Sampling Plan for Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)-Rangely Oil and Gas Field

Rangely Oil and Gas Field,
Rio Blanco County, Colorado

Stantec

Submitted to:
Colorado Department of Public Health and Environment-
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, CO 80246

Submitted to:
State of Colorado Oil and Gas Conservation Commission
818 Taughenbaugh Blvd.,
Suite 103
Rifle, Colorado, 81650

Prepared for:
Spencer Jackson
Sr. Remediation Specialist
Scout Energy Management LLC
13800 Montfort Drive Suite 100
Dallas, TX 75240

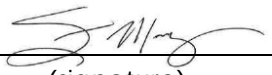
March 28, 2022

Sign-off Sheet

This document entitled Sampling Plan for Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)-Rangely Oil and Gas Field was prepared by Stantec Consulting Services Inc. ("Stantec") for Scout Energy Management LLC (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  03/28/2022
(signature) (date)

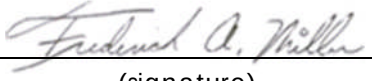
Christopher Beall, PG, CPG
Associate Geologist

Prepared by  03/28/2022
(signature) (date)

Scott Maxey, MS, CIH, CSP, CRIS
Health, Safety, Security and Environment (HSSE) Adviser

Reviewed by  03/28/2022
(signature) (date)

Brent Lucyk
Senior Project Manager

Reviewed by  03/28/2022
(signature) (date)

Fred Miller, CSP
Corporate Radiation Safety Officer (RSO)

SAMPLING PLAN FOR TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL (TENORM)-RANGELY OIL AND GAS FIELD

March 28, 2022

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

SAMPLING PLAN FOR TECHNOLOGICALLY ENHANCED NATURALLY OCCURRING RADIOACTIVE MATERIAL (TENORM)-RANGELY OIL AND GAS FIELD

March 28, 2022

1.0 Introduction

The Colorado Department of Public Health and Environment (CDPHE) Rule 6 Code of Colorado Regulations (CCR) 1007-1, Part 20 (Part 20; CDPHE 2021a) that became effective on January 14, 2021, requires stakeholders, and impacted facilities, to characterize their potential Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) containing wastes, make a TENORM determination, and prepare for compliance with Part 20, before the requirements become enforceable on July 14, 2022.

TENORM is defined as Naturally Occurring Radioactive Material (NORM) whose radionuclide concentrations are increased by or as a result of past or present human practices (CDPHE, 2021a). TENORM is associated with many industries including mining, water treatment, and energy production including oil and gas exploration and production (E&P). With regards to Oil and Gas E&P, NORM can be concentrated into TENORM through the many different extraction and separation processes.

In addition to the CDPHE Part 20 regulations, the Colorado Oil and Gas Conservation Commission (COGCC) 900 and 800 Series Rules (COGCC, 2021a; COGCC, 2021b) have requirements for sampling produced water for TENORM/NORM entering a permitted or registered Pit (Rule 909.j.[1]) or proposed for introduction into any new Underground Injection Control (UIC) Well (Rule 803.g.[5].C &D, 803.h.[1]; 800 Series Rules; COGCC, 2021b). Operators are required to submit an initial water quality analysis to the COGCC no later than July 15, 2022.

NORM and TENORM radionuclides of concern in Part 20 include Radium-226 (Ra-226), Radium-228 (Ra-228), Lead-210 (Pb-210), and Polonium-210 (Po-210).

This Sampling Plan was developed by Stantec Consulting Services Inc. (Stantec) on behalf of Scout Energy Management LLC (Scout) to comply with both the CDPHE and the COGCC regulations at Rangely Oil and Gas Field (Rangely Field).

2.0 Field Location

The Rangely Field is an active oil and gas E&P field operated by Scout and consists of an approximately 52 square mile area located in multiple sections of Townships 1 and 2 North, Ranges 101, 102 and 103 West of the 6th Principal Meridian in Rio Blanco County, Colorado.

The Rangely Field is located approximately four miles west of the town of Rangely, off State Highway 64. It is approximately 13 miles long by 4 miles wide at its widest point at an elevation of approximately 5,300 feet above mean sea level (MSL). Colorado Highway 64 runs through a valley located in the southwest third of the production area. The White River runs through the very south of the production area along with the town of Rangely, Colorado. A Site Plan with Select Site Facilities is presented on **Figure 1** and a Site Plan with Producing Well Locations is presented on **Figure 2**.

3.0 Field Characteristics

The Rangely Field produces from the Weber Formation (sandstone) and sits atop the Rangely Anticline, which is located on the northeastern flank of the Uinta Basin. The oil-containing reservoir region of the Weber Formation varies from less than 100 feet thick at the edges to 950 feet thick at the center of the anticline.

The Rangely Field is undergoing a tertiary recovery effort, which utilizes enhanced oil recovery with a produced water-alternating-gas (carbon dioxide [CO_2]) system flooding. There are 325 active producing wells dispersed over 27 Collection Stations producing from the Weber Formation and 261 active Underground Injection Control (UIC) Class II Injection Wells injecting into the Weber and Navajo Formations. Producing Well details are presented on **Table 1**. Multiple wells flow to 27 individual Collection Stations, where tanks are located. Special Purpose Relief Pits (Pits) are located at 16 of the 27 Collection Stations.

The Rangely Field generates the following four main product streams:

- Crude oil (contained on-site and trucked off-site)
- Natural gas (processed on-site and transported off-site via pipeline)
- Natural gas liquid (NGL) (contained on-site and trucked off-site)
- Produced water (disposed of on-site in UIC Class II Injection Wells)

Additional E&P facilities include the NGL/CO2 Gas Processing Plant, Main Water Plant, the West Water Plant, the Centralized Waste E&P Waste Management Facility, and the Waste Segregation Area

The Pits referenced have been used at the Rangely Field for temporary containment of produced water and materials for the following two scenarios:

- Pits at 16 of the 27 Collection Stations: With the approval of the COGCC, the Rangely Field uses unlined Pits for relief of oil and water mixtures during an upset condition. An upset condition occurs when maintenance requires isolation and depressurization of equipment at the water plants or Collection Stations.

- Pits for the Main and West Water Plants: If a failure occurs at the water plants, water flows into the Pits. Sludges from clarifiers and filter backwashing are also sent to the Pits. Water is pumped out of the pits and back through the water treatment plants, and the sludges remain in the pits.

4.0 Purpose and Objectives

4.1 PURPOSE

The purpose of this Plan is to detail sampling and analytical activities to make a multi-location and formation-based characterization of TENORM at the Rangely Field per CDPHE CCR 1007-1 Part 20 Addendum A.A.7 (CDPHE, 2021b). This characterization will allow for the compliance of the following:

- CDPHE Part 20 by making a TENORM determination; and
- COGCC 900 Series Rule requiring sampling produced water entering a permitted or registered Pit.

In addition, a Form 4 requesting an alternative sampling plan will be submitted to the COGCC for characterization of produced water from multi-wells that discharge to a common pit.

4.2 OBJECTIVES

The objectives of this Plan, which includes sampling and analysis, are to:

- Characterize waste material at the point of generation that potentially contains TENORM using multi-location and formation-based sampling approach, when applicable;
- Characterize produced water for TENORM and water quality analysis included in the COGCC Rule 909.j.(1). entering into permitted or registered Pits; and
- Characterize background NORM concentrations, as needed.

To achieve the objectives of this Plan, sampling locations for TENORM, background NORM, and chemical analyses have been proposed at the Rangely Field.

5.0 Pre-field Preparation

5.1 HEALTH AND SAFETY

5.1.1 Site-Specific Health and Safety Plan

To ensure safe completion of field sampling activities and per Title 29 Code of Federal Regulations (CFR) Part 1910 (29 CFR 1910), a comprehensive site-specific Health and Safety Plan (HASP) or alternative hazard, recognition, and control plan should be prepared and approved prior to sampling activities. The HASP or alternative hazard, recognition, and control plan will need to address all site safety, health and security requirements and outline the appropriate emergency action plan as well as detailed incident reporting requirements. Task-specific job safety analyses (JSAs) can be created, as necessary, prior to commencing fieldwork.

At a minimum, the following personal protective equipment (PPE) will be required when on site and during sampling activities. Minimum PPE required includes the following:

- Level D PPE per 29 CFR 1910;
- Flame retardant clothing (FRC) including coveralls or long sleeves and long pants; and
- Personal hydrogen sulfide (H_2S) air monitors carried by all personnel.

5.1.2 Training

All sampling crew members should have awareness-level radiation safety training designed for working with elevated levels of NORM or TENORM materials. This training should be provided by a Radiation Safety Officer (RSO) or other qualified individuals.

Sampling crew members will need site-specific and activity-specific hazard communication training. Personnel will need to be adequately trained and have demonstrated competency to collect potentially contaminated environmental samples and be aware of potential exposures to chemicals and the required controls to assure the safety of everyone on the project.

5.2 LINE LOCATION AND UTILITY CLEARANCE

During background NORM sampling, subsurface soil samples will be collected. As required by law, the Utility Notification Center of Colorado (UNCC) will have to be notified at least seventy-two (72) hours before intrusive subsurface activities begin. In addition to notifying the UNCC,

review of subsurface sample locations with Scout operations staff will be required prior to breaking ground. Each background sample location will be cleared and sampled using soft digging techniques (e.g., hand auger or shovel).

6.0 Sampling Approach

The proposed sample media and locations for initial TENORM characterization will be based on process knowledge, including where TENORM is likely to accumulate. This will include collection of samples from similar facility process locations and materials from the same geologic formation(s). The following sections describe the proposed sampling media and locations for the Rangely Field.

6.1 FIELD SAMPLE COLLECTION

6.1.1 Produced Water

The Rangely Field has 325 active producing wells, all from the Weber geologic formation that feed into 27 Collection Stations. To meet both the CDPHE multi-location characterization and the COGCC Rule 909.j.(1) requirements, produced water from Test Separators at all 16 Collection Stations with pits will be sampled. Samples will be collected and analyzed for radium-226 (Ra-226) and radium-228 (Ra-228) to make the CDPHE Part 20 multi-location TENORM determination. Samples will also be collected and analyzed for water quality chemicals analysis included in the COGCC Rule 909.j.(1) including Ra-226 and Ra-228. To meet the COGCC Rule 909.j.(2), initial and subsequent annual sampling and analysis will need to be performed. Polonium-210 (Po-210) and lead-210 (Pb-210) analysis of produced fluids will not be required because both Po-210 and Pb-210 are daughter products of Ra-226, and the concentrations of these isotopes can be assumed to be equal to or less than the concentration of Ra-226 in these samples.

In addition to meeting the COGCC requirement, the 16 sample locations will serve to meet the CDPHE TENORM multi-location characterization requirements for all water produced at the production wells, including wells supplying water to Collection Stations without pits. The 16 sample locations represent 59% of all producing wells and are distributed throughout the Rangely Field. Due to the number of samples collected, which are a representative subset of producing wells, this approach is considered to be more than adequate to serve as multi-location TENORM characterization of produced water from the Weber geological formation for the entire field. The sampling strategy will include the CDPHE initial TENORM determination and

the COGCC annual radiological TENORM and water quality chemical sampling and analysis detailed below in Sections 6.1.1.1 and 6.1.1.2.

6.1.1.1 Annual Radiological TENORM Sampling and Analysis

- One 2-Liter (L) produced water grab sample will be collected from each Test Separator. Efforts should be made to collect only water with little or no oil. The following Collection Stations will be sampled:

  - o Collection Station 3
  - o Collection Station 5
  - o Collection Station 6
  - o Collection Station 8
  - o Collection Station 9
  - o Collection Station 10
  - o Collection Station 11
  - o Collection Station 13
  - o Collection Station 14
  - o Collection Station 16
  - o Collection Station 17
  - o Collection Station 20
  - o Collection Station 22
  - o Collection Station 24
  - o Collection Station 33
  - o Collection Station 34

- Each 2-L sample will contain a sufficient amount of nitric acid (HNO_3) to reduce the potential of hydrogen (pH) of the water sample to below 2.0. The laboratory can provide acid-supplied poly sampling containers upon request if acid handling in the field is problematic.

- For each 2-L sample collected, an additional 500 milliliter (ml) sample will be collected for total dissolved solids (TDS) and total suspended solids (TSS) analysis for conversion from picocuries per liter (pCi/L) to picocuries per gram (pCi/g) by the radiochemistry laboratory. These samples will need to be kept cold after collection and during transport to the laboratory.

- All isotopic analysis for produced water will be limited to Ra-226 and Ra-228 concentration determinations.

If in the future, a Pit is taken out of service, annual samples will no longer be required and collected.

6.1.1.2 Annual Chemical Sampling and Analysis

At the Test Separators at all 16 Collection Stations with pits, produced water samples will be collected for the water quality analysis included in the COGCC Rule 909.j.(1). These samples will need to be kept cold after sampling and during transport to the laboratory. Based on the complexity of the sampling protocol, details of water quality analysis are included in **Section 7**.

6.1.2 Solid Waste

During routine maintenance, solids accumulate in several facilities and periodically must be removed for disposal. These facilities include:

- Collection Station Separators
- Pits (Collection Station and Water Plants Pits)
- Blowdown Tanks
- Pipe scale
- Backflow injection well solids
- Tank bottoms for both Water Plants
- E&P spills and releases with potential NORM constituents
- Solids from clarifiers
- Solids from filter backwashes
- Solids from water filters and screens

Many of these facilities rarely require maintenance and, in some cases, only require sediment removal every 10 years. Some of these facilities rarely have enough sediment for sampling or are difficult to collect samples without disrupting operations. As described in the following sections, samples collected at the collection station separators and truck unloading tank are proposed to be representative of any accumulated solids from the downstream processes. Other potential solids will be evaluated for TENORM concentrations at specific locations as detailed in this plan.

6.1.3 Primary Separator Solids/Sludge

A TENORM determination using the multi-location characterization of solids accumulated in the primary separation tanks at the 27 Collection Stations will be made through representative sampling at 6 collection stations, all within the Weber geological formation. The sampling and analytical strategy will include:

- Based on operator knowledge, the only Collection Station with solids that have historically exhibited elevated external radiation measurements above background

using a survey meter was detected at Collection Station 20. Considering this observation, a biased sampling approach will be used for collection of solids/sludge from the bulk separator from Collection Station 20 provided sufficient solid materials are present for analysis.

- The additional 5 representative samples have been selected from the remaining 15 Collection Stations with pits using a random number generator which have selected the following Collection Stations.
    - Collection Station 3
    - Collection Station 13
    - Collection Station 17
    - Collection Station 22
    - Collection Station 24

- If there is not a sufficient volume of solids at Collection Station 20 or one of these randomly selected Collection Stations, the nearest Collection Station to each of these will be selected for sample collection in place of the randomly selected collection station.

- At least 16 ounces (oz) of solid/sludge materials will be collected per collection station. No preservatives or additives will be required.

- Each sample will be a composite from 4 grab samples (4-point composite) representative of materials collected from different sections and depths within the primary separator at each representative collection station.

