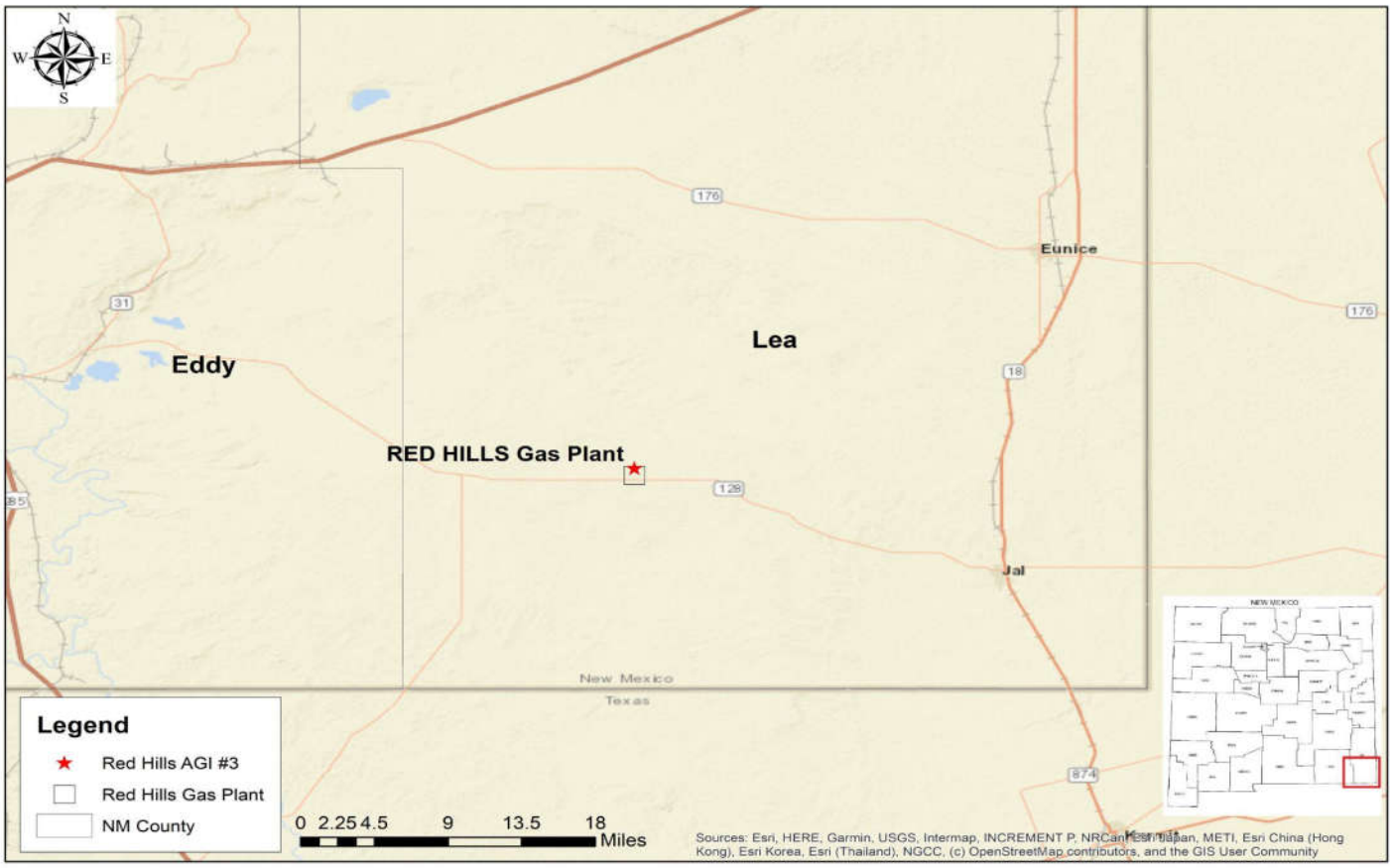
Application for a Class II AGI Well
Targa Northern Delaware LLC

Red Hills AGI #3

Well Location: Section 13 T24S, R33E
Lea County, New Mexico



February 16, 2023

Prepared for:
Targa Northern Delaware LLC
811 Louisiana Street
Houston, TX 77002

Prepared by:
New Mexico Tech
Petroleum Recovery Research Center
801 Leroy Place
Socorro, NM 87832

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ____**X**____Disposal _____Storage
Application qualifies for administrative approval. _____Yes __**X**_____No

II. OPERATOR: __**Targa Northern Delaware LLC**_____
ADDRESS: __**811 Louisiana Street Houston, Texas 77002**_____
CONTACT PARTY: __**Clark White Executive VP of Operations** _____PHONE: _ **(713)584-1525**_____

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ____**X**_____Yes _____No
If yes, give the Division order number authorizing the project: **Orders R-13507-13507F** _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review. **Section 9**

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail. **Section 5**

VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected. **Section 3.3**
2. Whether the system is open or closed. **Section 3.1**
3. Proposed average and maximum injection pressure. **Section 3.1 Table**
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and **Section 3.3**
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.). **N/A**

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval. **Section 4.3**

IX. Describe the proposed stimulation program, if any**. N/A**

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
WELLS ARE NOT YET DRILLED

*XI. Attach a chemical analysis of fresh water from two or more freshwater wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. **Section 10**

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water. **Section 7**

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
WE WILL NOTIFY OPERATORS AND LEASEHOLD OWNERS AND SURFACE OWNERS WITHIN THE AREA OF REVIEW PURSUANT TO NMOCD REGULATIONS AND WE WILL SUBMIT AFFIDAVITS OF PUBLICATION OF NOTICE AND CERTIFIED MAIL RETURN RECEIPTS AT HEARING

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
NAME: ___ **Clark White** _TITLE: ____ **Executive VP of Operations** _____
SIGNATURE: _____DATE: __February 16, 2023_____
E-MAIL ADDRESS: ___ **cwhite@targaresources.com** _____

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office,

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used, or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant.

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells.

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED

OPERATOR: TARGA NORTHERN DELAWARE LLC

WELL NAME & NUMBER: RED HILLS AGI #3

WELL LOCATION: 1338 FNL & 354 FEL UNIT H, SECTION 13 T 24S R33E LEA COUNTY, NEW MEXICO

WELL CONSTRUCTION DATA

SURFACE CASING

HOLE SIZE: 26" CASING SIZE: 20" BTC 106.5 LB/FT, J-55

Cemented with: 2500 sx Cement @ 2.0 & 1.32 cu. Ft/sk

Top of Cement: Circulate to Surface

1ST INTERMEDIATE CASING

HOLE SIZE: 17 1/2" CASING SIZE: 13 3/8" BTC 72 LB/FT, L-80

Cemented with: 2000 sx Cement @ 2.0 & 1.32 cu. Ft/sk

Top of Cement: Circulate to Surface

2nd INTERMEDIATE CASING

HOLE SIZE: 12 1/4" CASING SIZE: 9 5/8" BTC 47 LB/FT, L-80 0-6200'
9 5/8" BTC 47 LB/FT, G3 CRA 6200'-6700'
9 5/8" BTC 47 LB/FT, L-80 6700-12282'

Cemented with: 2000 sx Cement @ 2.2 & 1.50 cu. Ft/sk in 3 stages with DV tools at 6200' and 6700'

Top of Cement: Circulate to Surface

PRODUCTION CASING

HOLE SIZE: 8 1/2" CASING SIZE: 7" BTC 32 LB/FT, P-110 0-15,770'
7" BTC 32 LB/FT, G-3 CRA 15,770'-16,090'

Cemented with: 1000 sx Cement @ 2.4 & 1.4 cu. Ft/sk in 2 stages with DV tool at 12,332'

Top of Cement: Circulate to Surface

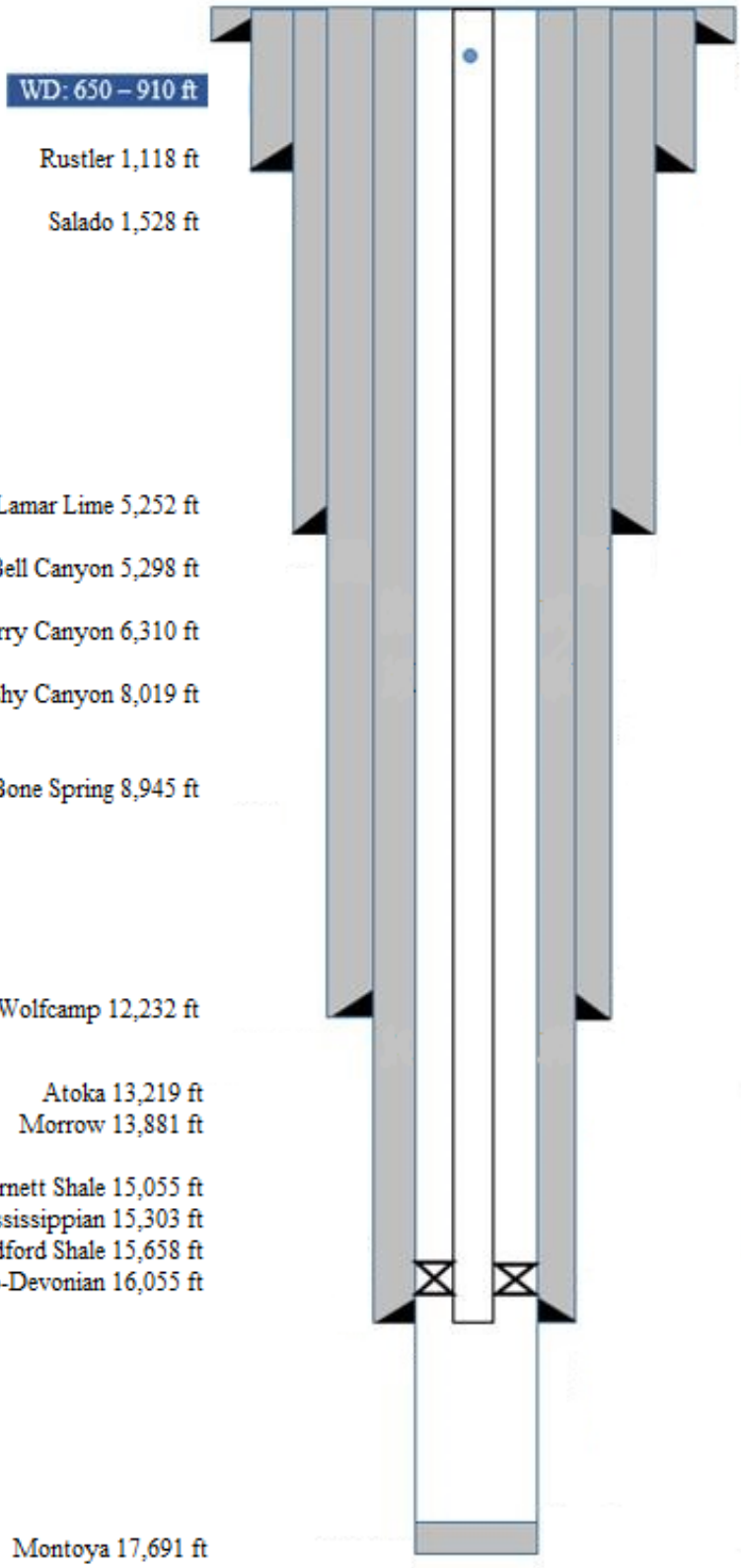
OPEN HOLE INJECTION ZONE

HOLE SIZE: 5 7/8" FROM 16,090' to 17,600'

INJECTION TUBING

3 1/2" 7.7 & 9.2 LB/FT G3 CRA Tubing set at 16,040'

HOWCO Permanent CRA Packer set at 16,040'



Conductor:
30-in, 157 lb/ft
42-in OH at 100 ft
SSSV at 175 ft

Surface Casing:
20-in, 106.5 lb/ft, J55, BTC
26-in OH at 1,143 ft
Cement to surface

Intermediate Casing #1:
13 3/8-in, 72 lb/ft, L80, BTC
17 1/2-in OH at 5,277 ft
Cement to surface
DV-ECP tool at 1,243 ft

Intermediate Casing #2:
9 5/8-in, 47 lb/ft, L80, BTC, 0 ft-6,200 ft
9 5/8-in, 47 lb/ft, G3 CRA, VAM, 6,200 ft-6,700 ft
9 5/8-in, 47 lb/ft, L80, BTC, 6,700 ft-12,282 ft
12 1/4-in OH at 12,282 ft
Cement to surface
DV-ECP tools at 6,200 ft & 6,700 ft

Production Casing:
7-in, 32 lb/ft, P110, BTC 0 ft-15,770 ft
7-in, 32 lb/ft, G3 CRA, BTC 15,770 ft-16,090 ft
8 1/2-in OH at 16,090 ft
Cement to surface
7-in DV-ECP tool at 12,332 ft

Tubing:
3 1/2-in, 9.2 lb/ft, G3 CRA, 0 ft-16,040 ft
Permanent packer, CRA, 16,040 ft

Open Hole:
5 7/8-in, 16,090 ft-17,600 ft

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1 Executive Summary

On behalf of Targa Northern Delaware LLC (Targa), the Petroleum Recovery Research Center at New Mexico Institute of Mining and Technology (NMT) has prepared a complete C-108 application for approval to drill, complete and operate a redundant acid gas injection well (Red Hills AGI #3) at the Targa Red Hills Gas Plant in Section 13 T24S, R33E approximately 20 miles west of Jal in Lea County, New Mexico (Figure 1).

