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

APPLICATION OF TARGA NORTHERN DELAWARE LLC FOR AUTHORIZATION TO INJECT, LEA COUNTY, NEW MEXICO.

**CASE NO. 23649** 

#### **EXHIBIT INDEX**

Exhibit A Application of Targa Northern Delaware LLC for Authorization to Inject

Exhibit B Targa Northern Delaware LLC Hearing Presentation

Exhibit C Notice of Hearing Exhibits

## Application of Targa Northern Delaware LLC for Authorization to Inject

Targa Northern Delaware LLC Case No. 23649 Exhibit A

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

APPLICATION OF TARGA NORTHERN DELAWARE LLC FOR AUTHORIZATION TO INJECT, LEA COUNTY, NEW MEXICO.

**CASE NO. 23649** 

## TARGA NORTHERN DELAWARE LLC'S APPLICATION FOR AUTHORIZATION TO INJECT

In accordance with 19.15.26 NMAC, Targa Northern Delaware LLC ("Targa") (OGRID No. 331548) seeks authorization to inject treated acid gas ("TAG") from its Red Hills Gas Processing ("Plant") into the proposed Red Hills AGI No. 3 ("AGI 3" or "Well"), which will be located in Section 13, Township 24 South, Range 33 East, Lea County, New Mexico. In support of this Application, Targa states the following.

- 1. The Well is an Underground Injection Control ("UIC") Class II well subject to the requirements of 19.15.26 NMAC.
- 2. The Well will be drilled as a vertical well with a surface location at approximately 3,116 feet from the north line (FNL) and 1,159 feet from the east line (FEL) of Section 13.
- 3. The target injection zone for the Well is within the Bell Canyon and Cherry Canyon Formations of the Delaware Mountain Group at a depth of approximately 5,700 feet to 7,600 feet.
- 4. The Well's maximum daily injection rate is 13 million standard cubic feet per day ("MMSCFD").
- 5. The Well's maximum surface injection pressure is approximately 1,767 pounds per square inch gauge ("psig").
  - 6. The surface location of the Well is within the Plant's boundary.
  - 7. The complete C-108 for the Well is attached to this application as Exhibit A.

- 8. Targa is currently authorized to inject up to 13 MMSCFD of TAG into the Red Hills AGI #1 (30-025-40448) ("AGI 1") under Order Nos. R-13507-13507-F at an injection interval within the Cherry Canyon Formation at a depth of approximately 6,230 to 6,585 feet. AGI 1 currently has limited injection capacity.
- 9. Targa is also currently authorized to inject up to 13 MMSCFD of TAG into the Red Hills AGI #2 (30-025-49474) ("AGI 2") under Order No. R-20916-H at an injection interval within the Devonian, Upper Silurian Wristen and Fusselman formations at a depth of approximately 16,000 to 17,600 feet. Although Targa commenced drilling AGI 2, completion has been postponed due to technical complications. As a result, Targa has filed a C-103 to temporarily abandon the well and has submitted to the Commission an administrative request to extend the deadline to commence injection into AGI 2 from October 2023 to October 2024.
- 10. Targa previously submitted a C-108 for AGI 3 that proposed an injection interval within the Devonian, Upper Silurian Wristen and Fusselman formations at a depth of approximately 16,000 to 17,600 feet but has withdrawn that application and now seeks to complete the well at a different location and with a different injection interval.
- 11. Targa requires additional injection capacity to serve operators in the area and avoid cessation of production.
- 12. Targa's request for authorization to inject TAG into AGI 3 will prevent waste, protect correlative rights, and protect human health and the environment.

WHEREFORE, Targa requests that this application be set for hearing before the Commission on July 13, 2023, and, after notice and hearing as required by law, the Commission enter an order approving Targa's C-108 application for authorization to inject.

Respectfully submitted,

#### HINKLE SHANOR LLP

/s/ Dana S. Hardy
Dana S. Hardy
Jaclyn McLean
Yarithza Peña
P.O. Box 2068

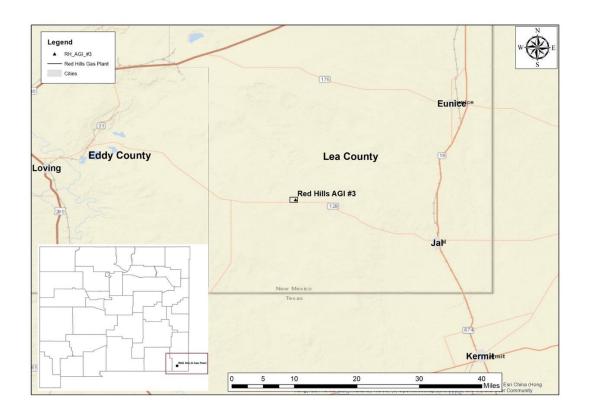
Santa Fe, NM 87504-2068 Phone: (505) 982-4554 Facsimile: (505) 982-8623 dhardy@hinklelawfirm.com jmclean@hinklelawfirm.com

ypena@hinklelawfirm.com Counsel for Targa Northern Delaware LLC

## Application for Class II Acid Gas Injection Well

### Targa Northern Delaware LLC

Red Hills AGI #3 Section 13 T24S, R33E Lea County, New Mexico



June 12, 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

### Exhibit A

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, New Mexico 87505 FORM C-108 Revised June 10, 2003

#### APPLICATION FOR AUTHORIZATION TO INJECT

I.	PURPOSE: Storage	Secondary Recovery	Pressu	are Maintenance	X_	Disposal
		for administrative approval.	Yes	X	_No	
П.	ADDRESS: _811 L	ouisiana Street Houston, Texas 7		WIIC	NE (512)	FO.4.1545
	CONTACT PARTY:	_Clark White Executive VP of	Operations	PHO	NE:_(713)	584-1525
III.		nplete the data required on the reve tional sheets may be attached if nec		form for each w	ell proposed	for injection.
IV.		of an existing project? X_ion order number authorizing the project.	Yes roject: <b>Order</b> s	No R-13507-13507	F	
V.		entifies all wells and leases within to roposed injection well. This circle				h a one-half mile radius circle
VI.	Such data shall inclu	f data on all wells of public record de a description of each well's type, gged well illustrating all plugging d	, construction,			
VII.	Proposed average     Whether the syste     Proposed average     Sources and an appropriate the systems of	proposed operation, including: e and maximum daily rate and volu- em is open or closed. e and maximum injection pressure. ppropriate analysis of injection flui-		1000	ceiving form	ation if other than reinjected
		and disposal purposes into a zone not p s of the disposal zone formation wa				
*VIIL	Attach appropriate g depth. Give the geol total dissolved solid	eologic data on the injection zone is ogic name, and depth to bottom of a concentrations of 10,000 mg/1 or intely underlying the injection inter	all underground less) overlying	d sources of drin	iking water (a	aquifers containing waters with
IX.	Describe the propo	sed stimulation program, if any. N/	A			
*X.	Attach appropriate	logging and test data on the well. (	(If well logs ha	ve been filed wi	th the Divisio	on, they need not be
resubi	mitted). WELL IS NOT YE					
*XI.	Attach a chemical an	alysis of fresh water from two or m well showing location of wells and			le and produ	cing) within one mile of any
XII.	Applicants for dispo data and find no evi sources of drinking	sal wells must make an affirmative dence of open faults or any other hy water.	statement that ydrologic conne	they have exam ection between t	ined availabl he disposal Z	e geologic and engineering one and any underground
XIII.	WE WILL NOTIFY PURSUANT TO NM	emplete the "Proof of Notice" section OPERATORS AND LEASEHOLD OCD REGULATIONS AND WE WI ETURN RECEIPTS AT HEARING	OWNERS AND	D SURFACE OV	VNERS WITH	
XIV.	and belief.	y certify that the information subm Vhite TITLE: Executive V	nitted with this a	750	e and correc	t to the best of my knowledge
		cink where	The state of the s	DATE: June	7, 2023	
	E-MAIL ADDRESS	cwhite@targaresources.com				
*		puired under Sections VI, VIII, X, a and circumstances of the earlier su		s been previous	ly submitted.	it need not be resubmitted.