- For compliance, analysis will be limited to Ra-226 and Ra-228 though the laboratory will be instructed to maintain a portion of each sample for Po-210 and Pb-210 analysis for subsequent analysis, if necessary. Po-210 and Pb-210 are daughter products of the Ra-226 decay chain and their concentrations in solids will be less than Ra-226 concentrations without being downstream of a gas extraction process.

6.1.4 Truck Unloading Tank Solids/Sludge

During maintenance activities across the Rangely Field, vacuum trucks remove liquids and solids from the equipment and transfer the material to the Truck Unloading Tank at the Main Water Plant. Solids, including sludge and sediment that have accumulated in the Truck Unloading Tank

at the Main Water Plant, will be collected for TENORM determination. The sampling and analytical strategy will include:

- Four (4) samples will be collected for statistical analysis from the Truck Unloading Tank. Samples will be collected from different areas within the tank during the same sampling event.
- At least 16 oz of solid/sludge materials will be collected per sample. No preservatives or additives will be required.
- Each of the four samples will be a composite from 4 grab samples (4-point composite) representative of materials collected from depths within the Truck Unloading Tank.
- Analysis will target concentrations of Ra-226, Ra-228, Po-210 and Pb-210. The analysis of Po-210 and Pb-210 are included for characterization considering some solids extracted from the gas processing components may have been sent to the Truck Unloading Tank.

6.1.5 Solid and Oily Wastes at the Waste Segregation Area

The Rangely Waste Segregation Area stores wastes such as general trash, used personal protective equipment (PPE), spent oil from vehicles and mechanical equipment, oily rags, and other wastes which do not have NORM constituents. Based on process knowledge and the types of wastes generated which are held at this facility, no TENORM determination sampling is required.

6.1.6 Pits and Holding Tank Solids and Sludge

Sample collection for TENORM determination of sediments and sludge from the pits and tanks will not be necessary. Analysis of all produced water entering the Collection Stations and representative solids/sludge samples from the Collection Station's primary separators will provide sufficient data to make a multi-location characterization for TENORM determination and applicability with Part 20 requirements for all pits and tanks.

6.1.7 E&P Pipe Survey Measurements and Scale Sample Collection

During well maintenance activities and upset conditions, piping components need to be replaced in which old pipe may have scale deposits on interior surfaces. Rangely currently does not have any pipe wastes, nor have they generated pipe wastes in 2021.

Historically, pipes which contain scale have been screened using survey instrument with a sodium iodide crystal, which has been calibrated to measure external radiation levels in micro roentgens per hour (µR/hr). A criterion of 50 µR/hr above background has been used as the non-radiological wastes threshold for allowing these materials to be shipped to a recycler or sanitary waste facility. The new existing exemptions from Part 20 for E&P waste piping that may contain TENORM as scale are:

1. The pipe is no longer than 50 feet in length, or the pipe is cut to individual sections no longer than 50 feet in length; **and**

2. Each pipe section exhibits no measured radiation dose rate distinguishable from natural background when measured on contact with both the exterior surface and each accessible surface of the interior of the pipe section with a portable radiation detector; **and**

3. For each pipe section used for transfer or processing of natural gas, the level of non-fixed alpha contamination of each accessible interior surface does not exceed 600 disintegrations per minute per 100 square centimeters (600 dpm/100 cm^2).

Piping waste in the future will need to be evaluated to meet these criteria with an alpha probe Ludlum 43-2 and a scale meter. Wipe testing will need to be conducted to verify exempt status for natural gas piping and scale will need to be collected for solid analysis for TENORM determination for materials inside pipes which are not at or below exempt levels (above either external radiation natural background levels or nonfixed gross alpha contamination). Future TENORM evaluation of pipe scale, which is not exempt, will need to include analysis for Ra-226, Ra-228, Pb-201, and Po-210.

Scout acknowledges that there are currently CDPHE Draft TENORM Pipe Guidance and Regulations that, when finalized and adopted, will change the procedures above. Scout will revise procedures based on the new Guidance and Regulations.

6.1.8 Background NORM Sample Collection

Part 20 regulations allow for analytical results of materials to exclude background levels of Ra-226, Ra-228, Po-210 and Pb-210. The regulations allow facility owners to use the CDPHE approved background values (Ra-226: 1.4 pCi/g, Ra-228: 1.3 pCi/g, Pb-210: 1.4 pCi/g and Po-210: 1.4 pCi/g) or site-specific background values can be determined by radiological analysis and statistical evaluation of soil samples collected in the area which is representative of the geological formation in the region. If background samples are determined to be necessary at Rangely, the following sampling and analytical guidelines should be followed:

- 10 background soil samples will be collected within the field. While the sampling guide suggests 6-10 samples, greater numbers of background sample data will provide the best opportunity to avoid having to conduct additional sampling as directed by the discriminator function of the CDPHE's Site Specific Background Determination Calculator (CDPHE, 2021c).

- Background sample locations have been selected from 10 of 16 Collection Stations with pits listed in **Section 6.1.1.1**. Sample locations were identified using a random number generator. If background samples are required, they will be collected around the following 10 Collection Stations:

    - o Collection Station 3
    - o Collection Station 6
    - o Collection Station 11
    - o Collection Station 13
    - o Collection Station 14
    - o Collection Station 16
    - o Collection Station 20
    - o Collection Station 22
    - o Collection Station 24
    - o Collection Station 33

- Each composite sample will be comprised of a 3-point composite sample from intervals 0.5-1.0 feet below ground surface (bgs), 2.5- 3.0 feet bgs, and 4.5-5.0 feet bgs.

- At least 16 oz. of total soil will be collected per sample container. No additives or preservative will be required.

- Samples will be analyzed for Ra-226, Ra-228, Po-210 and Pb-210.

If background sampling is conducted, the CDPHE's Site Specific Background Determination Calculator (CDPHE, 2021c) will be used to calculate the final background value for each isotope and determine if additional sampling is required. Final background values will need to be a

mean within +/- 20% of the true average at the 95% confidence level to avoid additional sampling.

7.0 Sample Collection, Handling, Analysis, and QA/QC

This section describes the procedures that will be used to handle TENORM and NORM samples for laboratory analysis, including quality assurance and quality control (QA/QC).

7.1 FIELD QUALITY CONTROL PROCEDURES

Duplicate samples will be collected during sampling activities at a ratio of approximately 1 blind duplicate per 20 samples collected to evaluate potential variability in the analytical results due to sampling techniques. When collecting duplicate samples, laboratory provided containers(s) with two different sample identification (ID) numbers will be filled with sample media split from the location. The duplicate samples will be preserved, packaged, and sealed for transport to the laboratory. A unique sample ID will be assigned to each duplicate sample detailed in **Section 7.3**. The location of duplicate samples will be maintained in field sampling notes.

7.2 TENORM SAMPLING RECORDS

A Field Sample Collection Form is included as **Appendix A** and will be completed for each sample location. Each sampling record will be consecutively numbered, dated, and signed. Each sample will be assigned a unique index number which will be recorded on the form. All entries will be made in indelible ink with corrections consisting of line-out deletions that are initialed and dated. There will be no blank spaces on the form. If no information was collected, a single line or "NA" for not applicable will be inserted.

In addition, the sampling personnel will enter the sample information onto the chain-of-custody (COC) record.

7.3 SAMPLE IDENTIFICATION SYSTEM

Each sample collected will be designated with a unique sample ID number. The guidelines for sample ID are described below:

7.3.1 Sample ID Components

Site Designation:

- Rangely Field (R)

Location and Number:

- Collection Station (CS)-name or #
- Truck Unloading Tank (TUT)
- Background (BG)-name or #
- Duplicate (DUP)-name or #

Sample Type/Method:

- Grab (G)
- Composite (C)

Sample Number

- 1, 2, 3, etc. in sequential order

7.3.2 Sample IDs and Examples

- Collection Station: Site Designation-Location#-Type-Sample Method-Sample Number-Date (mmddyy) (e.g., R-CS20-G-1-mmddyy)

- Truck Unloading Tank: Site Designation-Location#-Type-Sample Method-Sample Number-Date (mmddyy) (e.g., R-TUT-C-1-mmddyy)

- Background: Site Designation-Location-Type-Sample Method-Sample Number-Date (mmddyy) (e.g., R-CS20-BG-C-1-mmddyy)

- Duplicate: Site Designation-Location-Type-Sample Method-Sample Number-Date (mmddyy) (e.g., R-DUP-01-G-1-mmddyy)

7.4 SAMPLE LABELING

Sample containers will be clearly and properly labeled with ink on water-resistant adhesive labels containing the following information:

- Client;
- Project name/number;

- Sample ID;
- Date collected;
- Time collected; and
- Sampler.

7.5 CHAIN-OF-CUSTODY RECORD, SAMPLE CUSTODY, AND SHIPMENT

The COC is initiated by the sampler and is updated each time a sample is collected and each time a set of samples are passed from one individual to another. The samples must never be left unsecured, and they are the responsibility of the individual into whose custody they have been remanded. A COC record will be completed for each group of samples collected on a given day. Additional information included on the COC is as follows:

- Project name and number;
- COC serial number;
- Sample ID;
- Sampler's/recorder's signature;
- Date and time of collection;
- Site location;
- Sample type;
- Analyses requested;
- Inclusive dates of possession;
- Name of laboratory/laboratory personnel receiving sample;
- Laboratory sample number;
- Date of sample receipt; and
- Address of analytical laboratory.

Sample possession will be traceable from the time a sample is collected until it is received at the analytical laboratory. Samples will be in the custody of the field sampler from the time they are collected until the samples are transferred to the proper dispatcher. All samples will be packed in coolers with inert packing material (for example, bubble wrap or plastic netting) to prevent breakage. Samples will be placed in coolers with bagged ice between and on top of the sample containers to maintain a temperature of approximately 4 degrees Celsius (°C). The drain plug of the cooler, if present, will be sealed with fiberglass tape to prevent melting ice from leaking. At the end of the sampling effort each day, the field sampler will inventory the samples and compare against the COC form.

A laboratory representative will be given advance notification of the scheduled sampling event. Samples will be shipped to the analytical laboratory via FedEx® (or equivalent). Upon transferring custody of the samples, the individual relinquishing them will sign, date, and note the time of transfer on the COC record(s). Any changes to the analyses that are requested on the COC record will be noted, initialed, and dated on the COC copies possessed by both the laboratory and the project coordinator. Once the record is completed, the carbon copies will be separated. The field member who relinquished the samples will retain a copy, and the original will accompany the coolers to the laboratory. The original COC record will be placed in a sealed waterproof plastic bag, and taped to the inside of the cooler, which will then be sealed. The field copy of the COC record will be sent to the project coordinator and maintained in the project management files.

The analytical laboratory will send notification acknowledging sample receipt to the project data manager. In the acknowledgment, the laboratory will list the samples received, the associated laboratory IDs that were assigned, analysis to be performed, and any problems encountered at sample receipt. Upon completion of analysis, the analytical laboratory will send copies of the fully signed COC record for each sample to the project data manager.

7.6 TENORM SAMPLING ANALYSIS, METHODS, AND DETECTION LIMITS

Details of the sample analysis, analytical methods, and detection limits where applicable are presented below. A summary of sample bottles and preservatives required for each analysis are included for the Rangely Field on **Table 2.**

7.6.1 Solids (sediment and sludges)

Solid and sludge samples will be analyzed for the following:

- Ra-226 and Ra-228 by method 901.1M (gamma spectroscopy) with detection limit of 1 pCi/g. There is an in-growth period of twenty-one (21) days to eliminate interference of gamma radiation with the same energies from uranium 235.
- Pb-210 by method United States Environmental Protection Agency (EPA) SOP 726 Eichrom (alpha spectroscopy) with detection limit of 1 pCi/g
- Po-210 by method American Society for Testing and Materials (ASTM) D3972 /SOP711(liquid scintillation) with detection limit of 0.1 pCi/g

7.6.2 Annual Produced Liquids/Produced Water

Produced liquid and produced water samples will be analyzed for the following:

- Ra-226 by method 903.1 (alpha spectroscopy) with detection limit of 1 pCi/L
- Ra-228 by EPA method 904.0 (gas flow proportional counting) with detection limit of 1 pCi/L
- TSS by method Standard Method (SM) 2540D with detection limit of 1,000 milligrams per liter (mg/L) or less
- TDS by method SM20 2540C with detection limit of 1,000 mg/L or less.

7.7 ANNUAL CHEMICAL SAMPLING ANALYSIS, METHODS, AND DETECTION LIMITS

Produced liquids entering Pits will be sampled annually and analyzed per COGCC Rule 909.j.[1] including:

- pH by method SM 4500(H+)B
- Specific Conductance by method SM 2510B
- TDS by method SM20 2540C (lab filtered) with detection limit of 1,000 mg/L or less.
- TSS by method SM 2540D
- Alkalinity (total, bicarbonate, and carbonate as calcium carbonate [$CaCO_3$]) by method SM 2320B
- Major anions:
    - Bromide by method EPA 300.0
    - Chloride by method EPA 300.0 with detection limit of 250 mg/L or less
    - Fluoride by method EPA 300.0 with detection limit of 2 mg/L or less
    - Sulfate by method EPA 300.0
    - Nitrate as nitrogen(N) by method EPA 353.2 with detection limit of 10.0 mg/L or less
    - Nitrite as N by method EPA 353.2 with detection limit of 1.0 mg/L or less
    - Phosphorus by method SM 4500(P)B/F
- Major cations by method EPA 200.7/200.8:
    - Calcium
    - Iron with detection limit of 0.3 mg/L or less
    - Magnesium
    - Manganese with detection limit of 0.05 mg/L or less

  - Potassium
  - Sodium
- Other elements by method EPA 200.7/200.8:
  - Barium
  - Boron with detection limit of 0.75 mg/L or less
  - Selenium with detection limit of 0.02 mg/L or less
  - Strontium
- Naphthalene by method EPA 8260 with detection limit of 140 micrograms per liter (µg/L) or less
- Total petroleum hydrocarbons (TPH) as total volatile hydrocarbons (Carbon Range [C]6 to C10) and total extractable hydrocarbons (C10 to C36) by method EPA 8260D and EPA 8015D
- Benzene by method EPA 8260 with detection limit of 5.0 µg/L or less
- Toluene by method EPA 8260 with detection limit of 560 µg/L or less
- Ethylbenzene by method EPA 8260 with detection limit of 700 µg/L or less
- Total xylenes (sum of o-, m- and p- isomers) by method EPA 8260 with detection limit of 1,400 µg/L or less

8.0 Decontamination Procedures

Any non-dedicated or non-disposable sampling equipment that comes into contact with solids, sludges, liquids, or water will be decontaminated before and after each use. Sampling implements, such as spatulas, trowels, and hand-auger buckets will be washed with a low-phosphate soap (Liquinox®) and water solution and rinsed with distilled-water before and after sample collection. An isopropyl alcohol rinse will be used to remove any oil or condensate before using the Liquinox® and distilled-water rinse.