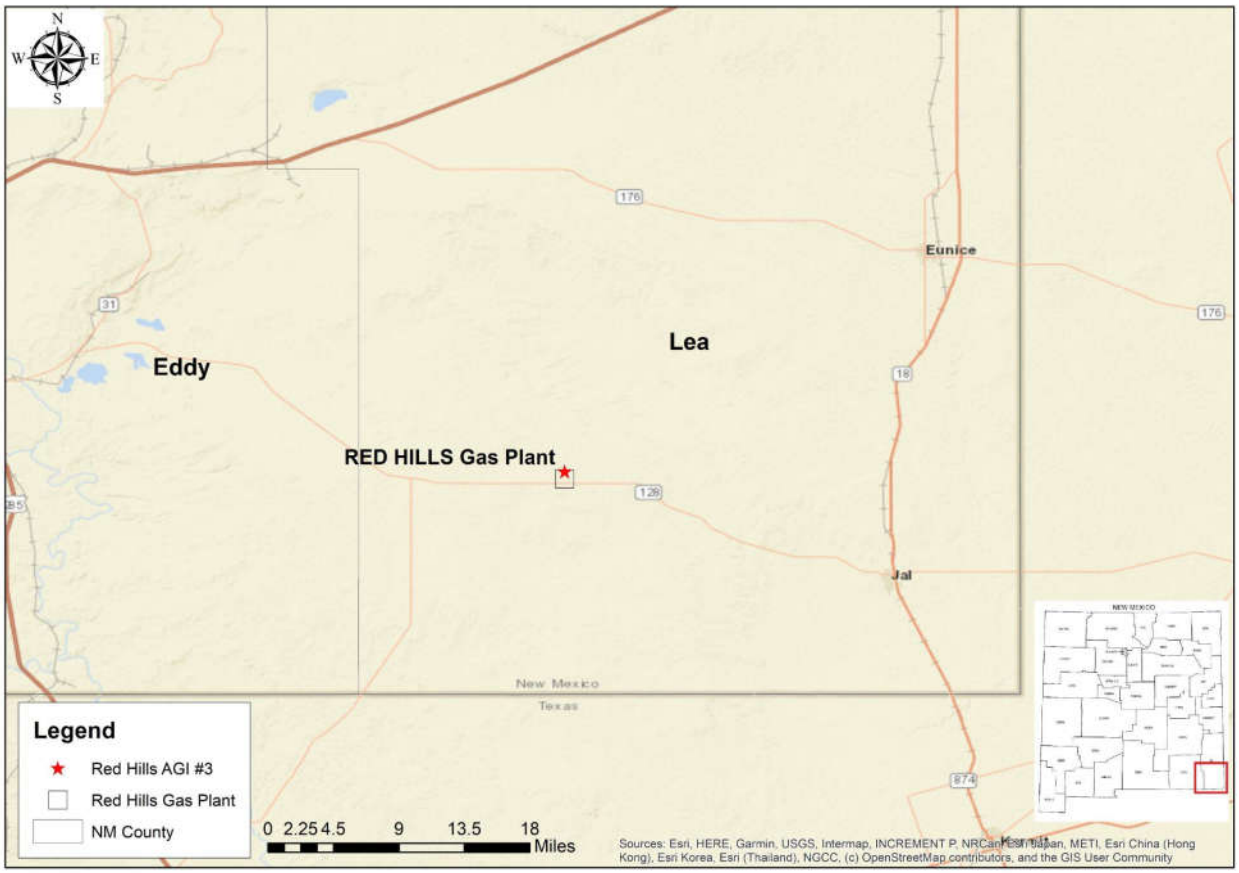
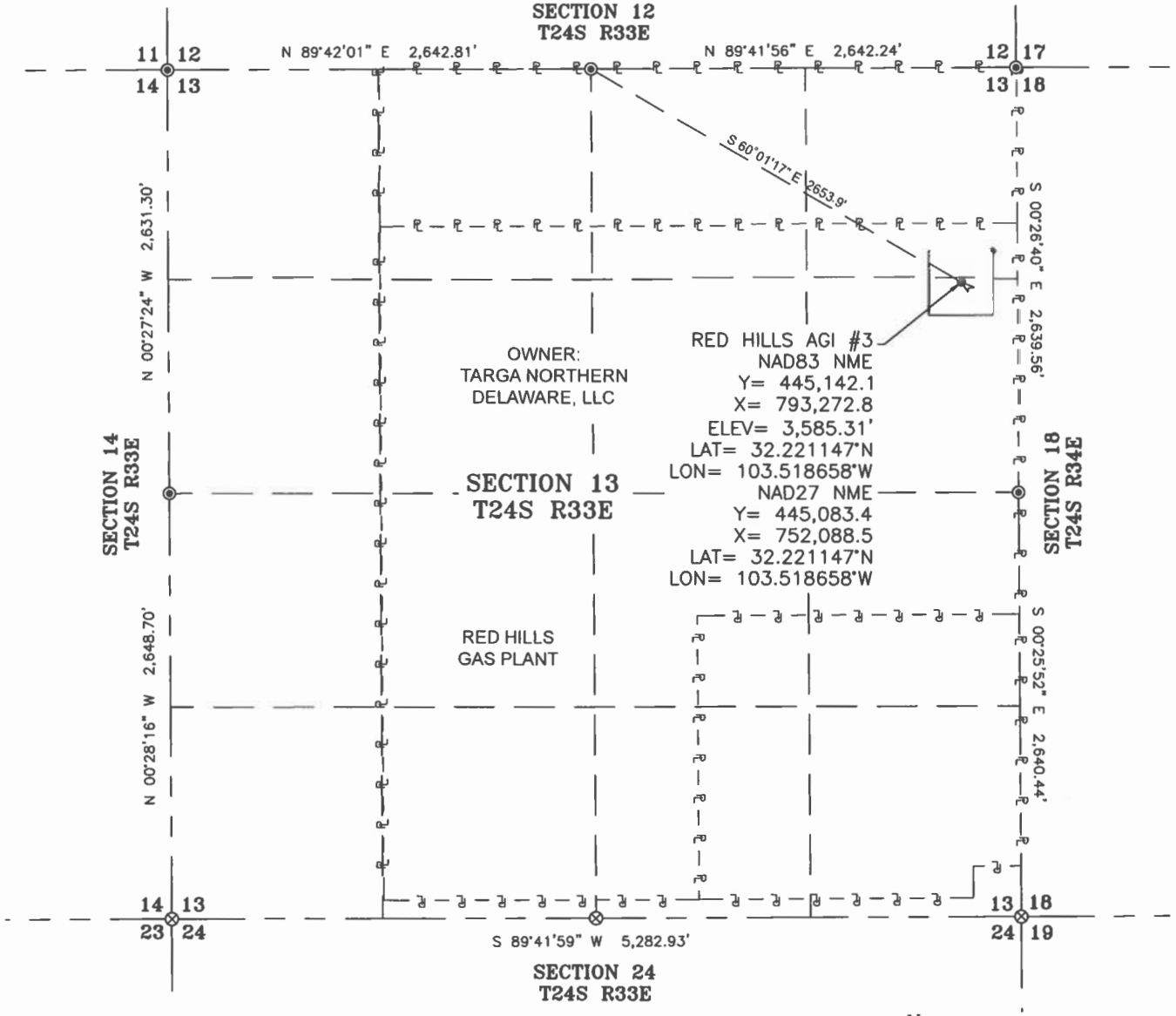


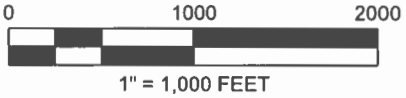
Figure 1 Location of Targa Red Hills Gas Plant and proposed Red Hills AGI #3.

The Red Hills AGI #3 well will be drilled as a vertical well with the surface location at approximately 1,338 feet from the north line (FNL) and 354 feet from the east line (FEL) of Section 13. The proposed injection zones for this well are the Devonian and Upper Silurian Wristen and Fusselman Formations, at depths of approximately 16,000 to 17,600 feet. Analysis of the reservoir characteristics of these units confirms that they act as excellent closed-system reservoirs that will accommodate the future needs of Targa for disposal of acid gas (H_2S and CO_2) from the Red Hills Plant.

SECTION 13, TOWNSHIP 24 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, NEW MEXICO



RED HILLS AGI #3
SECTION LINE DISTANCE
SHL 1,338' FNL & 354' FEL



- ○ BEGIN, END OR ANGLE POINT
- ◉ FOUND USGLO BRASS CAP
- ⊗ CALCULATED CORNER
- — ℄ — ℄ — PROPERTY LINE
- —— - —— SECTION LINE

I, Stanley W. Drannon, New Mexico PLS No. 23002, hereby certify this survey made on the ground under my supervision. This survey meet the minimum standards for surveying in New Mexico.

Stanley W. Drannon 3/27/23

STANLEY W. DRANNON — Date
NEW MEXICO R.P.L.S. NO. 23002

NOTES:
1. BEARINGS AND DISTANCES CONFORM TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD83, IN U.S. SURVEY FEET.

DRAWN BY: ALT	SCALE: 1" = 1000'
CHECKED: JS	W.O. No.: TAR-028
DATE: 3/27/23	
AFE:	
REV:	

WELL LOCATION PLAT
RED HILLS AGI #3

PROSPECT SURVEYING
9231 BOAT CLUB ROAD, FORT WORTH TX 76179
PH: 817-999-7385 FIRM NO. 10194267

TARGA

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	97885	ACID GAS INJECTION: DEVONIAN

[4] Property Code	[5] Property Name	[6] Well Number
	RED HILLS AGI	3

[7] OGRID No.	[8] Operator Name	[9] Elevation
	TARGA NORTHERN DELAWARE, LLC	3585.31'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	13	24 S	33 E		1,338	NORTH	354	EAST	LEA

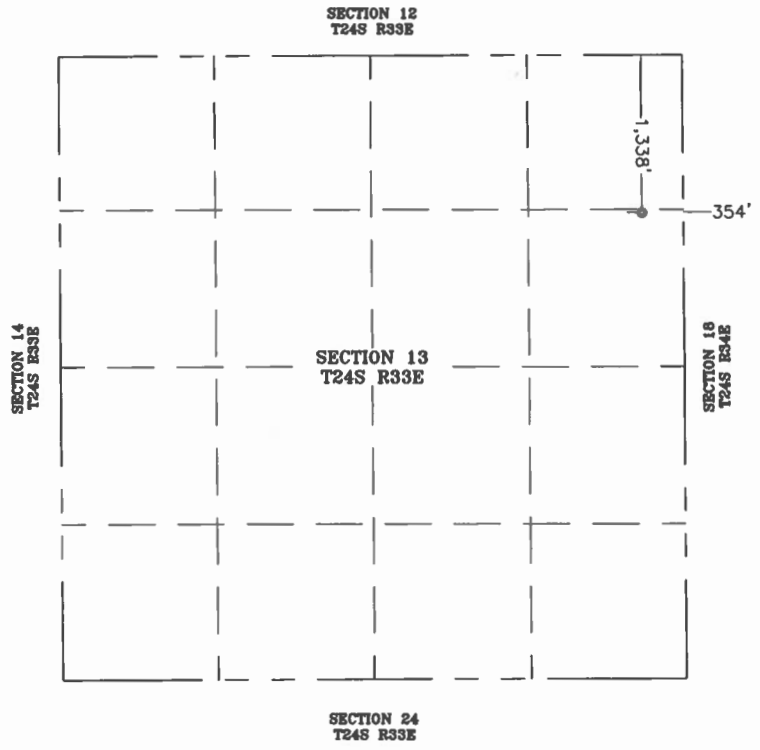
[11] Bottom Hole Location If Different From Surface

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

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

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

[16]



NAD 83 NME
SUFACE HOLE LOCATION
Y= 445,142.1
X= 793,272.8
ELEV= 3,585.31'
LAT= 32.221147°N
LON= 103.518658°W

NAD 27 NME
SUFACE HOLE LOCATION
Y= 445,083.4
X= 752,088.5
ELEV= 3,585.31'
LAT= 32.221147°N
LON= 103.518658°W

[17] OPERATOR CERTIFICATION

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

Matt Eale 03-28-23
Signature Date

Matt Eales
Printed Name

mealer@targaresources.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

3/27/23
Date of Survey

Signature and Seal of Professional Surveyor:

STANLEY W. DRANNON
STATE OF NEW MEXICO
NO. 23002
REGISTERED PROFESSIONAL SURVEYOR

STANLEY W. DRANNON 23002
Certificate Number ALT TAR-028

Targa is requesting an injection volume of up to 26 million standard cubic feet per day (MMSCFD) treated acid gas (TAG) for the Red Hills AGI #3. Targa is currently authorized to inject up to 13 MMSCFD each of treated acid gas (TAG) in the Red Hills AGI #1 (30-025-40448) and Red Hills AGI #2 (30-025-49474) under NMOCC Orders R-13507-13707F and Order R-20916-H, respectively. AGI #1 injects TAG into the Cherry Canyon Formation of the Delaware Mountain Group at a depth of ~6,120 feet; AGI #2, not yet completed, will inject into porous and permeable carbonate units of the Devonian, Upper Silurian Wristen, and Fusselman formations at depths of ~16,000-17,500 ft. Although approved at 13 MMSCFD, AGI #1 is physically only capable of taking ~5 MMSCFD due to formation and surface pressure limitations.

The New Mexico Oil Conservation Division (NMOCD) has previously approved maximum injection rates for TAG injection of 13 MMSCFD, based on requests of permittees. Data and interpretations from advanced reservoir simulations of the Red Hills AGI #3 location indicate that the targeted Siluro-Devonian injection zones could easily accept more than 26 MMSCFD of TAG. Because AGI #1 and #2 do not have complete redundancy, having a greater permitted disposal volume could also increase operational reliability.

