A | OIL |
| 35-113-08398 | 3022W | P&A_INJ |
| 35-113-08399 | 3023W | W_INJ |
| 35-113-08400 | 3025W | W_INJ |
| 35-113-08401 | 3027W | W_INJ |
| 35-113-08402 | 3001 | SI_OIL |
| 35-113-08403 | 3002 | SI_OIL |
| 35-113-08404 | 3003 | PA_PROD |
| 35-113-08405 | 3004 | PA_PROD |
| 35-113-08406 | 3006 | PA_PROD |
| 35-113-08407 | 3011 | OIL |
| 35-113-08408 | 3012 | OIL |
| 35-113-08412 | 2201 | OIL |
| 35-113-08413 | 2202W | W_INJ |
| 35-113-08414 | 2203 | OIL |
| 35-113-08415 | 2204W | P&A_INJ |
| 35-113-08416 | 2205 | OIL |
| 35-113-08417 | 2206 | PA_PROD |
| 35-113-08418 | 2207 | OIL |
| 35-113-08419 | 2208 | PA_PROD |
| 35-113-08420 | 2209 | OIL |
| 35-113-08421 | 2210 | PA_PROD |
| 35-113-08422 | 2211 | P&A_INJ |
| 35-113-08423 | 2212 | PA_PROD |
| 35-113-08424 | 2213 | PA_PROD |
| 35-113-08425 | 2214 | PA_PROD |
| 35-113-08426 | 2215 | OIL |
| 35-113-08427 | 2216 | PA_PROD |
| 35-113-08428 | 3801 | PA_PROD |
| 35-113-08429 | 3802 | PA_PROD |
| 35-113-08429 | 3802A | SI_OIL |
| 35-113-08430 | 3803 | P&A_INJ |
| 35-113-08431 | 3804 | PA_PROD |
| 35-113-08431 | 3804A | SI_OIL |
| 35-113-08432 | 3805 | SI_OIL |
| 35-113-08433 | 3806 | PA_PROD |
| 35-113-08434 | 3807 | PA_PROD |
| 35-113-08435 | 3808W | P&A_INJ |
| 35-113-08436 | 3809 | PA_PROD |
| 35-113-08437 | 3810 | PA_PROD |
| 35-113-08438 | 3811 | PA_PROD |
| 35-113-08439 | 3812W | P&A_INJ |
| 35-113-08440 | 3813W | P&A_INJ |
| 35-113-08441 | 3814 | PA_PROD |
| 35-113-08442 | 3815W | SI_WINJ |
| 35-113-08443 | 3816 | PA_PROD |
| 35-113-08444 | 4701 | P&A_INJ |
| 35-113-08445 | 4702 | P&A_INJ |
| 35-113-08445 | 4702AW | SI_WINJ |
| 35-113-08446 | 4703 | PA_PROD |
| 35-113-08447 | 4704 | P&A_INJ |
| 35-113-08448 | 4706 | PA_PROD |
| 35-113-08449 | 4707 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-08450 | 4708 | P&A_INJ |
| 35-113-08451 | 4709 | PA_PROD |
| 35-113-08452 | 4710 | P&A_INJ |
| 35-113-08453 | 4711 | PA_PROD |
| 35-113-08454 | 4712 | PA_PROD |
| 35-113-08455 | 3827W | P&A_INJ |
| 35-113-08456 | 4728W | P&A_INJ |
| 35-113-08457 | 3921W | P&A_INJ |
| 35-113-08458 | 3923W | P&A_INJ |
| 35-113-08459 | 3925W | WAG |
| 35-113-08460 | 3927W | P&A_INJ |
| 35-113-08461 | 4021W | P&A_INJ |
| 35-113-08462 | 4023W | P&A_INJ |
| 35-113-08463 | 4025W | P&A_INJ |
| 35-113-08464 | 4027W | P&A_INJ |
| 35-113-08465 | 4825W | P&A_INJ |
| 35-113-08466 | 4827W | P&A_INJ |
| 35-113-08467 | 4922W | P&A_INJ |
| 35-113-08468 | 4923W | P&A_INJ |
| 35-113-08469 | 4925W | P&A_INJ |
| 35-113-08470 | 4927W | SI_WINJ |
| 35-113-08471 | 3901 | SI_OIL |
| 35-113-08473 | 3908 | PA_PROD |
| 35-113-08474 | 3917 | P&A_INJ |
| 35-113-08475 | 4001 | PA_PROD |
| 35-113-08475 | 4001A | SI_OIL |
| 35-113-08476 | 4002 | PA_PROD |
| 35-113-08477 | 4003W | W_INJ |
| 35-113-08478 | 4004 | SI_OIL |
| 35-113-08479 | 4005 | PA_PROD |
| 35-113-08480 | 4006W | W_INJ |
| 35-113-08481 | 4007 | PA_PROD |
| 35-113-08482 | 4008 | PA_PROD |
| 35-113-08483 | 4009 | PA_PROD |
| 35-113-08484 | 4010 | PA_PROD |
| 35-113-08485 | 4011 | PA_PROD |
| 35-113-08486 | 4012 | PA_PROD |
| 35-113-08487 | 4013 | OIL |
| 35-113-08488 | 4014A | SI_OIL |
| 35-113-08489 | 4014 | PA_PROD |
| 35-113-08490 | 4015W | SI_WINJ |
| 35-113-08491 | 4016 | OIL |
| 35-113-08492 | 4101 | PA_PROD |
| 35-113-08492 | 4101A | SI_OIL |
| 35-113-08493 | 4102 | SI_OIL |
| 35-113-08494 | 4103 | PA_PROD |
| 35-113-08494 | 4103A | SI_OIL |
| 35-113-08495 | 4104 | SI_OIL |
| 35-113-08496 | 4105 | PA_PROD |
| 35-113-08497 | 4106 | PA_PROD |
| 35-113-08498 | 4107 | PA_PROD |
| 35-113-08499 | 4108 | PA_PROD |
| 35-113-08500 | 4109 | PA_PROD |
| 35-113-08501 | 4110 | PA_PROD |
| 35-113-08502 | 4111 | OIL |
| 35-113-08503 | 4112 | OIL |
| 35-113-08504 | 4113 | SI_OIL |
| 35-113-08505 | 4114 | OIL |
| 35-113-08505 | 4114W | P&A_INJ |
| 35-113-08506 | 4115 | PA_PROD |
| 35-113-08507 | 4116 | WAG |
| 35-113-08508 | 5101 | SI_OIL |
| 35-113-08509 | 5102 | PA_PROD |
| 35-113-08510 | 5103 | SI_OIL |
| 35-113-08511 | 5104 | SI_OIL |
| 35-113-08512 | 5105 | PA_PROD |
| 35-113-08513 | 5106 | PA_PROD |
| 35-113-08514 | 5107 | P&A_INJ |
| 35-113-08515 | 5130W | W_INJ |
| 35-113-08516 | 5109 | PA_PROD |
| 35-113-08517 | 5110 | PA_PROD |
| 35-113-08518 | 5111 | OIL |
| 35-113-08519 | 5112 | SI_OIL |
| 35-113-08520 | 5113 | PA_PROD |
| 35-113-08521 | 5114 | PA_PROD |
| 35-113-08522 | 5115 | SI_OIL |
| 35-113-08523 | 4116 | PA_PROD |
| 35-113-08524 | 4141W | P&A_INJ |
| 35-113-08525 | 4121AW | SI_WINJ |
| 35-113-08525 | 4121W | P&A_INJ |
| 35-113-08526 | 4128AW | SI_WINJ |
| 35-113-08526 | 4128W | P&A_INJ |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08527 | 4125W | WAG | 35-113-08568 | 6410 | SI_WINJ |
| 35-113-08528 | 4127W | P&A_INJ | 35-113-08569 | 6411 | OIL |
| 35-113-08529 | 4131W | P&A_INJ | 35-113-08570 | 6412 | OIL |
| 35-113-08530 | 4232D | SWD | 35-113-08571 | 6501W | P&A_INJ |
| 35-113-08531 | 4223W | P&A_INJ | 35-113-08572 | 6502W | P&A_INJ |
| 35-113-08532 | 4225W | W_INJ | 35-113-08573 | 6505W | P&A_INJ |
| 35-113-08533 | 4227W | P&A_INJ | 35-113-08574 | 6407 | PA_PROD |
| 35-113-08534 | 5005A | TA_OIL | 35-113-08575 | 6506W | W_INJ |
| 35-113-08535 | 5024W | P&A_INJ | 35-113-08577 | 6514 | SI_OIL |
| 35-113-08536 | 5025W | P&A_INJ | 35-113-08589 | 7305 | P&A_INJ |
| 35-113-08537 | 5027W | P&A_INJ | 35-113-08590 | 7306W | P&A_INJ |
| 35-113-08538 | 5121W | P&A_INJ | 35-113-08591 | 7307 | SI_OIL |
| 35-113-08539 | 5123W | P&A_INJ | 35-113-08592 | 7307W | P&A_INJ |
| 35-113-08540 | 5122W | P&A_INJ | 35-113-08593 | 7308 | SI_OIL |
| 35-113-08541 | 5125W | SI_WINJ | 35-113-08594 | 7308W | SI_WINJ |
| 35-113-08542 | 5127W | P&A_INJ | 35-113-08595 | 7309 | PA_PROD |
| 35-113-08543 | 5821W | P&A_INJ | 35-113-08596 | 7310W | SI_WINJ |
| 35-113-08544 | 5917 | SI_OIL | 35-113-08597 | 7311 | SI_OIL |
| 35-113-08545 | 5921W | P&A_INJ | 35-113-08598 | 7312W | SI_WINJ |
| 35-113-08546 | 5923W | P&A_INJ | 35-113-08599 | 7313 | SI_OIL |
| 35-113-08547 | 5925W | P&A_INJ | 35-113-08600 | 7314 | PA_PROD |
| 35-113-08548 | 5926W | W_INJ | 35-113-08601 | 7315 | SI_OIL |
| 35-113-08549 | 5927W | SI_WINJ | 35-113-08602 | 7413 | SI_OIL |
| 35-113-08550 | 6611 | SI_OIL | 35-113-08603 | 7414 | SI_OIL |
| 35-113-08551 | 6601W | P&A_INJ | 35-113-08604 | 8202 | SI_OIL |
| 35-113-08552 | 6602W | W_INJ | 35-113-08605 | 8203 | PA_PROD |
| 35-113-08553 | 6604W | P&A_INJ | 35-113-08606 | 8204W | SI_WINJ |
| 35-113-08554 | 6703W | SI_WINJ | 35-113-08607 | 8205 | PA_PROD |
| 35-113-08555 | 6705W | W_INJ | 35-113-08608 | 8206W | SI_WINJ |
| 35-113-08556 | 6707W | P&A_INJ | 35-113-08609 | 8207 | SI_OIL |
| 35-113-08557 | 6709A | PA_PROD | 35-113-08610 | 8208 | PA_PROD |
| 35-113-08558 | 5612 | SI_OIL | 35-113-08611 | 8208W | P&A_INJ |
| 35-113-08559 | 5613 | SI_OIL | 35-113-08612 | 8301A | PA_PROD |
| 35-113-08560 | 5614 | PA_PROD | 35-113-08613 | 8305W | SI_WINJ |
| 35-113-08561 | 5624W | P&A_INJ | 35-113-08614 | 8306W | SI_WINJ |
| 35-113-08562 | 5628W | P&A_INJ | 35-113-08615 | 8307A | SI_OIL |
| 35-113-08563 | 5721W | P&A_INJ | 35-113-08616 | 8307W | SI_WINJ |
| 35-113-08564 | 5723W | P&A_INJ | 35-113-08617 | 8308W | P&A_INJ |
| 35-113-08565 | 6401W | W_INJ | 35-113-08618 | 8301 | PA_PROD |
| 35-113-08566 | 6403W | SI_WINJ | 35-113-08619 | 8302 | PA_PROD |
| 35-113-08567 | 6409 | SI_OIL | 35-113-08620 | 8303 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08621 | 8304 | PA_PROD | 35-113-08664 | 7608 | PA_PROD |
| 35-113-08622 | 8305 | PA_PROD | 35-113-08665 | 7609 | PA_PROD |
| 35-113-08623 | 8306 | PA_PROD | 35-113-08666 | 7610 | PA_PROD |
| 35-113-08624 | 8307 | PA_PROD | 35-113-08667 | 7611 | PA_PROD |
| 35-113-08625 | 8308 | PA_PROD | 35-113-08668 | 7612 | PA_PROD |
| 35-113-08626 | 8310 | PA_PROD | 35-113-08669 | 7613 | PA_PROD |
| 35-113-08627 | 8311 | PA_PROD | 35-113-08670 | 7614 | SI_OIL |
| 35-113-08628 | 8410 | PA_PROD | 35-113-08671 | 7615 | PA_PROD |
| 35-113-08629 | 8404 | SI_OIL | 35-113-08674 | 8502 | PA_PROD |
| 35-113-08630 | 8405 | PA_PROD | 35-113-08675 | 8503W | P&A_INJ |
| 35-113-08632 | 8403 | PA_PROD | 35-113-08676 | 8504 | SI_OIL |
| 35-113-08633 | 8406 | PA_PROD | 35-113-08677 | 8505 | PA_PROD |
| 35-113-08634 | 8407 | P&A_INJ | 35-113-08678 | 8506 | SI_OIL |
| 35-113-08635 | 848 | PA_PROD | 35-113-08679 | 8507 | PA_PROD |
| 35-113-08635 | 8408 | SI_OIL | 35-113-08680 | 8508W | P&A_INJ |
| 35-113-08637 | 8411 | SI_OIL | 35-113-08681 | 8509 | PA_PROD |
| 35-113-08638 | 7510 | SI_OIL | 35-113-08682 | 8510 | PA_PROD |