9.0 Analytical Laboratories and Reporting Requirements

9.1 ANALYTICAL LABORATORIES

ChemTech-Ford Laboratories (ChemTech-Ford) located in Sandy, Utah and ALS Environmental (ALS) located in Fort Collins, Colorado have been selected as the analytical laboratories for the radiological and chemical analysis. While ChemTech-Ford will be performing the water quality analysis included in the COGCC Rule 909.j.(1)., they will also be responsible for sample pick-up,

management, and delivery of radiological samples to ALS. Both ChemTech-Ford and ALS are National Environmental Laboratory Accreditation Program (NELAP) laboratories which have an active and fully documented quality assurance program in place including a Quality Management Plan, Quality Assurance Manual, or Quality Assurance Project Plan.

9.2 ANALYTICAL REPORTING REQUIREMENTS

Reporting of analytical will be in dry weight. Dry weight refers to the mass of a material excluding the mass of any water or moisture present within the material.

- For the purposes of liquid TENORM sample analysis, unfiltered (total) samples which include both suspended and dissolved solids must be analyzed and shall represent the total dry weight mass of the sample.
- Dry weight concentration values shall be expressed in units of activity per mass, most commonly pCi/g.

Required analytical detection limits are listed above in **Sections 7.6 and 7.7**. For non-detect (ND) result, the laboratory should report the result as a value less than the Method Detection Limit (MDL). The reported value will then be used for reporting.

Laboratory analytical reports for analytical results will be reported in the following formats:

- Adobe Portable Document File (PDF);
- Microsoft Excel; and
- Electronic Data Deliverable (EDD).

10.0 Data Analysis

Sample results will be evaluated and representative samples which have the same suspected TENORM characteristics will be examined statistically for Part 20 applicability. The EPA ProUCL (version 5.1.002 Statistical Software for Environmental Applications for Data Sets with and without Non-detect Observations; EPA, 2016) will be used for all statistical analyses. Specifically, ProUCL will be utilized to calculate the 95% upper confidence limits (95% UCLs) to provide the information necessary to characterize materials that meet Part 20 regulations. The following sections briefly outline the proposed statistical approach.

10.1 EXPLORATORY DATA ANALYSIS

Exploratory data analysis is the initial step of statistical analysis. It utilizes simple summary statistics (e.g. mean, median, standard deviation, skewness, kurtosis, and percentiles) and graphical representations (probability plots, box-plots, and histograms) to identify characteristics of an analytical dataset, such as the center of the data (mean, median), variation, statistical distribution, patterns, and the presence of outliers.

10.2 95% UPPER CONFIDENCE LIMITS

ProUCL will be used to calculate 95% UCLs. Prior to the calculation, goodness of fit testing and graphical methods will be used to determine the underlying data distribution. For datasets with non-detects, ProUCL 5.1 computes UCLs using Kaplan-Meier (KM) estimates. KM methods can be used for data that are normally distributed as well as data that can be normalized using the log-normal transformation or to data that can be fit to the gamma distribution.

For data that do not fit the normal or gamma distribution or cannot be transformed (log-normal transformation) to fit the normal distribution, ProUCL utilizes non-parametric methods to estimate 95% UCLs (Chebyshev inequality, bootstrap, and central limit theorem). For data sets with fewer than 5 detected concentrations, the maximum detected concentration will be used as the 95% UCL.

11.0 References

(CDPHE, 2021a) Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division (HMWMD), Radiation Control-Registration and Licensing of Technologically Enhanced Naturally occurring Radioactive Material (TENORM), Rule 6 Code of Colorado Regulations (CCR) 1007-1, Part 20, January 14, 2021.

(CDPHE, 2021b) Colorado Department of Public Health and Environment Radiation Control Program, Guidance for Implementation of the Final Rule “Registration and Licensing of Technologically Enhanced Naturally occurring Radioactive Material (TENORM)” Rule 6 Code of Colorado Regulations (CCR) 1007-1 Part 20 Addendum A: TENORM Characterization, April 4, 2021

(CDPHE, 2021c) Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division (HMWMD), Radiation Control, Site Specific

Background Determination Calculator, https://oitco.hylandcloud.com/CDPHERMPop/docpop/docpop.aspx?clienttype=html&docid=5526841

(COGCC, 2021a) Colorado Oil and Gas Conservation Commission (COGCC), Environmental Impact Prevention, 900 Series Rules, January 15, 2021.

(COGCC, 2021b) Colorado Oil and Gas Conservation Commission (COGCC), Underground Injection for Disposal and Enhance Recovery Projects, 800 Series Rules, January 15, 2021.

(EPA, 2016) United States Environmental Protection Agency ProUCL version 5.1.002: Statistical Support Software for Site Investigation and Evaluation Statistical Software, June

(2 CCR 404-1) Department of Natural Resources. Oil and Gas Conservation Commission, Section 2 Code of Colorado Regulations (CCR) 404-1, January 15, 2021.

(29 CFR 1910) Occupational Safety and Health Administration (OSHA) Title 29, Code of Federal Regulations (CFR), Part 1910 Occupational Safety and Health Standards

Tables

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051031062900	MHAA17X	HAGOOD MC A17X	Active	1/4/2021	CS01	Flowing	WEBER	10/5/2005	2/28/2006	DIRECTIONAL	40.14825005	-108.9464285	15	2	103	6
051031061300	MHAA18X	HAGOOD MC A18X	Active	7/26/2021	CS01	Flowing	WEBER	12/8/2005	3/31/2006	DIRECTIONAL	40.142111	-108.946097	15	2	103	6
051031140800	AMC95X	MCLAUGHLIN AC 95X	Active	8/7/2019	CS01	ESP	WEBER	8/9/2010	10/31/2010	DIRECTIONAL	40.152611	-108.935353	10	2	103	6
051030106600	FALAR1	LARSON FA 1	Active	10/22/2015	CS01	ESP	WEBER	8/14/1947	10/31/1947	VERTICAL	40.15214177	-108.9451464	10	2	103	6
051031098100	MEL3A	MELLEN 3A	Active	2/7/2021	CS01	ESP	WEBER	4/16/2007	8/31/2007	DIRECTIONAL	40.14875683	-108.9564073	16	2	103	6
051031041400	MHAA10X	HAGOOD MC A10X	Active	12/13/2021	CS01	ESP	WEBER	6/5/2004	8/31/2004	DIRECTIONAL	40.14831821	-108.9505838	15	2	103	6
051031041300	MHAA11X	HAGOOD MC A11X	Active	2/3/2020	CS01	ESP	WEBER	5/9/2004	8/31/2004	VERTICAL	40.14827165	-108.9504949	15	2	103	6
051031053300	MHAA12X	HAGOOD MC A12X	Active	12/13/2021	CS01	ESP	WEBER	3/11/2005	5/31/2005	DIRECTIONAL	40.14256478	-108.9437982	15	2	103	6
051031053100	MHAA13X	HAGOOD MC A13X	Active	8/14/2017	CS01	ESP	WEBER	6/13/2005	8/31/2005	VERTICAL	40.14702228	-108.9363198	15	2	103	6
051031061200	MHAA16X	HAGOOD MC A16X	Active	12/13/2021	CS01	ESP	WEBER	11/9/2005	1/31/2006	DIRECTIONAL	40.147114	-108.942133	15	2	103	6
051031070900	MHAA21X	HAGOOD MC A21X	Active	12/15/2021	CS01	ESP	WEBER	9/23/2006	4/30/2007	DIRECTIONAL	40.15070557	-108.9383931	10	2	103	6
051030102400	MHAA6	HAGOOD MC A6	Active	11/7/2020	CS01	ESP	WEBER	7/4/1947	9/30/1947	VERTICAL	40.14496653	-108.9401045	15	2	103	6
051030106700	MHAA7	HAGOOD MC A7	Active	1/28/2020	CS01	ESP	WEBER	8/19/1947	11/30/1947	VERTICAL	40.15183016	-108.9406446	10	2	103	6
051030105800	AMC14	MCLAUGHLIN AC 14	Active	2/9/2022	CS03	Flowing	WEBER	8/8/1946	10/31/1946	VERTICAL	40.14848682	-108.9212787	14	2	103	6
051036005300	AMC27	MCLAUGHLIN AC 27	Active	12/28/2021	CS03	Flowing	WEBER	9/28/1946	11/30/1946	VERTICAL	40.13746515	-108.9303273	14	2	103	6
051030817000	AMC67X	MCLAUGHLIN AC 67X	Active	12/27/2021	CS03	Flowing	WEBER	4/14/1978	7/31/1978	VERTICAL	40.14689066	-108.9278412	14	2	103	6
051030915200	AMC77X	MCLAUGHLIN AC 77X	Active	9/23/2021	CS03	Flowing	WEBER	6/6/1984	8/31/1984	VERTICAL	40.15354149	-108.93317	15	2	103	6
051030105400	AMC16	MCLAUGHLIN AC 16	Active	7/16/2021	CS03	ESP	WEBER	7/4/1946	9/30/1946	VERTICAL	40.13771281	-108.9215959	14	2	103	6
051030631800	AMC25	MCLAUGHLIN AC 25	Active	1/17/2021	CS03	ESP	WEBER	10/14/1947	12/31/1947	VERTICAL	40.15197358	-108.9166126	11	2	103	6
051030104800	AMC36	MCLAUGHLIN AC 36	Active	9/22/2015	CS03	ESP	WEBER	7/17/1947	9/30/1947	VERTICAL	40.14854471	-108.9353665	15	2	103	6
051030633300	AMC37	MCLAUGHLIN AC 37	Active	8/1/2019	CS03	ESP	WEBER	6/23/1947	8/31/1947	VERTICAL	40.14131654	-108.9353651	15	2	103	6
051030632200	AMC38	MCLAUGHLIN AC 38	Active	2/10/2015	CS03	ESP	WEBER	4/12/1948	5/31/1948	VERTICAL	40.14120141	-108.9256513	14	2	103	6
051030101400	AMC53X	MCLAUGHLIN AC 53X	Active	12/23/2019	CS03	ESP	WEBER	8/9/1966	9/30/1966	VERTICAL	40.13949181	-108.9329865	14	2	103	6
051030928800	AMC59AX	MCLAUGHLIN AC 59AX	Active	11/20/2019	CS03	ESP	WEBER	8/4/1987	9/30/1987	VERTICAL	40.14014526	-108.922969	14	2	103	6
051031070000	AMC88X	MCLAUGHLIN AC 88X	Active	10/7/2014	CS03	ESP	WEBER	7/29/2006	10/31/2006	VERTICAL	40.15039002	-108.9234964	11	2	103	6
051031069900	AMC90X	MCLAUGHLIN AC 90X	Active	4/24/2019	CS03	ESP	WEBER	3/19/2007	5/31/2007	DIRECTIONAL	40.1505273	-108.929799	11	2	103	6
051031070800	AMC92X	MCLAUGHLIN AC 92X	Active	3/20/2015	CS03	ESP	WEBER	3/24/2007	5/31/2007	VERTICAL	40.13368	-108.94338	15	2	103	6
051030602600	ASOCUA1	ASSOCIATED UNIT A1	Active	5/4/2015	CS03	ESP	WEBER	5/1/1946	8/31/1946	VERTICAL	40.14848399	-108.9165797	14	2	103	6
051031072300	ASOCUA3X	ASSOCIATED UNIT A3X	Active	6/29/2019	CS03	ESP	WEBER	3/27/2007	6/30/2007	VERTICAL	40.1467737	-108.9185994	14	2	103	6
051030569300	AMC11	MCLAUGHLIN AC 11	Active	2/14/2020	CS04	ESP	WEBER	5/28/1946	8/31/1946	VERTICAL	40.12299711	-108.9256145	23	2	103	6
051030569900	AMC28	MCLAUGHLIN AC 28	Active	12/30/2021	CS04	ESP	WEBER	3/4/1947	4/30/1947	VERTICAL	40.12310123	-108.9306847	23	2	103	6
051030642600	AMC54X	MCLAUGHLIN AC 54X	Active	2/12/2015	CS04	ESP	WEBER	8/28/1966	10/31/1966	VERTICAL	40.12861467	-108.927806	23	2	103	6
051030771700	AMC64X	MCLAUGHLIN AC 64X	Active	7/30/2019	CS04	ESP	WEBER	8/19/1975	10/31/1975	VERTICAL	40.136319	-108.937339	15	2	103	6
051030771800	AMC65X	MCLAUGHLIN AC 65X	Active	7/1/2015	CS04	ESP	WEBER	9/9/1975	12/31/1975	VERTICAL	40.13221682	-108.9329921	23	2	103	6
051030915500	AMC78X	MCLAUGHLIN AC 78X	Active	2/3/2016	CS04	ESP	WEBER	7/3/1984	10/31/1984	VERTICAL	40.12481854	-108.9337107	22	2	103	6
051030573500	AMC8	MCLAUGHLIN AC 8	Active	12/15/2021	CS04	ESP	WEBER	9/11/1946	11/30/1946	VERTICAL	40.13072353	-108.9306819	23	2	103	6
051030574200	BE2-22	BEEZLEY 2-22	Active	3/12/2015	CS04	ESP	WEBER	10/17/1946	2/28/1947	VERTICAL	40.13049414	-108.9401224	22	2	103	6
051031054900	BE3X22	BEEZLEY 3X22	Active	9/29/2015	CS04	ESP	WEBER	6/23/2006	9/30/2006	DIRECTIONAL	40.13166324	-108.9381799	22	2	103	6
051031174300	BE6X22	BEEZLEY 6X22	Active	3/12/2019	CS04	ESP	WEBER	9/30/2010	2/28/2011	DIRECTIONAL	40.1301	-108.93823	22	2	103	6
051030633200	MLARA2	LARSON MB A2	Active	12/23/2021	CS04	ESP	WEBER	11/4/1946	1/31/1947	VERTICAL	40.13770843	-108.9401039	15	2	103	6
051031053400	MLARA3X	LARSON MB A3X	Active	12/7/2016	CS04	ESP	WEBER	7/3/2005	8/31/2005	VERTICAL	40.13922591	-108.9426588	15	2	103	6
051031055200	MLARA4X	LARSON MB A4X	Active	4/1/2021	CS04	ESP	WEBER	7/8/2006	9/30/2006	VERTICAL	40.13594648	-108.9424166	15	2	103	6
051031076300	MLARC1AX	LARSON MB C1AX	Active	11/28/2021	CS04	ESP	WEBER	4/20/2007	1/31/2008	DIRECTIONAL	40.127048	-108.935366	22	2	103	6
051031139700	MLARC4	LARSON MB C4	Active	3/9/2018	CS04	ESP	WEBER	10/30/2008	6/30/2009	DIRECTIONAL	40.1236925	-108.94413	22	2	103	6
051030570700	LHAA4	HAGOOD LN A4	Active	3/26/2019	CS05	Flowing	WEBER	10/21/1945	1/31/1946	VERTICAL	40.12645839	-108.9210724	23	2	103	6
051030569400	LHAA6	HAGOOD LN A6	Active	4/17/2019	CS05	Flowing	WEBER	4/4/1946	7/31/1946	VERTICAL	40.12296766	-108.9163587	23	2	103	6
051030829200	AMC68X	MCLAUGHLIN AC 68X	Active	12/14/2021	CS05	ESP	WEBER	3/30/1984	6/30/1984	DIRECTIONAL	40.13538926	-108.9283413	23	2	103	6
051030831900	AMC73X	MCLAUGHLIN AC 73X	Active	9/8/2020	CS05	ESP	WEBER	4/16/1983	6/30/1983	VERTICAL	40.13098964	-108.90459	24	2	103	6
051030778600	ASOA3X	ASSOCIATED A3X	Active	9/24/2018	CS05	ESP	WEBER	1/10/1976	7/31/1976	VERTICAL	40.12853909	-108.9093573	24	2	103	6
051030573200	LAC1	LACY SB 1	Active	8/1/2019	CS05	ESP	WEBER	4/15/1945	9/30/1945	VERTICAL	40.13047194	-108.9118808	24	2	103	6