In preparing this C-108 application, NMT conducted a detailed examination of all of the elements required to be evaluated in order to prepare and obtain approval for this application for injection. The elements of this evaluation include:

- Identification and characterization of all hydrocarbon-producing zones of wells that surround and are present on the proposed plant site.
- The depths of perforated pay intervals in those wells relative to the depth of the target injection zones (Devonian, Wristen and Fusselman).
- The past and current uses of the proposed injection interval.
- Total feet of net porosity in the proposed Devonian, Wristen and Fusselman injection intervals.
- The stratigraphic and structural setting of the targeted injection zone relative to any nearby active or plugged wells, and other wells penetrating the interval.
- The identification of and sample notification letter that will be sent to all surface owners, lessees, and operators within a one-mile radius of the proposed injection wells.
- The identification of all wells within a two-mile radius and of all operators, lessees and surface owners within a one-mile area of review of the proposed injection well.
- Identification and characterization of all active and plugged wells within the one-mile area of review of the proposed injection well.
- The details of the proposed injection operation, including general well design and average and maximum daily rates of injection and injection pressures.
- Sources and predicted composition of injection fluid and compatibility with the formation fluid of the injection zone.
- Location and identification of any fresh water bearing zones in the area; the depth and quality of available groundwater in the vicinity of the proposed well, including a determination that there are no structures which could possibly communicate the disposal zone with any known sources of drinking water.

A Rule 11 Plan has been approved for the facility. Once approval has been granted for the Red Hills AGI #3, the Rule 11 Plan will be amended to reflect the changes in operations. If it is anticipated that a change may occur in the amount or concentrations of H_2S in the TAG stream, an update to the approved Rule 11 H_2S Contingency Plan may be required. At a minimum even if H_2S volumes remain the same and the proposed well is successfully completed in the Devonian, Wristen, and Fusselman interval, the Rule 11 plan will be amended to reflect this change. The revised Rule 11 Plan will be submitted to NMOCD for the file prior to the commencement of TAG injection into the Red Hills AGI #3 well.

Based upon the detailed evaluation summarized in this application, Targa has determined that the proposed Red Hills AGI #3 is a safe and environmentally-sound project for the disposal of acid gas.

Our research has identified porous and permeable caSrbonate units within this proposed injection zone including the Siluro-Devonian Thirtyone Formation, Wristen Group, and Fusselman Formation, located approximately 16,000 to 17,700 feet below the plant. These formations are sufficiently isolated from active pay zones above by hundreds of feet of tight Mississippian limestones and shales, and the immediately overlying Upper Devonian Woodford Shale. Reservoir simulations have demonstrated that if Red Hills AGI #3 is operated at maximum capacity for 30 years, TAG would remain within a radius of approximately 0.75 miles from the well location. This evaluation was conducted while maintaining Red Hills AGI #2 well operating at its maximum permitted injection simultaneously.

All recorded wells were identified in the two-mile radius of the proposed AGI location (see Appendix A for details). Of the 182 wells in the two-mile radius, 99 are active, 19 are plugged and abandoned, 2 are temporarily abandoned, 20 are permitted and are pending drilling, and 30 are drilled but have not yet been completed. There are 12 wells completed. (Appendix A).

Within one mile of the proposed AGI#3 well, there are 37 recorded well locations, of which 25 are active, 6 are plugged and abandoned, 4 are permitted and pending drilling, 1 is drilled while it has not yet been completed, and 1 is completed. No wells within one mile of the proposed Red Hills AGI #3 pose any risk to act as potential conduits that would allow the escape of injection fluids from the proposed injection zone. Nor will they be affected by the injection of TAG into the proposed injection zones of AGI #3.

The closest well penetrating the proposed injection zone (GOVERNMENT L COM #001 well, 30-025-25604) is 17,635 feet deep and located approximately 0.67 miles from the proposed AGI well. The well was plugged and abandoned in December 2004. During the initial drilling and completion of the well in May of 1978, the well was plugged back to 14,590 feet, isolating the deeper Devonian zone (top Devonian at 15,853).

The next closest well (BELL LAKE 7 UNIT #001 well, 30-025-33815) is 16,085 feet deep and is 0.94 miles from the proposed AGI well. This well was a dry hole and was plugged and abandoned in September 1997, approximately three months after its spud date. Records show that the deeper Devonian zone was properly plugged and isolated.

The active disposal well (Striker 6 SWD #002, 30-025-44291) was spudded in January 2018. It is 1.53 miles from the proposed AGI and is 17,705 feet deep. The distance of this well from the proposed AGI #3 is over twice the calculated plume radius of injection. Operator NGL has agreed to limit injection in this well to 20,000 BPD.

Active leases in the one-mile area are operated by ConocoPhillips LLC, Devon Energy Production Company, LP., EOG Resources, Inc., Kaiser-Francis Oil Company, Targa Northern Delaware, LLC, and Matador Production Company.

Oil and gas mineral rights in this area are owned by private parties and the United States (managed by the Bureau of Land Management). Surface owners within a one-mile radius include the United States (managed by the BLM), Targa, and 22 other entities. All surface and mineral owners, operators, and leasehold owners within a one-mile radius of the proposed injection well will be notified and provided with a copy of this application at least 20 days prior to the NMOCC hearing pursuant to the requirements of NMOCC. Details on all operators, lessees, and surface and mineral owners are included in Appendix B.

There is no permanent body of surface water within several miles of the plant. A search of the New Mexico State Engineer's files shows 15 water wells within two miles of the proposed AGI. Data from these wells show that groundwater occurs at a depth of approximately 100-650 feet within alluvium and the Triassic red beds. Groundwater from the Permian Rustler Formation (1,245 to 1,600-foot depth) has total dissolved solids generally exceeding 9,000 mg/L in many parts of southeastern New Mexico (Lambert, 1992). The Targa water well was sampled, and the analysis was done in-house at New Mexico Tech. The calculated TDS from this well (water depth 390 ft) is 650 mg/L.

The approved Rule 11 H_2S Contingency Plan for the facility will be revised to accommodate the permitted Red Hills AGI #2 well and will be submitted to NMOCD when complete to obtain approval prior to operating the proposed well. This same procedure will be followed for Red Hills AGI #3.

2 Introduction and Organization of C-108 Application

The completed NMOCD Form C-108 is included before the Table of Contents of this document and references appropriate sections where data required to be submitted are included herein.

This application organizes and details all the information required by NMOCD and NMOCC to evaluate and approve the submitted Form C-108 – Application for Authorization to Inject. This information is presented in the following categories:

A detailed description of the construction and operation of the proposed injection well (Section 3.0)

A summary of the regional and local geology, the hydro-geology, and the location of drinking water wells within the area of review (Section 4.0)

The identification, location, status, production zones, and other relevant information on oil and gas wells within the area of review (Section 5.0)

The identification and required notification for operators and surface land owners that are located within the area of review (Section 6.0)

An affirmative statement, based on the analysis of geological conditions at the site, that there is no hydraulic connection between the proposed injection zone and any known sources of drinking water (Section 7.0)

In addition, this application includes the following supporting information:

Appendix A: Table showing all active, temporarily abandoned, abandoned and plugged oil and gas wells included within a two-mile radius.

Appendix B: Tables summarizing the operators, lessees, and surface owners in the one-mile radius area of review; an example of the notification letter that will be sent out to them at least 20 days prior to the NMOCC hearing; and a draft public notice.

3 Proposed Construction and Operation of Red Hills AGI #3

The Red Hills AGI #3 will be drilled at 1,338 feet from the north line (FNL) and 354 feet from the east line (FEL) of Section 13 T24S, R33E. The Red Hills AGI #3 well will be drilled vertically to an approximate depth of 17,700' as a Class II acid gas injection well. The well will be completed open hole. Zones of interest are the Devonian Thirtyone Formation, Upper Silurian Wristen Group and the Lower Silurian Fusselman Formation, at a depth of ~16,000 – 17,600 feet. Data to be gathered from the wellbore will include open-hole and cased hole logs, continuous core samples from the target reservoir intervals and seals, fluid samples from the injection zone and known USDW's. A long-term injection test will be performed in the Thirtyone Formation.

3.1 Calculated Maximum Injection Pressure

The well will be designed and constructed such that it will serve as the injection conduit for a mixed stream of treated acid gas. Based on current data, the TAG stream used for the following calculations will be approximately:

80% CO_2

20% H_2S

The maximum total volume of TAG to be injected daily will be approximately 26 MMSCFD, although this volume will not be reached for a number of years based on market conditions. Pressure reduction valves and controls will be incorporated to assure that maximum surface injection pressure allowed by NMOCD will not be exceeded.

The specific gravity of TAG is dependent on the temperature and pressure conditions and the composition of the fluid mixture. It is most accurately calculated using a modification of the Peng-Robinson (PR) equation of state (EOS) model (Boyle and Carroll, 2002). We have calculated the specific gravity of the supercritical TAG phase for the proposed Targa injection stream using the AQUAlibrium 3.1 software which employs the modified PR EOS model (Table 1).

We have modeled the proposed maximum daily injection 26 MMSCFD TAG composed of 80 mol % CO_2 and 20 mole % H_2S. Specific gravities of TAG were determined for the conditions at the well head (pressure = 1,800 psi, temperature = 90°F) and the bottom of the well (pressure = 7,500 psi, temperature = 225°F). The specific gravity of TAG at equilibrium with the reservoir (pressure = 7,500 psi, temperature = 225°F) was also determined to evaluate the area expected to be affected by injection in the reservoir (see Table 1).

The calculated maximum allowable injection pressure (MAOP) would be approximately 4,829 psi (depending on specific gravity of final TAG stream). We have used the following method approved by NMOCD to calculate the proposed MAOP. The final maximum permitted surface injection pressure should be based on the final specific gravity of the injection stream according to the following formula:

$IP_{max} = PG\ (D_{top})$ where: IP_{max}= maximum surface injection pressure (psi)

PG = pressure gradient of injection fluid (psi/ft)

D_{top} = depth at top of perforated interval of injection zone (ft)

and $PG = 0.2 + 0.433\ (1.04 - SG_{tag})$ where:

SG_{tag} = average specific gravity of treated acid gas in the tubing (SG_{tag} at top = 0.79 and SG_{tag} at bottom hole = 0.82; see Table 1)

For the maximum requested injection volume case, it is assumed that:

SG_{tag} = 0.805 (Average of 0.79 and 0.82)

D_{top} = 16,000 ft

Therefore:

$PG = 0.2 + 0.433\ (1.04 - 0.805) = 0.3018$ psi/ft

$IP_{max} = PG\ (D_{top}) = 0.3018 * 16{,}000 = 4{,}829$ psi

For this reason, Targa requests approval for a MAOP of 4,829 psig for Red Hills AGI #3.

3.2 Injection Volume Calculation

Table 1 below summarizes the calculated injection volumes, the areas impacted by the TAG plume, and the proposed MAOP.

The calculated TAG plume, after 30 years of continuous injection at 26 MMSCFD, will occupy an area of approximately 200.9 acres, with a radius of 1,669 feet or 0.32 miles. The values of porosity and residual water (Swr) have been calculated from analysis of geophysical logs from nearby wells with data from the proposed injection zone.

Table 1. Reservoir Injection Pressure and Volume Calculations

Proposed Injection Stream Characteristics

TAG	H_2S	CO_2	H_2S	CO_2	TAG
Gas Vol MMSCFD	Conc. mol%	Conc. mol%	Inject Rate, lb/day	Inject Rate, lb/day	Inject Rate, lb/day
26	20	80	594,898	2,379,590	2,974,488

Wellhead Conditions		TAG							
Temp, F	Pressure, psi	Gas Vol MMSCFD	Comp, CO_2:H_2S	Injection Rate, lb/day	Density, kg/m^3	SG	Density lb/gal	Volume, ft^3	Volume, bbl
90	1800	26	80:20	2,974,488	787	0.79	6.53	60874	10841

Injection Zone Condition					TAG				
Temp, F	Pressure, psi	Depth_top, ft	Depth_bottom, ft	Thickness, ft	Density, kg/m^3	SG	Density lb/gal	Volume, ft^3	Volume, bbl
225	7,500	16,000	17,600	1,600	822	0.82	6.82	58282	10379.63885

Injection Reservior Conditions					TAG				
Temp, F	Pressure, psi	Ave. Porosity, %	Swr	Porosity, ft	Density, kg/m^3	SG	Density lb/gal	Volume, ft^3	Volume, bbl
225	7,500	5.49	0.17	72.91	822	0.82	6.82	58282	10379.63885

Constants

SCF/mol		
Molar Volume at STD	0.7915	
	g/mol	lb/mol
Molar Weight of H_2S	34.0809	0.0751
Molar Weight of CO_2	44.0096	0.097
Molar Weight of H_2O	18.015	0.0397

Calculation of Maximum Injection Pressure Limitation		
SG_{TAG}	0.805	
$PG= 0.2+0.433(1.04-SG_{TAG})$	0.3018	psi/ft
$IP_{max} = PG*Depth$	4,829	psi

Calculation of 30 Years Area of Injection		
Cubic Feet/day (5.6146 ft^3/bbl	58,282	ft^3/day
Cubic Feet/30 years	638,184,310	ft^3/30 years
Area	200.9	acres/30 years
Radius	1,669	ft
Radius	0.32	miles

3.3 Well Design

The well will be drilled vertically to its anticipated total depth of approximately 17,600 feet. The injection zone (16,000 to 17,600 feet) will be completed as an open hole interval. Table 2 lists the anticipated geological formations, depths, and potential for water or hydrocarbons.