| 35-113-08639 | 7511 | OIL | 35-113-08683 | 8511 | PA_PROD |
| 35-113-08640 | 7512 | SI_OIL | 35-113-08684 | 8512 | PA_PROD |
| 35-113-08641 | 7602 | PA_PROD | 35-113-08685 | 8513 | DRY |
| 35-113-08641 | 7602A | OIL | 35-113-08686 | 8514 | PA_PROD |
| 35-113-08643 | 7613A | OIL | 35-113-08687 | 7501 | PA_PROD |
| 35-113-08644 | 7617 | SI_OIL | 35-113-08688 | 7502 | PA_PROD |
| 35-113-08645 | 7618 | PA_PROD | 35-113-08689 | 7503 | DRY |
| 35-113-08646 | 8301W | P&A_INJ | 35-113-08690 | 7507 | PA_PROD |
| 35-113-08647 | 8405W | P&A_INJ | 35-113-08691 | 7509 | PA_PROD |
| 35-113-08648 | 8406A | SI_OIL | 35-113-08693 | 7508 | PA_PROD |
| 35-113-08649 | 8406W | W_INJ | 35-113-08694 | 14201 | PA_PROD |
| 35-113-08650 | 8407W | W_INJ | 35-113-08695 | 14202 | DRY |
| 35-113-08651 | 8417A | OIL | 35-113-08696 | 14203 | DRY |
| 35-113-08652 | 8505W | P&A_INJ | 35-113-08697 | 1309 | SI_OIL |
| 35-113-08653 | 8506W | W_INJ | 35-113-08698 | 1301 | PA_PROD |
| 35-113-08654 | 8509W | P&A_INJ | 35-113-08699 | 1302 | PA_PROD |
| 35-113-08655 | 8515 | SI_OIL | 35-113-08700 | 1303 | PA_PROD |
| 35-113-08656 | 8516 | OIL | 35-113-08701 | 1304 | PA_PROD |
| 35-113-08657 | 7601 | PA_PROD | 35-113-08703 | 1306 | P&A_INJ |
| 35-113-08659 | 7603 | PA_PROD | 35-113-08704 | 1307 | PA_PROD |
| 35-113-08660 | 7504 | PA_PROD | 35-113-08705 | 1310 | PA_PROD |
| 35-113-08661 | 7605 | SI_OIL | 35-113-08706 | 1313 | P&A_INJ |
| 35-113-08662 | 7606 | PA_PROD | 35-113-08707 | 2001 | PA_PROD |
| 35-113-08663 | 7607 | PA_PROD | 35-113-08708 | 2003 | P&A_INJ |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08709 | 2004 | SI_OIL | 35-113-08763 | 3707 | SI_OIL |
| 35-113-08710 | 2005 | PA_PROD | 35-113-08764 | 3708 | SI_OIL |
| 35-113-08711 | 1906W | P&A_INJ | 35-113-08765 | 3709 | PA_PROD |
| 35-113-08712 | 2007 | PA_PROD | 35-113-08766 | 3710 | SI_OIL |
| 35-113-08713 | 2008 | PA_PROD | 35-113-08767 | 3721W | SI_WINJ |
| 35-113-08714 | 2009 | SI_OIL | 35-113-08768 | 3725W | SI_WINJ |
| 35-113-08715 | 2010 | PA_PROD | 35-113-08769 | 3726W | P&A_INJ |
| 35-113-08716 | 2011 | SI_OIL | 35-113-08770 | 3703 | PA_PROD |
| 35-113-08717 | 2013 | PA_PROD | 35-113-08771 | 3704 | P&A_INJ |
| 35-113-08718 | 2014 | SI_OIL | 35-113-08772 | 3705W | SI_WINJ |
| 35-113-08719 | 1907 | PA_PROD | 35-113-08773 | 3706 | PA_PROD |
| 35-113-08720 | 1908 | PA_PROD | 35-113-08777 | 3532 | UNKNW |
| 35-113-08721 | 1911 | SI_OIL | 35-113-08778 | 2721W | P&A_INJ |
| 35-113-08722 | 1912 | SI_OIL | 35-113-08779 | 2722W | P&A_INJ |
| 35-113-08723 | 1915 | PA_PROD | 35-113-08780 | 2723W | P&A_INJ |
| 35-113-08724 | 1916 | PA_PROD | 35-113-08781 | 2724W | SI_WINJ |
| 35-113-08725 | 1321W | P&A_INJ | 35-113-08782 | 2725W | P&A_INJ |
| 35-113-08726 | 1322W | P&A_INJ | 35-113-08783 | 2726W | SI_WINJ |
| 35-113-08727 | 1323W | P&A_INJ | 35-113-08784 | 2727W | SI_WINJ |
| 35-113-08728 | 1324W | P&A_INJ | 35-113-08785 | 2728W | P&A_INJ |
| 35-113-08729 | 1325W | P&A_INJ | 35-113-08786 | 2801A | PA_PROD |
| 35-113-08730 | 1921W | P&A_INJ | 35-113-08787 | 2821W | P&A_INJ |
| 35-113-08731 | 1922W | SI_WINJ | 35-113-08788 | 2822W | P&A_INJ |
| 35-113-08732 | 1923W | P&A_INJ | 35-113-08789 | 2823W | P&A_INJ |
| 35-113-08733 | 1924W | P&A_INJ | 35-113-08790 | 2824W | P&A_INJ |
| 35-113-08734 | 1925 | P&A_INJ | 35-113-08791 | 2825W | P&A_INJ |
| 35-113-08735 | 1926W | SI_WINJ | 35-113-08792 | 2826W | P&A_INJ |
| 35-113-08736 | 1927W | P&A_INJ | 35-113-08793 | 2827W | P&A_INJ |
| 35-113-08737 | 1928W | P&A_INJ | 35-113-08794 | 2828W | P&A_INJ |
| 35-113-08738 | 2002 | SI_OIL | 35-113-08795 | 3521W | SI_WINJ |
| 35-113-08739 | 20W21 | P&A_INJ | 35-113-08796 | 3523W | P&A_INJ |
| 35-113-08740 | 20W22 | P&A_INJ | 35-113-08797 | 3525W | P&A_INJ |
| 35-113-08741 | 20W24 | P&A_INJ | 35-113-08798 | 3527W | SI_WINJ |
| 35-113-08742 | 20W25 | P&A_INJ | 35-113-08799 | 3616 | SI_OIL |
| 35-113-08743 | 2101 | PA_PROD | 35-113-08800 | 3621W | P&A_INJ |
| 35-113-08744 | 2102 | DRY | 35-113-08801 | 3622W | P&A_INJ |
| 35-113-08745 | 2103 | PA_PROD | 35-113-08802 | 3624W | SI_WINJ |
| 35-113-08759 | 2921W | P&A_INJ | 35-113-08803 | 3625W | SI_WINJ |
| 35-113-08760 | 2922W | P&A_INJ | 35-113-08804 | 3627W | P&A_INJ |
| 35-113-08761 | 2923W | P&A_INJ | 35-113-08805 | 3628W | P&A_INJ |
| 35-113-08762 | 2925W | P&A_INJ | 35-113-08806 | 2701 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08807 | 2702 | SI_OIL | 35-113-08850 | 4301 | SI_OIL |
| 35-113-08808 | 2703A | PA_PROD | 35-113-08851 | 4302 | OIL |
| 35-113-08809 | 2704 | SI_OIL | 35-113-08852 | 4303 | SI_OIL |
| 35-113-08810 | 2705 | P&A_INJ | 35-113-08853 | 4304 | OIL |
| 35-113-08811 | 2706 | PA_PROD | 35-113-08854 | 4305 | PA_PROD |
| 35-113-08812 | 2708 | PA_PROD | 35-113-08856 | 4307 | PA_PROD |
| 35-113-08813 | 2709 | TA_OIL | 35-113-08857 | 4308 | PA_PROD |
| 35-113-08814 | 2710 | PA_PROD | 35-113-08858 | 4309 | PA_PROD |
| 35-113-08815 | 2711 | PA_PROD | 35-113-08859 | 4310 | PA_PROD |
| 35-113-08816 | 2712 | PA_PROD | 35-113-08860 | 4311 | SI_OIL |
| 35-113-08817 | 3501 | PA_PROD | 35-113-08861 | 4312 | DRY |
| 35-113-08818 | 3502 | PA_PROD | 35-113-08862 | 2713A | SI_OIL |
| 35-113-08819 | 3503 | SI_OIL | 35-113-08863 | 4313 | OIL |
| 35-113-08820 | 3504 | SI_OIL | 35-113-08864 | 4315 | PA_PROD |
| 35-113-08821 | 3505 | PA_PROD | 35-113-08865 | 4316 | PA_PROD |
| 35-113-08822 | 3506 | PA_PROD | 35-113-08866 | 4314 | SI_OIL |
| 35-113-08823 | 3507 | PA_PROD | 35-113-08866 | 4314A | OIL |
| 35-113-08824 | 3508 | PA_PROD | 35-113-08867 | 4322W | W_INJ |
| 35-113-08825 | 3509 | PA_PROD | 35-113-08868 | 4324W | W_INJ |
| 35-113-08826 | 3510 | PA_PROD | 35-113-08869 | 4325W | W_INJ |
| 35-113-08827 | 3511 | SI_OIL | 35-113-08870 | 4327W | SI_WINJ |
| 35-113-08828 | 3512 | PA_PROD | 35-113-08871 | 4422W | P&A_INJ |
| 35-113-08829 | 3513W | P&A_INJ | 35-113-08872 | 4424W | SI_WINJ |
| 35-113-08830 | 3514 | PA_PROD | 35-113-08873 | 4425W | SI_WINJ |
| 35-113-08831 | 3515 | PA_PROD | 35-113-08874 | 4426W | W_INJ |
| 35-113-08832 | 3516 | PA_PROD | 35-113-08875 | 4428W | P&A_INJ |
| 35-113-08833 | 5301A | SI_OIL | 35-113-08876 | 5221W | P&A_INJ |
| 35-113-08834 | 5301 | PA_PROD | 35-113-08877 | 5222W | P&A_INJ |
| 35-113-08835 | 5302 | OIL | 35-113-08878 | 5223W | W_INJ |
| 35-113-08836 | 5303 | SI_OIL | 35-113-08879 | 5224W | P&A_INJ |
| 35-113-08837 | 5304 | PA_PROD | 35-113-08880 | 5225W | P&A_INJ |
| 35-113-08838 | 5305 | SI_OIL | 35-113-08881 | 5227W | P&A_INJ |
| 35-113-08839 | 5306W | P&A_INJ | 35-113-08882 | 5304A | OIL |
| 35-113-08840 | 5307 | PA_PROD | 35-113-08883 | 5321W | P&A_INJ |
| 35-113-08841 | 5308W | P&A_INJ | 35-113-08884 | 5322W | SI_WINJ |
| 35-113-08843 | 5310 | PA_PROD | 35-113-08885 | 5323W | P&A_INJ |
| 35-113-08845 | 5312 | SI_OIL | 35-113-08886 | 5324W | P&A_INJ |
| 35-113-08846 | 5313 | PA_PROD | 35-113-08887 | 5325W | W_INJ |
| 35-113-08847 | 5314 | PA_PROD | 35-113-08888 | 5327W | P&A_INJ |
| 35-113-08848 | 5315 | OIL | 35-113-08889 | 4401 | SI_OIL |
| 35-113-08849 | 5316 | PA_PROD | 35-113-08890 | 4402 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-08891 | 4403 | PA_PROD | 35-113-08939 | 5410 | PA_PROD |
| 35-113-08892 | 4404 | PA_PROD | 35-113-08940 | 5411 | PA_PROD |
| 35-113-08893 | 4405 | PA_PROD | 35-113-08941 | 5412 | PA_PROD |
| 35-113-08894 | 4406 | PA_PROD | 35-113-08942 | 5413 | PA_PROD |
| 35-113-08895 | 4407W | P&A_INJ | 35-113-08943 | 5414 | PA_PROD |
| 35-113-08896 | 4408 | PA_PROD | 35-113-08944 | 5415 | PA_PROD |
| 35-113-08897 | 4409 | SI_OIL | 35-113-08945 | 5416 | PA_PROD |
| 35-113-08898 | 4410 | SI_OIL | 35-113-08970 | 7201 | PA_PROD |
| 35-113-08899 | 4411 | PA_PROD | 35-113-08971 | 7202 | PA_PROD |
| 35-113-08900 | 4411A | PA_PROD | 35-113-08972 | 7203 | PA_PROD |
| 35-113-08901 | 4412 | SI_OIL | 35-113-08973 | 7204 | PA_PROD |
| 35-113-08902 | 4413 | SI_OIL | 35-113-08974 | 7205 | PA_PROD |
| 35-113-08903 | 4414 | SI_OIL | 35-113-08975 | 6 | PA_PROD |
| 35-113-08904 | 4414A | PA_PROD | 35-113-08976 | 7208 | PA_PROD |
| 35-113-08905 | 4415 | PA_PROD | 35-113-08977 | 7209 | PA_PROD |
| 35-113-08913 | 4502A | SI_OIL | 35-113-08978 | 7210 | PA_PROD |
| 35-113-08914 | 4508 | PA_PROD | 35-113-08979 | 1 | PA_PROD |
| 35-113-08915 | 4509 | SI_OIL | 35-113-08980 | 2 | SI_OIL |
| 35-113-08916 | 4521W | SI_WINJ | 35-113-09001 | 7 | SI_OIL |
| 35-113-08917 | 4522W | P&A_INJ | 35-113-09002 | 7201W | P&A_INJ |
| 35-113-08918 | 4524W | SI_WINJ | 35-113-09003 | 7205W | P&A_INJ |