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051030914500	LAC12Y	LACY SB 12Y	Active	1/19/2022	CS05	ESP	WEBER	5/5/1984	10/31/1984	DIRECTIONAL	40.12437979	-108.9103797	24	2	103	6
051031057000	LAC13Y	LACY SB 13Y	Active	4/21/2021	CS05	ESP	WEBER	3/28/2006	5/31/2006	DIRECTIONAL	40.12975199	-108.9105271	24	2	103	6
051030568900	LAC3	LACY SB 3	Active	1/24/2013	CS05	ESP	WEBER	12/29/1945	3/31/1946	VERTICAL	40.12281949	-108.9118421	24	2	103	6
051030791300	LHAA10X	HAGOOD LN A10X	Active	4/27/2016	CS05	ESP	WEBER	1/25/1977	5/31/1977	VERTICAL	40.13193772	-108.9231753	23	2	103	6
051030793600	LHAA12X	HAGOOD LN A12X	Active	11/3/2020	CS05	ESP	WEBER	2/19/1977	4/30/1977	VERTICAL	40.13538083	-108.9188982	23	2	103	6
051030567300	CSTB1	STOFFER CR B1	Active	10/20/2015	CS06	ESP	WEBER	12/30/1946	4/30/1947	VERTICAL	40.11950238	-108.9306952	26	2	103	6
051030566200	EM10	EMERALD 10	Active	10/25/2013	CS06	ESP	WEBER	5/11/1946	9/30/1946	VERTICAL	40.11906988	-108.9165781	26	2	103	6
051030567100	EM11	EMERALD 11	Active	3/3/2020	CS06	ESP	WEBER	6/24/1946	8/31/1946	VERTICAL	40.1198673	-108.9212884	26	2	103	6
051030773900	EM58X	EMERALD 58X	Active	12/3/2021	CS06	ESP	WEBER	12/6/1975	3/31/1976	VERTICAL	40.1176268	-108.9236964	26	2	103	6
051030774000	EM59X	EMERALD 59X	Active	7/26/2017	CS06	ESP	WEBER	11/8/1975	1/31/1976	VERTICAL	40.11433	-108.91842	26	2	103	6
051030781100	EM62X	EMERALD 62X	Active	3/31/2021	CS06	ESP	WEBER	4/15/1976	5/31/1976	VERTICAL	40.11796822	-108.9147791	26	2	103	6
051030816900	EM74X	EMERALD 74X	Active	4/8/2014	CS06	ESP	WEBER	3/6/1978	6/30/1978	VERTICAL	40.11405853	-108.923625	26	2	103	6
051030848100	EM76X	EMERALD 76X	Active	7/29/2016	CS06	ESP	WEBER	1/31/1980	4/30/1980	VERTICAL	40.10709322	-108.9141455	25	2	103	6
051030849100	EM78X	EMERALD 78X	Active	12/11/2014	CS06	ESP	WEBER	7/5/1980	9/30/1980	VERTICAL	40.11041773	-108.9147519	26	2	103	6
051030876500	EM83X	EMERALD 83X	Active	5/1/2015	CS06	ESP	WEBER	4/29/1982	3/31/1984	VERTICAL	40.1138434	-108.913998	25	2	103	6
051030876600	EM88X	EMERALD 88X	Active	2/16/2022	CS06	ESP	WEBER	2/7/1984	5/31/1984	DIRECTIONAL	40.11820222	-108.918787	26	2	103	6
051031191300	EM97X	EMERALD 97X	Active	12/2/2021	CS06	ESP	WEBER	9/11/2012	4/30/2013	DIRECTIONAL	40.1149	-108.92289	26	2	103	6
051030566300	MLAR2-26	LARSON MB A 2-26	Active	3/25/2020	CS06	ESP	WEBER	7/21/1946	1/31/1947	VERTICAL	40.11576419	-108.9308697	26	2	103	6
051030578100	AMC21	MCLAUGHLIN AC 21	Active	10/10/2021	CS08	Flowing	WEBER	1/15/1948	3/31/1948	VERTICAL	40.13762334	-108.9023832	13	2	103	6
051031049300	AMC39A	MCLAUGHLIN AC 39A	Active	10/18/2021	CS08	Flowing	WEBER	4/4/2007	3/31/2008	VERTICAL	40.15205647	-108.911766	12	2	103	6
051030579400	AMC19	MCLAUGHLIN AC 19	Active	7/30/2020	CS08	ESP	WEBER	4/12/1947	6/30/1947	VERTICAL	40.14124798	-108.9071089	13	2	103	6
051030581900	AMC29	MCLAUGHLIN AC 29	Active	5/11/2019	CS08	ESP	WEBER	12/2/1946	1/31/1947	VERTICAL	40.14849078	-108.9071587	13	2	103	6
051030641800	AMC51X	MCLAUGHLIN AC 51X	Active	10/15/2021	CS08	ESP	WEBER	6/6/1966	7/31/1966	VERTICAL	40.14310241	-108.90914	13	2	103	6
051030701400	AMC58X	MCLAUGHLIN AC 58X	Active	6/9/2020	CS08	ESP	WEBER	4/15/1967	5/31/1967	VERTICAL	40.14303071	-108.9047966	13	2	103	6
051030771500	AMC62X	MCLAUGHLIN AC 62X	Active	5/2/2021	CS08	ESP	WEBER	7/1/1975	8/31/1975	VERTICAL	40.13922867	-108.9135905	13	2	103	6
051030829700	AMC71X	MCLAUGHLIN AC 71X	Active	7/30/2020	CS08	ESP	WEBER	10/30/1983	1/31/1984	DIRECTIONAL	40.13641303	-108.9000765	13	2	103	6
051030829800	AMC75X	MCLAUGHLIN AC 75X	Active	8/1/2019	CS08	ESP	WEBER	4/26/1984	6/30/1984	VERTICAL	40.13637568	-108.9083391	13	2	103	6
051031054600	AMC82X	MCLAUGHLIN AC 82X	Active	8/19/2021	CS08	ESP	WEBER	5/28/2005	7/31/2005	VERTICAL	40.14688972	-108.9047193	13	2	103	6
051031053200	ASOCUA2X	ASSOCIATED UNIT A2X	Active	2/14/2022	CS08	ESP	WEBER	12/11/2004	3/31/2005	DIRECTIONAL	40.147386	-108.914839	14	2	103	6
051030582700	ASOCUC1	ASSOCIATED UNIT C1	Active	12/13/2021	CS08	ESP	WEBER	10/31/1946	1/31/1947	VERTICAL	40.15211434	-108.9071698	12	2	103	6
051031057400	GRB27X	GRAY B27X	Active	2/28/2019	CS08	ESP	WEBER	9/16/2005	10/31/2005	DIRECTIONAL	40.14741891	-108.8992258	13	2	103	6
051030581600	MCUA1	MCLAUGHLIN UNIT A1	Active	4/19/2017	CS08	ESP	WEBER	8/12/1946	11/30/1946	VERTICAL	40.14848939	-108.9118631	13	2	103	6
051030582600	MCUB1	MCLAUGHLIN UNIT B1	Active	9/26/2019	CS08	ESP	WEBER	4/30/1947	6/30/1947	VERTICAL	40.15211426	-108.9024268	12	2	103	6
051030569700	RIG1	RIGBY 1	Active	10/7/2018	CS09	Flowing	WEBER	8/23/1945	1/31/1946	VERTICAL	40.12309961	-108.9028567	24	2	103	6
051030791000	RIGA3X	RIGBY A3X	Active	4/7/2018	CS09	Flowing	WEBER	12/12/1976	3/31/1977	VERTICAL	40.1217013	-108.909466	24	2	103	6
051030794800	EM65X	EMERALD 65X	Active	3/12/2020	CS09	ESP	WEBER	4/8/1977	7/31/1977	VERTICAL	40.1140324	-108.9000442	25	2	103	6
051030787300	GRA19X	GRAY A19X	Active	2/21/2011	CS09	ESP	WEBER	10/4/1976	12/31/1976	VERTICAL	40.12168241	-108.899873	24	2	103	6
051030565900	NEAL5A	NEAL 5A	Active	3/18/2021	CS09	ESP	WEBER	5/12/1948	7/31/1948	VERTICAL	40.1157063	-108.9027124	25	2	103	6
051030790600	NEAL6X	NEAL 6X	Active	1/16/2018	CS09	ESP	WEBER	11/23/1976	2/28/1977	VERTICAL	40.11737173	-108.9044306	25	2	103	6
051030912000	NEAL9Y	NEAL 9Y	Active	10/1/2010	CS09	ESP	WEBER	2/22/1984	6/30/1984	VERTICAL	40.11962001	-108.9094895	25	2	103	6
051031064500	AMC81AX	MCLAUGHLIN AC 81AX	Active	2/3/2022	CS10	Flowing	WEBER	12/9/2005	3/31/2006	DIRECTIONAL	40.143294	-108.900411	13	2	103	6
051031033600	FE156X	FEE 156X	Active	8/20/2021	CS10	Flowing	WEBER	1/6/2004	3/31/2004	VERTICAL	40.13898984	-108.8809037	18	2	102	6
051030612600	GRB13	GRAY B13	Active	10/26/2021	CS10	Flowing	WEBER	10/29/1947	12/31/1947	VERTICAL	40.13768949	-108.8929549	18	2	102	6
051031033700	GRB24X	GRAY B24X	Active	7/1/2020	CS10	Flowing	WEBER	12/2/2003	1/31/2004	VERTICAL	40.14348591	-108.8853024	18	2	102	6
051031036500	FE154X	Fee 154X	Active	1/23/2020	CS10	ESP	WEBER	2/29/2004	4/30/2004	DIRECTIONAL	40.14217179	-108.8820135	18	2	102	6
051030784000	FE99X	FEE 99X	Active	3/1/2019	CS10	ESP	WEBER	5/29/1976	7/31/1976	VERTICAL	40.13534305	-108.8906271	19	2	102	6
051031033800	GRB 23X	GRAY B23X	Active	5/18/2018	CS10	ESP	WEBER	8/8/2003	9/30/2003	VERTICAL	40.14676379	-108.8905603	18	2	102	6
051030581800	GRB11	GRAY B11	Active	5/16/2019	CS10	ESP	WEBER	9/1/1947	11/30/1947	VERTICAL	40.14849566	-108.8976755	13	2	103	6
051030579600	GRB15	GRAY B15	Active	12/2/2021	CS10	ESP	WEBER	10/26/1947	12/31/1947	VERTICAL	40.1412351	-108.8976731	13	2	103	6
051030612700	GRB16	GRAY B16	Active	8/1/2019	CS10	ESP	WEBER	11/30/1947	2/29/1948	VERTICAL	40.148478	-108.888572	18	2	102	6