Table 2. Formations expected within the Red Hills AGI #3 well

.	Measured Depth (ft)	Identification
Cenozoic alluvium	Surface	USDW
Santa Rosa Sandstone	~650-910	USDW, Gas
Rustler	1,118	USDW
Salado	1,528	
Castile	3,541	

Lamar	5,252	
Bell Canyon	5,298	Oil & Gas
Cherry Canyon	6,310	Oil & Gas
Brushy Canyon	8,019	Oil & Gas
Bone Spring	8,945	Oil & Gas
Wolfcamp	12,232	Oil & Gas
Strawn	12,908	Oil & Gas
Atoka	13,219	Oil & Gas
Morrow	13,881	Oil & Gas
Mississippian	15,303	
Woodford Shale	15,658	Confining Zone
Siluro-Devonian fms.	16,055	Oil & Gas (Injection Zone)
Montoya	17,691	Oil & Gas (Injection Zone)
Simpson	18,087	Oil & Gas (Base)
Ellenburger	18,706	Oil & Gas
Precambrian	19,322	

A preliminary wellbore design for Red Hills AGI #3 is shown in Figure 3 and described more completely in Sections 4.3.1 and 4.3.2. Because the subsurface mineral rights are owned by the United States, all well designs and drilling operations and testing will be conducted in accordance with the regulations and guidance provided by the governing agency. The BLM will be notified of project through submittal of related APD and C-108. The proposed casing and cementing programs are designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.

Design and material considerations include Placement of Subsurface Safety Valve (SSSV) and the packer; triple casing through freshwater resources (Ogallala and Santa Rosa Formations – groundwater, Rustler – saline groundwater); characterization of the zone of injection; and a total depth (TD) ensuring identification of the reservoir. Radial cement bond logs will be run for all casing strings except the 20" surface casing.

A suitable drilling rig will be chosen for the job that will include an appropriate blowout preventer and choke manifold for any unforeseen pressures encountered. Visual inspections of cement return to the surface will be noted in both the conductor and surface pipe casing jobs. Casing and cement integrity will be demonstrated by pressure-testing and radial cement bond logging after each cement job.

3.3.1 Casing

The preliminary casing design is presented in Table 3, and the specification of the casing strings is presented in Table 4. The well will have four strings of the telescoping casing, and all four strings will be cemented to the surface. The injection tubing will include a subsurface safety valve on the production tubing to assure that fluid cannot flow back out of the well in the event of a failure of the injection equipment. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

In addition, the annular space between the production tubing and the well bore will be filled with an inert fluid (corrosion-inhibited diesel fuel) as a further safety measure which is consistent with injection well designs which have been previously approved by NMOCD for acid gas injection.

Table 3. Casing design

Casing/ Tubing String	Casing /Tubing Depth, TVD[1], ft	Borehole Diameter, in.	Casing /Tubing Outside Diameter, in	Coupling/ Connection	Casing/Tubing Material (Weight /Grade)	String Weight in Air, lb
Conductor	0-100	42	30	Welded	157 lb/ft, J-55	15,700
Surface	0-1,143	26	20	BTC	106.5 lb/ft, J-55	121,730
Intermediate #1	0-5,277	17 1/2	13 3/8	BTC	72 lb/ft, L-80	379,944
Intermediate #2	0-12,282	12 1/4	9 5/8	BTC/VAM	47 lb/ft, CRA-G3-L-80	577,254
Long String	0-16,090	8 1/2	7	BTC	32 lb/ft, CRA-G3-P110	514,880
Open hole	16,090-17,600	5 7/8	N/A	N/A	N/A	N/A
Tubing	0-16,040	N/A	3 1/2	VAM ACE	9.2 lb/ft, CRA-G3	147,568

Table 4. Casing specifications

Casing/ Tubing String	Casing/ Tubing Material (Weight /Grade /Connection)	Casing/ Tubing Diameters (OD/ID/ Drift), in.	Yield, ksi	Tensile, ksi	Internal (Burst) Yield, psi	Collapse, psi	Body Yield, 1,000 lbs	Joint Strength, 1,000 lbs
Surface	106.5 lb/ft, J-55, BTC	20/19/ 18.812	55	75	2,410	770	1,685	1,595
Intermediate #1	72 lb/ft, L-80, BTC	13.375/12. 347/12.191	80	95	5,380	2,670	1,661	1,650
Intermediate #2	47 lb/ft, L-80, BTC/VAM	9.625/ 8.681/ 8.525	80	95	6,870	4,760	1,086	1,122
Long String	32 lb/ft, CRA-G3-P110, BTC	7.000/ 6.094/ 5.969	110	125	11,640	10,780	1,025	1,053
Tubing	9.2 lb/ft, CRA-G3, VAM ACE	.500/ .992/ 2.867	138	149	15,880	14,890	324	327

3.3.2 Cement

Table 5 summarizes cement design specifications. Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected.

Cement shall be allowed adequate curing time to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

Table 5. Cement design

Casing	Depth, ft	Cement Volume, sacks	Cement Type & Yield	Designed TOC	Centralizers
Conductor	100	82	Type I Neat 14.8 ppg	Surface	None
Surface	1,143	100% open hole excess 1772 sks	Type III Cement + 2% CaCI2 + 0.25Ibl/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38 cuft/sk	Surface	1 per joint on bottom 3 joints
Intermediate #1	5,277	75% open hole excess Lead: 1,481 sks Tail: 2,006 sks	Lead: Type III Cmt + 3% CaCI + 0.25Ib/sk CelloFlake + 5Ib/sk LCM, 12.8 ppg 2.13 cuft/sk Tail: Type III Cmt, 14.5ppg 1.38 cuft/sk	Surface	1 per joint for bottom 3 joints, 1 on every 3 joints for remaining joints
Intermediate #2	12,282	75% open hole excess Lead: 1,555 sks Tail: 2,024 sks	Lead: Type III Cmt,12.8 ppg, 2.16 cuft/sk Tail:Type III Cmt 14.8ppg, 1.16 cuft/sk	Surface	1 per joint for bottom 3 joints, 1 on every 3 joints for remaining joints
Production	16,090	75% open hole excess Lead: 1492 sks Tail: 123 sks	Lead: Class G Cement, 12.8 ppg, 1.89 cuft/sk Tail: Evercrete cement, 16.1ppg, 1.07 cuft/sk	Surface	1 every 3 joints for remaining joints

* Cement program may change based on cement engineer recommendation and caliper log result.

3.3.3 Drilling Fluids

Table 6 presents the drilling fluids plan. The anticipated bottom hole pressure is +/-9,000 psi. No abnormal pressure or temperatures are anticipated; however, there will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH. The mud program may be revised at the recommendation of the field engineer.

A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility.

Fresh water cuttings will be disposed by the service from the company. The location will be lined in accordance with the Surface Use Plan of Operations.

Table 6. Drilling fluids plan

Hole Size, in	Drilling Fluid System	Measured Depth, ft	Mud Weight, ppg	Viscosity, sec/quart	Drill Solids, % volume	pH	Circulation Rate, GPM
26	Water-based Mud	0–1,143	9.5	28-34	<5	9-10	1,000
17 1/2	Water-based Mud	1,143 - 5,277	10	36-40	<5	9-10	750
12 1/4	Water-based Mud	5,277 - 12,282	11	36-40	<5	9-10	700
8 1/2	Water-based Mud	12,282 - 16,090	13.5	40-45	<5	9-10	600
5 7/8	Water-based Mud	16,090 - 17,600	11	36-40	<5	9-10	600

3.3.4 Logging and Testing

The proposed logging plan is shown below in Table 7. Mud loggers will be on location from kickoff point to total depth.

Table 7. Logging program

Well Logging	Logging Program	Depth Intervals
Surface Casing		
Open Hole	Platform Express 150 Array Induction Imager, GR, 4-Arm Caliper	1,143'-0'
Intermediate Casing #1		
Open Hole	Platform Express 150 Array Induction Imager, GR, 4-Arm Caliper	5,277'-1,143'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (13 3/8" casing), Gamma Ray	5,277'-0'
	Intermediate Casing #2	
Open Hole	Platform Express 150 Array Induction Imager, GR, 4-Arm Caliper	12,282'-5,277'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (9 5/8" casing), Gamma Ray	12,282'-0'
Production Casing		
Open Hole	Platform Express (AIT, LDT, CNL, GR), 4-Arm Caliper, FMI	16,090'-12,282'
	ThruBit Triple Combo (AIT, LDT,CNL, GR), ThruBit FMI	17,600'-16,090'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (7" casing), Gamma Ray, Zero Offset Vertical Seismic Profile	16,090'-0'

4 Geology and Hydrogeology

4.1 Surface Geology

The Red Hills Gas Processing Plant is located in Section 13, T 24 S, R 33 E, in Lea County, New Mexico, about 35 miles west of Hobbs (Figure 4). The plant location and proposed well are within a portion of the Pecos River basin referred to as the Querecho Plains reach (Nicholson & Clebsch, 1961). This area is relatively flat and largely covered by sand dunes underlain by a hard caliche surface. The dune sands are locally stabilized with shin oak, mesquite, and some burr-grass. There are no natural surface bodies of water or groundwater discharge sites within one mile of the plant and where drainages exist in interdunal areas, they are ephemeral, discontinuous, dry washes. The site is underlain by Quaternary alluvium overlying the Triassic redbeds of the Santa Rosa Formation (Dockum Group), both of which are local sources of groundwater. The thick sequences of Permian through Ordovician rocks that underlie these deposits are described generally below.

4.2 Subsurface Geology

The well is in the Delaware Basin portion of the broader Permian Basin. The subsurface geology is composed of a very thick sequence of sedimentary rocks including carbonates, sandstones and shales representing a variety of depositional environments, underlain by Precambrian bedrock. Figure 4 presents a stratigraphic column for the region.

Siluro-Devonian formations consist of the Fusselman Formation, the Wristen Group, and the Thirtyone Formation. The proposed injection interval includes a number of intervals of dolomites and dolomitic limestones with moderate to high primary porosity, and secondary, solution-enlarged porosity that is related to karst events that periodically occurred throughout the section, most notably in the Fusselman Formation. These karst events produced solution cavities and enlarged fractures throughout the section, which can be substantial enough to provide additional permeability that is not readily apparent on well logs. The porous zones are separated by tight limestones and dolomites. The Siluro-Devonian formations are also injection zones for several nearby saltwater disposal wells.

The Siluro-Devonian interval has excellent cap rocks above, below and between the individual porous carbonate units. There are no producing zones within or below the Siluro-Devonian in the area of the proposed well, and the injection interval is separated from the nearest producing zone (Morrow) by over 200 feet of Woodford shale, 550 feet of tight Osagean limestones, and nearly 350 feet of tight Chesterian shales and deepwater limestones. It lies a minimum of 1,200 feet above the Precambrian basement.

The Devonian Woodford Shale, an un-named Mississippian limestone, and the Upper Mississippian Barnett Shale are seals in the area for the underlying Siluro-Devonian carbonates. While the recrystallized limestones have minor, locally developed porosity and permeability, the Woodford and Barnett shales have extremely low porosity and permeability and would be effective barriers to upward migration of acid gas out of the injection zone. These overlying formations provide over 1,000 feet of shale and intervening tight limestones, that serve as an effective seal on the top of the injection zone. Overlying Pennsylvanian units including Morrow, Atoka, Strawn, Cisco, and Canyon formations have been targets of oil and gas production in previous years. Most of these wells are now plugged. Currently the most active plays are in the Wolfcamp and Bone Spring formations, well above the proposed injection interval. The proposed injection interval is

located more than 1,000 feet below the Morrow Formation, which is the deepest potential pay zone in the area. There are no pay zones below the injection zone in the area.

AGE		CENTRAL BASIN PLATFORM-NORTHWEST SHELF	DELAWARE BASIN
Cenozoic		Alluvium	Alluvium
Triassic		Chinle Formation	Chinle Formation
		Santa Rosa Sandstone	Santa Rosa Sandstone
Permian	Lopingian (Ochoan)	Dewey Lake Formation	Dewey Lake Formation
		Rustler Formation	Rustler Formation
		Salado Formation	Salado Formation
			Castile Formation
	Guadalupian	Artesia Group: Tansill Formation	Delaware Mountain Group: Lamar Limestone
		Artesia Group: Yates Formation	Delaware Mountain Group: Bell Canyon Formation
		Artesia Group: Seven Rivers Formation	Delaware Mountain Group: Bell Canyon Formation
		Artesia Group: Queen Formation	Delaware Mountain Group: Cherry Canyon Formation
		Artesia Group: Grayburg Formation	Delaware Mountain Group: Cherry Canyon Formation
		San Andres Formation	Delaware Mountain Group: Brushy Canyon Formation
	Cisuralian (Leonardian)	Glorieta Formation	Delaware Mountain Group: Brushy Canyon Formation
		Yeso: Paddock Mbr.	Bone Spring Formation
		Yeso: Blinebry Mbr	Bone Spring Formation
		Yeso: Tubb Sandstone Mbr.	Bone Spring Formation
		Yeso: Drinkard Mbr.	Bone Spring Formation
	Wolfcampian	Abo Formation	Bone Spring Formation
		Hueco ("Wolfcamp") Fm.	Hueco ("Wolfcamp") Fm.
Pennsylvanian	Virgilian	Cisco Formation	Cisco
	Missourian	Canyon Formation	Canyon
	Des Moinesian	Strawn Formation	Strawn
	Atokan	Atoka Formation	Atoka
	Morrowan	Morrow Formation	Morrow
Mississippian	*Upper*	Barnett Shale	Barnett Shale
	Lower	"Mississippian limestone"	"Mississippian limestone"
Devonian	*Upper*	Woodford Shale	Woodford Shale
	Middle		
	Lower	Thirtyone Formation	Thirtyone Formation
Silurian	*Upper*	Wristen Group	Wristen Group
	Middle		
	Lower	Fusselman Formation	Fusselman Formation
Ordovician	*Upper*	Montoya Formation	Montoya Formation
	Middle	Simpson Group	Simpson Group
	Lower	Ellenburger Formation	Ellenburger Formation
Cambrian		Bliss Ss.	Bliss Ss.
Precambrian		Miscellaneous igneous, metamorphic, volcanic rocks	Miscellaneous igneous, metamorphic, volcanic rocks

Figure 2. Stratigraphic column for the Delaware basin, the Northwest Shelf and Central Basin Platform (modified from Broadhead, 2017).