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.
  - 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

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### 1 Executive Summary

On behalf of Targa Northern Delaware LLC (Targa), the Petroleum Recovery Research Center (PRRC) at New Mexico Institute of Mining and Technology (NMT) prepared a completed C-108 application for approval to drill, complete and operate a redundant acid gas injection (AGI) well. Proposed Red Hills AGI #3 will be located 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).

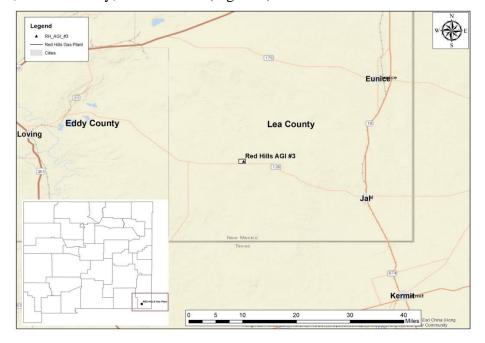
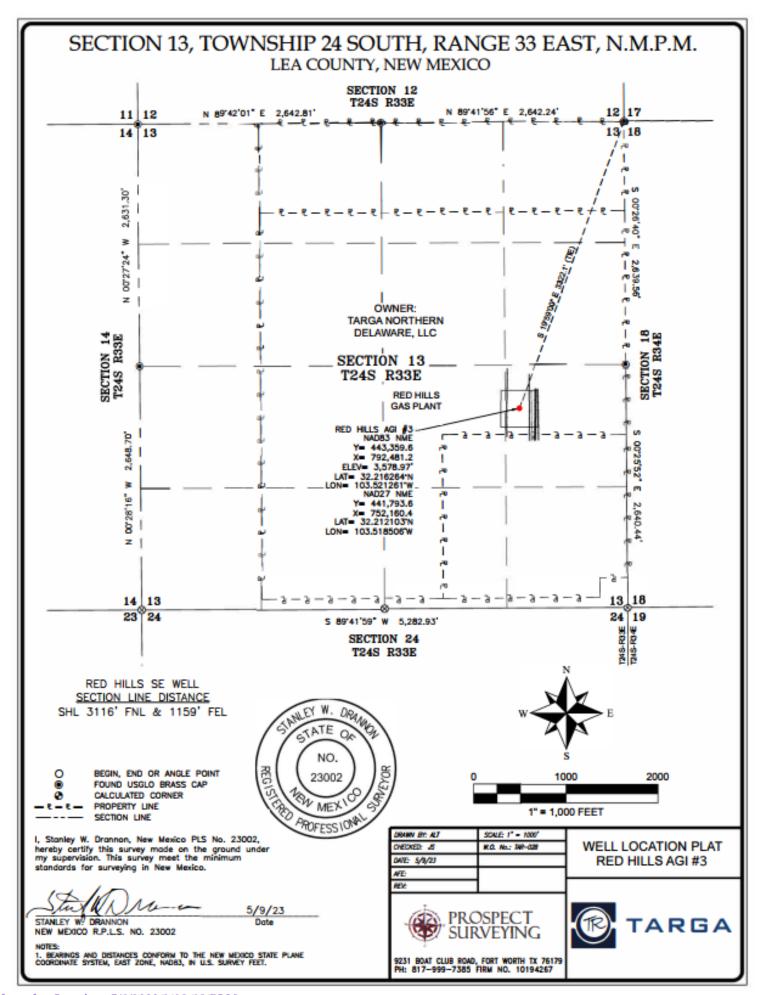


Figure 1: Location of Targa Red Hills Gas Plant and proposed Red Hills AGI #3

The Red Hills AGI #3 well will be drilled as a vertical well with surface location at approximately 3,116 feet from the north line (FNL) and 1,159 feet from the east line (FEL) of Section 13. The proposed injection zones for this well are the Bell Canyon and Cherry Canyon formations, at depths of approximately 5,700 feet to 7,600 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 treated acid gas (TAG), consisting of hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>), disposal from the Red Hills processing facility.



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 Phane: (575) 748-1283 Fax: (575) 748-9720 District III 1000 Rio Brazos Road, Aztac, NM 87410

Phone: (505) 334-6178 Fax: (505) 334-6170

1220 S. St. Francis Dr., Sarta 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

API Number	<sup>2</sup> Pool Code 97885	ACID GAS INJECTION: DEVONIAN		
Property Code	<sup>5</sup> Property RED HIL		* Well Number 3	
OGRID No.	* Operato TARGA NORTHERN		9 Elevation 3578.971	

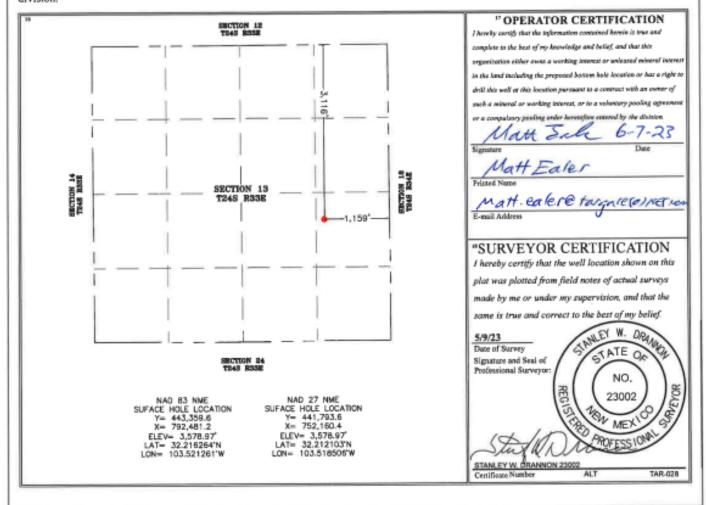
Surface Location

UL or lot no.	Section 13	Township 24 S	Range 33 E	Lot Idn	Feet from the 3116	North/South line NORTH	Feet from the 1159	East/West line EAST	LEA .
_						CD:00 . D			

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	13 Joint co	Infill 14 C	Consolidation	Code S-Or	der 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.



Targa is requesting an injection volume of up to 13 million standard cubic feet per day (MMSCFD) of TAG for the Red Hills AGI #3. Targa is currently authorized to inject up to 13 MMSCFD of TAG in the Red Hills AGI #1 (30-025-40448) and Red Hills AGI #2 (30-025-49474) under the NMOCC Order R-13507-13707F, and Order R-20916-H, respectively. AGI #1 injects TAG into the Cherry Canyon formation of the Delaware Mountain Group (DMG) at depths of ~6,200-6,530 feet. AGI #2, not yet completed, is permitted to inject into the permeable carbonate units of the Devonian, Upper Silurian, Wristen, and Fusselman formations at depths of ~16,000-17,500 feet. Although approved for 13 MMSCFD, AGI #1 is physically only capable of taking ~5 MMSCFD due to formation and surface pressure limitations.

In preparing this C-108 application, NMT conducted a detailed examination of all elements required to be evaluated 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 (Bell Canyon and Cherry Canyon).
- The past and current uses of the proposed injection interval.
- Total feet of net porosity in the proposed Bell Canyon and Cherry Canyon 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 all wells within a two-mile radius.
- The identification of all operators, lessees and surface owners within a one-mile area of review of the proposed injection well and sample notification letter that will be sent to these parties.
- 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.