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051036639700	GRB19X	GRAY B19X	Active	3/1/2019	CS10	ESP	WEBER	10/6/1966	11/30/1966	VERTICAL	40.13912483	-108.8861426	18	2	102	6
051030578700	GRB2	GRAY B2	Active	9/18/2019	CS10	ESP	WEBER	3/8/1945	6/30/1945	VERTICAL	40.13724115	-108.8837996	18	2	102	6
051031035700	GRB21X	GRAY B21X	Active	2/27/2018	CS10	ESP	WEBER	10/8/2003	11/30/2003	VERTICAL	40.1422298	-108.8952509	18	2	102	6
051031057200	GRB25X	GRAY B25X	Active	7/1/2019	CS10	ESP	WEBER	7/17/2005	9/30/2005	VERTICAL	40.146402	-108.8869974	18	2	102	6
051031057500	GRB26X	GRAY B26X	Active	7/17/2013	CS10	ESP	WEBER	8/19/2005	10/31/2005	VERTICAL	40.1470688	-108.8945209	18	2	102	6
051031101200	GRB28X	GRAY B28X	Active	10/31/2019	CS10	ESP	WEBER	4/17/2008	6/30/2008	DIRECTIONAL	40.14651259	-108.8827156	18	2	102	6
051030571300	ASOA1	ASSOCIATED A1	Active	5/23/2011	CS11	Flowing	WEBER	10/1/1945	1/31/1946	VERTICAL	40.12674981	-108.9071174	24	2	103	6
051030787700	FE102X	FEE 102X	Active	4/11/2016	CS11	Flowing	WEBER	8/28/1976	12/31/1976	VERTICAL	40.12497397	-108.8857331	19	2	102	6
051030614200	FE32	FEE 32	Active	9/27/2019	CS11	Flowing	WEBER	9/16/1946	11/30/1946	VERTICAL	40.12672502	-108.8885183	19	2	102	6
051030573800	AMC4	MCLAUGHLIN AC 4	Active	2/22/2021	CS11	ESP	WEBER	9/3/1945	12/31/1945	VERTICAL	40.13036365	-108.9024033	24	2	103	6
051031057300	AMC84Y	MCLAUGHLIN AC 84Y	Active	8/14/2018	CS11	ESP	WEBER	2/24/2006	4/30/2006	DIRECTIONAL	40.13071022	-108.903406	24	2	103	6
051030791600	ASOA4X	ASSOCIATED A4X	Active	6/1/2017	CS11	ESP	WEBER	12/30/1976	3/31/1977	VERTICAL	40.12848245	-108.900561	24	2	103	6
051030786900	FE100X	FEE 100X	Active	5/17/2016	CS11	ESP	WEBER	8/11/1976	11/30/1976	VERTICAL	40.12222821	-108.8628627	19	2	102	6
051030787000	FE101X	FEE 101X	Active	3/21/2011	CS11	ESP	WEBER	9/5/1976	1/31/1977	VERTICAL	40.12170014	-108.8908369	19	2	102	6
051030614700	FE33	FEE 33	Active	8/1/2019	CS11	ESP	WEBER	9/20/1946	11/30/1946	VERTICAL	40.12310062	-108.8838124	19	2	102	6
051030613700	GRA12	GRAY A12	Active	2/24/2020	CS11	ESP	WEBER	1/28/1947	3/31/1947	VERTICAL	40.13062368	-108.8927866	19	2	102	6
051030613900	GRA14	GRAY A14	Active	5/10/2019	CS11	ESP	WEBER	11/15/1947	1/31/1948	VERTICAL	40.12282415	-108.8929644	19	2	102	6
051030576200	GRA15	GRAY A15	Active	6/22/2016	CS11	ESP	WEBER	10/17/1947	1/31/1948	VERTICAL	40.13386365	-108.8976756	24	2	103	6
051030831700	GRA22X	GRAY A22X	Active	4/17/2014	CS11	ESP	WEBER	11/30/1981	4/30/1982	VERTICAL	40.14400862	-108.8901379	24	2	103	6
051030571500	GRA9	GRAY A9	Active	5/14/2019	CS11	ESP	WEBER	5/25/1945	9/30/1945	VERTICAL	40.12712562	-108.8976877	24	2	103	6
051030910700	RIG6Y	RIGBY 6Y	Active	9/3/2020	CS11	ESP	WEBER	11/28/1983	2/29/1984	VERTICAL	40.12491694	-108.9026427	24	2	103	6
051030611300	FE35	FEE 35	Active	12/12/2019	CS12	Flowing	WEBER	6/7/1948	6/30/1948	VERTICAL	40.13742549	-108.745952	17	2	102	6
051030571600	FE7	FEE 7	Active	10/8/2014	CS12	Flowing	WEBER	5/9/1945	8/31/1945	VERTICAL	40.1271236	-108.8790425	19	2	102	6
051031101701	FAIRA4	FAIRFIELD KITTI A4	Active	9/27/2019	CS12	ESP	WEBER	7/19/2008	11/30/2008	DIRECTIONAL	40.1459856	-108.8755701	17	2	102	6
051030857500	FE121X	FEE 121X	Active	3/5/2014	CS12	ESP	WEBER	1/15/1981	3/31/1981	VERTICAL	40.13915629	-108.871921	17	2	102	6
051030868600	FE126X	FEE 126X	Active	9/2/2015	CS12	ESP	WEBER	4/11/1981	7/31/1981	VERTICAL	40.12837873	-108.8814371	19	2	102	6
051030868900	FE129X	FEE 129X	Active	3/1/2019	CS12	ESP	WEBER	7/16/1981	11/30/1981	VERTICAL	40.13923775	-108.867058	17	2	102	6
051030876200	FE139X	FEE 139X	Active	1/4/2019	CS12	ESP	WEBER	7/12/1981	12/31/1981	VERTICAL	40.13649202	-108.8710338	17	2	102	6
051030913100	FE142X	FEE 142X	Active	9/13/2019	CS12	ESP	WEBER	4/7/1984	6/30/1984	VERTICAL	40.13214776	-108.8864842	19	2	102	6
051030913000	FE143X	FEE 143X	Active	8/1/2018	CS12	ESP	WEBER	2/15/1984	5/31/1984	VERTICAL	40.13232971	-108.867019	20	2	102	6
051031101100	FE159X	FEE 159X	Active	11/15/2020	CS12	ESP	WEBER	2/7/2008	12/31/2008	VERTICAL	40.1424494	-108.8722171	17	2	102	6
051030614500	FE25	FEE 25	Active	10/1/2010	CS12	ESP	WEBER	9/3/1946	10/31/1946	VERTICAL	40.13089096	-108.8837953	19	2	102	6
051030615200	FE26	FEE 26	Active	4/5/2021	CS12	ESP	WEBER	8/26/1946	10/31/1946	VERTICAL	40.13383873	-108.8694394	20	2	102	6
051030779100	FE97X	FEE 97X	Active	10/19/2017	CS12	ESP	WEBER	2/7/1976	4/30/1976	VERTICAL	40.13513491	-108.881532	19	2	102	6
051031115600	GUI5	GUIBERSON SA 5	Active	11/19/2018	CS12	ESP	WEBER	10/17/2008	2/28/2009	DIRECTIONAL	40.149953	-108.8777732	18	2	102	6
051030713000	EM46X	EMERALD 46X	Active	6/13/2019	CS13	Flowing	WEBER	6/22/1968	8/31/1968	VERTICAL	40.107052	-108.8951532	30	2	102	6
051030733100	EM50X	EMERALD 50X	Active	6/17/2019	CS13	Flowing	WEBER	1/30/1971	3/31/1971	VERTICAL	40.10681973	-108.9001929	25	2	103	6
051030737600	EM53X	EMERALD 53X	Active	11/15/2021	CS13	Flowing	WEBER	9/11/1971	12/31/1971	VERTICAL	40.11017892	-108.9051501	25	2	103	6
051030920200	EM18AX	EMERALD 18AX	Active	10/1/2010	CS13	ESP	WEBER	11/4/1984	1/31/2000	VERTICAL	40.1129782	-108.8977019	25	2	103	6
051030624000	EM19	EMERALD 19	Active	6/5/2019	CS13	ESP	WEBER	6/22/1947	8/31/1947	VERTICAL	40.11910677	-108.8885234	30	2	102	6
051030566900	EM2	EMERALD 2	Active	2/10/2012	CS13	ESP	WEBER	5/19/1945	9/30/1945	VERTICAL	40.11948033	-108.8976908	25	2	103	6
051030623800	EM32	EMERALD 32	Active	5/15/2019	CS13	ESP	WEBER	12/16/1947	3/31/1948	VERTICAL	40.11612214	-108.8934196	30	2	102	6
051030720100	EM47X	EMERALD 47X	Active	10/22/2012	CS13	ESP	WEBER	3/23/1969	5/31/1969	VERTICAL	40.10680521	-108.8906788	30	2	102	6
051030768700	EM56X	EMERALD 56X	Active	9/3/2011	CS13	ESP	WEBER	11/22/1974	3/31/1975	VERTICAL	40.11043185	-108.8908617	30	2	102	6
051030764901	EM57XST	EMERALD 57XST	Active	5/14/2015	CS13	ESP	WEBER	5/17/1997	1/31/1975	DIRECTIONAL	40.11040798	-108.8862106	30	2	102	6
051030786800	EM66X	EMERALD 66X	Active	6/13/2013	CS13	ESP	WEBER	7/3/1976	11/30/1976	VERTICAL	40.11766776	-108.8953267	25	2	103	6
051030797400	EM67X	EMERALD 67X	Active	4/13/2018	CS13	ESP	WEBER	5/3/1977	7/31/1977	VERTICAL	40.11402088	-108.8903867	30	2	102	6
051030797500	EM68X	EMERALD 68X	Active	10/2/2017	CS13	ESP	WEBER	5/26/1977	9/30/1977	VERTICAL	40.11766277	-108.886185	30	2	102	6
051030877000	EM85X	EMERALD 85X	Active	5/17/2021	CS13	ESP	WEBER	3/14/1982	6/30/1982	VERTICAL	40.10657378	-108.9046051	36	2	103	6
051030929500	EM92X	EMERALD 92X	Active	1/11/2016	CS13	ESP	WEBER	11/22/1987	2/29/1988	VERTICAL	40.1098444	-108.9045615	25	2	103	6

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051030764700	FE95X	FEE 95X	Active	2/10/2016	CS13	ESP	WEBER	9/7/1974	11/30/1974	VERTICAL	40.11074261	-108.8811002	30	2	102	6
051030888300	EM81X	EMERALD 81X	Active	11/10/2016	CS14	Flowing	WEBER	3/31/1982	11/30/1983	VERTICAL	40.09928103	-108.8950234	31	2	102	6
051030888400	FE133X	FEE 133X	Active	10/17/2014	CS14	Flowing	WEBER	4/12/1982	10/31/1983	VERTICAL	40.09551309	-108.8907844	31	2	102	6
051030718800	RAVA5X	RAVEN A5X	Active	8/19/2013	CS14	Flowing	WEBER	1/5/1969	3/31/1969	VERTICAL	40.09956281	-108.8857986	31	2	102	6
051030550500	EM4	EMERALD 4	Active	10/1/2010	CS14	ESP	WEBER	9/13/1945	4/30/1946	VERTICAL	40.10461602	-108.8976927	36	2	103	6
051030733300	EM51X	EMERALD 51X	Active	11/22/2021	CS14	ESP	WEBER	2/25/1971	4/30/1971	VERTICAL	40.10296959	-108.895153	31	2	102	6
051030737100	EM52X	EMERALD 52X	Active	2/25/2015	CS14	ESP	WEBER	8/14/1971	10/31/1971	VERTICAL	40.10668102	-108.8866924	31	2	102	6
051030763700	EM54X	EMERALD 54X	Active	9/6/2013	CS14	ESP	WEBER	2/23/1975	5/31/1975	VERTICAL	40.1035598	-108.886689	31	2	102	6
051030763800	EM55X	EMERALD 55X	Active	7/27/2012	CS14	ESP	WEBER	7/20/1974	10/31/1974	VERTICAL	40.10302194	-108.8909805	31	2	102	6
051030848000	EM77X	EMERALD 77X	Active	4/22/2019	CS14	ESP	WEBER	3/14/1980	7/31/1980	VERTICAL	40.09955341	-108.8999382	36	2	103	6
051030876900	EM80X	EMERALD 80X	Active	3/5/2013	CS14	ESP	WEBER	1/12/1982	11/30/1983	VERTICAL	40.10317372	-108.9095072	36	2	103	6
051030888500	EM84X	EMERALD 84X	Active	7/1/2019	CS14	ESP	WEBER	4/22/1982	7/31/1982	VERTICAL	40.09952816	-108.8908293	31	2	102	6
051030877100	EM89X	EMERALD 89X	Active	11/13/2012	CS14	ESP	WEBER	3/24/1982	6/30/1982	VERTICAL	40.10329756	-108.8995483	36	2	103	6
051031192200	EM96X	EMERALD 96X	Active	2/22/2019	CS14	ESP	WEBER	11/4/2012	4/30/2013	DIRECTIONAL	40.10259	-108.91069	36	2	103	6
051030843800	FE117X	FEE 117X	Active	2/20/2018	CS14	ESP	WEBER	12/10/1979	4/30/1980	VERTICAL	40.09553518	-108.8861847	31	2	102	6
051030624500	FE34	FEE 34	Active	5/22/2019	CS16	Flowing	WEBER	9/18/1946	11/30/1946	VERTICAL	40.11929348	-108.8788036	30	2	102	6
051030785800	FE105X	FEE 105X	Active	9/19/2011	CS16	ESP	WEBER	7/10/1976	9/30/1976	VERTICAL	40.12122973	-108.8721629	29	2	102	6
051030795200	FE108X	FEE 108X	Active	12/17/2021	CS16	ESP	WEBER	3/24/1977	6/30/1977	VERTICAL	40.12500752	-108.8769153	19	2	102	6
051030615400	UP14-20	UNION PACIFIC 14-20	Active	3/5/2018	CS16	ESP	WEBER	5/19/1946	8/31/1946	VERTICAL	40.12673539	-108.8696381	20	2	102	6
051030569200	UP2-20	UNION PACIFIC 2-20	Active	5/23/2019	CS16	ESP	WEBER	6/16/1945	11/30/1945	VERTICAL	40.12312726	-108.865249	20	2	102	6
051030785600	UP99X29	UNION PACIFIC 99X29	Active	4/5/2016	CS16	ESP	WEBER	6/19/1976	9/30/1976	VERTICAL	40.11777955	-108.8670566	29	2	102	6
051030563400	FE1	FEE 1	Active	6/19/2018	CS17	ESP	WEBER	9/21/1944	1/31/1945	VERTICAL	40.11221396	-108.8790344	30	2	102	6
051030785700	FE104X	FEE 104X	Active	10/14/2016	CS17	ESP	WEBER	7/31/1976	11/30/1976	VERTICAL	40.11748116	-108.8766763	29	2	102	6
051030565700	FE3	FEE 3	Active	12/17/2021	CS17	ESP	WEBER	1/20/1945	5/31/1945	VERTICAL	40.11584827	-108.8743323	29	2	102	6
051030718000	FE72X	FEE 72X	Active	12/24/2019	CS17	ESP	WEBER	12/2/1968	4/30/1969	VERTICAL	40.10682324	-108.8625066	29	2	102	6
051030764800	FE96X	FEE 96X	Active	1/16/2014	CS17	ESP	WEBER	10/8/1974	12/31/1974	VERTICAL	40.11058951	-108.8771584	30	2	102	6
051030564900	RAVB1	RAVEN B1	Active	10/1/2010	CS17	ESP	WEBER	2/2/1946	4/30/1946	VERTICAL	40.11584893	-108.883756	30	2	102	6
051030794500	UP105X29	UNION PACIFIC 105X29	Active	11/25/2020	CS17	ESP	WEBER	3/3/1977	5/31/1977	VERTICAL	40.11389826	-108.8714561	29	2	102	6
051030852200	UP111X29	UNION PACIFIC 111X29	Active	7/25/2012	CS17	ESP	WEBER	6/10/1980	8/31/1980	VERTICAL	40.11417945	-108.8674034	29	2	102	6
051030750900	UP87X29	UNION PACIFIC 87X29	Active	10/23/2017	CS17	ESP	WEBER	2/9/1973	4/30/1973	VERTICAL	40.11016222	-108.8675996	29	2	102	6
051030765100	UP97X29	UNION PACIFIC 97X29	Active	6/1/2021	CS17	ESP	WEBER	12/22/1974	4/30/1975	VERTICAL	40.10704175	-108.8677779	29	2	102	6
051030910000	UP128X31	UNION PACIFIC 128X31	Active	10/9/2019	CS18	Flowing	WEBER	8/29/1983	3/31/1984	VERTICAL	40.09929615	-108.8809584	31	2	102	6
051030885500	UP131X32	UNION PACIFIC 131X32	Active	6/23/2014	CS18	Flowing	WEBER	12/7/1981	3/31/1982	VERTICAL	40.09956341	-108.8714024	32	2	102	6
051030885200	UP129X31	UNION PACIFIC 129X31	Active	2/27/2017	CS18	Rod Pump	WEBER	2/7/1982	6/30/1982	VERTICAL	40.09959243	-108.8766824	31	2	102	6
051030626900	UP23-32	UNION PACIFIC 23-32	Active	11/15/2016	CS18	Rod Pump	WEBER	11/23/1946	2/28/1947	VERTICAL	40.1013332	-108.8696057	32	2	102	6
051030738600	UP73X29	UNION PACIFIC 73X29	Active	11/19/2019	CS18	Rod Pump	WEBER	11/13/1971	1/31/1972	VERTICAL	40.10711156	-108.8720414	29	2	102	6
051030745400	UP77X32	UNION PACIFIC 77X32	Active	3/15/2019	CS18	Rod Pump	WEBER	6/30/1972	8/31/1972	VERTICAL	40.10335328	-108.8672545	32	2	102	6
051030730700	FE74X	FEE 74X	Active	6/24/2017	CS18	ESP	WEBER	10/4/1970	12/31/1970	VERTICAL	40.10704478	-108.8771058	30	2	102	6
051030733900	FE76X	FEE 76X	Active	9/20/2019	CS18	ESP	WEBER	3/20/1971	5/31/1971	VERTICAL	40.10731433	-108.8812892	30	2	102	6
051030885100	UP126X32	UNION PACIFIC 126X32	Active	1/26/2016	CS18	ESP	WEBER	12/13/1981	5/31/1982	VERTICAL	40.09609544	-108.8712268	32	2	102	6
051030727600	UP71X31	UNION PACIFIC 71X31	Active	12/6/2018	CS18	ESP	WEBER	4/18/1970	5/31/1970	VERTICAL	40.10319217	-108.8772332	31	2	102	6
051030885400	SHAR15X32	MCLAUGHLIN SHARPLES 15X32	Active	10/1/2010	CS19	Flowing	WEBER	2/14/1982	5/31/1982	VERTICAL	40.10297907	-108.8625937	32	2	102	6
051030884700	UP127X31	UNION PACIFIC 127X31	Active	2/3/2022	CS19	Flowing	WEBER	1/28/1982	5/31/1982	VERTICAL	40.09560366	-108.8769823	31	2	102	6
051030885300	UP130X32	UNION PACIFIC 130X32	Active	10/1/2010	CS19	Flowing	WEBER	12/22/1981	4/30/1982	VERTICAL	40.09593655	-108.8671251	32	2	102	6
051030946400	FE146X	FEE 146X	Active	3/1/2022	CS19	Rod Pump	WEBER	11/27/1990	1/31/1991	DIRECTIONAL	40.09496855	-108.8817315	31	2	102	6
051030849800	UP107X32	UNION PACIFIC 107X32	Active	5/8/2017	CS19	Rod Pump	WEBER	9/28/1980	12/31/1980	VERTICAL	40.09232452	-108.8624137	32	2	102	6
051030849700	UP109X32	UNION PACIFIC 109X32	Active	12/3/2013	CS19	Rod Pump	WEBER	8/20/1980	11/30/1980	VERTICAL	40.09261417	-108.8661167	32	2	102	6
051030845000	UP106X32	UNION PACIFIC 106X32	Active	1/16/2014	CS19	ESP	WEBER	3/20/1980	5/31/1980	VERTICAL	40.09261316	-108.8720339	32	2	102	6
051030627500	UP22-32	UNION PACIFIC 22-32	Active	4/23/2015	CS19	ESP	WEBER	10/24/1946	1/31/1947	VERTICAL	40.097515	-108.8601619	32	2	102	6
051030740200	UP75X32	UNION PACIFIC 75X32	Active	8/20/2014	CS19	ESP	WEBER	12/17/1971	2/29/1972	VERTICAL	40.09561306	-108.8584596	32	2	102	6