| 35-113-08919 | 4526W | SI_WINJ | 35-113-09004 | 7209A | PA_PROD |
| 35-113-08920 | 5404A | PA_PROD | 35-113-09005 | 6201 | PA_PROD |
| 35-113-08921 | 5405A | PA_PROD | 35-113-09006 | 6202 | PA_PROD |
| 35-113-08922 | 5410A | PA_PROD | 35-113-09007 | 6203 | PA_PROD |
| 35-113-08923 | 5421W | P&A_INJ | 35-113-09008 | 6204 | PA_PROD |
| 35-113-08924 | 5422W | P&A_INJ | 35-113-09009 | 6205 | PA_PROD |
| 35-113-08925 | 5423W | P&A_INJ | 35-113-09010 | 6206 | PA_PROD |
| 35-113-08926 | 5424W | P&A_INJ | 35-113-09011 | 6207 | PA_PROD |
| 35-113-08927 | 5425W | P&A_INJ | 35-113-09012 | 6208 | PA_PROD |
| 35-113-08928 | 5427W | P&A_INJ | 35-113-09013 | 6209 | PA_PROD |
| 35-113-08929 | 5521W | P&A_INJ | 35-113-09014 | 6210 | PA_PROD |
| 35-113-08930 | 5525W | P&A_INJ | 35-113-09016 | 6212 | PA_PROD |
| 35-113-08931 | 5401 | PA_PROD | 35-113-09017 | 6213 | PA_PROD |
| 35-113-08932 | 5402 | PA_PROD | 35-113-09018 | 6214 | PA_PROD |
| 35-113-08933 | 5403 | PA_PROD | 35-113-09019 | 6215 | PA_PROD |
| 35-113-08934 | 5404 | PA_PROD | 35-113-09020 | 6216 | PA_PROD |
| 35-113-08935 | 5405 | PA_PROD | 35-113-09021 | 6221W | P&A_INJ |
| 35-113-08936 | 5406 | PA_PROD | 35-113-09022 | 6222W | P&A_INJ |
| 35-113-08937 | 5407 | PA_PROD | 35-113-09023 | 6223W | P&A_INJ |
| 35-113-08938 | 5409 | P&A_INJ | 35-113-09024 | 6224W | P&A_INJ |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-09025 | 6225W | P&A_INJ | 35-113-09066 | 7003 | PA_PROD |
| 35-113-09026 | 6226W | P&A_INJ | 35-113-09067 | 7004 | PA_PROD |
| 35-113-09027 | 6227W | P&A_INJ | 35-113-09068 | 7005 | PA_PROD |
| 35-113-09028 | 6228W | P&A_INJ | 35-113-09069 | 7006 | PA_PROD |
| 35-113-09029 | 6308 | PA_PROD | 35-113-09070 | 7007 | PA_PROD |
| 35-113-09030 | 6321W | P&A_INJ | 35-113-09071 | 7008 | PA_PROD |
| 35-113-09031 | 6322W | P&A_INJ | 35-113-09072 | 7009 | PA_PROD |
| 35-113-09032 | 6325W | P&A_INJ | 35-113-09073 | 7010 | PA_PROD |
| 35-113-09033 | 7001A | SI_OIL | 35-113-09074 | 7011 | PA_PROD |
| 35-113-09034 | 7001W | P&A_INJ | 35-113-09075 | 7012 | PA_PROD |
| 35-113-09035 | 7002W | P&A_INJ | 35-113-09076 | 7013 | PA_PROD |
| 35-113-09036 | 7003W | P&A_INJ | 35-113-09077 | 7014 | P&A_INJ |
| 35-113-09037 | 7004W | P&A_INJ | 35-113-09078 | 7015 | PA_PROD |
| 35-113-09038 | 7005W | P&A_INJ | 35-113-09079 | 7016 | PA_PROD |
| 35-113-09039 | 7006W | P&A_INJ | 35-113-09080 | 6301 | PA_PROD |
| 35-113-09040 | 7007W | SI_WINJ | 35-113-09081 | 6021W | P&A_INJ |
| 35-113-09041 | 7008W | P&A_INJ | 35-113-09082 | 6022W | P&A_INJ |
| 35-113-09042 | 7013A | SI_OIL | 35-113-09083 | 6024W | SI_WINJ |
| 35-113-09043 | 7101W | P&A_INJ | 35-113-09084 | 6025W | SI_WINJ |
| 35-113-09044 | 7102W | P&A_INJ | 35-113-09085 | 6026W | SI_WINJ |
| 35-113-09045 | 7103W | P&A_INJ | 35-113-09086 | 6028W | W_INJ |
| 35-113-09046 | 7104W | P&A_INJ | 35-113-09087 | 6121W | W_INJ |
| 35-113-09047 | 7105W | P&A_INJ | 35-113-09088 | 6122W | SI_WINJ |
| 35-113-09048 | 7106W | P&A_INJ | 35-113-09089 | 6123W | P&A_INJ |
| 35-113-09049 | 7107W | P&A_INJ | 35-113-09090 | 6124W | SI_WINJ |
| 35-113-09050 | 708 | PA_PROD | 35-113-09091 | 6125W | P&A_INJ |
| 35-113-09051 | 7101 | PA_PROD | 35-113-09092 | 4306 | PA_PROD |
| 35-113-09052 | 7102 | PA_PROD | 35-113-09093 | 6126W | W_INJ |
| 35-113-09053 | 7103 | PA_PROD | 35-113-09094 | 6127W | SI_WINJ |
| 35-113-09054 | 7104 | PA_PROD | 35-113-09095 | 6128W | P&A_INJ |
| 35-113-09055 | 7105 | PA_PROD | 35-113-09096 | 6801W | SI_WINJ |
| 35-113-09056 | 7106 | SI_OIL | 35-113-09097 | 6802W | SI_WINJ |
| 35-113-09057 | 7107 | PA_PROD | 35-113-09098 | 6803W | SI_WINJ |
| 35-113-09058 | 7108 | PA_PROD | 35-113-09099 | 6804W | P&A_INJ |
| 35-113-09059 | 7109 | PA_PROD | 35-113-09100 | 6805W | P&A_INJ |
| 35-113-09060 | 7110 | P&A_INJ | 35-113-09101 | 6806W | P&A_INJ |
| 35-113-09061 | 7111 | SI_OIL | 35-113-09102 | 6807W | P&A_INJ |
| 35-113-09062 | 7112 | PA_PROD | 35-113-09103 | 6808W | SI_WINJ |
| 35-113-09063 | 7113 | PA_PROD | 35-113-09104 | 6901W | P&A_INJ |
| 35-113-09064 | 7001 | PA_PROD | 35-113-09105 | 6902W | SI_WINJ |
| 35-113-09065 | 7002 | PA_PROD | 35-113-09106 | 6903W | SI_WINJ |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-09107 | 69W4 | SI_WINJ | 35-113-09149 | 6807 | PA_PROD |
| 35-113-09108 | 6905W | SI_WINJ | 35-113-09150 | 6813 | PA_PROD |
| 35-113-09109 | 6906W | P&A_INJ | 35-113-09151 | 6805 | PA_PROD |
| 35-113-09110 | 6907W | P&A_INJ | 35-113-09152 | 6808 | PA_PROD |
| 35-113-09111 | 6908W | P&A_INJ | 35-113-09153 | 6809 | PA_PROD |
| 35-113-09112 | 6101 | PA_PROD | 35-113-09154 | 6810 | SI_OIL |
| 35-113-09113 | 6102 | OIL | 35-113-09155 | 6811W | P&A_INJ |
| 35-113-09114 | 6103 | PA_PROD | 35-113-09156 | 6812 | PA_PROD |
| 35-113-09115 | 6104 | SI_OIL | 35-113-09157 | 6814 | PA_PROD |
| 35-113-09116 | 6105 | PA_PROD | 35-113-09158 | 6815 | PA_PROD |
| 35-113-09117 | 6106 | PA_PROD | 35-113-09159 | 6816 | PA_PROD |
| 35-113-09118 | 6107 | PA_PROD | 35-113-09160 | 6817 | PA_PROD |
| 35-113-09119 | 6108 | PA_PROD | 35-113-09161 | 8601 | PA_PROD |
| 35-113-09120 | 6109 | PA_PROD | 35-113-09162 | 8602 | PA_PROD |
| 35-113-09121 | 6110 | PA_PROD | 35-113-09163 | 8603 | PA_PROD |
| 35-113-09122 | 6111 | SI_OIL | 35-113-09164 | 8604 | PA_PROD |
| 35-113-09124 | 6113 | PA_PROD | 35-113-09165 | 8606 | OIL |
| 35-113-09125 | 6114 | PA_PROD | 35-113-09166 | 8607 | PA_PROD |
| 35-113-09126 | 6115 | PA_PROD | 35-113-09167 | 8608 | PA_PROD |
| 35-113-09127 | 6116 | PA_PROD | 35-113-09168 | 8609 | SI_OIL |
| 35-113-09128 | 6901 | PA_PROD | 35-113-09169 | 8610 | PA_PROD |
| 35-113-09129 | 6902 | SI_OIL | 35-113-09170 | 8611 | PA_PROD |
| 35-113-09130 | 6903 | SI_OIL | 35-113-09171 | 8612 | PA_PROD |
| 35-113-09131 | 6904 | PA_PROD | 35-113-09172 | 8613 | PA_PROD |
| 35-113-09132 | 6905 | PA_PROD | 35-113-09173 | 8614 | PA_PROD |
| 35-113-09133 | 6906 | PA_PROD | 35-113-09174 | 8615 | P&A_INJ |
| 35-113-09134 | 6907 | SI_OIL | 35-113-09175 | 8616 | P&A_INJ |
| 35-113-09135 | 6908 | PA_PROD | 35-113-09176 | 8701 | PA_PROD |
| 35-113-09136 | 6909 | PA_PROD | 35-113-09177 | 8702 | PA_PROD |
| 35-113-09137 | 6910 | PA_PROD | 35-113-09179 | 8704 | PA_PROD |
| 35-113-09138 | 6911 | PA_PROD | 35-113-09180 | 8705 | PA_PROD |
| 35-113-09139 | 6912 | PA_PROD | 35-113-09181 | 8706 | PA_PROD |
| 35-113-09140 | 6913 | PA_PROD | 35-113-09182 | 8707 | PA_PROD |
| 35-113-09141 | 6914 | SI_OIL | 35-113-09183 | 8708 | PA_PROD |
| 35-113-09142 | 6915 | SI_OIL | 35-113-09184 | 8709 | PA_PROD |
| 35-113-09143 | 6916 | PA_PROD | 35-113-09185 | 8710 | SI_OIL |
| 35-113-09144 | 6801 | PA_PROD | 35-113-09186 | 8711 | P&A_INJ |
| 35-113-09145 | 6802 | SI_OIL | 35-113-09187 | 8712 | PA_PROD |
| 35-113-09146 | 6803 | PA_PROD | 35-113-09188 | 8613 | PA_PROD |
| 35-113-09147 | 6804 | PA_PROD | 35-113-09188 | 8713 | OIL |
| 35-113-09148 | 6806 | PA_PROD | 35-113-09189 | 8714 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-09190 | 8715 | PA_PROD | 35-113-09232 | 7710 | PA_PROD |
| 35-113-09191 | 8716 | P&A_INJ | 35-113-09233 | 7706 | PA_PROD |
| 35-113-09192 | 7801 | PA_PROD | 35-113-09234 | 7713 | PA_PROD |
| 35-113-09193 | 7802 | PA_PROD | 35-113-09235 | 867 | SI_OIL |
| 35-113-09194 | 7803A | SI_OIL | 35-113-09236 | 8801 | SI_OIL |
| 35-113-09195 | 7804 | OIL | 35-113-09237 | 8802 | PA_PROD |
| 35-113-09196 | 7805 | PA_PROD | 35-113-09238 | 8803 | PA_PROD |
| 35-113-09197 | 7806 | PA_PROD | 35-113-09239 | 8804 | PA_PROD |
| 35-113-09198 | 7807 | PA_PROD | 35-113-09240 | 8805 | PA_PROD |
| 35-113-09199 | 7808 | SI_OIL | 35-113-09241 | 8806 | SI_OIL |
| 35-113-09200 | 7809 | SI_OIL | 35-113-09242 | 8807 | PA_PROD |
| 35-113-09201 | 7810 | OIL | 35-113-09243 | 8808 | SI_OIL |
| 35-113-09202 | 7811 | SI_OIL | 35-113-09244 | 8809 | PA_PROD |
| 35-113-09203 | 7812 | SI_OIL | 35-113-09245 | 8810 | P&A_INJ |
| 35-113-09204 | 7813 | OIL | 35-113-09246 | 8811 | PA_PROD |
| 35-113-09205 | 7814 | PA_PROD | 35-113-09247 | 8812 | PA_PROD |
| 35-113-09206 | 7815 | P&A_INJ | 35-113-09248 | 8813 | OIL |
| 35-113-09207 | 7816 | SI_OIL | 35-113-09249 | 8814 | PA_PROD |
| 35-113-09208 | 771A | PA_PROD | 35-113-09250 | 8815 | PA_PROD |
| 35-113-09209 | 7702A | SI_OIL | 35-113-09251 | 8816 | PA_PROD |
| 35-113-09210 | 7704A | SI_OIL | 35-113-09252 | 7901 | PA_PROD |
| 35-113-09211 | 7708 | SI_OIL | 35-113-09253 | 7902 | PA_PROD |
| 35-113-09212 | 7717 | SI_OIL | 35-113-09254 | 7903 | PA_PROD |
| 35-113-09213 | 8616A | SI_OIL | 35-113-09255 | 7904 | PA_PROD |
| 35-113-09214 | 8617 | OIL | 35-113-09256 | 7905A | PA_PROD |