An NMOCD Rule 11 H<sub>2</sub>S Contingency Plan has been approved for the facility. Once the authorization to inject is approved for the Red Hills AGI #3, the Rule 11 H<sub>2</sub>S Contingency 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<sub>2</sub>S in the TAG stream, an update to the Rule 11 H<sub>2</sub>S Contingency Plan will be filed. At a minimum, even if the H<sub>2</sub>S volume remains the same, once the proposed well is successfully completed in the Bell Canyon and Cherry Canyon intervals, the Rule 11 H<sub>2</sub>S Contingency Plan will be amended to reflect this change. The revised Rule 11 H<sub>2</sub>S Contingency Plan will be submitted to NMOCD prior to the commencement of TAG injection into the Red Hills AGI #3 well.

Based upon a comprehensive evaluation summarized in this application, Targa has determined that the proposed Red Hills AGI #3 is a safe and environmentally-sound project for TAG disposal. Our research has identified porous and permeable sandstone and siltstone units within this proposed injection zone of the Bell Canyon and Cherry Canyon formations located approximately 5,245-7,620 feet below the plant. There are no active pay zones above these formations. The formations are overlain by a very thin Lamar Limestone followed by over 4,000 feet of limestone, anhydrite, gypsum and salts of the Castile, Salado and Rustler formations. The Cherry Canyon formation is underlain by the shales, siltstones and sandstones of the Brushy Canyon formation. Reservoir simulations have demonstrated that if the Red Hills AGI #3 is operated at maximum capacity for 30 years, TAG would remain within a radius of approximately 0.68 miles from the well location.

All recorded wells were identified in the two-mile radius of the proposed AGI location and placed within Appendix A. Of the 185 wells in this two-mile radius, 117 are active, 17 are plugged and abandoned, 1 is temporarily abandoned, 39 are permitted and are pending drilling, 10 are drilled but have not yet been completed and 1 is drilled and completed but not yet active.

Within one mile of the proposed AGI #3 well, there are 60 recorded well locations, of which 29 are active, 5 are plugged and abandoned, 23 are permitted and pending drilling, 2 are drilled while not yet been completed, and 1 is completed but not yet active. 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. None of these wells will be affected by the injection of TAG into the proposed injection zone of AGI #3.

The closest well penetrating the proposed injection zone are the Red Hills AGI #1 and Red Hills AGI #2 wells. They are located approximately 0.2 miles from the proposed AGI #3 well. Red Hills AGI #1 is active injecting TAG under the order of R-13507-13507 F and Red Hills AGI #2 is temporarily abandoned. All oil and gas wells listed in Appendix A-2 penetrate the injection zone.

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

Oil and gas mineral rights in this area are owned by private parties and the Bureau of Land Management (BLM). 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 #3. 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 (1,245-1,600-foot depth) has total dissolved solids (TDS) generally exceeding 9,000 mg/L in many parts of southeastern New Mexico (Lambert, 1992). The Targa water well (water depth of 390 feet) was sampled and subsequent analysis determined a TDS of 650 mg/L.

## 2 Introduction and Organization of C-108 Application

The completed NMOCD Form C-108 is included before the Table of Contents.

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 hydrogeology, 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 landowners 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 3,116 feet from the north line (FNL) and 1,159 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 7,600 feet as a Class II acid gas injection well. The well will be completed as a cased hole. Zones of interest are the Bell Canyon and Cherry Canyon formations at depths of ~5,700 – 7,600 feet. Data to be gathered from the wellbore will include open-hole and cased hole logs, core samples from the target reservoir intervals and seals, and fluid samples from the injection zone. A long-term injection test will be performed in the Bell Canyon and Cherry Canyon 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 TAG. Based on current data, the TAG stream used for the following calculations will be approximately:

- 80% CO<sub>2</sub>
- 20% H<sub>2</sub>S

The maximum total volume of TAG to be injected daily will be approximately 13 MMSCFD, although this volume will not be reached for several 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 as well as 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 of 13 MMSCFD of TAG composed of 80 mol %  $CO_2$  and 20 mol %  $H_2S$ . Specific gravities of TAG were determined for the conditions at the wellhead (pressure = 1,800 psi, temperature = 90°F) and the bottom of the well (pressure = 3,320 psi, temperature = 130°F). The specific gravity of TAG at equilibrium with the reservoir (pressure = 3,320 psi, temperature = 130°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 would be approximately 1,767 psi (depending on specific gravity of final TAG stream). We have used the following method approved by NMOCD to calculate the proposed maximum allowable injection pressure. The final maximum permitted surface injection pressure should be based on the final specific gravity of the injection stream according to the following formula:

 $\underline{IP_{max}} = PG(\underline{D_{top}})$  where:

IP<sub>max</sub>= 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 = 0.78 and  $SG_{tag}$  at bottom hole = 0.79; see Table 1)

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

$$SG_{tag} = 0.785$$
 (Average of 0.78 and 0.79)

$$\underline{D}_{top} = 5,700 \text{ ft}$$

Therefore:

$$PG = 0.2 + 0.433 (1.04 - 0.785) = 0.310 \text{ psi/ft}$$

$$IP_{max} = PG(D_{top}) = 0.310 * 5,700 = 1,767 psi$$

For this reason, Targa requests approval for a MAOP of 1,767 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 13 MMSCFD, will extend to a radius of 0.68 miles.

Table 1: PVT Calculation of Red Hills AGI #3

#### Proposed injection stream characteristics

TAG	H2S	CO2	H2S	CO2	TAG
Gas vol,	Concentration	Concentration	Mass rate	Mass rate	Mass rate
MMSCFD	mol %	mol %	lbs/day	lbs/day	lbs/day
13	20	80	246696	1274542	1521238

#### Conditions at the wellhead

Wellhead Conditions					TAG				
		Gas vol,	Composition	Injection Rate,	Density,	Density,		volume,	volume,
Temp, F	Pressure, psi	MMSCFD	CO2:H2S	lb/day	kg/m3	lb/gal	SG	ft3	bbl
90	1800	13	80:20	1521238	780	6.51	0.78	37520.65	6688.173

#### Conditions at the wellbore bottom hole

	Bot	tomhole Condit	TAG						
		Upper Perf	Lower Perf		Density,	Density,		volume,	volume,
Temp, F	Pressure, psi	(MD), ft	(MD), ft	Thickness, ft	kg/m3	lb/gal	sg	ft3	bbl
130	3320	5700	7600	1900	790	6.59255	0.79	37045.7	6603.512

#### **Reservoir static conditions**

	Re	eservoir Conditio	TAG						
		Average		Unit Pore	Density,	Density,		volume,	volume,
Temp, F	Pressure, psi	Porosity, dec	Swr, dec	volume	kg/m3	lb/gal	sg	ft3	bbl
130	3320	0.2	0.4	228	790	6.59255	0.79	37045.7	6603.512

#### Constants

Molar volume at STD	0.7915	SCF/mol	
Molar weight (MW)	g/mol	lb/mol	
MW of H2S	34.0809		0.0751
MW of CO2	44.0096		0.097
MW of TAG	42.02386		0.09262
MW of H2O	18.015		0.0397

#### Calculation of Maximum injection pressure limitation

SG_TAG,avg	0.785
PG = 0.2 + 0.433*(1.04-SG_TAG-avg)	0.310
IP_max = PG*Depth	1769

Where: SG\_TAG,avg is the average of specific gravity of TAG

PG is calculated pressure gradient

IP\_max is calculated maximum injection pressure

#### Calculation of 30-year area of impact in reservoir

Cubic Feet per day	37,045.70	ft3/day
Cubic Feet over 30 years	405,650,462.98	ft3/30 years
Area = V/Net Porosity	1,779,168.70	ft2/30 years
Area = V/Net Porosity	40.84	acres/30 years
Radius	752.55	ft

Radius 752.55 ft Radius 0.14 mi

#### 3.3 Well Design

The well will be drilled vertically to its anticipated total depth of approximately 7,600 feet. The injection zone (5,600-7,600 feet) will be completed as a cased hole interval. Table 2 lists the anticipated geological formations, depths, and potential for water or hydrocarbons.