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051030866400	FE124X	FEE 124X	Active	4/13/2021	CS20	ESP	WEBER	2/15/1981	6/30/1981	VERTICAL	40.12532477	-108.8575925	21	2	102	6
051030929700	FE153X	FEE 153X	Active	6/19/2012	CS20	ESP	WEBER	10/29/1987	12/31/1987	VERTICAL	40.13692634	-108.8667958	17	2	102	6
051031115900	FE158X	FEE 158X	Active	10/21/2021	CS20	ESP	WEBER	5/9/2008	8/31/2008	DIRECTIONAL	40.1333444	-108.8628157	20	2	102	6
051030572000	FE6	FEE 6	Active	1/22/2016	CS20	ESP	WEBER	3/5/1946	5/31/1946	VERTICAL	40.12674311	-108.8602077	20	2	102	6
051030866600	UP115X21	UNION PACIFIC 115X21	Active	4/7/2021	CS20	ESP	WEBER	3/14/1981	6/30/1981	VERTICAL	40.13533331	-108.8576933	21	2	102	6
051030869700	UP118X21	UNION PACIFIC 118X21	Active	10/19/2012	CS20	ESP	WEBER	5/14/1981	8/31/1981	VERTICAL	40.13214653	-108.8482407	21	2	102	6
051030869800	UP119X21	UNION PACIFIC 119X21	Active	1/24/2020	CS20	ESP	WEBER	5/21/1981	9/30/1981	VERTICAL	40.13478386	-108.8531732	21	2	102	6
051030913800	UP136X20	UNION PACIFIC 136X20	Active	4/23/2018	CS20	ESP	WEBER	2/18/1984	4/30/1984	VERTICAL	40.128974	-108.8619822	20	2	102	6
051031150100	UP151X16	UNION PACIFIC 151X16	Active	4/19/2016	CS20	ESP	WEBER	7/1/2011	12/31/2011	DIRECTIONAL	40.14146	-108.85649	16	2	102	6
051030574100	UP6-21	UNION PACIFIC 6-21	Active	2/12/2020	CS20	ESP	WEBER	1/19/1946	5/31/1946	VERTICAL	40.13049027	-108.8555194	21	2	102	6
051030917400	FE145Y	FEE 145Y	Active	11/9/2010	CS22	Rod Pump	WEBER	8/31/1984	12/31/1984	VERTICAL	40.10924649	-108.8579836	29	2	102	6
051030568700	FE14	FEE 14	Active	8/30/2014	CS22	ESP	WEBER	12/20/1945	3/31/1946	VERTICAL	40.12313931	-108.855066	21	2	102	6
051030917500	FE144Y	FEE 144Y	Active	2/23/2018	CS22	ESP	WEBER	8/20/1984	11/30/1984	VERTICAL	40.11050146	-108.8609321	29	2	102	6
051030757200	FE83X	FEE 83X	Active	3/8/2017	CS22	ESP	WEBER	12/12/1973	9/30/2010	VERTICAL	40.11393252	-108.8581635	29	2	102	6
051030788600	UP100X20	UNION PACIFIC 100X20	Active	8/3/2013	CS22	ESP	WEBER	10/20/1976	2/28/1977	VERTICAL	40.12488512	-108.8626065	20	2	102	6
051030616200	UP11-21	UNION PACIFIC 11-21	Active	7/25/2015	CS22	ESP	WEBER	4/8/1946	8/31/1946	VERTICAL	40.12673341	-108.8506731	21	2	102	6
051030917300	UP138Y28	UNION PACIFIC 138Y28	Active	4/2/2019	CS22	ESP	WEBER	8/4/1984	11/30/1984	VERTICAL	40.11194562	-108.8575126	28	2	102	6
051030918900	UP141Y28	UNION PACIFIC 141Y28	Active	12/21/2021	CS22	ESP	WEBER	9/3/1985	11/30/1985	VERTICAL	40.11555484	-108.8516482	28	2	102	6
051030563900	UP5-28	UNION PACIFIC 5-28	Active	4/13/2012	CS22	ESP	WEBER	7/31/1945	12/31/1945	VERTICAL	40.11223035	-108.8505523	28	2	102	6
051030749400	UP82X28	UNION PACIFIC 82X28	Active	4/21/2017	CS22	ESP	WEBER	11/22/1972	2/28/1973	VERTICAL	40.11762385	-108.857717	28	2	102	6
051030750000	UP83X28	UNION PACIFIC 83X28	Active	11/18/2020	CS22	ESP	WEBER	12/17/1972	2/28/1973	VERTICAL	40.12101805	-108.8532482	28	2	102	6
051030751400	UP88X21	UNION PACIFIC 88X21	Active	1/22/2014	CS22	ESP	WEBER	3/16/1973	5/31/1973	VERTICAL	40.12515179	-108.8479855	21	2	102	6
051030754700	SMC10X	MCLAUGHLIN SW 10X	Active	1/6/2015	CS24	Flowing	WEBER	8/15/1973	10/31/1973	VERTICAL	40.09950199	-108.8436276	33	2	102	6
051030863000	AMCA3X	MCLAUGHLIN AC A3X	Active	1/27/2020	CS24	Rod Pump	WEBER	2/1/1981	7/31/1981	VERTICAL	40.08819297	-108.8577525	4	1	102	6
051030600900	ASLARUA1	ASSOCIATED LARSON UNIT A1	Active	10/1/2010	CS24	Rod Pump	WEBER	8/6/1947	8/31/1947	VERTICAL	40.08997974	-108.837027	3	1	102	6
051030881500	ASLARUA2X	ASSOCIATED LARSON UNIT A2X	Active	9/4/2014	CS24	Rod Pump	WEBER	9/11/1981	2/28/1982	VERTICAL	40.08846672	-108.834543	3	1	102	6
051030950200	ASLARUB2X	ASSOCIATED LARSON UNIT B2X	Active	10/1/2010	CS24	Rod Pump	WEBER	7/22/1991	8/31/1991	DIRECTIONAL	40.08701309	-108.8310462	3	1	102	6
051030545900	CAR13-4	CARNEY CT 13-4	Active	11/12/2021	CS24	Rod Pump	WEBER	6/11/1947	9/30/1947	VERTICAL	40.09049473	-108.8503655	4	1	102	6
051030856300	CAR37X4	CARNEY CT 37X4	Active	2/23/2022	CS24	Rod Pump	WEBER	2/26/1981	6/30/1981	VERTICAL	40.08919106	-108.8434545	4	1	102	6
051030881400	CAR39X4	CARNEY CT 39X4	Active	11/20/2012	CS24	Rod Pump	WEBER	11/8/1981	3/31/1982	VERTICAL	40.08851515	-108.8522708	4	1	102	6
051030629000	SHAR3-33	MCLAUGHLIN SHARPLES 3-33	Active	8/31/2021	CS24	Rod Pump	WEBER	1/4/1946	4/30/1946	VERTICAL	40.09769688	-108.8411956	33	2	102	6
051030746100	SMC7X	MCLAUGHLIN SW 7X	Active	9/13/2021	CS24	Rod Pump	WEBER	7/23/1972	9/30/1972	VERTICAL	40.09929938	-108.8533196	33	2	102	6
051030744000	UPB3X34	UNION PACIFIC B3X34	Active	11/18/2015	CS24	Rod Pump	WEBER	4/28/1972	7/31/1972	VERTICAL	40.09619765	-108.8388535	34	2	102	6
051030608700	CARU1	CARNEY UNIT 1	Active	2/1/2018	CS24	ESP	WEBER	9/1/1947	11/30/1947	VERTICAL	40.09049869	-108.8412589	4	1	102	6
051030759800	SHAR12X33	MCLAUGHLIN SHARPLES 12X33	Active	5/16/2017	CS24	ESP	WEBER	3/14/1974	11/30/2005	VERTICAL	40.0959958	-108.8434882	33	2	102	6
051030627700	SMC2	MCLAUGHLIN SW 2	Active	11/24/2020	CS24	ESP	WEBER	7/26/1947	10/31/1947	VERTICAL	40.09412051	-108.8559331	33	2	102	6
051030627900	SMC5	MCLAUGHLIN SW 5	Active	2/18/2020	CS24	ESP	WEBER	7/16/1947	10/31/1947	VERTICAL	40.09410962	-108.845652	33	2	102	6
051030753500	SMC9X	MCLAUGHLIN SW 9X	Active	8/24/2018	CS24	ESP	WEBER	7/22/1973	9/30/1973	VERTICAL	40.09572149	-108.8480822	33	2	102	6
051030616800	FE20	FEE 20	Active	5/22/2017	CS27	Rod Pump	WEBER	7/2/1946	9/30/1946	VERTICAL	40.12671458	-108.8411961	21	2	102	6
051030620700	FE21	FEE 21	Active	3/10/2015	CS27	Rod Pump	WEBER	7/20/1946	9/30/1946	VERTICAL	40.11951756	-108.8317685	27	2	102	6
051030617500	FE27	FEE 27	Active	2/15/2022	CS27	Rod Pump	WEBER	8/28/1946	10/31/1946	VERTICAL	40.12311799	-108.8364956	22	2	102	6
051030620300	FE61	FEE 61	Active	11/14/2018	CS27	Rod Pump	WEBER	1/3/1948	3/31/1948	VERTICAL	40.11950552	-108.8367772	27	2	102	6
051030617300	UP28-22	UNION PACIFIC 28-22	Active	2/14/2011	CS27	Rod Pump	WEBER	1/16/1947	3/31/1947	VERTICAL	40.13034423	-108.836492	22	2	102	6
051030622400	FE19	FEE 19	Active	5/30/2014	CS27	ESP	WEBER	6/7/1946	8/31/1946	VERTICAL	40.119508	-108.8412177	28	2	102	6
051030617600	FE36	FEE 36	Active	12/3/2019	CS27	ESP	WEBER	9/30/1946	12/31/1946	VERTICAL	40.12675463	-108.8317847	22	2	102	6
051030866700	UP117X22	UNION PACIFIC 117X22	Active	12/21/2019	CS27	ESP	WEBER	4/10/1981	7/31/1981	VERTICAL	40.1285598	-108.83413	22	2	102	6
051030869900	UP120X21	UNION PACIFIC 120X21	Active	12/14/2019	CS27	ESP	WEBER	5/3/1981	8/31/1981	VERTICAL	40.12855405	-108.8435862	21	2	102	6
051030742100	UP76X21	UNION PACIFIC 76X21	Active	5/14/2019	CS27	ESP	WEBER	3/8/1972	4/30/1972	VERTICAL	40.12156346	-108.8436107	21	2	102	6
051030752900	FE82X	FEE 82X	Active	1/13/2018	CS28	Rod Pump	WEBER	6/14/1973	8/31/1973	VERTICAL	40.11368339	-108.843741	28	2	102	6
051030873900	SHAR13X33	MCLAUGHLIN SHARPLES 13X3	Active	7/23/2018	CS28	Rod Pump	WEBER	6/16/1981	11/30/1981	VERTICAL	40.1031595	-108.8530436	33	2	102	6