4.3 Groundwater in the Vicinity of the Proposed injection Well

Table 8 shows the identified U.S. Drinking Water (USDW) formations in the area. The main aquifers in the northern Delaware Basin of New Mexico are the Permian Capitan Formation, Permian Rustler Formation, Triassic Santa Rosa Sandstone and Cenozoic alluvium (Ritchey et al. 1985). The Capitan aquifer is not present in the area (Hiss, 1980), but the Rustler and shallower units are. Water from the Rustler aquifer is usually not suitable for domestic use due to its high salinity but is utilized for irrigation and livestock in the region. TDS values range from ~10,000 to 300,000 mg/l (Ritchey et al., 1985). The Santa Rosa Sandstone is the principal aquifer in western Lea County (Ritchey et al., 1985) and has an average TDS of approximately 1,000 mg/l (500 – 2000 mg/l; Ritchey et al., 1985). Cenozoic alluvium is also another possible source of groundwater in the area, but can be impacted by deeper, more saline aquifers (like the Rustler Formation), therefore the TDS is highly variable, but averages 2,300 mg/l (Ritchey et al., 1985). The shallow freshwater aquifers in review will be protected by the surface and intermediate casings in the proposed Red Hills AGI #3.

Table 8 USDW formations in the area

Formations/Groups	Measured Depth (MD), ft	Identification
Cenozoic alluvium	Surface	USDW
Santa Rosa Sandstone	~650-910	USDW, Gas
Rustler	1,118	USDW

4.4 Formation Fluid Chemistry

A review of formation waters from the U.S. Geological Survey National Produced Waters Geochemical Database v2.1 (10/16/2014) identified 10 wells with analyses from drill stem test fluids collected from the Devonian, Silurian-Devonian or Fusselman Formations, in wells within approximately 12 miles of the proposed Red Hills AGI #2 (Table 9, Townships 18 to 20 South and Ranges 30 to 33 East).

These analyses showed total dissolved solids (TDS) ranging from 20,669 to 40,731 milligrams per liter (mg/l) with an average of 28,942 mg/l. The primary anion is chloride, and the concentrations range from 11,176 to 23,530 mg/l with an average of 16,170 mg/l.

Table 9. Water wells Identified by the New Mexico State Engineer files within wo miles of the proposed Red Hills AGI #3 Well

POD Number	County	Sec	Tws	Rng	UTME	UTMN	Distance (mi)	Depth Well (ft)	Depth Water (ft)	Water Column (ft)
C 03666 POD1	LEA	13	24S	33E	639132	3565078	0.31	650	390	260
C 03917 POD1	LEA	13	24S	33E	638374	3565212	0.79	600	420	180
C 03601 POD1	LEA	23	24S	33E	638124	3563937	1.17			
C 02309	LEA	25	24S	33E	639638	3562994	1.29	60	30	30
C 03601 POD3	LEA	24	24S	33E	638142	3563413	1.38			
C 03932 POD8	LEA	7	24S	34E	641120	3566769	1.40	72		
C 03601 POD2	LEA	23	24S	33E	637846	3563588	1.44			
C 03662 POD1	LEA	23	24S	33E	637342	3564428	1.48	550	110	440
C 03601 POD5	LEA	23	24S	33E	637988	3563334	1.48			
C 03601 POD6	LEA	23	24S	33E	637834	3563338	1.55			
C 03601 POD7	LEA	23	24S	33E	637946	3563170	1.58			
C 03600 POD2	LEA	25	24S	33E	638824	3562329	1.78			
C 03602 POD2	LEA	25	24S	33E	638824	3562329	1.78			
C 03600 POD1	LEA	26	24S	33E	637275	3563023	1.94			
C 03600 POD3	LEA	26	24S	33E	637784	3562340	2.05			

Two water wells have been identified within one mile of the Red Hills AGI #3 well, (New Mexico Office of State Engineer's reporting system (Table 10, Fig 7). The wells do not penetrate Permian strata and are completed in Cenozoic alluvium or Triassic redbeds. One of these wells, C 03666 POD1 was sampled, and this analysis is shown in Appendix A). Water is basic, with a pH of 9.55, and has a calculated TDS of 650 mg/l.

Table 10. Water wells within one mile of proposed Red Hills AGI #3

Display Name	Use	Use of well	status	Pod status	Owner*	Well depth	Water Depth	UTM easting	UTM northing	Start date	Finish date
C 03666 POD1	SAN	DRINK/ SANITARY	PMT	ACT	Targa Northern Delaware LLC	650	390	639132.5	3565078	Oct 17 2013	Oct 25 2013
C 03917 POD1	DOM	null	PMT	ACT	NGL WATER SOLUTIONS PERMIAN	600	420	638373.9	3565213	Feb 29 2016	Mar 03 2016

*Note that Targa has purchased both of these wells and the change of ownership (COO) has been recognized, however the change has not yet been reflected in the online OSE database

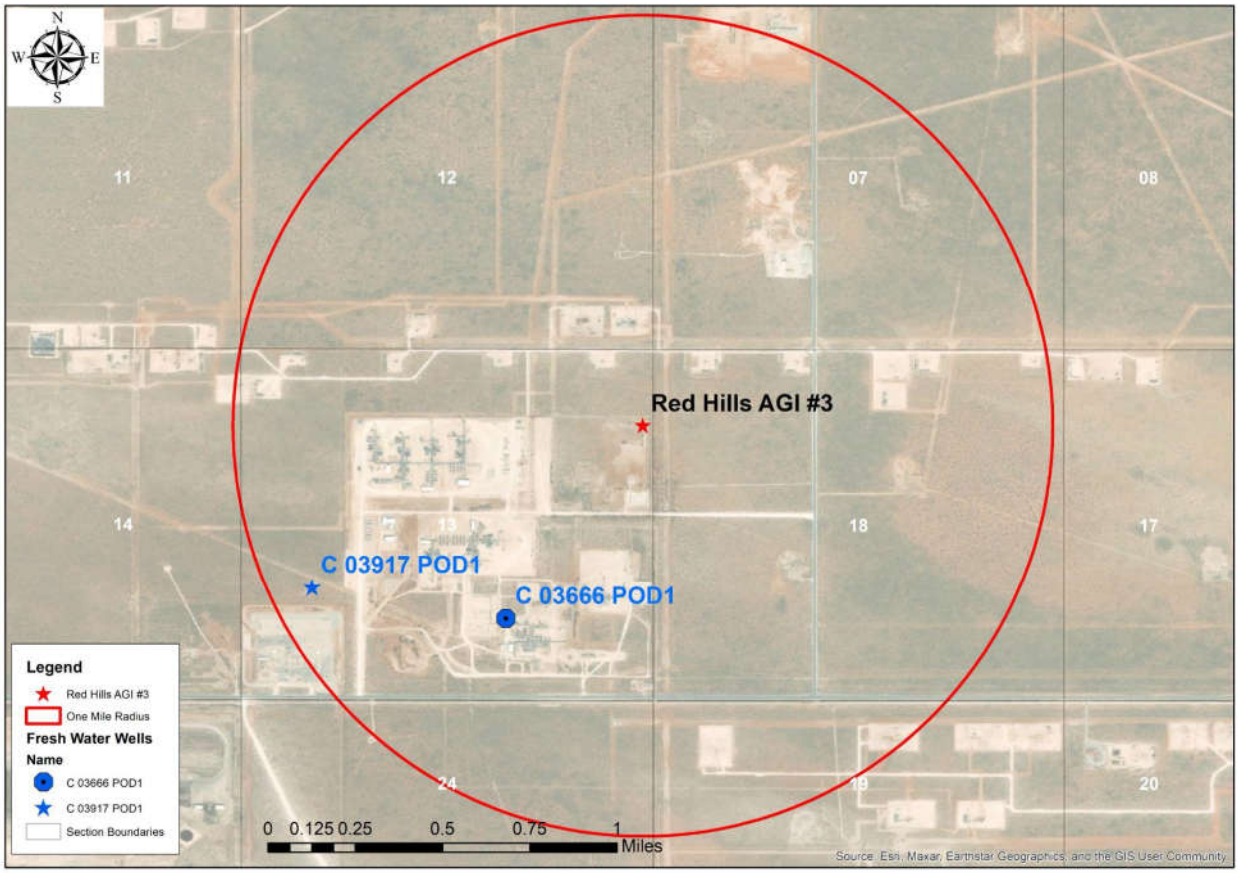


Figure 3. Water wells within a one mile distance of Red Hills AGI #3.

5 Oil and Gas Wells in the Area of Review and Vicinity

Tables 11 and 12 and Figures 6 and 7 provide a summary and maps of wells within the vicinity and area of review of Red Hills AGI #3.

Table 11. Summary of oil and gas wells in the vicinity of the proposed Red Hills AGI #3 well

	COMPLETED	DUC	INACTIVE INJECTOR	INJECTING	P & A	PERMITTED	PRODUCING	TA	Total
Wells w/in 2 miles	12	30	1	1	19	20	97	2	182
Wells w/in 1 mile	1	1		1	6	4	24		37

Four (4) wells within the 2-mile radius penetrate the injection zone (deeper than 16,000 feet TVD):

1. EOG Resources Government Com 001 (P&A), API 3002525604, TVD = 17,625', 0.67 miles from proposed AGI #3
2. NGL Water Solutions Striker 6 SWD #002, (Active), API 3002544291, TVD = 17,765', 1.53 miles from proposed AGI #3
3. EOG Resources Bell Lake 7 Unit 001 (P&A), API 3002533815, TVD = 16,085', 0.94 miles from proposed AGI #3
4. Targa Northern Delaware, LLC Red Hills AGI #2, API 3002549474 (Permitted), TVD = 17,600', 0.44 miles from proposed AGI #3

None of these wells, except the Targa's nearby sister well Red Hills AGI #2, may impact the injection zones calculated 30-year radius of 0.72 miles. NGL Water Solutions has agreed to limit its injection rate in the Striker 6 SWD #002 to 20,000 barrels per day, further reducing the potential for pressure interference in the injection zone.

All the wells identified are listed in Table A-1 in Appendix A, which includes the locations, depths, status, operators, and distances of the wells from the AGI well locations.

One of these wells (EOG Resources Government Com #001 (P&A, API 3002525604) penetrated the Devonian zone during initial completion in May 1978. Testing showed that there were no economical hydrocarbons in this zone, and the well's liner and production casing were cemented and plugged back to 14,590' (over 1,000 feet above the 16,000' top of the proposed injection zone) in May of 1978. The well was completely plugged and abandoned in December of 2003. The plugging conditions and the distance of this well from the injection point indicate that this well poses no hazard for TAG migration to shallower zones. Plugging documentation of this well is included in Appendix A.

Table 12. Offset well information for wells within one mile of the Red Hills AGI #3 well location.

API	Well Name	Operator	Formation	Well Status	TVD, ft	Distance to AGI #3 Well, ft
30-025-41384	DECKARD FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,103	1,084
30-025-41687	SEBASTIAN FEDERAL COM 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,944	1,240
30-025-49264	BROADSIDE 13 24 FEDERAL COM 025H	DEVON	WOLFCAMP	PRODUCING	11,210	1,617
30-025-46519	BROADSIDE 13 24 FEDERAL COM 003H	DEVON	WOLFCAMP	PRODUCING	12,320	1,660
30-025-49262	BROADSIDE 13 24 FEDERAL COM 004H	DEVON	WOLFCAMP	PRODUCING	12,531	1,693
30-025-49263	BROADSIDE 13 24 FEDERAL COM 015H	DEVON	WOLFCAMP	PRODUCING	12,746	1,709
30-025-41383	DECKARD FEDERAL COM 003H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,162	2,074
30-025-41666	SEBASTIAN FEDERAL COM 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,927	2,184
30-025-46517	BROADSIDE 13 W FEDERAL COM 001H	DEVON	WOLFCAMP	PRODUCING	12,213	3,191
30-025-41382	DECKARD FEDERAL COM 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,067	3,240
30-025-46988	SEBASTIAN FEDERAL COM 704H	CONOCOPHILLIPS	WOLFCAMP	PRODUCING	12,142	3,299
30-025-46985	SEBASTIAN FEDERAL COM 703H	CONOCOPHILLIPS	WOLFCAMP	PRODUCING	12,123	3,328
30-025-41688	SEBASTIAN FEDERAL COM 003H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,055	3,754

30-025-40914	DECKARD FEE 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,034	4,580
30-025-40914	DECKARD FEE 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,997	4,580
30-025-47870	JUPITER 19 FEDERAL COM 502H	EOG	BONE SPRING	PRODUCING	11,141	4,984
30-025-47870	JUPITER 19 FEDERAL COM 502H	EOG	BONE SPRING	PRODUCING	11,141	4,984
30-025-47869	JUPITER 19 FEDERAL COM 501H	EOG	BONE SPRING	PRODUCING	11,175	5,016
30-025-41689	SEBASTIAN FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,877	5,111
30-025-41689	SEBASTIAN FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	12,073	5,111
30-025-43532	LEO THORSNESS 13 24 33 211H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,371	5,162
30-025-44442	STRONG 14 24 33 AR 214H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,500	5,188
30-025-46282	LEO THORSNESS 13 24 33 AR 135H	MATADOR RESOURCES	BONE SPRING	PRODUCING	12,103	5,215
30-025-46154	LEO THORSNESS 13 24 33 221H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,868	5,218
30-025-46518	BROADSIDE 13 24 FEDERAL COM 002H	DEVON	WOLFCAMP	PERMITTED	NA	2,237
30-025-49474	RED HILLS AGI 2	TARGA RESOURCES	DELAWARE	PERMITTED	17,600	2,341
30-025-48890	JUPITER 19 FEDERAL COM 703H	EOG	WOLFCAMP	PERMITTED	NA	4,810
30-025-48889	JUPITER 19 FEDERAL COM 701H	EOG	WOLFCAMP	PERMITTED	NA	4,875