Formation	Measured Depth (ft)	Identification		
Cenozoic alluvium	Surface	USDW		
Santa Rosa Sandstone	~650-910	USDW, Gas		
Rustler	1,257	USDW		
Salado - Castile	1,351	Confining zone		
Lamar Lime	5,205	Confining zone		
<b>Bell Canyon</b>	5,245	Injection zone		
Cherry Canyon	6,220	Injection zone		
Brushy Canyon	8 019	Underlaying zone		

Table 2: Formation tops expected within the Red Hills AGI #3

A preliminary wellbore design for Red Hills AGI #3 is shown in Figure 2. The BLM will be notified of the 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 a subsurface safety valve (SSSV) at ~175' in the tubing string, a permanent 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.

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.

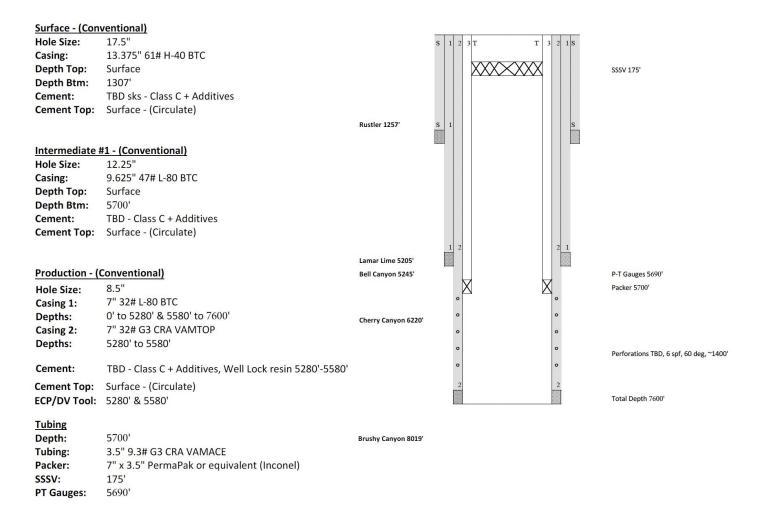


Figure 3: Preliminary wellbore design for Red Hills AGI #3

#### 3.3.1 Casing Design

The preliminary casing design is presented in Table 3, and the specification of the casing is presented in Table 4. The well will have three strings of casing and all strings will be cemented to the surface. The injection tubing will include an SSSV placed ~175' from surface 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 usable 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 4: Casing Design for Red Hills AGI #3

Casing/ Tubing String	Casing/ Tubing Depth, TVD, ft.	Borehole Diameter, in.	Casing/ Tubing Outside Diameter, in.	Coupling/ Connection	Casing/Tubing Material (Weight/ Grade)	String Weight in air, lb.
Conductor	0 – 100	30	24	Welded	100 lb/ft, J-55	15,700
Surface	0 - 1,307	17-1/2	13-3/8	BTC	72 lb/ft, L-80	94,404
Intermediate	0 - 5,700	12-1/4	9-5/8	BTC	47 lb/ft, L-80	245,810
Production	0 - 7600	8-1/2	7	VAM TOP	32 lb/ft, CRA-G3- P110	224,000
Tubing	0 - 5,700	N/A	3-1/2	VAM ACE	9.2 lb/ft, CRA-G3	147,568

Table 5: Casing Specification for Red Hills AGI #3

Casing/ Tubing String	Casing/ Tubing Material	Casing/ Tubing Diameter	Yield	Tensile	Internal Yield	Collapse	Body	Joint Strength
	Weight/ Grade	OD/ID/DRIFT inches	ksi		Burst pressure		Yield 1000 lbs.	1,000 lbs.
Surface	72 lb/ft L-80, BTC	13.375/12.347/ 12.191	55	75	2,410	770	1,685	1,595
Intermediate	47 lb/ft L-80, BTC	9.625/8.681/8.525	80	95	6,870	4,760	1,086	1,122
Production	32 lb/ft VAMTOP CRA-G3- P110	7.0/6.094/5.969	110	125	11,640	10,780	1,025	1,053
Tubing	9.2 lb/ft VAMACE CRA-G3	3.5/2.992/2.867	138	149	15,890	14,890	324	327

#### 3.3.2 Cement Design

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 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 6: Cement design for Red Hills AGI #3\*

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	5,700	75% open hole excess Lead: 1,481sks 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
Production	7,600	75% open hole excess Lead: 1,555sks 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 Corrosion Resistant Cement	Surface	1 per joint for bottom 3 joints, 1 on every 3 joints for remaining joints

<sup>\*</sup>Cement program may change based on cement engineer recommendation and caliper log result

#### 3.3.3 Drilling Fluids Design

Table 6 presents the drilling fluids plan. The anticipated bottom hole pressure is ~3,000 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. Cuttings will be disposed of by the service company in an approved disposal facility.

Table 7: Drilling Fluid Design for Red Hills AGI #3

Hole Size, in.	Drilling Fluid System	Measured Depth, ft	Mud Weight, ppg	Viscosity	Drill Solids, % volume	рН	Circulation Rate, GPM
17-1/2	Fresh Water	0-1,307	8.5 - 9.0	25-30	5	9-10	750
12-1/4	Brine	1,307-5,700	10 - 10.5	36-40	10	9-10	700
8-1/2	Cut Brine	5,70-7,600'	8.5 - 9.0	36-40	5	9-10	600

#### 3.3.4 Logging and Testing Design

Table 8: Logging and Testing Design for Red Hills AGI #3

Well Logging	Logging Program	Depth Intervals
	Surface Casing	
Open Hole	Platform Express 150 Array Induction Imager, GR, 4-Arm Caliper	1,307' – 0
	Intermediate Casing	
Open Hole	Platform Express 150 Array Laterolog Imager, GR, 4-Arm Caliper	5,700' - 1,307'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (13 3/8" casing), Gamma Ray	5,700' - 0
	<b>Production Casing</b>	
Open Hole	Platform Express 150 Array Laterolog Imager, GR, 4-Arm Caliper, FMI	7,600' - 5,700'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (9 5/8" casing), Gamma Ray	7,600' - 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 20 miles west of Hobbs (Figure 1). 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 shinnery 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 evaporites, carbonates, sandstones and shales representing a variety of depositional environments, underlain by Precambrian bedrock. The Delaware Basin was stable through Permian deposition with the basin sediments being dominated by siliciclastic and carbonate deposits, and the surrounding shelves by carbonate deposits. Figure 3 presents a stratigraphic column for the region.

The injection zone is within the sediments of the Delaware Mountain Group. These sediments were deposited during sea-level low stands associated with widespread exposure of the shelves and the migration of siliciclastic sediments across the shelves and into the basin. Interspersed with these sandstones, siltstones and shales are thin carbonate beds that are creatable throughout much of the Delaware Basin. These carbonate horizons represent sea-level high stands and the re-establishment of a carbonate factory upon the shelves. Clastic sedimentation during low stands represents thousands of feet

of sediments within the basin but correlates to relatively thin clastic deposits on the shelves. The high stand carbonate horizons form several thousand feet of carbonate deposits on the shelves that build upward and outward in the basin, but they thin dramatically towards the basin center.