| 35-113-09215 | 8605W | W_INJ | 35-113-09257 | 7906 | PA_PROD |
| 35-113-09216 | 8606W | SI_WINJ | 35-113-09258 | 8807 | SI_OIL |
| 35-113-09217 | 8607W | SI_WINJ | 35-113-09259 | 7908 | SI_OIL |
| 35-113-09218 | 8608W | P&A_INJ | 35-113-09260 | 7909 | SI_OIL |
| 35-113-09219 | 7701 | PA_PROD | 35-113-09261 | 7910 | PA_PROD |
| 35-113-09220 | 7702 | PA_PROD | 35-113-09262 | 7911 | SI_OIL |
| 35-113-09221 | 7703 | PA_PROD | 35-113-09263 | 7912 | SI_OIL |
| 35-113-09222 | 7705 | PA_PROD | 35-113-09264 | 7913 | SI_OIL |
| 35-113-09223 | 7707 | PA_PROD | 35-113-09265 | 7914 | PA_PROD |
| 35-113-09225 | 7709 | PA_PROD | 35-113-09266 | 7915 | P&A_INJ |
| 35-113-09226 | 7711W | W_INJ | 35-113-09267 | 7916 | SI_OIL |
| 35-113-09227 | 7712 | SI_OIL | 35-113-09268 | 8007A | SI_OIL |
| 35-113-09228 | 7714 | PA_PROD | 35-113-09269 | 8807W | SI_WINJ |
| 35-113-09229 | 7715 | PA_PROD | 35-113-09270 | 8809A | PA_PROD |
| 35-113-09230 | 7716 | PA_PROD | 35-113-09271 | 8903A | SI_OIL |
| 35-113-09231 | 7704 | PA_PROD | 35-113-09272 | 8905A | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-09273 | 8905W | SI_WINJ | 35-113-09318 | 9003 | PA_PROD |
| 35-113-09274 | 8906W | W_INJ | 35-113-09319 | 9004 | PA_PROD |
| 35-113-09275 | 8907W | SI_WINJ | 35-113-09320 | 9005 | PA_PROD |
| 35-113-09276 | 8901 | PA_PROD | 35-113-09321 | 9006 | P&A_INJ |
| 35-113-09277 | 8902 | PA_PROD | 35-113-09322 | 9007 | PA_PROD |
| 35-113-09278 | 8903 | PA_PROD | 35-113-09323 | 9008 | SI_OIL |
| 35-113-09279 | 8904 | PA_PROD | 35-113-09324 | 9009 | SI_OIL |
| 35-113-09280 | 8905 | PA_PROD | 35-113-09325 | 9010 | PA_PROD |
| 35-113-09281 | 8906 | SI_OIL | 35-113-09326 | 9011 | PA_PROD |
| 35-113-09282 | 8907 | PA_PROD | 35-113-09327 | 9012 | OIL |
| 35-113-09283 | 8908 | PA_PROD | 35-113-09328 | 9013 | P&A_INJ |
| 35-113-09284 | 8909 | PA_PROD | 35-113-09329 | 9014 | SI_OIL |
| 35-113-09285 | 8910 | PA_PROD | 35-113-09330 | 9015 | SI_OIL |
| 35-113-09286 | 8911 | SI_OIL | 35-113-09331 | 9016 | PA_PROD |
| 35-113-09287 | 8912 | PA_PROD | 35-113-09332 | 8101 | PA_PROD |
| 35-113-09288 | 8913 | PA_PROD | 35-113-09333 | 812 | PA_PROD |
| 35-113-09289 | 8914 | PA_PROD | 35-113-09334 | 8103 | P&A_INJ |
| 35-113-09290 | 8915 | OIL | 35-113-09335 | 8104 | SI_OIL |
| 35-113-09291 | 8916 | PA_PROD | 35-113-09336 | 8105 | PA_PROD |
| 35-113-09292 | 8003 | SI_OIL | 35-113-09337 | 8106 | PA_PROD |
| 35-113-09293 | 8004 | PA_PROD | 35-113-09338 | 8107 | SI_OIL |
| 35-113-09294 | 8005 | PA_PROD | 35-113-09339 | 8108 | PA_PROD |
| 35-113-09295 | 8006 | SI_OIL | 35-113-09340 | 8109 | PA_PROD |
| 35-113-09296 | 8007 | PA_PROD | 35-113-09341 | 8110 | PA_PROD |
| 35-113-09297 | 8008A | PA_PROD | 35-113-09342 | 8111 | PA_PROD |
| 35-113-09298 | 8009 | PA_PROD | 35-113-09343 | 8112 | P&A_INJ |
| 35-113-09299 | 8010 | PA_PROD | 35-113-09971 | 610 | OIL |
| 35-113-09300 | 8011 | SI_OIL | 35-113-09972 | 602 | OIL |
| 35-113-09301 | 8012 | OIL | 35-113-09973 | 603 | OIL |
| 35-113-09302 | 8013 | OIL | 35-113-09974 | 605 | PA_PROD |
| 35-113-09303 | 8014 | PA_PROD | 35-113-09975 | 607 | PA_PROD |
| 35-113-09308 | 8113A | SI_OIL | 35-113-09976 | 608 | PA_PROD |
| 35-113-09309 | 9006W | SI_WINJ | 35-113-09977 | 609 | OIL |
| 35-113-09310 | 9007W | P&A_INJ | 35-113-09979 | 604 | OIL |
| 35-113-09311 | 14301 | PA_PROD | 35-113-09980 | 606 | P&A_INJ |
| 35-113-09312 | 14302 | PA_PROD | 35-113-09983 | 961A | SI_OIL |
| 35-113-09313 | 14303 | PA_PROD | 35-113-10648 | 7505 | PA_PROD |
| 35-113-09314 | 14304 | PA_PROD | 35-113-10649 | 752 | PA_PROD |
| 35-113-09315 | 14305 | PA_PROD | 35-113-10650 | 5508 | DRY |
| 35-113-09316 | 9001 | PA_PROD | 35-113-20605 | 3017 | OIL |
| 35-113-09317 | 9002 | PA_PROD | 35-113-21008 | 8717 | OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-21339 | 1018 | WAG | 35-113-31831 | 9316 | PA_PROD |
| 35-113-21699 | 6613 | OIL | 35-113-31832 | 10101 | PA_PROD |
| 35-113-22373 | 10518D | SI_SWD | 35-113-31833 | 10102 | PA_PROD |
| 35-113-22414 | 9732W | W_INJ | 35-113-31834 | 10103 | PA_PROD |
| 35-113-22415 | 11401B | DRY | 35-113-31835 | 10104 | PA_PROD |
| 35-113-22420 | 9723 | SI_OIL | 35-113-31836 | 10105 | PA_PROD |
| 35-113-22421 | 9724 | SI_OIL | 35-113-31837 | 10107 | SI_OIL |
| 35-113-22422 | 9729 | SI_OIL | 35-113-31838 | 10108 | PA_PROD |
| 35-113-22423 | 9735 | SI_OIL | 35-113-31839 | 10109 | PA_PROD |
| 35-113-22424 | 9736 | SI_OIL | 35-113-31840 | 10110 | PA_PROD |
| 35-113-22433 | 9730W | SI_WINJ | 35-113-31841 | 10111 | PA_PROD |
| 35-113-22453 | 9731W | SI_WINJ | 35-113-31842 | 10112 | PA_PROD |
| 35-113-22454 | 9733 | OIL | 35-113-31842 | 10112A | SI_OIL |
| 35-113-22455 | 9734 | SI_OIL | 35-113-31844 | 10114 | P&A_INJ |
| 35-113-22495 | 9728 | SI_OIL | 35-113-31845 | 10115 | PA_PROD |
| 35-113-22507 | 9717 | SI_OIL | 35-113-31847 | 9202 | SI_OIL |
| 35-113-22508 | 9721 | SI_OIL | 35-113-31848 | 9203 | PA_PROD |
| 35-113-22509 | 9722 | SI_OIL | 35-113-31849 | 9204 | PA_PROD |
| 35-113-22539 | 7619 | OIL | 35-113-31850 | 9205 | SI_OIL |
| 35-113-25173 | 3429 | OIL | 35-113-31851 | 9206 | SI_OIL |
| 35-113-25310 | 5030 | TA_OIL | 35-113-31852 | 9207 | PA_PROD |
| 35-113-25336 | 5131 | SI_OIL | 35-113-31853 | 9208 | PA_PROD |
| 35-113-25337 | 5132 | SI_OIL | 35-113-31854 | 9209 | PA_PROD |
| 35-113-25359 | 5229 | SI_OIL | 35-113-31855 | 9210 | SI_OIL |
| 35-113-25360 | 5230 | SI_OIL | 35-113-31856 | 9211 | P&A_INJ |
| 35-113-25376 | 5228 | OIL | 35-113-31857 | 9212 | SI_OIL |
| 35-113-26892 | 43836 | DRY | 35-113-31858 | 9213 | SI_OIL |
| 35-113-26925 | 5233W | W_INJ | 35-113-31859 | 9214 | PA_PROD |
| 35-113-31081 | 14201A | SI_OIL | 35-113-31860 | 9215 | OIL |
| 35-113-31201 | 11902W | P&A_INJ | 35-113-31861 | 9216 | PA_PROD |
| 35-113-31201 | 12016AW | SI_OIL | 35-113-31862 | 10001 | PA_PROD |
| 35-113-31270 | 105 | SI_OIL | 35-113-31863 | 10002 | SI_OIL |
| 35-113-31821 | 9301 | PA_PROD | 35-113-31864 | 10003 | PA_PROD |
| 35-113-31823 | 9304 | SI_OIL | 35-113-31865 | 10004 | PA_PROD |
| 35-113-31823 | 9304A | PA_PROD | 35-113-31866 | 10005 | PA_PROD |
| 35-113-31824 | 9305 | PA_PROD | 35-113-31867 | 10006 | PA_PROD |
| 35-113-31825 | 9306 | SI_OIL | 35-113-31868 | 10007 | PA_PROD |
| 35-113-31826 | 9307 | PA_PROD | 35-113-31870 | 10008 | PA_PROD |
| 35-113-31827 | 9309 | PA_PROD | 35-113-31871 | 10009 | PA_PROD |
| 35-113-31829 | 9313 | P&A_INJ | 35-113-31872 | 10010 | PA_PROD |
| 35-113-31830 | 9315 | PA_PROD | 35-113-31873 | 10015 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-31874 | 10016 | PA_PROD | 35-113-31967 | 10604 | PA_PROD |
| 35-113-31875 | 9201W | SI_WINJ | 35-113-31968 | 9801W | P&A_INJ |
| 35-113-31876 | 10101W | P&A_INJ | 35-113-31969 | 9901W | P&A_INJ |
| 35-113-31877 | 9202W | P&A_INJ | 35-113-31970 | 9802W | P&A_INJ |
| 35-113-31878 | 101WI | P&A_INJ | 35-113-31971 | 9902W | P&A_INJ |
| 35-113-31879 | 9203W | SI_WINJ | 35-113-31972 | 9803W | P&A_INJ |
| 35-113-31880 | 9303A | PA_PROD | 35-113-31973 | 9804W | P&A_INJ |
| 35-113-31881 | 10003W | SI_WINJ | 35-113-31974 | 9805W | P&A_INJ |
| 35-113-31882 | 10103W | P&A_INJ | 35-113-31975 | 9806W | P&A_INJ |
| 35-113-31883 | 9204W | SI_WINJ | 35-113-31976 | 106W6 | P&A_INJ |
| 35-113-31884 | 10004W | SI_WINJ | 35-113-31977 | 10706W | DRY |
| 35-113-31885 | 10104W | P&A_INJ | 35-113-31978 | 9807W | P&A_INJ |
| 35-113-31886 | 9205W | SI_WINJ | 35-113-31979 | 106W8 | P&A_INJ |
| 35-113-31887 | 10005W | P&A_INJ | 35-113-31980 | 10401 | PA_PROD |
| 35-113-31888 | 10105W | P&A_INJ | 35-113-31981 | 10402 | PA_PROD |
| 35-113-31889 | 9206W | P&A_INJ | 35-113-31982 | 10403 | PA_PROD |
| 35-113-31890 | 10006W | P&A_INJ | 35-113-31983 | 10404 | SI_OIL |
| 35-113-31891 | 9207W | P&A_INJ | 35-113-31984 | 10405 | PA_PROD |
| 35-113-31892 | 10007W | SI_WINJ | 35-113-31985 | 10406 | PA_PROD |
| 35-113-31893 | 10107W | TA_INJ | 35-113-31986 | 10407 | PA_PROD |
| 35-113-31894 | 10008W | P&A_INJ | 35-113-31987 | 10408 | PA_PROD |
| 35-113-31895 | 10108W | W_INJ | 35-113-31988 | 10409 | PA_PROD |
| 35-113-31896 | 10116 | PA_PROD | 35-113-31989 | 10410 | PA_PROD |
| 35-113-31897 | 9104A | PA_PROD | 35-113-31990 | 10411 | SI_OIL |
| 35-113-31898 | 9107W | P&A_INJ | 35-113-31991 | 10412 | PA_PROD |
| 35-113-31899 | 9108W | P&A_INJ | 35-113-31992 | 10413 | SI_OIL |
| 35-113-31901 | 9106 | PA_PROD | 35-113-31993 | 10414 | SI_OIL |
| 35-113-31902 | 9107 | PA_PROD | 35-113-31994 | 10415 | P&A_INJ |
| 35-113-31909 | 10806W | P&A_INJ | 35-113-31995 | 10416 | PA_PROD |