30-025-08371	COSSATOT E 002	PRE-ONGARD WELL OPERATOR	DELAWARE	P & A	5,425	976
30-025-26958	SIMS 001	EXXON	MORROW	P & A	15,007	1,055
30-025-26369	GOVERNMENT L COM 002	EOG	ATOKA	P & A	14,698	2,905
30-025-25604	GOVERNMENT L COM 001	EOG	MORROW	P & A	17,625	3,533
30-025-35504	BELL LAKE UNIT 008	EOG	MORROW	P & A	14,500	4,518
30-025-33815	BELL LAKE 7 UNIT 001	EOG	MORROW	P & A	16,085	4,927
30-025-40448	RED HILLS AGI 001	TARGA RESOURCES	CHERRY CANYON	INJECTING	6,650	2,533
30-025-47910	JUPITER 19 FEDERAL COM 702H	EOG	WOLFCAMP	DUC	NA	4,842
30-025-48206	BELL LAKE UNIT SOUTH 404H	GBK CORP	WOLFCAMP	COMPLETED	12,085	4,943

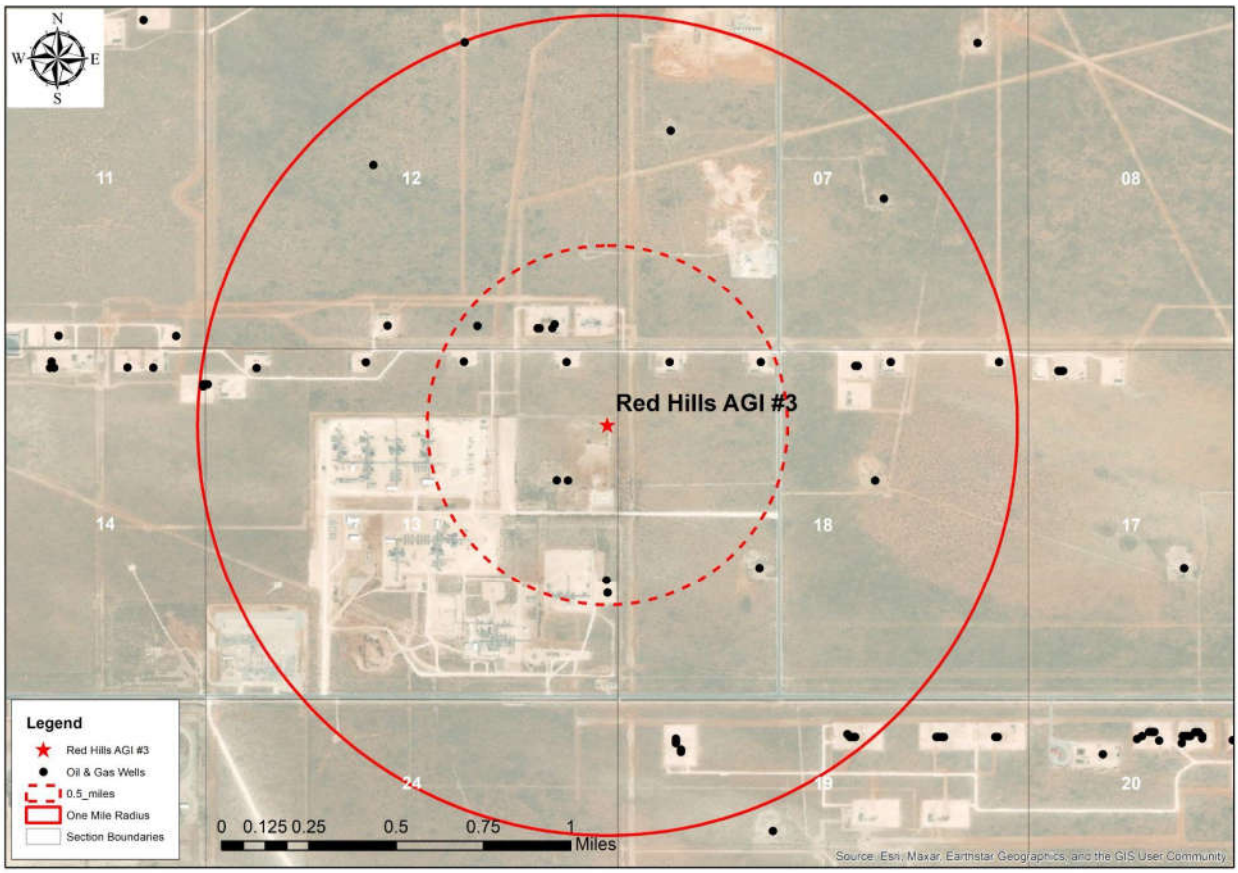


Figure 4. Wells within 1 mile (the red circle) and half mile (red dash circle) of the proposed well.

A two-mile radius review was conducted of the offset wells of public record as demonstrated in the 2-mile radius map (Figure 7). The well details are presented in Appendix A. There are 182 wells located within two miles of the proposed AGI #3 well.

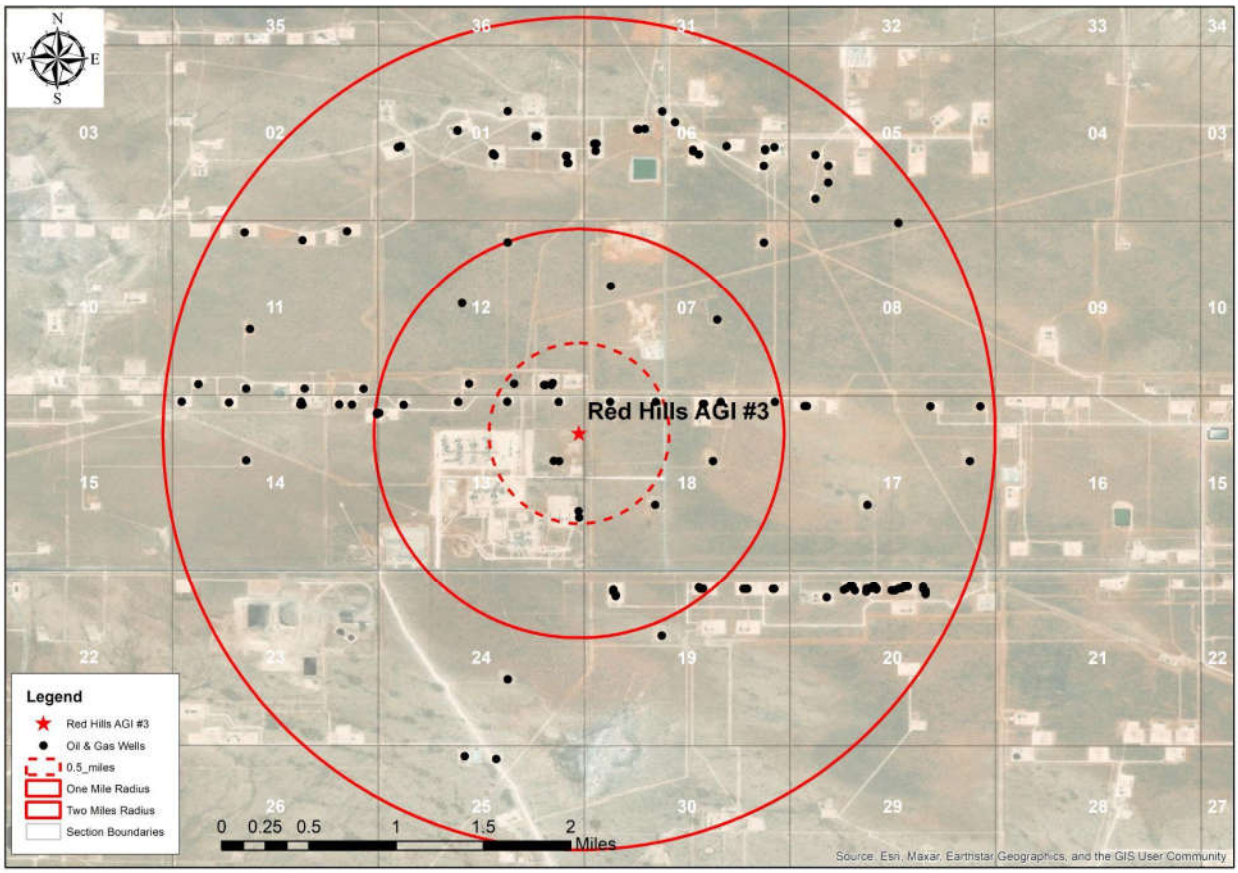


Figure 5. Wells within 2 miles (the outer red circle) of the proposed well. Smaller circles represent ½ mile radius (dashed) and 2 mile radius (solid).

6 Identification and Required Notification of Operators, Subsurface Lessees and Surface Owners within the Area of Review

Targa researched land records in Lea and Eddy Counties to obtain a listing of all operators, oil, gas and mineral lessees, and surface owners within a one mile radius of the proposed AGI well. Appendix B includes the results of that search.

Appendix B also contains a draft notice letter which will accompany the application when the individual letters are sent. These notices will be sent out as soon as the NMOCC assigns a case number and sets a date for the hearing. A draft public notice for the Commission secretary is also included in Appendix B.

7 Affirmative Statement Covering Hydraulic Connectivity

Based on the available geological data we find no evidence of open faults and/or other hydrologic connection between the **target** injection zone for the Red Hills AGI #3 and underground sources of drinking water.

Name: Dana Ulmer-Scholle Title: Research Scientist

Signature: Dana Ulmer-Scholle Date: 07/13/2022

Name: George El-kaseeh Title: Section Head – Industry Service Outreach

Signature: George El-kaseeh Date: 7/13/2022

8 References

Broadhead, R. F., 2017, Energy and Mineral Resources of New Mexico: Petroleum Geology: Socorro, New Mexico Bureau of Geology and Mineral Resources, v. A, 104 p.

Hiss, W.L., 1980, Movement of ground water in Permian Guadalupian aquifer systems, southeastern New Mexico, and western Texas, in Dickerson, P.W., and Hoffer, J.M., eds., Trans-Pecos Region, Southeastern New Mexico and West Texas: 31st Field Conference Guidebook: Albuquerque, New Mexico Geological Society, p. 289-294.

9 Appendix A: Information on Oil and Gas Wells within Two Miles of Proposed Red Hills AGI#3

Table A-1 Locations of oil and gas wells in the vicinity of the proposed Red Hills AGI #3

API	Well Name	Operator	Formation	Well Status	TVD, ft	Distance to AGI #3 Well, ft
30-025-29008	MADERA RIDGE 24 001	EOG	BONE SPRING	TA	15,600	7,651
30-025-29008	MADERA RIDGE 24 001	EOG	BONE SPRING	TA	15,600	7,651
30-025-39560	FALCON 25 FEDERAL 001	EOG	BONE SPRING	PRODUCING	9,468	10,171
30-025-47875	JUPITER 19 FEDERAL COM 507H	EOG	BONE SPRING	PRODUCING	11,150	6,317
30-025-47875	JUPITER 19 FEDERAL COM 507H	EOG	BONE SPRING	PRODUCING	11,150	6,317
30-025-41957	PRODIGAL SUN 17 24 34 001H	CHEVRON	BONE SPRING	PRODUCING	10,866	9,048
30-025-39560	FALCON 25 FEDERAL 001	EOG	BONE SPRING	PRODUCING	10,889	10,171
30-025-46282	LEO THORSNESS 13 24 33 AR 135H	MATADOR RESOURCES	BONE SPRING	PRODUCING	12,103	5,215
30-025-46970	YUKON 20 FEDERAL COM 504H	EOG	BONE SPRING	PRODUCING	11,149	8,885
30-025-46973	YUKON 20 FEDERAL COM 503H	EOG	BONE SPRING	PRODUCING	10,150	8,871
30-025-46974	YUKON 20 FEDERAL COM 501H	EOG	BONE SPRING	PRODUCING	10,150	8,843
30-025-47877	JUPITER 19 FEDERAL COM 509H	EOG	BONE SPRING	PRODUCING	11,156	6,361
30-025-47194	YUKON 20 FEDERAL COM 310H	EOG	BONE SPRING	PRODUCING	10,437	8,377

30-025-47194	YUKON 20 FEDERAL COM 310H	EOG	BONE SPRING	PRODUCING	10,433	8,377
30-025-41026	TYRELL FEE 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,951	5,887
30-025-41687	SEBASTIAN FEDERAL COM 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,944	1,240
30-025-39716	RED RAIDER BKS STATE 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	9,472	10,051
30-025-43032	BOOMSLANG 14 23 FEDERAL 009H	DEVON	BONE SPRING	PRODUCING	10,658	7,191
30-025-41334	ROY BATTY FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,051	5,688
30-025-48239	JUPITER 19 FEDERAL COM 306H	EOG	BONE SPRING	PRODUCING	10,270	5,586
30-025-41384	DECKARD FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,103	1,084
30-025-47870	JUPITER 19 FEDERAL COM 502H	EOG	BONE SPRING	PRODUCING	11,141	4,984
30-025-47869	JUPITER 19 FEDERAL COM 501H	EOG	BONE SPRING	PRODUCING	11,175	5,016
30-025-47870	JUPITER 19 FEDERAL COM 502H	EOG	BONE SPRING	PRODUCING	11,141	4,984
30-025-44937	CARL MOTTEK FEDERAL 125H	MATADOR RESOURCES	BONE SPRING	PRODUCING	10,831	5,898
30-025-41688	SEBASTIAN FEDERAL COM 003H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,055	3,754
30-025-41382	DECKARD FEDERAL COM 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,067	3,240
30-025-47873	JUPITER 19 FEDERAL COM 309H	EOG	BONE SPRING	PRODUCING	10,250	5,655