Sediments of the Bell Delaware Mountain Group are predominately quartz-rich and terrigenous in origin. The quartz-rich sands are fine grained to silt sized and poorly cemented. The terrigenous clastic sediments formed submarine fan complexes associated with submarine canyons with turbidite, debris flows and density currents. Basin waters may have been stratified since many of the sandstones lack depositional features indicating deposition from traction currents. The siliciclastic deposits represent sealevel low stand deposits. The interbedded limestones are dark, finely crystalline, radiolarian-rich micrites to biomicrites and are suspension sediments that also thin to the basin center. Isolated coarse-grained to boulder sized carbonate debris flows and grain falls likely resulted from erosion and failure of the shelf margin during sea-level low stands. The top of the Guadalupe Series is locally marked by the Lamar Limestone. The Cherry Canyon and Bell Canyon deposits have channels as well as widespread sand sheets that have little cement within the sandstones.

The proposed injection interval is located under the approximately 4,000 feet of evaporite and minor carbonate deposits of the Rustler, Salado, and Castile formations and the Lamar Limestone. These units are an excellent seal for injection well and should insure no upward migration out of the injection zone. The injection zone, Bell Canyon and Cherry Canyon formations, is underlain by the Brushy Canyon Formation. Local production is oil and gas and is within the underlying Bone Springs, Wolfcamp, Atoka, and Morrow deposits. There are no pay zones within Bell Canyon and Cherry Canyon formations within the area.

AC	GE	CENTRAL BASIN PLATFORM- NORTHWEST SHELF	DELAWARE BASIN		
Cenozoic		Alluvium	Alluvium		
Tulonolo		Chinle Formation	Chinle Formation		
Triassic		Santa Rosa Sandstone	Santa Rosa Sandstone		
	Lautantan	Dewey Lake Formation	Dewey Lake Formation		
	Lopingian (Ochoan)	Rustler Formation Salado Formation	Rustler Formation Salado Formation		
	(Octionity	Salado Formation	Castile Formation		
1					
		Tansill Formation	no		
		Tansill Formation Yates Formation	Lamar Limestone  D Bell Canyon Formation		
	Guadalupian	Seven Rivers Formation	ai ai		
	Guadalupian	Seven Rivers Formation Queen Formation	Ĭ I		
		Grayburg Formation	Cherry Canyon Formation		
Permian			2		
4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		San Andres Formation	NE CONTRACTOR		
		Glorieta Formation	Cherry Canyon Formation  Brushy Canyon Formation		
	Cisuralian	Paddock Mbr.	-		
	(Leonardian)	Blinebry Mbr Tubb Sandstone Mbr.			
	774.0		Bone Spring Formation		
		Drinkard Mbr.			
		Abo Formation			
	Wolfcampian	Hueco ("Wolfcamp") Fm.	Hueco ("Wolfcamp") Fm.		
	Virgilian	Cisco Formation	Cisco		
	Missourian	Canyon Formation	Canyon		
Pennsylvanian	Des Moinesian	Strawn Formation	Strawn		
	Atokan	Atoka Formation	Atoka		
	Morrowan	Morrow Formation	Morrow		
Minelecturis	Upper	Barnett Shale	Barnett Shale		
Mississippian	Lower	"Mississippian limestone"	"Mississippian limestone"		
	Upper	Woodford Shale	Woodford Shale		
Devonian	Middle				
	Lower	Thirtyone Formation	Thirtyone Formation		
	Upper	Wristen Group	Wristen Group		
Silurian	Middle				
	Lower	Fusselman Formation	Fusselman Formation		
	Upper	Montoya Formation	Montoya Formation		
Ordovician	Middle	Simpson Group	Simpson Group		
Oracvician	Lower	Ellenburger Formation	Ellenburger Formation		
Cambrian		Bliss Ss.	Bliss Ss.		
Precambrian		Miscellaneous igneous,	Miscellaneous igneous,		
		metamorphic, volcanic rocks	metamorphic, volcanic rocks		

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

#### 4.3 Formation Fluid Chemistry

Chemical analysis of water from Federal 30 Well No. 2 (API 30-025-29069), approximately 3.85 miles away, indicates that the formation waters are highly saline (~180,000 ppm NaCl) and compatible with the proposed injection (Table 8). The shallow freshwater aquifers in the area of review will be protected by the surface and intermediate casing of the proposed Red Hills AGI #3 well.

Compound Unit, ppm SG 1.125 @ 74F Calcium 12,000 Resistivity  $0.07~\Omega$ -m @ 74F Magnesium 3,654 7 Sulfate pН 1,240 Iron Good/Good Bicarbonate 2,135 Hardness 45,000 mg/L 110,000 Chloride Sodium Chloride 180,950 Sodium & Potassium 52,072

Table 9: Water Analysis of Federal 30 Well No. 2 (API 30-025-29069)

#### 4.4 Groundwater in the Vicinity of the Proposed Injection Well

Table 9 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 (Figure 4).

Table 10 shows the water wells identified by the New Mexico State Engineer files within two miles of the proposed Red Hills AGI #3. Figure 5 shows the water wells within a one-mile radius.

Table 10: USDW formations in the area

Formation	Measured Depth (ft)	Identification
Cenozoic alluvium	Surface	USDW
Santa Rosa Sandstone	~650-910	USDW, Gas
Rustler	1257	USDW

Table 11: Water wells identified by the State Engineer files within two miles of the proposed Red Hills AGI #3

POD Number	Sec	Tws	Rng	Well Depth, ft.	UTME	UTMN	Distance, mi.
C-03666-POD1	13	24S	33E	650	639132.5	3565078.2	0.23
C-03917-POD1	13	24S	33E	600	638373.9	3565212.6	0.62
C-03601-POD1	23	24S	33E	0	638124.2	3563937.1	1.17
C-03662-POD1	23	24S	33E	550	637342.1	3564428.5	1.38
C-03932-POD8	7	24S	34E	72	641120	3566769.9	1.40

C-03601-POD3	24	24S	33E	0	638141.8	3563413.7	1.43
C-03601-POD2	23	24S	33E	0	637846.1	3563588.3	1.45
C-02309	25	24S	33E	60	639708.5	3562997.8	1.49
C-03601-POD5	23	24S	33E	0	637988.4	3563334.6	1.52
C-03601-POD6	23	24S	33E	0	637833.8	3563338.7	1.57
C-03601-POD7	23	24S	33E	0	637946.1	3563170.8	1.62
C-03565-POD9	15	24S	33E	0	636429.9	3565005.4	1.83
C-03600-POD2	25	24S	33E	0	638824.5	3562329.6	1.92
C-03602-POD2	25	24S	33E	0	638824.5	3562329.6	1.92
C-03600-POD1	26	24S	33E	0	637275	3563023.1	1.95

Two water wells have been identified within one mile of the Red Hills AGI #3 well and are placed in Table 11. 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-1**. The water has a pH of 9.55 and has a calculated TDS of 650 mg/l.