| 35-113-31910 | 10807W | P&A_INJ | 35-113-31996 | 9701 | OIL |
| 35-113-31911 | 10808W | SI_WINJ | 35-113-31997 | 9702 | PA_PROD |
| 35-113-31955 | 9901 | PA_PROD | 35-113-31998 | 9703 | PA_PROD |
| 35-113-31956 | 9902 | PA_PROD | 35-113-31999 | 9704 | PA_PROD |
| 35-113-31957 | 9903 | PA_PROD | 35-113-32000 | 9705 | PA_PROD |
| 35-113-31958 | 9904 | PA_PROD | 35-113-32001 | 9706 | SI_OIL |
| 35-113-31959 | 9905 | PA_PROD | 35-113-32002 | 9707 | PA_PROD |
| 35-113-31962 | 9907 | PA_PROD | 35-113-32003 | 9708 | SI_OIL |
| 35-113-31963 | 9908 | PA_PROD | 35-113-32004 | 9709 | SI_OIL |
| 35-113-31964 | 9909 | PA_PROD | 35-113-32005 | 9710 | PA_PROD |
| 35-113-31965 | 9910 | P&A_INJ | 35-113-32006 | 9711 | P&A_INJ |
| 35-113-31966 | 10601 | PA_PROD | 35-113-32007 | 9712 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-32008 | 9713 | PA_PROD | 35-113-32047 | 10202 | PA_PROD |
| 35-113-32009 | 9714 | PA_PROD | 35-113-32048 | 10301 | DRY |
| 35-113-32010 | 975 | PA_PROD | 35-113-32048 | 10301A | PA_PROD |
| 35-113-32011 | 9716 | PA_PROD | 35-113-32049 | 10302 | SI_OIL |
| 35-113-32012 | 10504W | UNKNW | 35-113-32050 | 10304 | PA_PROD |
| 35-113-32013 | 9601W | SI_WINJ | 35-113-32051 | 10305 | PA_PROD |
| 35-113-32014 | 9718W | SI_WINJ | 35-113-32052 | 10306A | SI_OIL |
| 35-113-32015 | 10401W | SI_WINJ | 35-113-32053 | 10307 | PA_PROD |
| 35-113-32016 | 10501W | P&A_INJ | 35-113-32054 | 10308 | PA_PROD |
| 35-113-32017 | 9602A | PA_PROD | 35-113-32055 | 10309 | OIL |
| 35-113-32018 | 9702W | P&A_INJ | 35-113-32056 | 10310 | PA_PROD |
| 35-113-32019 | 10402W | P&A_INJ | 35-113-32057 | 10311 | PA_PROD |
| 35-113-32020 | 10502W | P&A_INJ | 35-113-32058 | 10312 | PA_PROD |
| 35-113-32021 | 9603W | P&A_INJ | 35-113-32059 | 10313 | PA_PROD |
| 35-113-32022 | 9703W | P&A_INJ | 35-113-32060 | 10314 | PA_PROD |
| 35-113-32023 | 10403W | P&A_INJ | 35-113-32061 | 10315W | P&A_INJ |
| 35-113-32024 | 10503W | W_INJ | 35-113-32062 | 10201W | P&A_INJ |
| 35-113-32025 | 9604W | SI_WINJ | 35-113-32063 | 10301W | P&A_INJ |
| 35-113-32026 | 9704W | P&A_INJ | 35-113-32064 | 10202W | P&A_INJ |
| 35-113-32027 | 10404W | W_INJ | 35-113-32065 | 10302W | P&A_INJ |
| 35-113-32028 | 9605W | SI_WINJ | 35-113-32066 | 9503W | SI_WINJ |
| 35-113-32029 | 9705W | P&A_INJ | 35-113-32067 | 10203W | SI_WINJ |
| 35-113-32030 | 10405W | SI_WINJ | 35-113-32068 | 10303W | P&A_INJ |
| 35-113-32031 | 10505W | SI_WINJ | 35-113-32069 | 9504W | W_INJ |
| 35-113-32032 | 9606W | SI_WINJ | 35-113-32070 | 10204W | P&A_INJ |
| 35-113-32033 | 9706W | P&A_INJ | 35-113-32071 | 10304W | SI_WINJ |
| 35-113-32034 | 10406W | P&A_INJ | 35-113-32072 | 9505W | W_INJ |
| 35-113-32035 | 10506W | SI_WINJ | 35-113-32073 | 10205W | W_INJ |
| 35-113-32036 | 9607W | SI_WINJ | 35-113-32074 | 10305W | P&A_INJ |
| 35-113-32037 | 9707W | P&A_INJ | 35-113-32075 | 9506A | PA_PROD |
| 35-113-32038 | 10407W | SI_WINJ | 35-113-32076 | 9506W | P&A_INJ |
| 35-113-32039 | 10507W | W_INJ | 35-113-32077 | 10206W | W_INJ |
| 35-113-32040 | 9608A | SI_OIL | 35-113-32078 | 10306 | SI_OIL |
| 35-113-32041 | 9608W | P&A_INJ | 35-113-32079 | 10306W | P&A_INJ |
| 35-113-32042 | 9708W | P&A_INJ | 35-113-32080 | 9507W | W_INJ |
| 35-113-32043 | 10408W | SI_WINJ | 35-113-32081 | 10207W | SI_WINJ |
| 35-113-32044 | 10408A | OIL | 35-113-32082 | 10307W | P&A_INJ |
| 35-113-32045 | 10508W | W_INJ | 35-113-32083 | 9508W | P&A_INJ |
| 35-113-32046 | 1021 | PA_PROD | 35-113-32084 | 10208W | P&A_INJ |
| 35-113-32046 | 10201 | PA_PROD | 35-113-32085 | 10308W | P&A_INJ |
| 35-113-32046 | 10201A | PA_PROD | 35-113-32086 | 10314A | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-32087 | 10217D | SI_WINJ |
| 35-113-32088 | 11601 | PA_PROD |
| 35-113-32089 | 11602 | P&A_INJ |
| 35-113-32090 | 11001 | PA_PROD |
| 35-113-32091 | 11002 | PA_PROD |
| 35-113-32092 | 11003 | PA_PROD |
| 35-113-32093 | 11004 | PA_PROD |
| 35-113-32094 | 11005 | PA_PROD |
| 35-113-32095 | 11006W | SI_WINJ |
| 35-113-32096 | 11007 | OIL |
| 35-113-32097 | 11008 | SI_OIL |
| 35-113-32098 | 10905W | P&A_INJ |
| 35-113-32099 | 11005W | P&A_INJ |
| 35-113-32100 | 10906W | P&A_INJ |
| 35-113-32102 | 10907W | P&A_INJ |
| 35-113-32103 | 10908 | P&A_INJ |
| 35-113-32104 | 10928W | SI_WINJ |
| 35-113-32105 | 10912 | PA_PROD |
| 35-113-32106 | 11407AW | PA_PROD |
| 35-113-32107 | 11008W | P&A_INJ |
| 35-113-32108 | 11009W | SI_WINJ |
| 35-113-32109 | 11010 | PA_PROD |
| 35-113-32110 | 11106W | P&A_INJ |
| 35-113-32111 | 11206 | PA_PROD |
| 35-113-32112 | 11108W | P&A_INJ |
| 35-113-32113 | 11208W | P&A_INJ |
| 35-113-32114 | 11110W | W_INJ |
| 35-113-32115 | 11112W | P&A_INJ |
| 35-113-32116 | 11205W | SI_WINJ |
| 35-113-32117 | 11708 | OIL |
| 35-113-32118 | 11908W | P&A_INJ |
| 35-113-32119 | 11411W | P&A_INJ |
| 35-113-32120 | 11914 | OIL |
| 35-113-32121 | 11307AW | P&A_INJ |
| 35-113-32122 | 1203A | PA_PROD |
| 35-113-32123 | 11306A | P&A_INJ |
| 35-113-32167 | 9312 | PA_PROD |
| 35-113-32169 | 14502W | P&A_INJ |
| 35-113-32170 | 14504W | P&A_INJ |
| 35-113-32171 | 12415 | PA_PROD |
| 35-113-32172 | 12815W | P&A_INJ |
| 35-113-32173 | 12816W | P&A_INJ |
| 35-113-32174 | 12701W | P&A_INJ |
| 35-113-32175 | 12702W | P&A_INJ |
| 35-113-32176 | 12703W | P&A_INJ |
| 35-113-32177 | 12705W | P&A_INJ |
| 35-113-32178 | 12706W | P&A_INJ |
| 35-113-32179 | 12707W | P&A_INJ |
| 35-113-32180 | 12708W | P&A_INJ |
| 35-113-32181 | 12709W | P&A_INJ |
| 35-113-32182 | 12717 | SI_WTR_SRVC |
| 35-113-32184 | 14403A | SI_OIL |
| 35-113-32185 | 14410 | SI_OIL |
| 35-113-32186 | 14411 | SI_OIL |
| 35-113-32188 | 12601A | PA_PROD |
| 35-113-32192 | 14404A | SI_OIL |
| 35-113-32193 | 14405A | PA_PROD |
| 35-113-32194 | 14407W | W_INJ |
| 35-113-32220 | 13212 | PA_PROD |
| 35-113-32221 | 13214W | P&A_INJ |
| 35-113-32222 | 13215 | SI_OIL |
| 35-113-32223 | 13216 | PA_PROD |
| 35-113-32229 | 13411W | P&A_INJ |
| 35-113-32230 | 13412 | SI_OIL |
| 35-113-32231 | 13413 | PA_PROD |
| 35-113-32232 | 13301W | SI_WINJ |
| 35-113-32233 | 13302 | P&A_INJ |
| 35-113-32234 | 13303W | P&A_INJ |
| 35-113-32235 | 13304 | PA_PROD |
| 35-113-32236 | 13308W | P&A_INJ |
| 35-113-32237 | 13309W | P&A_INJ |
| 35-113-32238 | 13310 | PA_PROD |
| 35-113-32239 | 13311W | P&A_INJ |
| 35-113-32240 | 13312 | SI_OIL |
| 35-113-32241 | 13313 | PA_PROD |
| 35-113-32242 | 13314W | P&A_INJ |
| 35-113-32243 | 13315 | PA_PROD |
| 35-113-32244 | 13316W | P&A_INJ |
| 35-113-32245 | 13101 | PA_PROD |
| 35-113-32246 | 13401 | SI_OIL |
| 35-113-32247 | 13102W | P&A_INJ |
| 35-113-32248 | 13402 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-32249 | 13103 | PA_PROD |
| 35-113-32250 | 13403W | P&A_INJ |
| 35-113-32251 | 13104W | P&A_INJ |
| 35-113-32252 | 13404 | SI_OIL |
| 35-113-32253 | 13105 | P&A_INJ |
| 35-113-32254 | 13405W | P&A_INJ |
| 35-113-32255 | 13406 | SI_OIL |
| 35-113-32257 | 13407W | P&A_INJ |
| 35-113-32258 | 13108W | P&A_INJ |
| 35-113-32259 | 13408W | SI_WINJ |
| 35-113-32260 | 13109W | P&A_INJ |
| 35-113-32261 | 13409W | SI_WINJ |
| 35-113-32262 | 13110 | PA_PROD |
| 35-113-32263 | 13410W | SI_WINJ |
| 35-113-32264 | 13111W | SI_WINJ |
| 35-113-32265 | 13112 | PA_PROD |
| 35-113-32266 | 13113W | P&A_INJ |
| 35-113-32267 | 13114 | OIL |
| 35-113-32268 | 13115 | PA_PROD |
| 35-113-32285 | 14601 | PA_PROD |
| 35-113-32286 | 14602 | PA_PROD |
| 35-113-32287 | 14603 | P&A_INJ |
| 35-113-32288 | 14604 | DRY |
| 35-113-32355 | 13806 | SI_OIL |
| 35-113-32356 | 13801W | PA_PROD |
| 35-113-32357 | 13802 | PA_PROD |
| 35-113-32358 | 13803 | SI_OIL |
| 35-113-32359 | 13804 | SI_OIL |
| 35-113-32360 | 13902W | SI_WINJ |
| 35-113-32361 | 13807 | P&A_INJ |
| 35-113-32362 | 13808 | SI_OIL |
| 35-113-32363 | 13809W | P&A_INJ |
| 35-113-32364 | 13814W | SI_WINJ |
| 35-113-32365 | 13815W | P&A_INJ |
| 35-113-32366 | 13816 | DRY |
| 35-113-32367 | 13810W | P&A_INJ |
| 35-113-32368 | 13811 | SI_OIL |
| 35-113-32369 | 13812W | PA_PROD |
| 35-113-32370 | 13616W | P&A_INJ |
| 35-113-32371 | 13901 | OIL |
| 35-113-32372 | 13701 | SI_OIL |
| 35-113-32373 | 13702W | P&A_INJ |
| 35-113-32374 | 13703 | SI_OIL |
| 35-113-32375 | 13704W | SI_WINJ |
| 35-113-32376 | 13705 | SI_OIL |
| 35-113-32377 | 13707W | P&A_INJ |
| 35-113-32378 | 13708 | PA_PROD |
| 35-113-32379 | 13709 | OIL |
| 35-113-32380 | 13710W | SI_WINJ |
| 35-113-32381 | 13711 | PA_PROD |
| 35-113-32382 | 13613 | P&A_INJ |
| 35-113-32384 | 13501 | PA_PROD |
| 35-113-32458 | 14102A | SI_OIL |
| 35-113-32459 | 14105 | PA_PROD |