30-025-48241	JUPITER 19 FEDERAL COM 308H	EOG	BONE SPRING	PRODUCING	10,270	6,868
30-025-47873	JUPITER 19 FEDERAL COM 309H	EOG	BONE SPRING	PRODUCING	10,250	5,655
30-025-41199	MADERA 17 FEDERAL 001H	CHEVRON	BONE SPRING	PRODUCING	10,937	10,323
30-025-47872	JUPITER 19 FEDERAL COM 403H	EOG	BONE SPRING	PRODUCING	10,584	5,636
30-025-44936	CARL MOTTEK FEDERAL 121H	MATADOR RESOURCES	BONE SPRING	PRODUCING	10,102	5,868
30-025-47872	JUPITER 19 FEDERAL COM 403H	EOG	BONE SPRING	PRODUCING	10,584	5,636
30-025-41333	ROY BATTY FEDERAL COM 003H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,157	7,162
30-025-43309	BOOMSLANG 14 23 FEDERAL 003H	DEVON	BONE SPRING	PRODUCING	11,287	10,235
30-025-46975	YUKON 20 FEDERAL COM 505H	EOG	BONE SPRING	PRODUCING	10,150	9,498
30-025-47874	JUPITER 19 FEDERAL COM 506H	EOG	BONE SPRING	PRODUCING	10,950	5,673
30-025-41383	DECKARD FEDERAL COM 003H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,162	2,074
30-025-46971	YUKON 20 FEDERAL COM 305H	EOG	BONE SPRING	PRODUCING	10,446	9,561
30-025-49632	YUKON 20 FEDERAL COM 506H	EOG	BONE SPRING	PRODUCING	10,830	9,455
30-025-49632	YUKON 20 FEDERAL COM 506H	EOG	BONE SPRING	PRODUCING	10,830	9,455
30-025-41332	ROY BATTY FEDERAL COM 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,109	8,641

30-025-47878	JUPITER 19 FEDERAL COM 510H	EOG	BONE SPRING	PRODUCING	11,102	6,383
30-025-46930	YUKON 20 FEDERAL COM 502H	EOG	BONE SPRING	PRODUCING	10,150	8,857
30-025-47170	YUKON 20 FEDERAL COM 303H	EOG	BONE SPRING	PRODUCING	10,428	9,620
30-025-48240	JUPITER 19 FEDERAL COM 307H	EOG	BONE SPRING	PRODUCING	10,262	6,845
30-025-41099	ROY BATTY FEDERAL COM 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,101	9,875
30-025-41099	ROY BATTY FEDERAL COM 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,998	9,875
30-025-41099	ROY BATTY FEDERAL COM 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,998	9,875
30-025-46972	YUKON 20 FEDERAL COM 306H	EOG	BONE SPRING	PRODUCING	10,277	9,535
30-025-42789	TYRELL FEE 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	9,361	6,214
30-025-46972	YUKON 20 FEDERAL COM 306H	EOG	BONE SPRING	PRODUCING	10,277	9,535
30-025-41689	SEBASTIAN FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,877	5,111
30-025-41666	SEBASTIAN FEDERAL COM 002H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,927	2,184
30-025-41689	SEBASTIAN FEDERAL COM 004H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	12,073	5,111
30-025-47111	YUKON 20 FEDERAL COM 304H	EOG	BONE SPRING	PRODUCING	10,290	9,590
30-025-42920	BOOMSLANG 14 23 FEDERAL 001H	DEVON	BONE SPRING	PRODUCING	9,518	7,198

30-025-43308	BOOMSLANG 14 23 FEDERAL 002H	DEVON	BONE SPRING	PRODUCING	9,519	9,021
30-025-47876	JUPITER 19 FEDERAL COM 508H	EOG	BONE SPRING	PRODUCING	11,143	6,339
30-025-42933	BOOMSLANG 14 23 FEDERAL 004H	DEVON	BONE SPRING	PRODUCING	11,283	7,147
30-025-40914	DECKARD FEE 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	11,034	4,580
30-025-40914	DECKARD FEE 001H	CONOCOPHILLIPS	BONE SPRING	PRODUCING	10,997	4,580
30-025-47187	YUKON 20 FEDERAL COM 311H	EOG	BONE SPRING	PRODUCING	10,313	8,349
30-025-46625	BELL LAKE UNIT SOUTH 234H	GBK CORP	BONE SPRING	PRODUCING	10,725	10,368
30-025-44020	BELL LAKE UNIT SOUTH 219H	GBK CORP	BONE SPRING	PRODUCING	10,991	9,811
30-025-43034	BELL LAKE UNIT SOUTH 263H	GBK CORP	BONE SPRING	PRODUCING	10,615	9,985
30-025-44618	BELL LAKE UNIT SOUTH 330H	GBK CORP	BONE SPRING	PRODUCING	11,576	9,788
30-025-44618	BELL LAKE UNIT SOUTH 330H	GBK CORP	BONE SPRING	PRODUCING	12,249	9,788
30-025-44021	BELL LAKE UNIT SOUTH 319H	GBK CORP	BONE SPRING	PRODUCING	12,032	9,807
30-025-44526	BELL LAKE UNIT SOUTH 220H	GBK CORP	BONE SPRING	PRODUCING	10,971	9,803
30-025-47621	BELL LAKE UNIT SOUTH 121H	GBK CORP	BONE SPRING	PRODUCING	10,349	8,734
30-025-24910	BELL LAKE UNIT 016	GBK CORP	DELAWARE	PRODUCING	9,005	7,466

30-025-24910	BELL LAKE UNIT 016	GBK CORP	DELAWARE	PRODUCING	9,005	7,466
30-025-38565	BELL LAKE 028	GBK CORP	DELAWARE	PRODUCING	8,965	9,324
30-025-36952	BELL LAKE UNIT 021	GBK CORP	DELAWARE	PRODUCING	8,900	9,706
30-025-38562	BELL LAKE 027	GBK CORP	DELAWARE	PRODUCING	8,968	10,361
30-025-38564	BELL LAKE UNIT 026	GBK CORP	MORROW	PRODUCING	13,625	9,362
30-025-38564	BELL LAKE UNIT 026	GBK CORP	MORROW	PRODUCING	13,625	9,362
30-025-38564	BELL LAKE UNIT 026	GBK CORP	MORROW	PRODUCING	13,625	9,362
30-025-08491	BELL LAKE UNIT 1 004	GBK CORP	MORROW	PRODUCING	13,960	9,950
30-025-08491	BELL LAKE UNIT 1 004	GBK CORP	MORROW	PRODUCING	13,960	9,950
30-025-08491	BELL LAKE UNIT 1 004	GBK CORP	MORROW	PRODUCING	13,960	9,950
30-025-44918	CARL MOTTEK FEDERAL 211H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,289	5,839
30-025-44619	BELL LAKE UNIT SOUTH 430H	GBK CORP	WOLFCAMP	PRODUCING	11,862	9,814
30-025-44022	BELL LAKE UNIT SOUTH 419H	GBK CORP	WOLFCAMP	PRODUCING	12,368	9,804
30-025-49263	BROADSIDE 13 24 FEDERAL COM 015H	DEVON	WOLFCAMP	PRODUCING	12,746	1,709
30-025-46519	BROADSIDE 13 24 FEDERAL COM 003H	DEVON	WOLFCAMP	PRODUCING	12,320	1,660

30-025-44442	STRONG 14 24 33 AR 214H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,500	5,188
30-025-45082	CHARLES LING FEDERAL COM 213H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,380	9,187
30-025-46985	SEBASTIAN FEDERAL COM 703H	CONOCOPHILLIPS	WOLFCAMP	PRODUCING	12,123	3,328
30-025-45081	CHARLES LING FEDERAL COM 212H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,434	10,508
30-025-49264	BROADSIDE 13 24 FEDERAL COM 025H	DEVON	WOLFCAMP	PRODUCING	11,210	1,617
30-025-45083	CHARLES LING FEDERAL COM 214H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,278	8,525
30-025-43532	LEO THORSNESS 13 24 33 211H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,371	5,162
30-025-46988	SEBASTIAN FEDERAL COM 704H	CONOCOPHILLIPS	WOLFCAMP	PRODUCING	12,142	3,299
30-025-46517	BROADSIDE 13 W FEDERAL COM 001H	DEVON	WOLFCAMP	PRODUCING	12,213	3,191
30-025-46154	LEO THORSNESS 13 24 33 221H	MATADOR RESOURCES	WOLFCAMP	PRODUCING	12,868	5,218
30-025-49262	BROADSIDE 13 24 FEDERAL COM 004H	DEVON	WOLFCAMP	PRODUCING	12,531	1,693
30-025-48393	BELL LAKE UNIT SOUTH 407H	GBK CORP	WOLFCAMP	PERMITTED	NA	9,299
30-025-48890	JUPITER 19 FEDERAL COM 703H	EOG	WOLFCAMP	PERMITTED	NA	4,810
30-025-48889	JUPITER 19 FEDERAL COM 701H	EOG	WOLFCAMP	PERMITTED	NA	4,875
30-025-46518	BROADSIDE 13 24 FEDERAL COM 002H	DEVON	WOLFCAMP	PERMITTED	NA	2,237

30-025-50484	YUKON 20 FEDERAL COM 746H	EOG	BONE SPRING	PERMITTED	NA	8,277
30-025-50421	YUKON 20 FEDERAL COM 406H	EOG	BONE SPRING	PERMITTED	NA	8,524
30-025-50483	YUKON 20 FEDERAL COM 742H	EOG	BONE SPRING	PERMITTED	NA	9,968
30-025-50465	YUKON 20 FEDERAL COM 743H	EOG	BONE SPRING	PERMITTED	NA	9,513
30-025-49474	RED HILLS AGI 2	TARGA RESOURCES	DELAWARE	PERMITTED	17,600	2,341
30-025-50502	YUKON 20 FEDERAL COM 710H	EOG	BONE SPRING	PERMITTED	NA	8,305
30-025-50516	YUKON 20 FEDERAL COM 205H	EOG	BONE SPRING	PERMITTED	NA	8,970
30-025-50482	YUKON 20 FEDERAL COM 741H	EOG	BONE SPRING	PERMITTED	NA	9,983
30-025-50349	YUKON 20 FEDERAL COM 401H	EOG	BONE SPRING	PERMITTED	NA	10,127
30-025-50350	YUKON 20 FEDERAL COM 402H	EOG	BONE SPRING	PERMITTED	NA	10,111
30-025-50480	YUKON 20 FEDERAL COM 709H	EOG	BONE SPRING	PERMITTED	NA	8,404
30-025-50481	YUKON 20 FEDERAL COM 740H	EOG	BONE SPRING	PERMITTED	NA	9,999
30-025-50464	YUKON 20 FEDERAL COM 704H	EOG	BONE SPRING	PERMITTED	NA	9,484
30-025-50503	YUKON 20 FEDERAL COM 711H	EOG	BONE SPRING	PERMITTED	NA	8,346
30-025-49635	YUKON 20 FEDERAL COM 103H	EOG	BONE SPRING	PERMITTED	NA	8,796

30-025-49635	YUKON 20 FEDERAL COM 103H	EOG	BONE SPRING	PERMITTED	NA	8,796
30-025-26369	GOVERNMENT L COM 002	EOG	ATOKA	P & A	14,698	2,905
30-025-26257	BELL LAKE UNIT 019	GBK CORP	BONE SPRING	P & A	14,760	6,058
30-025-26257	BELL LAKE UNIT 019	GBK CORP	BONE SPRING	P & A	14,760	6,058
30-025-26257	BELL LAKE UNIT 019	GBK CORP	BONE SPRING	P & A	14,760	6,058
30-025-33815	BELL LAKE 7 UNIT 001	EOG	MORROW	P & A	16,085	4,927
30-025-35504	BELL LAKE UNIT 008	EOG	MORROW	P & A	14,500	4,518
30-025-39253	BELL LAKE 032	GBK CORP	MORROW	P & A	13,810	9,911
30-025-25604	GOVERNMENT L COM 001	EOG	MORROW	P & A	17,625	3,533
30-025-26958	SIMS 001	EXXON	MORROW	P & A	15,007	1,055
30-025-08366	N G PENROSE 004	PRE-ONGARD WELL OPERATOR	MORROW	P & A	16,100	9,894
30-025-38175	BELL LAKE 025	GBK CORP	MORROW	P & A	13,745	10,297
30-025-27267	GOVERNMENT M 000002	PRE-ONGARD WELL OPERATOR	MORROW	P & A	14,942	10,055
30-025-34246	STEVENS 11 001	DEVON	WOLFCAMP	P & A	15,250	9,002
30-025-34050	LELA MAE STEVENS FEDERAL COM 001	EOG	WOLFCAMP	P & A	13,840	8,576