Table 12: Water wells within one mile of proposed Red Hills AGI #3 well

POD Number	POD Status	Owner*	Well depth	Water Depth	UTME	UTMN	Start Date	Finish Date
C 03666 POD1	ACT	LUCID ENERGY DELAWARE LLC	650	390	639132.5	3565078	Oct 17 2013	Oct 25 2013
C 03917 POD1	ACT	NGL WATER SOLUTIONS PERMIAN	600	420	638373.9	3565213	Feb 29 2016	Mar 03 2016

<sup>\*</sup>Note that Targa owns both wells and the change of ownership (COO) with has been recognized, however, the change has not yet been reflected in the online OSE database

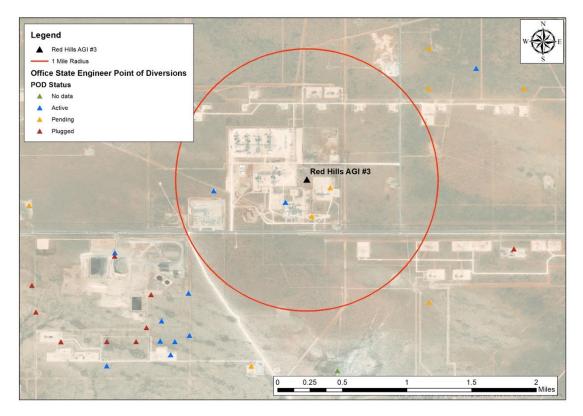


Figure 3: Water wells identified in the proposed Red Hills AGI #3 Well

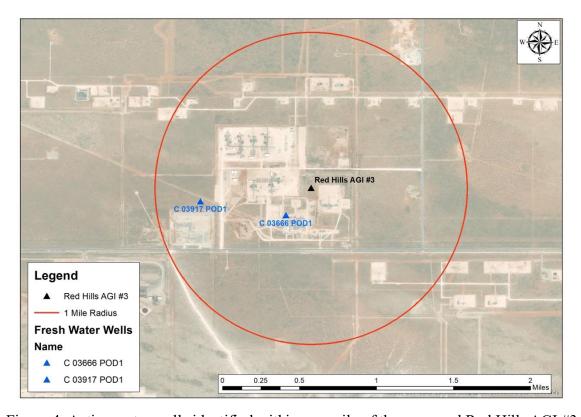


Figure 4: Active water wells identified within one mile of the proposed Red Hills AGI #3

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

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

Table 13. Summary of oil and gas wells in the vicinity of the proposed Red Hills AGI #3 well

Well within	Permitted	Drilled	DUC	Completed	Injecting	Producing	Inactive Injector	P & A	Total
1 mi	23	1	1	1	2	27	0	5	60
2 mi	39	2	8	1	2	115	1	17	185

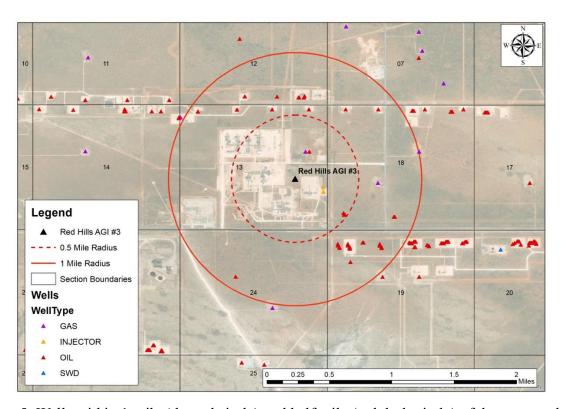


Figure 5: Wells within 1 mile (the red circle) and half mile (red dash circle) of the proposed well

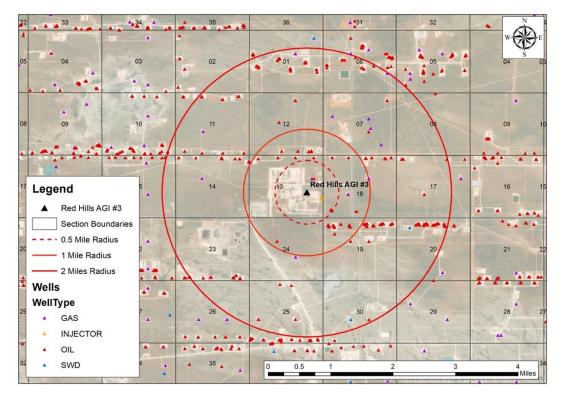


Figure 6: Wells within 2 miles (the outer red circle) of the proposed well. Smaller circles represent ½-mile radius (dashed) and 2-mile radius (solid)

# 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: Date: 6/7/2023

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

Signature: George Chasesh Date: 6/7/2023

#### 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

#### 9.1 Appendix A-1: Water Analysis Report

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 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.

#### **GENERAL CHEMISTRY ANALYSES**

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

Customer ID	Targa Red Hills Water Well (POD 0397)
pН	9.55
Conductivity (uS/cm)	1,777.0
Alkalinity as CO <sub>3</sub> -2 (mg/L)	
Alkalinity as HCO <sub>3</sub> - (mg/L)	68.3
Chloride (mg/L)	236.06
Fluoride (F-) (mg/L)	0.43
Bromide (mg/L)	1.61
Nitrate (NO <sub>3</sub> -) (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.

## 9.2 Appendix A-2: Information on wells within Two Miles of Proposed Red Hills AGI#3

Table A-2 Locations of oil and gas wells in the vicinity of the proposed Red Hills AGI #3

API_UWI	WellName	Longitude	Latitude	TVD_ft	MD_ft	Distance, mi	Operator	Well Status	Trajectory	Well Type
30-025- 41688	SEBASTIAN FEDERAL COM 003H	-103.50621	32.224302	11055	15457	1.04	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 48238	JUPITER 19 FEDERAL COM 305H	-103.50596	32.208565	10582	17857	1.04	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 47913	JUPITER 19 FEDERAL COM 708H	-103.50575	32.208511	12477	19736	1.05	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 41026	TYRELL FEE 001H	-103.53679	32.22407	10951	15475	1.06	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 47912	JUPITER 19 FEDERAL COM 707H	-103.50575	32.20842	12515	19744	1.06	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 41334	ROY BATTY FEDERAL COM 004H	-103.53583	32.225378	11051	15556	1.06	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 42789	TYRELL FEE 002H	-103.53785	32.224073	9361	13810	1.11	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 47875	JUPITER 19 FEDERAL COM 507H	-103.50433	32.208762	11150	18850	1.12	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47875	JUPITER 19 FEDERAL COM 507H	-103.50433	32.208762	11150	18850	1.12	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47876	JUPITER 19 FEDERAL COM 508H	-103.50422	32.208763	11143	18554	1.12	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47876	JUPITER 19 FEDERAL COM 508H	-103.50422	32.208763	11143	18554	1.12	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47877	JUPITER 19 FEDERAL COM 509H	-103.50411	32.208763	11156	18484	1.13	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47878	JUPITER 19 FEDERAL COM 510H	-103.50401	32.208764	11102	18505	1.14	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 48230	JUPITER 19 FEDERAL COM 207H	-103.5038	32.208943	9720	17411	1.14	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 48231	JUPITER 19 FEDERAL COM 208H	-103.50369	32.208944	9882	17309	1.15	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 48232	JUPITER 19 FEDERAL COM 209H	-103.50358	32.208945	9881	17302	1.15	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 48233	JUPITER 19 FEDERAL COM 210H	-103.50348	32.208945	9886	17331	1.16	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 48206	BELL LAKE UNIT SOUTH 404H	-103.52767	32.232486	12085	20234	1.18	GBK CORP	PRODUCING	HORIZONTAL	OIL
30-025- 48240	JUPITER 19 FEDERAL COM 307H	-103.50188	32.208765	10262	17577	1.25	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 48241	JUPITER 19 FEDERAL COM 308H	-103.50178	32.208765	10270	17856	1.25	EOG	PRODUCING	HORIZONTAL	OIL