| 35-113-32461 | 14001 | PA_PROD |
| 35-113-32462 | 14101 | SI_OIL |
| 35-113-32463 | 1403 | DRY |
| 35-113-32464 | 14103 | PA_PROD |
| 35-113-32465 | 14104 | PA_PROD |
| 35-113-32467 | 14005W | P&A_INJ |
| 35-113-33494 | 101 | PA_PROD |
| 35-113-33495 | 102 | DRY |
| 35-113-33496 | 402 | SI_OIL |
| 35-113-33497 | 103 | DRY |
| 35-113-33498 | 403 | PA_PROD |
| 35-113-33498 | 403A | SI_OIL |
| 35-113-33499 | 404 | OIL |
| 35-113-33500 | 405 | P&A_INJ |
| 35-113-33501 | 406 | PA_PROD |
| 35-113-33502 | 408W | P&A_INJ |
| 35-113-33503 | 814 | PA_PROD |
| 35-113-33504 | 815 | P&A_INJ |
| 35-113-33506 | 1402 | OIL |
| 35-113-33507 | 1403W | W_INJ |
| 35-113-33508 | 1404 | SI_OIL |
| 35-113-33509 | 1405W | W_INJ |
| 35-113-33510 | 1406 | PA_PROD |
| 35-113-33511 | 1407 | OIL |
| 35-113-33512 | 1408 | PA_PROD |
| 35-113-33513 | 1409 | P&A_INJ |
| 35-113-33514 | 1410W | P&A_INJ |
| 35-113-33515 | 1411 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-33516 | 1412 | PA_PROD | 35-113-33558 | 1613 | P&A_INJ |
| 35-113-33517 | 1413 | OIL | 35-113-33559 | 1013 | PA_PROD |
| 35-113-33518 | 1414 | OIL | 35-113-33560 | 1614 | PA_PROD |
| 35-113-33519 | 1415 | P&A_INJ | 35-113-33561 | 1514 | PA_PROD |
| 35-113-33520 | 1416W | P&A_INJ | 35-113-33562 | 1014 | P&A_INJ |
| 35-113-33521 | 901 | PA_PROD | 35-113-33563 | 1515 | PA_PROD |
| 35-113-33522 | 1501 | OIL | 35-113-33564 | 1615A | PA_PROD |
| 35-113-33523 | 1601 | OIL | 35-113-33565 | 1015 | PA_PROD |
| 35-113-33524 | 1001 | OIL | 35-113-33566 | 1516 | PA_PROD |
| 35-113-33525 | 1502 | OIL | 35-113-33567 | 1616 | P&A_INJ |
| 35-113-33526 | 1602 | OIL | 35-113-33568 | 1016 | PA_PROD |
| 35-113-33527 | 1002 | PA_PROD | 35-113-33569 | 1517 | UNKNW |
| 35-113-33528 | 1503 | OIL | 35-113-33570 | 1201 | OIL |
| 35-113-33529 | 1603 | OIL | 35-113-33571 | 1701 | OIL |
| 35-113-33530 | 1003 | PA_PROD | 35-113-33572 | 1702 | OIL |
| 35-113-33531 | 1504 | OIL | 35-113-33573 | 1202 | OIL |
| 35-113-33532 | 1604 | OIL | 35-113-33574 | 1102 | OIL |
| 35-113-33533 | 1004 | PA_PROD | 35-113-33575 | 1703 | OIL |
| 35-113-33534 | 1505 | PA_PROD | 35-113-33576 | 1203 | OIL |
| 35-113-33535 | 1605 | PA_PROD | 35-113-33577 | 1103 | SI_OIL |
| 35-113-33536 | 1005 | PA_PROD | 35-113-33578 | 1104 | OIL |
| 35-113-33537 | 1506 | P&A_INJ | 35-113-33579 | 1704 | OIL |
| 35-113-33538 | 1606W | WAG | 35-113-33580 | 1204 | OIL |
| 35-113-33539 | 1006 | P&A_INJ | 35-113-33581 | 1101 | PA_PROD |
| 35-113-33540 | 1607 | P&A_INJ | 35-113-33582 | 1705 | PA_PROD |
| 35-113-33541 | 1507 | PA_PROD | 35-113-33583 | 1205 | P&A_INJ |
| 35-113-33542 | 1007 | PA_PROD | 35-113-33584 | 1105W | WAG |
| 35-113-33543 | 1508W | WAG | 35-113-33585 | 1706 | PA_PROD |
| 35-113-33544 | 1608 | PA_PROD | 35-113-33586 | 1206 | PA_PROD |
| 35-113-33545 | 1008 | P&A_INJ | 35-113-33587 | 1106 | PA_PROD |
| 35-113-33546 | 1609 | OIL | 35-113-33588 | 1707 | P&A_INJ |
| 35-113-33547 | 1009 | OIL | 35-113-33589 | 1207W | P&A_INJ |
| 35-113-33548 | 1510 | P&A_INJ | 35-113-33590 | 1107 | P&A_INJ |
| 35-113-33549 | 1610 | OIL | 35-113-33591 | 1208 | P&A_INJ |
| 35-113-33550 | 1010 | OIL | 35-113-33592 | 1708 | PA_PROD |
| 35-113-33552 | 1511W | P&A_INJ | 35-113-33593 | 1108 | PA_PROD |
| 35-113-33553 | 1611 | PA_PROD | 35-113-33594 | 1109 | OIL |
| 35-113-33554 | 1011 | PA_PROD | 35-113-33595 | 1110 | OIL |
| 35-113-33555 | 1612 | OIL | 35-113-33596 | 1711 | OIL |
| 35-113-33556 | 1012 | OIL | 35-113-33597 | 1211 | OIL |
| 35-113-33557 | 1513 | PA_PROD | 35-113-33598 | 1111 | OIL |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-33599 | 1112 | OIL |
| 35-113-33600 | 1212 | OIL |
| 35-113-33601 | 1213 | PA_PROD |
| 35-113-33602 | 1713 | PA_PROD |
| 35-113-33602 | 1713A | WAG |
| 35-113-33603 | 1113 | PA_PROD |
| 35-113-33604 | 1714 | PA_PROD |
| 35-113-33605 | 1214 | P&A_INJ |
| 35-113-33606 | 1114 | PA_PROD |
| 35-113-33607 | 1215 | PA_PROD |
| 35-113-33608 | 1715W | WAG |
| 35-113-33609 | 1115 | PA_PROD |
| 35-113-33610 | 1716 | PA_PROD |
| 35-113-33611 | 1216 | PA_PROD |
| 35-113-33612 | 1116 | P&A_INJ |
| 35-113-33613 | 1117 | P&A_INJ |
| 35-113-33614 | 18106W | UNKNW |
| 35-113-33615 | 2617 | PA_PROD |
| 35-113-33616 | 2401 | OIL |
| 35-113-33617 | 2402 | OIL |
| 35-113-33618 | 2403 | OIL |
| 35-113-33619 | 2404 | OIL |
| 35-113-33620 | 2405 | PA_PROD |
| 35-113-33621 | 2406 | P&A_INJ |
| 35-113-33622 | 2407 | PA_PROD |
| 35-113-33623 | 2408 | P&A_INJ |
| 35-113-33624 | 2409 | OIL |
| 35-113-33625 | 2410 | OIL |
| 35-113-33626 | 2411 | OIL |
| 35-113-33627 | 2412 | OIL |
| 35-113-33628 | 2413 | PA_PROD |
| 35-113-33629 | 2414 | PA_PROD |
| 35-113-33630 | 2415 | P&A_INJ |
| 35-113-33630 | 2415A | WAG |
| 35-113-33631 | 2416 | P&A_INJ |
| 35-113-33632 | 3005 | P&A_INJ |
| 35-113-33633 | 3007 | PA_PROD |
| 35-113-33635 | 3009 | PA_PROD |
| 35-113-33636 | 3010 | PA_PROD |
| 35-113-33637 | 3013 | PA_PROD |
| 35-113-33638 | 3014 | OIL |
| 35-113-33639 | 3015 | P&A_INJ |
| 35-113-33640 | 3016 | P&A_INJ |
| 35-113-33641 | 3817 | PA_PROD |
| 35-113-33642 | 4705 | PA_PROD |
| 35-113-33643 | 4901 | TA_OIL |
| 35-113-33645 | 4902 | PA_PROD |
| 35-113-33646 | 3902 | SI_OIL |
| 35-113-33647 | 3903 | TA_OIL |
| 35-113-33648 | 4903 | TA_OIL |
| 35-113-33649 | 3904 | PA_PROD |
| 35-113-33649 | 3904A | SI_OIL |
| 35-113-33650 | 4904 | PA_PROD |
| 35-113-33650 | 4904A | PA_PROD |
| 35-113-33651 | 4905 | P&A_UNKW |
| 35-113-33652 | 3906 | PA_PROD |
| 35-113-33653 | 4906 | P&A_UNKW |
| 35-113-33654 | 3907W | P&A_INJ |
| 35-113-33655 | 4907W | W_INJ |
| 35-113-33656 | 4908 | P&A_INJ |
| 35-113-33659 | 3909 | OIL |
| 35-113-33660 | 4910 | PA_PROD |
| 35-113-33660 | 4910A | TA_OIL |
| 35-113-33661 | 3911 | OIL |
| 35-113-33662 | 4911 | SI_OIL |
| 35-113-33663 | 4912 | PA_PROD |
| 35-113-33664 | 3912 | OIL |
| 35-113-33665 | 3913 | PA_PROD |
| 35-113-33666 | 4913 | P&A_INJ |
| 35-113-33667 | 3914 | PA_PROD |
| 35-113-33668 | 4914 | PA_PROD |
| 35-113-33669 | 3915 | PA_PROD |
| 35-113-33670 | 4915 | PA_PROD |
| 35-113-33671 | 3916 | PA_PROD |
| 35-113-33672 | 4916 | PA_PROD |
| 35-113-33673 | 4801 | PA_PROD |
| 35-113-33674 | 4802 | P&A_INJ |
| 35-113-33674 | 4802AW | SI_WINJ |
| 35-113-33675 | 4803W | TA_INJ |
| 35-113-33676 | 4804 | PA_PROD |
| 35-113-33677 | 4805 | SI_OIL |
| 35-113-33678 | 4806W | P&A_INJ |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-33679 | 4807W | P&A_INJ | 35-113-33718 | 5015 | OIL |
| 35-113-33680 | 4808A | OIL | 35-113-33719 | 4215 | P&A_INJ |
| 35-113-33681 | 4809 | PA_PROD | 35-113-33720 | 5016 | PA_PROD |
| 35-113-33682 | 4810 | TA_OIL | 35-113-33721 | 4216 | PA_PROD |
| 35-113-33683 | 4811 | PA_PROD | 35-113-33722 | 4117 | PA_PROD |
| 35-113-33684 | 4812 | PA_PROD | 35-113-33723 | 6701 | PA_PROD |
| 35-113-33685 | 4813W | TA_INJ | 35-113-33724 | 6601 | P&A_INJ |
| 35-113-33686 | 4814W | SI_WINJ | 35-113-33725 | 5901 | SI_OIL |
| 35-113-33687 | 4815W | P&A_INJ | 35-113-33726 | 5801W | W_INJ |
| 35-113-33688 | 4816W | W_INJ | 35-113-33727 | 5902 | PA_PROD |
| 35-113-33689 | 3910 | OIL | 35-113-33728 | 6702 | P&A_INJ |
| 35-113-33690 | 5001 | SI_OIL | 35-113-33729 | 6602 | PA_PROD |
| 35-113-33691 | 4201 | PA_PROD | 35-113-33731 | 5802W | SI_WINJ |
| 35-113-33691 | 4201A | TA_OIL | 35-113-33732 | 6703 | OIL |
| 35-113-33692 | 5002W | W_INJ | 35-113-33733 | 5903 | PA_PROD |
| 35-113-33693 | 4202 | PA_PROD | 35-113-33734 | 6603W | SI_WINJ |
| 35-113-33693 | 4202A | TA_OIL | 35-113-33735 | 5803 | PA_PROD |
| 35-113-33694 | 5003 | PA_PROD | 35-113-33736 | 5804 | PA_PROD |
| 35-113-33695 | 4203 | TA_OIL | 35-113-33737 | 6704 | SI_OIL |
| 35-113-33696 | 5004 | SI_OIL | 35-113-33738 | 5904 | PA_PROD |
| 35-113-33697 | 4204 | PA_PROD | 35-113-33739 | 6604 | PA_PROD |
| 35-113-33698 | 4205 | PA_PROD | 35-113-33740 | 6705 | PA_PROD |
| 35-113-33699 | 5005 | PA_PROD | 35-113-33741 | 6705A | PA_PROD |
| 35-113-33700 | 5006 | TA_OIL | 35-113-33742 | 6605 | PA_PROD |
| 35-113-33701 | 4206 | P&A_INJ | 35-113-33743 | 5905 | PA_PROD |
| 35-113-33702 | 5007 | PA_PROD | 35-113-33744 | 5805 | PA_PROD |
| 35-113-33703 | 4207 | PA_PROD | 35-113-33745 | 6706 | PA_PROD |
| 35-113-33704 | 5028W | SI_WINJ | 35-113-33746 | 6606 | SI_OIL |
| 35-113-33705 | 4208 | PA_PROD | 35-113-33747 | 5906 | PA_PROD |
| 35-113-33706 | 5009 | OIL | 35-113-33748 | 5806 | SI_OIL |
| 35-113-33707 | 4209 | PA_PROD | 35-113-33749 | 6707 | OIL |
| 35-113-33708 | 5010 | PA_PROD | 35-113-33750 | 5907 | P&A_INJ |
| 35-113-33709 | 4210 | SI_OIL | 35-113-33751 | 6607 | SI_OIL |