30-025-50396	YUKON 20 FEDERAL COM 102Y	EOG	UPPER AVALON	P & A	9,198	8,768
30-025-50396	YUKON 20 FEDERAL COM 102Y	EOG	UPPER AVALON	P & A	9,198	8,768
30-025-27052	GOVERNMENT M 001	PRE-ONGARD WELL OPERATOR	DELAWARE	P & A	14,905	7,701
30-025-08371	COSSATOT E 002	PRE-ONGARD WELL OPERATOR	DELAWARE	P & A	5,425	976
30-025-27491	SMITH FEDERAL 001	PRE-ONGARD WELL OPERATOR	DELAWARE	P & A	15,120	6,471
30-025-40448	RED HILLS AGI 001	TARGA RESOURCES	CHERRY CANYON	INJECTING	6,650	2,533
30-025-44291	STRIKER 6 SWD 002	NGL ENERGY PARTNERS	DEVONIAN-SILURIAN	INACTIVE INJECTOR	17,692	8,061
30-025-47625	BELL LAKE UNIT SOUTH 223H	GBK CORP	BONE SPRING	DUC	NA	8,387
30-025-47731	BELL LAKE UNIT SOUTH 226H	GBK CORP	BONE SPRING	DUC	NA	8,758
30-025-47729	BELL LAKE UNIT SOUTH 222H	GBK CORP	BONE SPRING	DUC	NA	8,712
30-025-47733	BELL LAKE UNIT SOUTH 228H	GBK CORP	BONE SPRING	DUC	NA	9,046
30-025-47626	BELL LAKE UNIT SOUTH 224H	GBK CORP	BONE SPRING	DUC	NA	8,386
30-025-47797	BELL LAKE UNIT SOUTH 230H	GBK CORP	BONE SPRING	DUC	NA	9,461
30-025-47732	BELL LAKE UNIT SOUTH 227H	GBK CORP	BONE SPRING	DUC	NA	8,964
30-025-47730	BELL LAKE UNIT SOUTH 225H	GBK CORP	BONE SPRING	DUC	NA	8,757

30-025-47738	BELL LAKE UNIT SOUTH 426H	GBK CORP	WOLFCAMP	DUC	NA	8,760
30-025-47737	BELL LAKE UNIT SOUTH 424H	GBK CORP	WOLFCAMP	DUC	NA	8,165
30-025-47739	BELL LAKE UNIT SOUTH 428H	GBK CORP	WOLFCAMP	DUC	NA	9,008
30-025-47735	BELL LAKE UNIT SOUTH 425H	GBK CORP	WOLFCAMP	DUC	NA	8,539
30-025-47735	BELL LAKE UNIT SOUTH 425H	GBK CORP	WOLFCAMP	DUC	NA	8,539
30-025-47627	BELL LAKE UNIT SOUTH 421H	GBK CORP	WOLFCAMP	DUC	NA	8,668
30-025-47734	BELL LAKE UNIT SOUTH 423H	GBK CORP	WOLFCAMP	DUC	11,550	8,166
30-025-47910	JUPITER 19 FEDERAL COM 702H	EOG	WOLFCAMP	DUC	NA	4,842
30-025-50351	YUKON 20 FEDERAL COM 508H	EOG	BONE SPRING	DUC	NA	9,348
30-025-50345	YUKON 20 FEDERAL COM 512H	EOG	BONE SPRING	DUC	NA	10,095
30-025-49634	YUKON 20 FEDERAL COM 104H	EOG	BONE SPRING	DUC	NA	8,823
30-025-50348	YUKON 20 FEDERAL COM 509H	EOG	BONE SPRING	DUC	NA	9,376
30-025-50347	YUKON 20 FEDERAL COM 510H	EOG	BONE SPRING	DUC	NA	9,405
30-025-49634	YUKON 20 FEDERAL COM 104H	EOG	BONE SPRING	DUC	NA	8,823
30-025-50347	YUKON 20 FEDERAL COM 510H	EOG	BONE SPRING	DUC	NA	9,405

30-025-50348	YUKON 20 FEDERAL COM 509H	EOG	BONE SPRING	DUC	NA	9,376
30-025-50469	YUKON 20 FEDERAL COM 102H	EOG	BONE SPRING	DUC	NA	8,788
30-025-50346	YUKON 20 FEDERAL COM 511H	EOG	BONE SPRING	DUC	NA	10,080
30-025-50352	YUKON 20 FEDERAL COM 507H	EOG	BONE SPRING	DUC	NA	9,319
30-025-50397	YUKON 20 FEDERAL COM 101H	EOG	BONE SPRING	DUC	NA	8,740
30-025-50397	YUKON 20 FEDERAL COM 101H	EOG	BONE SPRING	DUC	NA	8,740
30-025-50420	YUKON 20 FEDERAL COM 405H	EOG	BONE SPRING	DUC	NA	8,953
30-025-45908	BELL LAKE UNIT SOUTH 207H	GBK CORP	BONE SPRING	COMPLETED	10,862	9,343
30-025-48256	BELL LAKE UNIT SOUTH 106H	GBK CORP	BONE SPRING	COMPLETED	12,113	9,036
30-025-48256	BELL LAKE UNIT SOUTH 106H	GBK CORP	BONE SPRING	COMPLETED	12,113	9,036
30-025-48177	BELL LAKE UNIT SOUTH 204H	GBK CORP	BONE SPRING	COMPLETED	10,790	9,651
30-025-45860	BELL LAKE UNIT SOUTH 208H	GBK CORP	BONE SPRING	COMPLETED	10,862	9,296
30-025-45859	BELL LAKE UNIT SOUTH 206H	GBK CORP	BONE SPRING	COMPLETED	10,907	9,041
30-025-45859	BELL LAKE UNIT SOUTH 206H	GBK CORP	BONE SPRING	COMPLETED	10,907	9,041
30-025-48363	BELL LAKE UNIT SOUTH 408H	GBK CORP	WOLFCAMP	COMPLETED	11,817	9,303

30-025-48206	BELL LAKE UNIT SOUTH 404H	GBK CORP	WOLFCAMP	COMPLETED	12,085	4,943
30-025-48207	BELL LAKE UNIT SOUTH 405H	GBK CORP	WOLFCAMP	COMPLETED	12,112	9,039
30-025-48207	BELL LAKE UNIT SOUTH 405H	GBK CORP	WOLFCAMP	COMPLETED	12,112	9,039
30-025-48205	BELL LAKE UNIT SOUTH 403H	GBK CORP	WOLFCAMP	COMPLETED	12,085	9,670

10 Water Analyses

There are two Targa water wells located in this region. The water samples were from C03666 POD1 water well (sample depth <500ft) within one mile of the proposed Red Hills AGI #3 well site. The sampling and analyses provided were all done in-house at New Mexico Tech.

For this **Targa** water well, two 1-L washed Nalgene bottles were triple-rinsed with well water and filled. One 1-L bottle was reserved for general chemistry analysis. The pH of the sample is basic, around 9.98. The conductivity is 1777 Us/cm.

GENERALCHEMISTRY ANALYSES

Customer name	Tianguang Fan
Company	New Mexico Institute of Mining and Technology
Address	801 Leroy Place
City, State, Zip code	Socorro NM 87801
Phone	(575) 835-5542
Email	Tianguang.Fan@nmt.edu
Date sampled	6/20/2022
Date received	6/22/2022
Date completed	6/29/2022

Customer ID	**NGO Targa Well (POD 0397) RH**
pH	9.55
Conductivity (uS/cm)	1,777.0
Alkalinity as CO_3^{-2} (mg/L)	
Alkalinity as HCO_3^- (mg/L)	68.3
Chloride (mg/L)	236.06
Fluoride (F^-) (mg/L)	0.43

Bromide (mg/L)	1.61
Nitrate (NO_3^-) (mg/L)	ND
Phosphate (mg/L)	ND
Sulfate (SO_4^{2-}) (mg/L)	447.06
Lithium(Li) (mg/L)	0.18
Sodium (Na) (mg/L)	365.64
Potassium (K) (mg/L)	6.45
Magnesium (Mg) (mg/L)	8.26
Calcium (Ca) (mg/L)	12.11
TDS Calculation (mg/L)	650.0
Total cations (meq/L)	16.77
Total anions (meq/L)	-17.09
Percent difference (%)	-0.96

ORP (mV)	473.8
IC (ppm)	11.0
NPOC (ppm)	4.48

ND, non-detectable.

11 Appendix B: Land Information on Tracts within One Mile of Proposed Red Hills AGI #3

COG Operating, LLC
600 West Illinois Avenue
Midland, Texas 79701
(432) 683-7 443

Devon Energy Production Company, LP,
333 W. Sheridan Ave.,
Oklahoma City, OK 73102

EOG Resources, Inc.
5509 Champions Drive
Midland, TX 79706
(432) 686- 3689

Kaiser-Francis Oil Company
6733 Yale A venue
Tulsa, OK 74136
(918) 491-4685

Targa Northern Delaware LLC
3100 McKinnon Street, Suite 800 Dallas, TX 75201
(214) 420-4949

Matador Production Company 5400
LBJ Freeway, Suite 1500 Dallas, TX 75240
(972) 371-5200

WPX Energy Permian, LLC
3500 One Williams Center Tulsa, OK 74172
(405) 996-5760

ATTACHMENT B – SAMPLE NOTICE LETTER

February XX, 2023

Sample Notice Letter VIA CERTIFIED MAIL

Party to be notified RETURN RECEIPT REQUESTED

Address

RE: TARGA NORTHERN DELAWARE LLC PROPOSED RED HILLS AGI #3

This letter is to advise you that Targa Northern Delaware LLC ("Targa") has filed the enclosed C-108 application (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking authorization to drill and operate a class II acid gas injection (AGI) well, the Red Hills AGI #3 well, at Targa's gas processing facility ("Facility") in Lea County, New Mexico. The proposed Red Hills AGI #3 is intended to provide a redundant well option for existing acid gas injection operations and increase the total sour gas treatment capacity at the Facility. In accordance with the requirements of the New Mexico Oil Conservation Division, you are being provided this notice and a copy of the complete application as you are an interested party within one (1) mile of the proposed AGI well location.

The proposed redundant well (Red Hills AGI #3) will be a vertical well with a surface location of approximately 1,338 feet from the south line (FSL) and 354 feet from the east line (FEL) in Section 13, Township 24 South, Range 33 East, Lea County, New Mexico. As proposed, the Red Hills AGI #3 well will inject waste carbon dioxide and hydrogen sulfide into the Silurio-Devonian Thirtyone formation, Wristen Group and the Fusselman formation from approximately 16,055 feet to 18,087 feet. The maximum surface pressure will not exceed 5,000 psi with a maximum daily injection volume of twenty-six (26) million standard cubic feet (MMSCF).

This application (Case Number XXXXX) has been set for hearing before the New Mexico Oil Conservation Commission at XX:XX am on XX, 2023. You are not required to attend this hearing, but as an owner of an interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the application at a later date. Hearings are currently conducted remotely. To participate in the electronic hearing, see the instructions posted on the OCC Hearings website: https://www.emnrd.nm.gov/ocd/occ-info/.

Pursuant to Division Rule 19.15.4.13.B, a party who intends to present evidence at the hearing shall file a pre-hearing statement and serve copies on other parties, or the attorneys of parties who are represented by counsel, at least four business days in advance of a scheduled hearing, but in no event later than 5:00 p.m. Mountain Time, on the Thursday preceding the scheduled hearing date. The statement must be submitted through the OCD E-Permitting system (https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/) or via e-mail to occ.hearings@emnrd.nm.gov and should include: the names of the parties and their attorneys, a concise statement of the case, the names of all witnesses the party will call to testify at the hearing,

the approximate time the party will need to present its case, and identification of any procedural matters that are to be resolved prior to the hearing.

If you have any questions concerning this application, you may contact Clark White Executive VP of Operations at cwhite@targaresources.com; (713) 584-1525.

Sincerely,

Targa Northern Delaware LLC

Enclosure: C-108 Application for Authority to Inject

PROPOSED PUBLIC NOTICE

Targa Northern Delaware LLC ("Targa") filed an application on February 20, 2023 with the New Mexico Oil Conservation Commission ("NMOCC") seeking authorization to drill and operate a class II acid gas injection (AGI) well, the Red Hills AGI #3 well, at Targa's gas processing facility ("Facility") in Lea County, New Mexico. The proposed redundant well (Red Hills AGI #3) will be a vertical well with a surface location of approximately 1,338 feet from the south line and 354 feet from the east line in Section 13, Township 24 South, Range 33 East, Lea County, New Mexico. The Red Hills AGI #3 well will inject waste carbon dioxide and hydrogen sulfide into the Silurio-Devonian Thirtyone formation, Wristen Group and the Fusselman formation from approximately 16,055 feet to 18,087 feet. The maximum surface pressure will not exceed 5,000 psi with a maximum daily injection volume of twenty-six (26) million standard cubic feet (MMSCF). The poposed well will serve as a disposal well for treated acid gas at the Facility.

This application (Case Number XXXXX) has been set for hearing before the New Mexico Oil Conservation Commission at XX:XX am on XX, 2023. You are not required to attend this hearing, but as an owner of an interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the application at a later date. Hearings are currently conducted remotely. To participate in the electronic hearing, see the instructions posted on the OCC Hearings website: https://www.emnrd.nm.gov/ocd/occ-info/.

Pursuant to Division Rule 19.15.4.13.B, a party who intends to present evidence at the hearing shall file a pre-hearing statement and serve copies on other parties, or the attorneys of parties who are represented by counsel, at least four business days in advance of a scheduled hearing, but in no event later than 5:00 p.m. Mountain Time, on the Thursday preceding the scheduled hearing date. The statement must be submitted through the E-Permitting system (https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/) or via e-mail to occ.hearings@emnrd.nm.gov and should include: the names of the parties and their attorneys, a concise statement of the case, the names of all witnesses the party will call to testify at the hearing, the approximate time the party will need to present its case, and identification of any procedural matters that are to be resolved prior to the hearing.