30-025- 48061	JUPITER 19 FEDERAL COM 709H	-103.50157	32.208943	12134	19734	1.26	EOG	PERMITTED	HORIZONTAL	OIL
30-025-	JUPITER 19 FEDERAL	-103.50146	32.208944	12134	19714	1.26	EOG	PERMITTED	HORIZONTAL	OIL
48062 30-025-	COM 710H BOOMSLANG 14 23	-103.5409	32.224062	11283	21110	1.27	DEVON	PRODUCING	HORIZONTAL	OIL
42933	FEDERAL 004H	102 50125	22 2000 45		10400	1.07	FOG	DEDIMETER	HODIZONEAL	OH
30-025- 47909	JUPITER 19 FEDERAL COM 605H	-103.50135	32.208945		19488	1.27	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 41689	SEBASTIAN FEDERAL COM 004H	-103.50172	32.224302	12073	12075	1.27	CONOCOPHILLIPS	PRODUCING	VERTICAL	OIL
30-025- 41689	SEBASTIAN FEDERAL COM 004H	-103.50172	32.224302	10877	15356	1.27	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 42920	BOOMSLANG 14 23 FEDERAL 001H	-103.54107	32.224062	9518	19300	1.28	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 43032	BOOMSLANG 14 23 FEDERAL 009H	-103.54101	32.224315	10658	20440	1.28	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 41333	ROY BATTY FEDERAL COM 003H	-103.54071	32.225386	11157	15601	1.30	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 44918	CARL MOTTEK FEDERAL 211H	-103.49926	32.223934	12289	16949	1.39	MATADOR RESOURCES	PRODUCING	HORIZONTAL	OIL
30-025- 44936	CARL MOTTEK FEDERAL 121H	-103.49917	32.223934	10102	14903	1.40	MATADOR RESOURCES	PRODUCING	HORIZONTAL	OIL
30-025- 44937	CARL MOTTEK FEDERAL 125H	-103.49907	32.223933	10831	15740	1.40	MATADOR RESOURCES	PRODUCING	HORIZONTAL	OIL
30-025- 39716	RED RAIDER BKS STATE 002H	-103.52483	32.194689	9472	13883	1.50	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 44291	STRIKER 6 SWD 002	-103.49742	32.208049	17692	17705	1.51	NGL ENERGY PARTNERS	INACTIVE INJECTOR	DIRECTIONAL	SWD
30-025- 39560	FALCON 25 FEDERAL 001	-103.52745	32.194925	9468	13685	1.51	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 39560	FALCON 25 FEDERAL 001	-103.52745	32.194925	10889	10893	1.51	EOG	PRODUCING	VERTICAL	OIL
30-025- 41332	ROY BATTY FEDERAL COM 002H	-103.54556	32.225389	11109	15660	1.56	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 50484	YUKON 20 FEDERAL COM 746H	-103.49601	32.208677	12425	22669	1.57	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 50502	YUKON 20 FEDERAL COM 710H	-103.4958	32.2088	12096	22420	1.58	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 50503	YUKON 20 FEDERAL COM 711H	-103.4955	32.208972	12086	22420	1.59	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 47187	YUKON 20 FEDERAL COM 311H	-103.4955	32.208966	10313	20342	1.59	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47194	YUKON 20 FEDERAL COM 310H	-103.49539	32.208967	10433	20275	1.60	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47194	YUKON 20 FEDERAL COM 310H	-103.49539	32.208967	10437		1.60	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50480	YUKON 20 FEDERAL COM 709H	-103.49528	32.208966	12102	22321	1.60	EOG	PERMITTED	HORIZONTAL	OIL

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30-025- 43308	BOOMSLANG 14 23 FEDERAL 002H	-103.54697	32.224249	9519	19432	1.60	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 50421	YUKON 20 FEDERAL COM 406H	-103.49509	32.208619	10270	20515	1.62	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 46857	BLUE KRAIT 23 FEDERAL 021H	-103.53761	32.196943	11600	15237	1.64	DEVON	DUC	HORIZONTAL	OIL
30-025- 46857	BLUE KRAIT 23 FEDERAL 021H	-103.53761	32.196943	11600	16597	1.64	DEVON	DUC	HORIZONTAL	OIL
30-025- 43239	BLUE KRAIT 23 FEDERAL 006H	-103.53672	32.196398	9456	14170	1.64	DEVON	PRODUCING	HORIZONTAL	OIL
30-025-	BLUE KRAIT 23	-103.5377	32.196943	10600	15587	1.64	DEVON	DUC	HORIZONTAL	OIL
49690 30-025- 49690	FEDERAL 034H BLUE KRAIT 23	-103.5377	32.196943	10600	15617	1.64	DEVON	DUC	HORIZONTAL	OIL
30-025-	FEDERAL 034H BLUE KRAIT 23 FEDERAL 004H	-103.53662	32.19623	11190	15818	1.65	DEVON	PRODUCING	HORIZONTAL	OIL
43238 30-025-	FEDERAL 004H BLUE KRAIT 23 FEDERAL 002H	-103.53681	32.19623	9452	14150	1.65	DEVON	PRODUCING	HORIZONTAL	OIL
43237 30-025- 50397	FEDERAL 003H YUKON 20 FEDERAL COM 101H	-103.49412	32.208799	9198	19666	1.67	EOG	PRODUCING	HORIZONTAL	OIL
30-025-	YUKON 20 FEDERAL	-103.49412	32.208799	9198	22662	1.67	EOG	PRODUCING	HORIZONTAL	OIL
50397 30-025-	COM 101H YUKON 20 FEDERAL	-103.49415	32.208506	9497	19474	1.68	EOG	PRODUCING	HORIZONTAL	OIL
50469 30-025-	COM 102H YUKON 20 FEDERAL	-103.4939	32.208799	9198	22325	1.68	EOG	PRODUCING	HORIZONTAL	OIL
49635 30-025-	COM 103H YUKON 20 FEDERAL	-103.4939	32.208799	9198	19428	1.68	EOG	PRODUCING	HORIZONTAL	OIL
49635 30-025- 47030	COM 103H BLUE KRAIT 23	-103.53809	32.196398	12525	17268	1.69	DEVON	DRILLED	HORIZONTAL	OIL
30-025-	FEDERAL 034Y YUKON 20 FEDERAL	-103.4938	32.208799	9198	19518	1.69	EOG	PRODUCING	HORIZONTAL	OIL
49634 30-025- 49634	COM 104H YUKON 20 FEDERAL COM 104H	-103.4938	32.208799	9198	19518	1.69	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46832	BLUE KRAIT 23 FEDERAL 038H	-103.53819	32.196398	12429	17481	1.69	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 46832	BLUE KRAIT 23 FEDERAL 038H	-103.53819	32.196398	12429	17481	1.69	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 46540	BLUE KRAIT 23 FEDERAL 033H	-103.53829	32.196399	12582	17591	1.69	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 46974	YUKON 20 FEDERAL COM 501H	-103.4936	32.208964	10150	20386	1.70	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46974	YUKON 20 FEDERAL COM 501H	-103.4936	32.208964	10150	22341	1.70	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46466	BLUE KRAIT 23 14 FEDERAL 037H	-103.53838	32.196398	12397	22720	1.70	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 46466	BLUE KRAIT 23 14 FEDERAL 037H	-103.53838	32.196398	12397	22720	1.70	DEVON	PRODUCING	HORIZONTAL	OIL
40400	FEDERAL US/fi									