| 35-113-33710 | 5011W | SI_WINJ | 35-113-33752 | 5807 | SI_OIL |
| 35-113-33711 | 4211 | PA_PROD | 35-113-33753 | 5808 | P&A_INJ |
| 35-113-33712 | 5012 | TA_OIL | 35-113-33754 | 5908 | SI_OIL |
| 35-113-33713 | 4212 | PA_PROD | 35-113-33755 | 6608 | SI_OIL |
| 35-113-33714 | 5013 | PA_PROD | 35-113-33756 | 6709 | PA_PROD |
| 35-113-33715 | 4213 | PA_PROD | 35-113-33757 | 6609W | P&A_INJ |
| 35-113-33716 | 5014 | P&A_INJ | 35-113-33758 | 5909 | PA_PROD |
| 35-113-33717 | 4214 | PA_PROD | 35-113-33759 | 5809 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-33760 | 6710 | SI_OIL | 35-113-33800 | 5713 | PA_PROD |
| 35-113-33761 | 6610 | PA_PROD | 35-113-33801 | 5714 | P&A_INJ |
| 35-113-33762 | 5910 | SI_OIL | 35-113-33802 | 5703 | OIL |
| 35-113-33763 | 5810 | PA_PROD | 35-113-33803 | 6510 | PA_PROD |
| 35-113-33764 | 5811 | SI_OIL | 35-113-33804 | 6512 | SI_OIL |
| 35-113-33765 | 6711 | PA_PROD | 35-113-33805 | 5712 | SI_OIL |
| 35-113-33766 | 5911 | SI_OIL | 35-113-33806 | 6513W | W_INJ |
| 35-113-33767 | 6712 | PA_PROD | 35-113-33807 | 5715 | PA_PROD |
| 35-113-33768 | 5912 | PA_PROD | 35-113-33808 | 6401 | P&A_INJ |
| 35-113-33769 | 5812 | SI_OIL | 35-113-33809 | 6402 | SI_OIL |
| 35-113-33770 | 5913 | PA_PROD | 35-113-33810 | 6403 | PA_PROD |
| 35-113-33771 | 6713 | PA_PROD | 35-113-33811 | 6404 | P&A_INJ |
| 35-113-33772 | 5813 | PA_PROD | 35-113-33812 | 6405W | P&A_INJ |
| 35-113-33773 | 6714 | P&A_INJ | 35-113-33813 | 6406 | PA_PROD |
| 35-113-33774 | 5914 | PA_PROD | 35-113-33814 | 5601 | PA_PROD |
| 35-113-33775 | 5814W | W_INJ | 35-113-33815 | 5602W | P&A_INJ |
| 35-113-33776 | 5915 | P&A_INJ | 35-113-33816 | 5603 | PA_PROD |
| 35-113-33777 | 6715 | PA_PROD | 35-113-33817 | 5604 | PA_PROD |
| 35-113-33778 | 5815 | SI_OIL | 35-113-33818 | 5605W | SI_WINJ |
| 35-113-33779 | 6716 | PA_PROD | 35-113-33819 | 5606 | PA_PROD |
| 35-113-33780 | 5916 | PA_PROD | 35-113-33820 | 5607 | SI_OIL |
| 35-113-33781 | 5816 | DRY | 35-113-33821 | 5608 | OIL |
| 35-113-33782 | 6501 | SI_WINJ | 35-113-33822 | 5609 | OIL |
| 35-113-33783 | 5701 | SI_OIL | 35-113-33823 | 5610W | P&A_INJ |
| 35-113-33784 | 6502 | PA_PROD | 35-113-33824 | 5611 | SI_SWD |
| 35-113-33785 | 5702 | OIL | 35-113-33828 | 7401 | SI_OIL |
| 35-113-33786 | 6503 | PA_PROD | 35-113-33829 | 7402 | SI_OIL |
| 35-113-33786 | 6503A | PA_PROD | 35-113-33830 | 7403 | SI_OIL |
| 35-113-33787 | 6504 | PA_PROD | 35-113-33831 | 7404 | PA_PROD |
| 35-113-33788 | 5704 | SI_OIL | 35-113-33832 | 7405 | P&A_INJ |
| 35-113-33789 | 6505 | SI_OIL | 35-113-33833 | 7406 | SI_OIL |
| 35-113-33790 | 5705 | PA_PROD | 35-113-33834 | 7407 | PA_PROD |
| 35-113-33791 | 6506 | SI_OIL | 35-113-33835 | 7408 | SI_OIL |
| 35-113-33792 | 5706 | PA_PROD | 35-113-33836 | 7410 | PA_PROD |
| 35-113-33793 | 5707 | PA_PROD | 35-113-33837 | 7411 | PA_PROD |
| 35-113-33794 | 6508 | SI_OIL | 35-113-33838 | 7412 | PA_PROD |
| 35-113-33795 | 5708 | PA_PROD | 35-113-33839 | 7301 | PA_PROD |
| 35-113-33796 | 6509 | SI_OIL | 35-113-33840 | 7302A | SI_OIL |
| 35-113-33797 | 5709 | SI_OIL | 35-113-33841 | 7303 | PA_PROD |
| 35-113-33798 | 5710 | PA_PROD | 35-113-33842 | 7304 | PA_PROD |
| 35-113-33799 | 6511 | OIL | 35-113-33843 | 8201 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-33844 | 8309 | SI_OIL | 35-113-33896 | 2904 | PA_PROD |
| 35-113-33845 | 8312 | SI_OIL | 35-113-33897 | 2911 | PA_PROD |
| 35-113-33846 | 8313 | PA_PROD | 35-113-33898 | 2912 | PA_PROD |
| 35-113-33848 | 8401 | PA_PROD | 35-113-33899 | 3701 | PA_PROD |
| 35-113-33849 | 8402 | PA_PROD | 35-113-33900 | 3702 | SI_OIL |
| 35-113-33850 | 8503 | SI_OIL | 35-113-33902 | 3601 | PA_PROD |
| 35-113-33851 | 8414 | PA_PROD | 35-113-33903 | 3602 | PA_PROD |
| 35-113-33856 | 8409 | PA_PROD | 35-113-33904 | 3603 | PA_PROD |
| 35-113-33857 | 8410 | PA_PROD | 35-113-33905 | 3604 | PA_PROD |
| 35-113-33858 | 8411 | PA_PROD | 35-113-33906 | 3605 | SI_OIL |
| 35-113-33859 | 8412 | P&A_INJ | 35-113-33907 | 3606 | SI_OIL |
| 35-113-33860 | 8413 | PA_PROD | 35-113-33908 | 3607 | PA_PROD |
| 35-113-33861 | 8414 | PA_PROD | 35-113-33909 | 3608 | PA_PROD |
| 35-113-33862 | 8415 | PA_PROD | 35-113-33910 | 3609 | P&A_INJ |
| 35-113-33863 | 8416 | PA_PROD | 35-113-33912 | 3611 | SI_OIL |
| 35-113-33864 | 8417 | PA_PROD | 35-113-33913 | 3612 | PA_PROD |
| 35-113-33865 | 7506 | PA_PROD | 35-113-33914 | 3613 | PA_PROD |
| 35-113-33866 | 7616W | SI_WINJ | 35-113-33915 | 3614 | PA_PROD |
| 35-113-33867 | 7501W | P&A_INJ | 35-113-33916 | 2707 | PA_PROD |
| 35-113-33868 | 7502W | W_INJ | 35-113-33917 | 2713 | PA_PROD |
| 35-113-33869 | 7503W | P&A_INJ | 35-113-33918 | 2714 | TA_OIL |
| 35-113-33870 | 7513W | W_INJ | 35-113-33919 | 2715 | PA_PROD |
| 35-113-33871 | 7601W | W_INJ | 35-113-33920 | 2716 | PA_PROD |
| 35-113-33872 | 7602W | P&A_INJ | 35-113-33921 | 2802 | PA_PROD |
| 35-113-33873 | 7603W | P&A_INJ | 35-113-33922 | 2803 | PA_PROD |
| 35-113-33874 | 7604 | SI_OIL | 35-113-33923 | 2804 | PA_PROD |
| 35-113-33875 | 7604W | W_INJ | 35-113-33924 | 2805 | PA_PROD |
| 35-113-33876 | 8401W | SI_WINJ | 35-113-33925 | 2806W | P&A_INJ |
| 35-113-33877 | 8402W | P&A_INJ | 35-113-33926 | 2807 | PA_PROD |
| 35-113-33878 | 8403W | W_INJ | 35-113-33927 | 2808 | PA_PROD |
| 35-113-33886 | 2901 | PA_PROD | 35-113-33928 | 2809 | PA_PROD |
| 35-113-33887 | 2902 | PA_PROD | 35-113-33930 | 2811 | PA_PROD |
| 35-113-33888 | 2903 | PA_PROD | 35-113-33931 | 2812 | PA_PROD |
| 35-113-33889 | 2905 | PA_PROD | 35-113-33932 | 2813 | PA_PROD |
| 35-113-33890 | 2906 | SI_OIL | 35-113-33933 | 2814 | PA_PROD |
| 35-113-33891 | 2907 | PA_PROD | 35-113-33934 | 2815 | PA_PROD |
| 35-113-33892 | 2908 | PA_PROD | 35-113-33935 | 2816 | PA_PROD |
| 35-113-33893 | 2909 | P&A_INJ | 35-113-33936 | 5201 | OIL |
| 35-113-33894 | 2910 | PA_PROD | 35-113-33937 | 5202 | OIL |
| 35-113-33895 | 2913 | PA_PROD | 35-113-33938 | 5203 | P&A_INJ |
| 35-113-33895 | 2913A | PA_PROD | 35-113-33939 | 5204 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| 35-113-33941 | 5206 | PA_PROD | 35-113-34015 | 6004 | PA_PROD |
| 35-113-33942 | 5207 | PA_PROD | 35-113-34016 | 6005 | SI_OIL |
| 35-113-33943 | 5209 | OIL | 35-113-34017 | 6006 | PA_PROD |
| 35-113-33944 | 5212 | PA_PROD | 35-113-34018 | 6007 | PA_PROD |
| 35-113-33945 | 5213A | DRY | 35-113-34019 | 6008 | PA_PROD |
| 35-113-33946 | 5213 | DRY | 35-113-34020 | 6009 | PA_PROD |
| 35-113-33947 | 5214 | PA_PROD | 35-113-34021 | 6010 | PA_PROD |
| 35-113-33948 | 5215 | PA_PROD | 35-113-34022 | 6011 | PA_PROD |
| 35-113-33949 | 5216 | P&A_INJ | 35-113-34023 | 6012 | PA_PROD |
| 35-113-33950 | 5208 | PA_PROD | 35-113-34024 | 6013 | PA_PROD |
| 35-113-33951 | 5210 | P&A_INJ | 35-113-34025 | 6014 | PA_PROD |
| 35-113-33952 | 5211 | OIL | 35-113-34026 | 6015 | P&A_INJ |
| 35-113-33953 | 4416 | PA_PROD | 35-113-34027 | 6016 | PA_PROD |
| 35-113-33954 | 5501 | PA_PROD | 35-113-34028 | 6017 | PA_PROD |
| 35-113-33955 | 5502 | PA_PROD | 35-113-34029 | 7701W | P&A_INJ |
| 35-113-33956 | 5503 | PA_PROD | 35-113-34030 | 7702W | W_INJ |
| 35-113-33957 | 4502 | PA_PROD | 35-113-34031 | 7703W | P&A_INJ |
| 35-113-33958 | 4503 | PA_PROD | 35-113-34032 | 7704W | W_INJ |
| 35-113-33959 | 5504 | PA_PROD | 35-113-34033 | 7705W | W_INJ |
| 35-113-33960 | 4504 | PA_PROD | 35-113-34034 | 7708W | P&A_INJ |
| 35-113-33961 | 5505 | PA_PROD | 35-113-34035 | 7801W | W_INJ |
| 35-113-33962 | 4505 | PA_PROD | 35-113-34036 | 7802W | P&A_INJ |
| 35-113-33963 | 546 | PA_PROD | 35-113-34037 | 7803W | P&A_INJ |
| 35-113-33964 | 4506 | PA_PROD | 35-113-34038 | 7804W | P&A_INJ |
| 35-113-33965 | 5507 | PA_PROD | 35-113-34039 | 7805W | SI_WINJ |
| 35-113-33966 | 4507 | SI_OIL | 35-113-34040 | 7806W | P&A_INJ |
| 35-113-33968 | 5408 | PA_PROD | 35-113-34042 | 7808W | P&A_INJ |
| 35-113-33999 | 6301 | PA_PROD | 35-113-34043 | 8601W | P&A_INJ |
| 35-113-34000 | 6302 | PA_PROD | 35-113-34044 | 8603W | P&A_INJ |
| 35-113-34001 | 6303 | PA_PROD | 35-113-34045 | 8604W | P&A_INJ |
| 35-113-34002 | 6304 | PA_PROD | 35-113-34046 | 8701W | W_INJ |
| 35-113-34003 | 6305 | PA_PROD | 35-113-34047 | 8702W | P&A_INJ |
| 35-113-34004 | 6306 | PA_PROD | 35-113-34048 | 8703W | W_INJ |
| 35-113-34005 | 6307 | P&A_INJ | 35-113-34049 | 8704W | P&A_INJ |
| 35-113-34007 | 6309 | PA_PROD | 35-113-34050 | 8705W | P&A_INJ |
| 35-113-34008 | 6310 | PA_PROD | 35-113-34051 | 8706W | W_INJ |
| 35-113-34009 | 6311 | PA_PROD | 35-113-34052 | 8707W | P&A_INJ |