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051030912300	SHAR14Y33	MCLAUGHLIN SHARPLES 14Y33	Active	6/18/2014	CS28	Rod Pump	WEBER	1/15/1984	3/31/1984	DIRECTIONAL	40.10305466	-108.8501264	33	2	102	6
051030560000	SHAR2-28	MCLAUGHLIN SHARPLES 2-28	Active	2/28/2022	CS28	Rod Pump	WEBER	2/1/1946	5/31/1946	VERTICAL	40.10862754	-108.8554379	28	2	102	6
051030559600	FE11	FEE 11	Active	2/6/2020	CS28	ESP	WEBER	6/5/1945	9/30/1945	VERTICAL	40.1085686	-108.8454734	28	2	102	6
051030565100	FE12	FEE 12	Active	4/12/2019	CS28	ESP	WEBER	10/18/1945	2/28/1946	VERTICAL	40.11587283	-108.8459465	28	2	102	6
051030622600	FE13	FEE 13	Active	4/11/2016	CS28	ESP	WEBER	4/29/1946	7/31/1946	VERTICAL	40.11223818	-108.8412196	28	2	102	6
051030556800	FE15	FEE 15	Active	4/4/2019	CS28	ESP	WEBER	3/2/1946	5/31/1946	VERTICAL	40.10494581	-108.8412176	33	2	102	6
051031186600	FE160X	FEE 160X	Active	2/10/2022	CS28	ESP	WEBER	8/14/2012	10/31/2012	DIRECTIONAL	40.10885	-108.83986	28	2	102	6
051031195100	FE163X	FEE 163X	Active	2/17/2021	CS28	ESP	WEBER	12/19/2012	3/31/2013	DIRECTIONAL	40.10564	-108.84214	33	2	102	6
051030751900	FE81X	FEE 81X	Active	7/13/2017	CS28	ESP	WEBER	4/5/1973	5/31/1973	VERTICAL	40.11777761	-108.8386496	27	2	102	6
051030551101	FE9ST	FEE 9ST	Active	4/5/2018	CS28	ESP	WEBER	4/29/1996	10/31/1945	DIRECTIONAL	40.10130644	-108.8408596	33	2	102	6
051030749000	SHAR10X28	MCLAUGHLIN SHARPLES 10X28	Active	6/28/2019	CS28	ESP	WEBER	10/27/1972	1/31/1973	VERTICAL	40.10692599	-108.8527384	28	2	102	6
051030551300	SHAR1-33	MCLAUGHLIN SHARPLES 1-33	Active	4/15/2021	CS28	ESP	WEBER	2/13/1945	6/30/1945	VERTICAL	40.10147214	-108.8460548	33	2	102	6
051030746500	SHAR9X33	MCLAUGHLIN SHARPLES 9X33	Active	10/21/2013	CS28	ESP	WEBER	8/18/1972	10/31/1972	VERTICAL	40.10314566	-108.8482383	33	2	102	6
051030749500	UP84X28	UNION PACIFIC 84X28	Active	12/23/2021	CS28	ESP	WEBER	11/20/1972	2/28/1973	VERTICAL	40.11083075	-108.8484461	28	2	102	6
051030551000	UP3-34	UNION PACIFIC 3-34	Active	10/5/2021	CS29	Flowing	WEBER	5/26/1945	10/31/1945	VERTICAL	40.1013127	-108.836528	34	2	102	6
051030732600	FE75X	FEE 75X	Active	10/1/2019	CS29	Rod Pump	WEBER	1/8/1971	3/31/1971	VERTICAL	40.1178796	-108.8293854	27	2	102	6
051030621300	UP49-27	UNION PACIFIC 49-27	Active	9/21/2015	CS29	Rod Pump	WEBER	9/22/1947	12/31/1947	VERTICAL	40.11236681	-108.8271134	27	2	102	6
051030620400	UP12-27	UNION PACIFIC 12-27	Active	2/9/2022	CS29	Rod Pump	WEBER	3/30/1946	7/31/1946	VERTICAL	40.11586245	-108.8365017	27	2	102	6
051030918800	UP140Y27	UNION PACIFIC 140Y27	Active	4/11/2019	CS29	ESP	WEBER	1/8/1985	3/31/1985	DIRECTIONAL	40.10858952	-108.8330748	27	2	102	6
051030620600	UP16-27	UNION PACIFIC 16-27	Active	4/16/2021	CS29	ESP	WEBER	5/22/1946	9/30/1946	VERTICAL	40.10857423	-108.8365638	27	2	102	6
051030621400	UP17-27	UNION PACIFIC 17-27	Active	9/17/2013	CS29	ESP	WEBER	7/26/1946	10/31/1946	VERTICAL	40.10858952	-108.8270345	27	2	102	6
051030106900	UP25-34	UNION PACIFIC 25-34	Active	10/1/2010	CS29	ESP	WEBER	10/28/1946	1/31/1947	VERTICAL	40.10494104	-108.8366128	34	2	102	6
051031120700	UP59A-27	UNION PACIFIC 59A-27	Active	8/10/2018	CS29	ESP	WEBER	1/18/2009	4/30/2009	DIRECTIONAL	40.11597717	-108.8316944	27	2	102	6
051030103900	CAR3-34	CARNEY CT 3-34	Active	3/31/2021	CS30	Flowing	WEBER	11/10/1945	3/31/1946	VERTICAL	40.09737519	-108.831905	34	2	102	6
051030103800	CAR5-34	CARNEY CT 5-34	Active	11/8/2018	CS30	Flowing	WEBER	3/11/1946	7/31/1946	VERTICAL	40.10127256	-108.8315542	34	2	102	6
051030559100	LEV1	LEVSION 1	Active	2/13/2018	CS30	Flowing	WEBER	7/28/1945	1/31/1946	VERTICAL	40.10859427	-108.8223394	27	2	102	6
051030548200	CAR1-34	CARNEY CT 1-34	Active	8/6/2013	CS30	Rod Pump	WEBER	6/2/1945	10/31/1945	VERTICAL	40.09771167	-108.8270265	34	2	102	6
051030549400	REC1	RECTOR 1	Active	6/12/2015	CS30	Rod Pump	WEBER	10/14/1944	5/31/1945	VERTICAL	40.09775785	-108.8226213	34	2	102	6
051030714700	REC9X	RECTOR 9X	Active	12/28/2017	CS30	Rod Pump	WEBER	7/4/1968	8/31/1968	VERTICAL	40.09135986	-108.8267353	3	1	102	6
051030103500	CAR14-34	CARNEY CT 14-34	Active	12/23/2021	CS30	ESP	WEBER	11/19/1947	1/31/1948	VERTICAL	40.10495087	-108.8319154	34	2	102	6
051030555900	CAR4-34	CARNEY CT 4-34	Active	1/10/2022	CS30	ESP	WEBER	3/23/1946	6/30/1946	VERTICAL	40.10515925	-108.8226293	34	2	102	6
051030104000	CAR8-34	CARNEY CT 8-34	Active	12/4/2020	CS30	ESP	WEBER	10/11/1946	1/31/1947	VERTICAL	40.10497065	-108.8270351	34	2	102	6
051030547600	FLARA1	LARSON FV A1	Active	6/14/2019	CS30	ESP	WEBER	2/4/1946	5/31/1946	VERTICAL	40.09534057	-108.8321576	34	2	102	6
051030729300	MHEF6X	HEFLEY ME 6X	Active	1/19/2017	CS30	ESP	WEBER	7/25/1970	9/30/1970	VERTICAL	40.09098899	-108.8219153	3	1	102	6
051030704300	REC8X	RECTOR 8X	Active	2/18/2020	CS30	ESP	WEBER	7/21/1967	9/30/1967	VERTICAL	40.09527439	-108.822976	34	2	102	6
051030618200	LEV18	LEVISON 18	Active	5/17/2013	CS33	Rod Pump	WEBER	3/31/1948	7/31/1948	VERTICAL	40.12314045	-108.817562	23	2	102	6
051030708300	FLARB18X	LARSON FV B18X	Active	1/21/2022	CS33	ESP	WEBER	11/26/1967	1/31/1968	VERTICAL	40.11396629	-108.8055779	26	2	102	6
051030559300	LEV2	LEVISON 2	Active	5/9/2014	CS33	ESP	WEBER	1/20/1946	4/30/1946	VERTICAL	40.10876153	-108.8175949	26	2	102	6
051030638700	LEV21X	LEVISON 21X	Active	6/10/2021	CS33	ESP	WEBER	1/3/1967	3/31/1967	VERTICAL	40.11391359	-108.8108241	26	2	102	6
051030722200	LEV25X	LEVISON 25X	Active	2/1/2020	CS33	ESP	WEBER	6/22/1969	8/31/1969	VERTICAL	40.11377872	-108.815373	26	2	102	6
051030726700	LEV26X	LEVISON 26X	Active	11/17/2021	CS33	ESP	WEBER	2/17/1970	3/31/1970	VERTICAL	40.11045783	-108.8104543	26	2	102	6
051030728900	LEV27X	LEVISON 27X	Active	4/12/2018	CS33	ESP	WEBER	6/30/1970	8/31/1970	VERTICAL	40.11043136	-108.8199882	27	2	102	6
051030752100	LEV33X	LEVISON 33X	Active	10/1/2010	CS33	ESP	WEBER	4/27/1973	6/30/1973	VERTICAL	40.11350615	-108.8244098	27	2	102	6
051030868300	LEV35X	LEVISON 35X	Active	6/28/2019	CS33	ESP	WEBER	8/6/1981	12/31/1981	VERTICAL	40.11778123	-108.8058489	26	2	102	6
051030106200	LEV6	LEVISON 6	Active	11/12/2021	CS33	ESP	WEBER	5/10/1946	8/31/1946	VERTICAL	40.10863626	-108.8128254	26	2	102	6
051030103200	CAR17-35	CARNEY CT 17-35	Active	11/27/2018	CS34	Flowing	WEBER	5/4/1948	7/31/1948	VERTICAL	40.10101144	-108.817686	35	2	102	6
051030724501	CAR22X35ST	CARNEY CT 22X35ST	Active	12/22/2019	CS34	Flowing	WEBER	4/20/1997	12/31/1969	DIRECTIONAL	40.10295067	-108.8057902	35	2	102	6
051030641300	CAR20X35	CARNEY CT 20X35	Active	5/15/2019	CS34	Rod Pump	WEBER	8/16/1966	10/31/1966	VERTICAL	40.10321027	-108.8107239	35	2	102	6
051030100900	FLARB12	LARSON FV B12	Active	2/12/2018	CS34	Rod Pump	WEBER	3/2/1948	5/31/1948	VERTICAL	40.09901654	-108.8082912	35	2	102	6
051030724200	FLARB23X	LARSON FV B23X	Active	7/8/2015	CS34	Rod Pump	WEBER	9/5/1969	10/31/1969	VERTICAL	40.09885853	-108.8112033	35	2	102	6

Table 1 - Rangely Producing Well Data
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

API Number	Well Short Name	Well Name	Well Status	Well Status Date	Collection Station	Producing Method/Pump Type	Formation	Spud Date	First Production Date	Hole Direction	Latitude (NAD 83)	Longitude (NAD 83)	SEC	TWN	RNG	MER
051030629300	CAR7-35	CARNEY CT 7-35	Active	1/9/2020	CS34	ESP	WEBER	6/29/1946	10/31/1946	VERTICAL	40.10507266	-108.8175648	35	2	102	6
051030700800	FLARB15X	LARSON FV B15X	Active	5/9/2015	CS34	ESP	WEBER	2/15/1967	4/30/1967	VERTICAL	40.09927749	-108.8151801	35	2	102	6
051030909900	WCOLA8X	COLTHARP WH A8X	Active	5/10/2019	CS34	ESP	WEBER	11/27/1983	3/31/1984	DIRECTIONAL	40.09836446	-108.8117582	35	2	102	6
051030712300	LEV23X	LEVISON 23X	Active	2/7/2022	CS39	Flowing	WEBER	5/20/1968	7/31/1968	VERTICAL	40.10687295	-108.8059222	26	2	102	6
051030707800	FLARB17X	LARSON FV B17X	Active	7/10/2014	CS39	Rod Pump	WEBER	10/27/1967	1/31/1968	VERTICAL	40.10322237	-108.8017575	35	2	102	6
051030716500	FLARB21X	LARSON FV B21X	Active	4/4/2017	CS39	Rod Pump	WEBER	9/17/1968	10/31/1968	VERTICAL	40.10660527	-108.7918942	36	2	102	6
051030727000	MLAR12X25	LARSON MB 12X25	Active	10/1/2010	CS39	Rod Pump	WEBER	3/10/1970	4/30/1970	VERTICAL	40.11425186	-108.7963279	25	2	102	6
051030707200	WEY4X36	WEYRAUCH 4X36	Active	10/14/2016	CS39	Rod Pump	WEBER	9/25/1967	11/30/1967	VERTICAL	40.10307275	-108.7912377	36	2	102	6
051030881900	WEY5X36	WEYRAUCH 5X36	Active	8/19/2013	CS39	Rod Pump	WEBER	11/22/1981	3/31/1982	VERTICAL	40.10657481	-108.7871574	36	2	102	6
051030916600	WEY6X36	WEYRAUCH 6X36	Active	6/3/2013	CS39	Rod Pump	WEBER	8/9/1984	11/30/1984	VERTICAL	40.10067233	-108.7878236	36	2	102	6
051030916300	WEY7X36	WEYRAUCH 7X36	Active	6/27/2013	CS39	Rod Pump	WEBER	9/6/1984	11/30/1984	DIRECTIONAL	40.10375754	-108.7863002	36	2	102	6
051030709900	FLARB20X	LARSON FV B20X	Active	12/24/2021	CS39	ESP	WEBER	2/25/1968	4/30/1968	VERTICAL	40.10324669	-108.7962569	36	2	102	6
051030715900	MLAR10X25	LARSON MB 10X25	Active	1/10/2022	CS39	ESP	WEBER	8/30/1968	10/31/1968	VERTICAL	40.11022395	-108.8006549	25	2	102	6
051030873800	FLARB24X	LARSON FV B24X	Active	7/10/2018	CS47	Rod Pump	WEBER	9/13/1981	1/31/1982	VERTICAL	40.09372036	-108.7944925	36	2	102	6
051030705700	JCOL5X	COLTHARP JE 5X	Active	10/1/2010	CS47	Rod Pump	WEBER	8/22/1967	10/31/1967	VERTICAL	40.09445725	-108.8030952	35	2	102	6
051030873700	MHEF7X	HEFLEY ME 7X	Active	9/18/2020	CS47	Rod Pump	WEBER	7/9/1981	11/30/1981	VERTICAL	40.08805894	-108.8146649	2	1	102	6
051030881000	PUR2X1	PURDY 2X1	Active	7/12/2018	CS47	Rod Pump	WEBER	10/22/1981	3/31/1982	VERTICAL	40.08713836	-108.7850578	1	1	102	6
051030867200	REC11X	RECTOR 11X	Active	10/13/2021	CS47	Rod Pump	WEBER	3/23/1981	8/31/1981	VERTICAL	40.08548012	-108.8266845	3	1	102	6
051030744700	WCOLA6X	COLTHARP WH A6X	Active	2/27/2020	CS47	Rod Pump	WEBER	6/7/1972	9/30/1972	VERTICAL	40.09146144	-108.8127396	2	1	102	6
051030919800	WCOLC2X	COLTHARP WH C2X	Active	7/20/2021	CS47	Rod Pump	WEBER	12/3/1984	3/31/1985	DIRECTIONAL	40.09032825	-108.7931194	1	1	102	6
051030869400	JCOL10X	COLTHARP JE 10X	Active	2/6/2020	CS47	ESP	WEBER	8/29/1981	1/31/1982	VERTICAL	40.091558	-108.7990758	1	1	102	6
051030734300	JCOL8X	COLTHARP JE 8X	Active	9/1/2019	CS47	ESP	WEBER	4/18/1971	6/30/1971	VERTICAL	40.09147043	-108.8032496	2	1	102	6
051030719600	MHEF5X	HEFLEY ME 5X	Active	7/1/2021	CS47	ESP	WEBER	4/23/1969	6/30/1969	VERTICAL	40.08793685	-108.8130017	2	1	102	6
051030869600	MHEF8X	HEFLEY ME 8X	Active	11/14/2018	CS47	ESP	WEBER	9/5/1981	1/31/1982	VERTICAL	40.09140892	-108.8161776	2	1	102	6
051030879300	WCOLB3X	COLTHARP WH B3X	Active	4/20/2019	CS47	ESP	WEBER	9/10/1981	12/31/1981	VERTICAL	40.09161053	-108.8026407	2	1	102	6

Notes
API: American Petroleum Institute
--: information not available
NAD 83: North American Datum of 1983
CS: Collection Station
ESP: electrical submersible pump
SEC: Section
TWN: Township
RNG: Range
MER: Principal Meridian