| 35-113-34010 | 6312 | PA_PROD | 35-113-34053 | 8708W | W_INJ |
| 35-113-34011 | 6313 | P&A_INJ | 35-113-34054 | 7901W | P&A_INJ |
| 35-113-34012 | 6001A | PA_PROD | 35-113-34055 | 7902W | SI_WINJ |
| 35-113-34014 | 6003 | PA_PROD | 35-113-34056 | 7903W | W_INJ |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-34057 | 7907W | SI_WINJ |
| 35-113-34058 | 8001W | SI_WINJ |
| 35-113-34059 | 8002W | SI_WINJ |
| 35-113-34060 | 8003W | P&A_INJ |
| 35-113-34061 | 8004W | P&A_INJ |
| 35-113-34062 | 8005W | SI_WINJ |
| 35-113-34063 | 8006W | P&A_INJ |
| 35-113-34064 | 8007AW | SI_WINJ |
| 35-113-34065 | 8008W | SI_WINJ |
| 35-113-34066 | 8801W | P&A_INJ |
| 35-113-34067 | 8802W | P&A_INJ |
| 35-113-34068 | 8803W | SI_WINJ |
| 35-113-34069 | 8804W | P&A_INJ |
| 35-113-34070 | 8805W | SI_WINJ |
| 35-113-34071 | 8806W | SI_WINJ |
| 35-113-34072 | 8901W | P&A_INJ |
| 35-113-34073 | 8902W | SI_WINJ |
| 35-113-34074 | 6001 | SI_OIL |
| 35-113-34075 | 8903W | SI_WINJ |
| 35-113-34076 | 8904W | SI_WINJ |
| 35-113-34077 | 8908W | SI_WINJ |
| 35-113-34078 | 8817 | DRY |
| 35-113-34079 | 7917 | PA_PROD |
| 35-113-34080 | 14306 | SI_OIL |
| 35-113-34081 | 8101W | P&A_INJ |
| 35-113-34082 | 8102W | P&A_INJ |
| 35-113-34083 | 8103W | P&A_INJ |
| 35-113-34084 | 8105W | P&A_INJ |
| 35-113-34085 | 9001W | P&A_INJ |
| 35-113-34086 | 9002W | P&A_INJ |
| 35-113-34087 | 9003W | P&A_INJ |
| 35-113-34088 | 9005W | P&A_INJ |
| 35-113-34089 | 8113 | PA_PROD |
| 35-113-34090 | 8114 | PA_PROD |
| 35-113-34091 | 8116 | PA_PROD |
| 35-113-36813 | 9106 | PA_PROD |
| 35-113-36894 | 10113 | PA_PROD |
| 35-113-36894 | 10113A | SI_OIL |
| 35-113-36895 | 13805 | SI_OIL |
| 35-113-36895 | 13805W | P&A_INJ |
| 35-113-36897 | 5309 | PA_PROD |
| 35-113-36899 | 4601 | PA_PROD |
| 35-113-36901 | 6002 | PA_PROD |
| 35-113-36902 | 5205 | PA_PROD |
| 35-113-36903 | 9906 | PA_PROD |
| 35-113-36904 | 12210 | PA_PROD |
| 35-113-36906 | 8001 | PA_PROD |
| 35-113-36907 | 8002 | PA_PROD |
| 35-113-36964 | 7807W | P&A_INJ |
| 35-113-36965 | 7708A | PA_PROD |
| 35-113-37061 | 6701W | W_INJ |
| 35-113-37070 | 4525W | P&A_INJ |
| 35-113-37072 | 612 | PA_PROD |
| 35-113-37072 | 612A | OIL |
| 35-113-37073 | 306 | SI_OIL |
| 35-113-37075 | 1628W | P&A_INJ |
| 35-113-37080 | 2504A | OIL |
| 35-113-37082 | 6408 | SI_OIL |
| 35-113-37083 | 2516 | SI_OIL |
| 35-113-37083 | 2516A | OIL |
| 35-113-37102 | 12512 | PA_PROD |
| 35-113-37105 | 9602W | P&A_INJ |
| 35-113-37107 | 10910 | SI_OIL |
| 35-113-37108 | 10914 | PA_PROD |
| 35-113-37111 | 1824W | P&A_INJ |
| 35-113-37112 | 1228W | W_INJ |
| 35-113-37115 | 8302W | P&A_INJ |
| 35-113-37116 | 8322 | UNKNW |
| 35-113-37117 | 8303 | P&A_INJ |
| 35-113-37118 | 7304W | SI_WINJ |
| 35-113-37119 | 7405W | P&A_INJ |
| 35-113-37120 | 7406W | P&A_INJ |
| 35-113-37121 | 7407W | P&A_INJ |
| 35-113-37136 | 7505W | P&A_INJ |
| 35-113-37137 | 7605W | P&A_INJ |
| 35-113-37138 | 7506W | P&A_INJ |
| 35-113-37139 | 7507W | P&A_INJ |
| 35-113-37140 | 7608W | P&A_INJ |
| 35-113-37142 | 7514 | SI_OIL |
| 35-113-37151 | 2023W | P&A_INJ |
| 35-113-37152 | 12922 | SI_OIL |
| 35-113-37172 | 339 | PA_PROD |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-37172 | 2509 | OIL |
| 35-113-37172 | 3309 | SI_OIL |
| 35-113-37779 | 8W | P&A_INJ |
| 35-113-37780 | 12416AW | P&A_INJ |
| 35-113-37781 | 12901 | P&A_INJ |
| 35-113-37782 | 13116 | PA_PROD |
| 35-113-37783 | 13004 | PA_PROD |
| 35-113-37784 | 13110A | SI_OIL |
| 35-113-37785 | 13012W | SI_OIL |
| 35-113-37851 | 501 | OIL |
| 35-113-37852 | 1709 | OIL |
| 35-113-37853 | 1710 | OIL |
| 35-113-37854 | 1712 | PA_PROD |
| 35-113-37856 | 2515 | PA_PROD |
| 35-113-37858 | 8703 | PA_PROD |
| 35-113-37867 | 504 | OIL |
| 35-113-37874 | 511 | PA_PROD |
| 35-113-37874 | 511A | OIL |
| 35-113-37887 | 8409 | PA_PROD |
| 35-113-37889 | 13106W | P&A_INJ |
| 35-113-37904 | 10102W | P&A_INJ |
| 35-113-37905 | 9416W | P&A_INJ |
| 35-113-37906 | 3328W | WAG |
| 35-113-37907 | 7905W | W_INJ |
| 35-113-37965 | 1424W | WAG |
| 35-113-37986 | 8501 | PA_PROD |
| 35-113-37987 | 7402W | SI_WINJ |
| 35-113-37988 | 7401W | P&A_INJ |
| 35-113-38019 | 506W | WAG |
| 35-113-41342 | 11127 | OIL |
| 35-113-41908 | 5231D | SI_SWD |
| 35-113-41909 | 4228W | SI_WINJ |
| 35-113-41910 | 5128W | W_INJ |
| 35-113-41944 | 5133W | W_INJ |
| 35-113-41945 | 5031D | SI_SWD |
| 35-113-41946 | 5029W | SI_WINJ |
| 35-113-41947 | 4230AW | SI_WINJ |
| 35-113-41947 | 4230W | P&A_INJ |
| 35-113-41948 | 4229W | W_INJ |
| 35-113-41949 | 3428W | W_INJ |
| 35-113-41950 | 3430WS | SI_WSW |
| 35-113-41951 | 3329W | WAG |
| 35-113-41952 | 2629D | SI_SWD |
| 35-113-41975 | 4429D | SWD |
| 35-113-42088 | 5724W | W_INJ |
| 35-113-42089 | 5725 | OIL |
| 35-113-42090 | 5726 | SI_OIL |
| 35-113-42091 | 5727 | OIL |
| 35-113-42092 | 3928 | OIL |
| 35-113-42093 | 4828 | SI_WINJ |
| 35-113-42095 | 4928W | W_INJ |
| 35-113-42096 | 3929 | SI_WINJ |
| 35-113-42097 | 4929 | SI_OIL |
| 35-113-42098 | 4930 | OIL |
| 35-113-42100 | 4932W | SI_WINJ |
| 35-113-42101 | 4933W | W_INJ |
| 35-113-42126 | 5129W | SI_WINJ |
| 35-113-42139 | 4829 | SI_OIL |
| 35-113-42139 | 4929C | P&A_UNKW |
| 35-113-42142 | 13818W | P&A_INJ |
| 35-113-42357 | 5710A | SI_OIL |
| 35-113-42368 | 14008W | SI_WINJ |
| 35-113-43099 | 4931 | SI_OIL |
| 35-113-43565 | 509 | OIL |
| 35-113-43596 | 510 | OIL |
| 35-113-43597 | 512 | OIL |
| 35-113-43598 | 802 | OIL |
| 35-113-43599 | 3201 | OIL |
| 35-113-43601 | 5232W | W_INJ |
| 35-113-43603 | 6612 | OIL |
| 35-113-43604 | 8605 | SI_OIL |
| 35-113-43605 | 6112 | SI_OIL |
| 35-113-43606 | 9719 | SI_OIL |
| 35-113-43607 | 9726W | W_INJ |
| 35-113-43608 | 9727W | SI_WINJ |
| 35-113-43609 | 9737W | SI_WINJ |
| 35-113-43610 | 13107 | OIL |
| 35-113-43611 | 14004 | SI_OIL |
| 35-113-43612 | 1901 | PA_PROD |
| 35-113-43612 | 1901A | SI_OIL |
| 35-113-43613 | 1902 | SI_OIL |
| 35-113-43614 | 1910 | SI_OIL |

| API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|
| 35-113-43615 | 1512 | OIL |
| 35-113-43616 | 12607 | OIL |
| 35-113-43617 | 12714 | SI_OIL |
| 35-113-43875 | 1441W | W_INJ |
| 35-113-43877 | 3141W | WAG |
| 35-113-43878 | 4041W | WAG |
| 35-113-43879 | 3941W | WAG |
| 35-113-43892 | 2341W | WAG |
| 35-113-43893 | 2441W | WAG |
| 35-113-43894 | 3142W | WAG |
| 35-113-43904 | 2241W | W_INJ |
| 35-113-43924 | 4042W | WAG |
| 35-113-43963 | 1741W | WAG |
| 35-113-44124 | 1541 | OIL |
| 35-113-44125 | 1542 | OIL |
| 35-113-44126 | 2442W | WAG |
| 35-113-44213 | 3942W | W_INJ |
| 35-113-44214 | 4043W | W_INJ |
| 35-113-44320 | 3241W | WAG |
| 35-113-44465 | 2541W | WAG |
| 35-113-44466 | 3341W | WAG |
| 35-113-44467 | 3841W | W_INJ |
| 35-113-44468 | 2242W | W_INJ |
| 35-113-44616 | 3242 | OIL |
| 35-113-44617 | 3143W | WAG |
| 35-113-44670 | 2342 | OIL |
| 35-113-44697 | 2343 | OIL |
| 35-113-44864 | 541W | WAG |
| 35-113-44866 | 642W | WAG |
| 35-113-44874 | 1044 | OIL |
| 35-113-44878 | 1641 | OIL |
| 35-113-44885 | 942 | OIL |
| 35-113-44889 | 941 | OIL |
| 35-113-44918 | 2344 | OIL |
| 35-113-44926 | 842W | W_INJ |
| 35-113-44927 | 1042 | OIL |
| 35-113-44928 | 1041 | OIL |
| 35-113-44931 | 943 | OIL |
| 35-113-44932 | 2542W | WAG |
| 35-113-44933 | 1141WR | WAG |
| 35-113-44936 | 1742W | WAG |
| 35-113-45252 | 452W | WAG |
| 35-113-45291 | 852W | W_INJ |
| 35-113-45292 | 2255 | W_INJ |
| 35-113-45293 | 3357W | WAG |
| 35-113-45294 | 1855W | WAG |
| 35-113-45315 | 1257W | W_INJ |
| 35-113-45316 | 1748 | OIL |
| 35-113-45317 | 1853W | WAG |
| 35-113-45318 | 1857W | WAG |
| 35-113-45319 | 3052W | W_INJ |
| 35-113-45321 | 3457W | W_INJ |
| 35-113-45322 | 741 | OIL |
| 35-113-45332 | 2657W | WAG |
| 35-113-45367 | 742 | OIL |
| 35-113-45369 | 3448 | TA_OIL |
| 35-113-45390 | 3453W | W_INJ |
| | 3513AW | WAG_TBD |
| | 3513AW | WAG_TBD |
| | 3602AW | WAG_TBD |
| | 5002AW | WAG_TBD |
| | 5225AW | WAG_TBD |
| | 5306AW | WAG_TBD |
| | 5308AW | WAG_TBD |
| | 5313AW | WAG_TBD |
| | 5402AW | WAG_TBD |
| | 5407AW | WAG_TBD |
| | 5707AW | WAG_TBD |
| | 5715AW | WAG_TBD |
| | 5727AW | WAG_TBD |
| | 5801AW | WAG_TBD |
| | 5803AW | WAG_TBD |
| | 5813AW | WAG_TBD |
| | 5903AW | WAG_TBD |
| | 5912AW | WAG_TBD |
| | 5914AW | WAG_TBD |
| | 5927AW | WAG_TBD |
| | 6021AW | WAG_TBD |
| | 6025AW | WAG_TBD |
| | 6125AW | WAG_TBD |
| | 6205AW | WAG_TBD |
| | 6207AW | WAG_TBD |

| API Number | Well Name and Well # | Well Type and Well Status | API Number | Well Name and Well # | Well Type and Well Status |
|---|---|---|---|---|---|
| | 6209AW | WAG_TBD | | 6213AW | WAG_TBD |