Table 2 - Rangely Field Sample Bottle Details
Scout - Rangely Field
Rangely, Rio Blanco County, Colorado

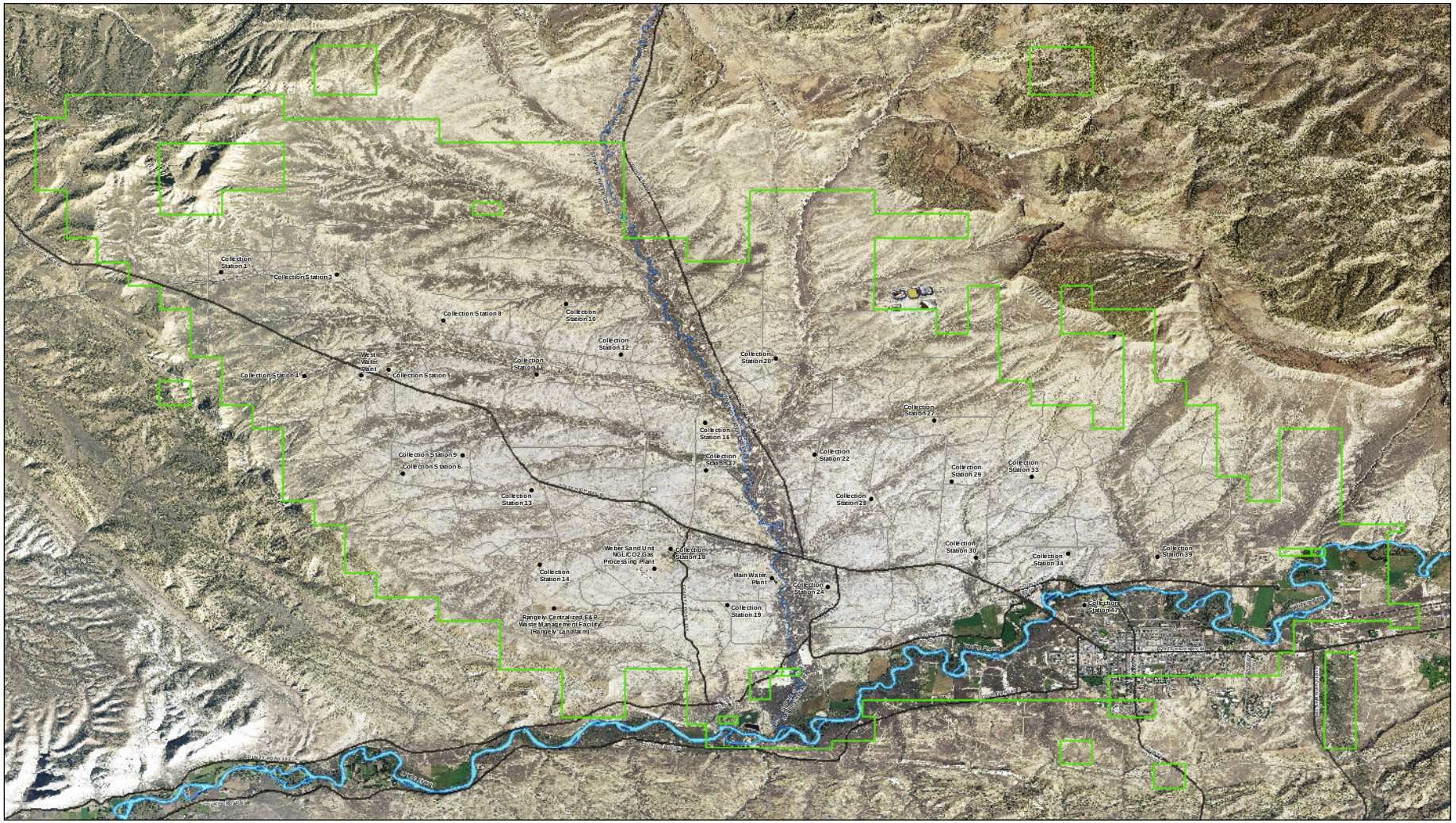
Sample Classification	Sample Location	Number of Samples	Sample Volume	Preservative/ Additives	Analytes (method)
Produced Water	Test Separator at 16 Collection Stations with Pits	16 grab	2 L	HNO_3	Ra-226 (903.1 [alpha spectroscopy]) Ra-228 (EPA 904.0 [gas flow proportional counting])
			500 mL plastic	None	TSS (SM 2540D) TDS (SM20 2540C)
			500 mL plastic	None	pH (SM 4500[H+]B) Specific Conductance (SM 2510B)
			1 L plastic	None	TSS (SM 2540D)
			1 L plastic	None	TDS (SM20 2540C; lab filtered)
			1 L plastic	None	Alkalinity (total, bicarbonate, and carbonate as $CaCO_3$) (SM 2320B) Bromide (EPA 300.0) Fluoride (EPA 300.0) Sulfate(EPA 300.0) Nitrate as N (EPA 353.2 with 48 hour holding time) Nitrite as N (EPA 353.2 with 48 hour holding time)
			1 L plastic	None	Chloride (EPA 300.0)
			250 mL plastic	$H2SO_4$	Phosphorus (SM 4500[P]B/F)
			250 mL plastic	HNO_3	Calcium (EPA 200.7/200.8) Iron (EPA 200.7/200.8) Magnesium (EPA 200.7/200.8) Manganese (EPA 200.7/200.8) Potassium (EPA 200.7/200.8) Sodium (EPA 200.7/200.8) Barium (EPA 200.7/200.8) Boron (EPA 200.7/200.8) Selenium (EPA 200.7/200.8) Strontium (EPA 200.7/200.8)
			Three 40 mL glass vials	HCl	TPH as total volatile hydrocarbons (C6 to C10) (EPA 8260D)
			Three 40 mL glass ambers	None	TPH as total extractable hydrocarbons (C10 to C36) (EPA 8015D)
			Three 40 mL glass vials	HCL	BTEX (EPA 8260) Naphthalene(EPA 8260)
Solids (Sediments/ Sludges)	Primary Separator at 6 Collection Stations	6 composite	16 oz	None	Ra-226 (901.1M [gamma spectroscopy]) Ra-228 (901.1M [gamma spectroscopy])
	Truck Unloading Area at Main Water Plant	4 composite	16 oz	None	Ra-226 (901.1M [gamma spectroscopy]) Ra-228 (901.1M [gamma spectroscopy]) Po-210 (ASTM D3972 /SOP711[liquid scintillation]) Pb-210 (EPA SOP 726 Eichrom [alpha spectroscopy])
	Site Background	10 composite	16 oz	None	Ra-226 (901.1M [gamma spectroscopy]) Ra-228 (901.1M [gamma spectroscopy]) Po-210 (ASTM D3972 /SOP711[liquid scintillation]) Pb-210 (EPA SOP 726 Eichrom [alpha spectroscopy])

Notes

1. Use of Laboratories other than ones specified in this Sampling Plan may require different bottle sets.

L: liter
HNO_3: nitric acid
Ra-226: Radium-226
Ra-228: Radium-228
EPA: United States Environmental Protection Agency
ml: milliliter
SM: Standard Method
TSS: total suspended solids
TDS: total dissolved solids
pH: potential of hydrogen
$CaCO_3$: calcium carbonate
N: nitrogen
$H2SO_4$: sulfuric acid
HCL: hydrochloric acid
C: carbon range
TPH: total petroleum hydrocarbons
BTEX: benzene, toluene, ethylbenzene, and total xylenes (sum of o-, m- and p- isomers)
oz: ounce
ASTM: American Society for Testing and Materials
SOP: Standard Operating Procedure
Po-210: Polonium-210
Pb-210: Lead-210

Figures



Legend
- Site Facility
- Site Access Road
- Public Road
- Site Boundary (26,622 Acres)

Collection Station also known as *Weber Station*
NGL: Natural gas liquid
CO_2: Carbon dioxide
E&P: Exploration and Production

N

0 4,500 9,000 Feet
(At original document size of 8.5x11)
1:101,000

Notes
1. Roads based on USGS National Transportation Dataset (NTD) for Colorado.
2. Water bodies based on USGS National Hydrography Dataset (NHD).
3. Coordinate System: GCS North American 1927
4. 2017 Aerial Imagery
5. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Stantec

Project Location
T1N, R101W T2N, R101W
T1N, R102W T2N, R102W
T1N, R103W T2N, R103W
Town of Rangely, Rio Blanco County, Colorado

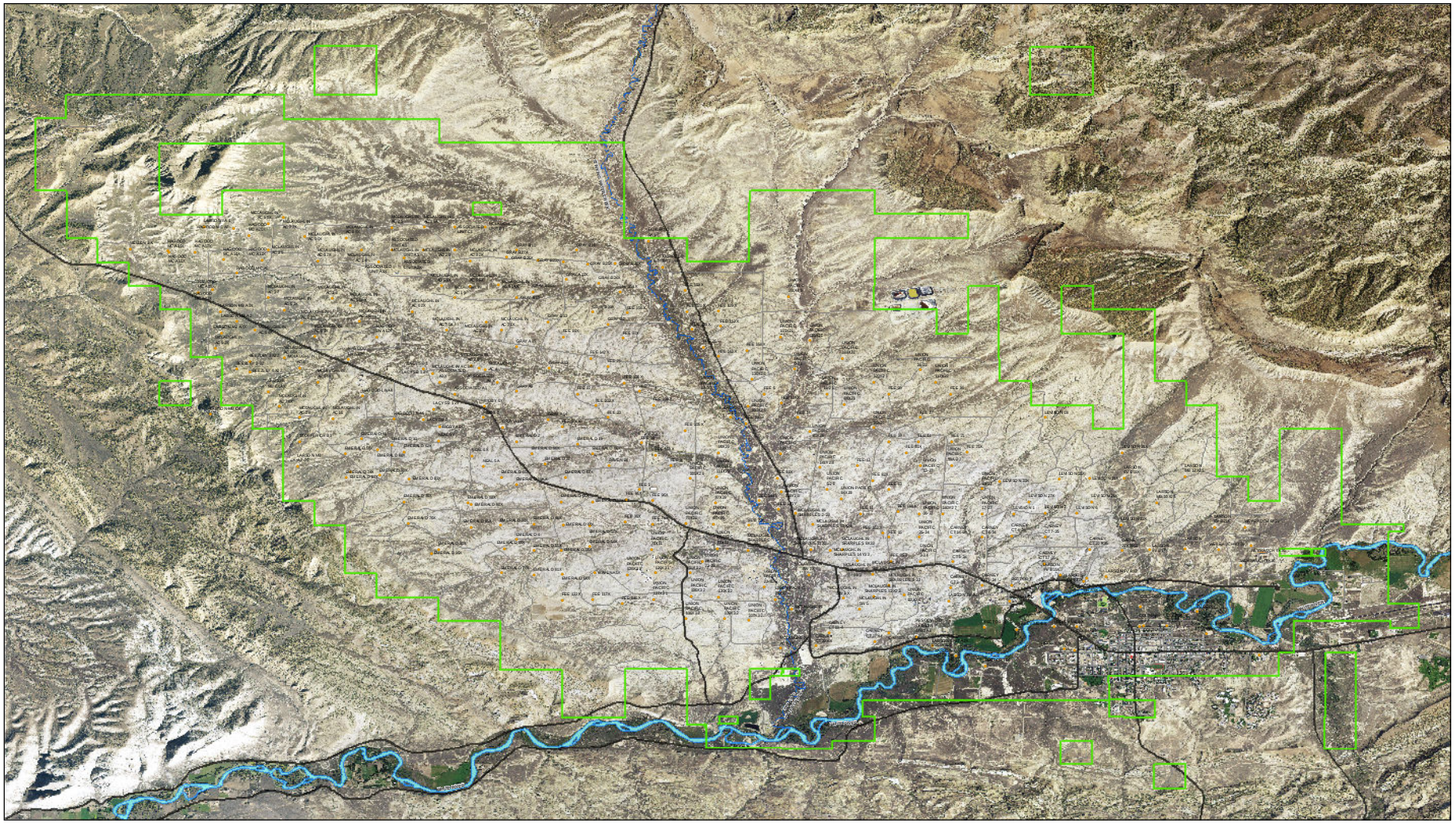
Prepared by MW on 2022-02-08
TR by CB on 2022-02-08
IR Review by MS on 2022-03-08

Client/Project 203722556
Scout Energy Management
Rangely Field

Figure No.
1

Title
Site Plan with Select Site Facilities

V:\2037\Active\203722556803_data\gis_cad\gis\mxds\20210908_chevron_tenorm_mxd\RangelyVfig1_rangely_site_plan_20210908.mxd Revised: 2022-03-08 By: mpwarner



Legend

- Oil & Gas Well and Well Identification
- Site Access Road
- Public Road
- Site Boundary

N

0 4,500 9,000 Feet

(At original document size of 8.5x11)
1:101,000

Notes

1. Oil Gas Well labels created from Scout Well Table.
2. Coordinate System: GCS North American 1983
3. Roads based on USGS National Transportation Dataset (NTD) for Colorado.
4. Water bodies based on USGS National Hydrography Dataset (NHD)
5. 2017 Aerial Imagery
6. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Stantec

Project Location
T1N, R101W T2N, R101W
T1N, R102W T2N, R102W
T1N, R103W T2N, R103W
Town of Rangely, Rio Blanco County, Colorado

Prepared by MW on 2022-02-08
TR by CB on 2022-02-08
IR Review by MS on 2022-03-08

Client/Project 203722556

Scout Energy Management
Rangely Field

Figure No.

2

Title

Site Plan with Well Locations

V:\2037\Active\203722556803_data\gis_cad\gis\mxds\20210908_chevron_tenorm_mxd\RangelyVfig2_rangely_well_locs_20220307.mxd Revised: 2022-03-08 By: mpwarner

Appendix A
Field Sample Collection Form

Field Sample Collection Form
(for sample to be submitted for laboratory analysis)

Revision 1.0 (February 2022)

Project Name: _____

Project Number and Company: _____

Date: _____

Weather: _____

Project Manager and Company: _____

Field Personnel and Company: _____

Sketch of Sample Area:

↑ **North**

Sample Location Description	Sample ID (conforming to naming convention in sampling plan and to be included on Chain of Custody)	Sample Date/Time (24-hour format)	Sample Matrix	Number, Volume and Preservative of Bottles Filled	Laboratory Analysis	Chain of Custody Number	Sample Location in State Plane Coordinate System (SPCS)	
							Northing	Easting
1A								

Sample Location Description	Composite Sample Location IDs (that make up Sample Location ID to be included on Chain of Custody [line 1A])	Sample Date/Time	Sample Matrix	Depth (feet below surfaces)	--	--	Sample Location in State Plane Coordinate System (SPCS)	
							Northing	Easting
1B								
2B								
3B								
4B								
5B								
6B								
7B								
8B								
9B								
10B								

Description of characteristics of sample material (line 1A; odor, staining, etc.): _____

Additional Notes: _____

This form is complete (__) and legible (__)

Signatures: _____ (field personnel) _____ (date)

Quality Control: check (__)

Signatures: _____ (project manager) _____ (date)