30-025- 46930	YUKON 20 FEDERAL COM 502H	-103.49355	32.208964	10150	22397	1.70	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46930	YUKON 20 FEDERAL COM 502H	-103.49355	32.208964	10150	22397	1.70	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46973	YUKON 20 FEDERAL COM 503H	-103.49349	32.208964	10150	22340	1.70	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46973	YUKON 20 FEDERAL COM 503H	-103.49349	32.208964	10150	20371	1.70	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46970	YUKON 20 FEDERAL COM 504H	-103.49344	32.208964	11149	22446	1.71	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46970	YUKON 20 FEDERAL COM 504H	-103.49344	32.208964	11149	22446	1.71	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50420	YUKON 20 FEDERAL COM 405H	-103.4933	32.208799	10270	20497	1.72	EOG	DUC	HORIZONTAL	OIL
30-025- 50516	YUKON 20 FEDERAL COM 205H	-103.4933	32.208708	9900	20139	1.72	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 41099	ROY BATTY FEDERAL COM 001H	-103.54953	32.225771	10998	11000	1.78	CONOCOPHILLIPS	PRODUCING	VERTICAL	OIL
30-025- 41099	ROY BATTY FEDERAL COM 001H	-103.54953	32.225771	11101	15477	1.78	CONOCOPHILLIPS	PRODUCING	HORIZONTAL	OIL
30-025- 50352	YUKON 20 FEDERAL COM 507H	-103.49204	32.20863	10768	20494	1.79	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 45083	CHARLES LING FEDERAL COM 214H	-103.53719	32.238483	12278	17093	1.79	MATADOR RESOURCES	PRODUCING	HORIZONTAL	OIL
30-025- 50351	YUKON 20 FEDERAL COM 508H	-103.49193	32.20863	10768	21022	1.80	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50348	YUKON 20 FEDERAL COM 509H	-103.49182	32.20863	10768	21074	1.80	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50348	YUKON 20 FEDERAL COM 509H	-103.49182	32.20863	10768	21074	1.80	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50347	YUKON 20 FEDERAL COM 510H	-103.49172	32.208629	10768	21160	1.81	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50347	YUKON 20 FEDERAL COM 510H	-103.49172	32.208629	10768	20172	1.81	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 49632	YUKON 20 FEDERAL COM 506H	-103.49142	32.208794	10830	22316	1.82	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 49632	YUKON 20 FEDERAL COM 506H	-103.49142	32.208794	10830	21081	1.82	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 43309	BOOMSLANG 14 23 FEDERAL 003H	-103.55091	32.224314	11287	21180	1.82	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 24910	BELL LAKE UNIT 016	-103.50262	32.237537	9005	9005	1.83	GBK CORP	PRODUCING	VERTICAL	OIL
30-025- 24910	BELL LAKE UNIT 016	-103.50262	32.237537	9005	9005	1.83	GBK CORP	PRODUCING	VERTICAL	OIL
30-025- 50464	YUKON 20 FEDERAL COM 704H	-103.49131	32.208794	12090	22359	1.83	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 46975	YUKON 20 FEDERAL COM 505H	-103.49126	32.208794	10150	22334	1.83	EOG	PRODUCING	HORIZONTAL	OIL

30-025- 46975	YUKON 20 FEDERAL COM 505H	-103.49126	32.208794	10150	22334	1.83	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50465	YUKON 20 FEDERAL COM 743H	-103.4912	32.208794	12425	22645	1.83	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 46972	YUKON 20 FEDERAL COM 306H	-103.49101	32.208959	10277	20479	1.84	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46972	YUKON 20 FEDERAL COM 306H	-103.49101	32.208959	10150	20438	1.84	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 46971	YUKON 20 FEDERAL COM 305H	-103.49091	32.208963	10446	20400	1.85	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47111	YUKON 20 FEDERAL COM 304H	-103.49081	32.208965	10290	20355	1.85	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47170	YUKON 20 FEDERAL COM 303H	-103.4907	32.208965	10428	20608	1.86	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 47170	YUKON 20 FEDERAL COM 303H	-103.4907	32.208965	10428	20608	1.86	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 45082	CHARLES LING FEDERAL COM 213H	-103.54089	32.237744	12380	17144	1.87	MATADOR RESOURCES	PRODUCING	HORIZONTAL	OIL
30-025- 46464	BLUE KRAIT 23 14 FEDERAL 028H	-103.54344	32.196531	10600	20600	1.88	DEVON	DUC	HORIZONTAL	OIL
30-025- 46463	BLUE KRAIT 23 14 FEDERAL 027H	-103.54354	32.196531	10600	20512	1.88	DEVON	DUC	HORIZONTAL	OIL
30-025- 47734	BELL LAKE UNIT SOUTH 423H	-103.51891	32.244122	11550	20148	1.92	GBK CORP	PRODUCING	HORIZONTAL	OIL
30-025- 47737	BELL LAKE UNIT SOUTH 424H	-103.51885	32.244122		20082	1.92	GBK CORP	PRODUCING	HORIZONTAL	OIL
30-025- 50483	YUKON 20 FEDERAL COM 742H	-103.48943	32.208942	12425	22639	1.93	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 50482	YUKON 20 FEDERAL COM 741H	-103.48943	32.208851	12425	22653	1.93	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 50481	YUKON 20 FEDERAL COM 740H	-103.48943	32.208761	12425	22709	1.93	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 50346	YUKON 20 FEDERAL COM 511H	-103.48924	32.208596	10768	21094	1.95	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50345	YUKON 20 FEDERAL COM 512H	-103.48924	32.208505	10768	20323	1.95	EOG	PRODUCING	HORIZONTAL	OIL
30-025- 50350	YUKON 20 FEDERAL COM 402H	-103.48924	32.208414	10270	20532	1.95	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 47621	BELL LAKE UNIT SOUTH 121H	-103.52502	32.244424	10349	18459	1.95	GBK CORP	PRODUCING	HORIZONTAL	OIL
30-025- 50349	YUKON 20 FEDERAL COM 401H	-103.48924	32.208323	10270	20631	1.95	EOG	PERMITTED	HORIZONTAL	OIL
30-025- 43236	BLUE KRAIT 23 14 FEDERAL 002H	-103.54525	32.196402	11229	21094	1.96	DEVON	PRODUCING	HORIZONTAL	OIL
30-025- 47625	BELL LAKE UNIT SOUTH 223H	-103.51904	32.244727	10860	19098	1.97	GBK CORP	PRODUCING	HORIZONTAL	OIL
30-025- 47626	BELL LAKE UNIT SOUTH 224H	-103.51898	32.244727		18974	1.97	GBK CORP	PRODUCING	HORIZONTAL	OIL

30-025-	PRODIGAL SUN 17 24 34	-103.48882	32.223921	10866	15251	1.97	CHEVRON	PRODUCING	HORIZONTAL	OIL
41957	001H									
30-025-	BELL LAKE UNIT	-103.52496	32.244764	12100	19770	1.98	GBK CORP	PRODUCING	HORIZONTAL	OIL
47627	SOUTH 421H									
30-025-	BELL LAKE UNIT	-103.52509	32.244858	10860	18741	1.98	GBK CORP	PRODUCING	HORIZONTAL	OIL
47729	SOUTH 222H									
30-025-	NEPTUNE 10 STATE									
4449	COM 206H	-103.55344	32.22555	9632	19748	1.99	EOG	PRODUCING	HORIZONTAL	OIL
30-025-	NEPTUNE 10 STATE									
44468	COM 101H	-103.55354	32.22555	9449	19607	2.00	EOG	PRODUCING	HORIZONTAL	OIL

#### 9.3 Appendix A-3: Information on Plugged Wells within 1 Mile of Proposed Red Hills AGI #3

Table A-3 Information on Plugged Wells within 1 Mile of Proposed Red Hills AGI #3 (all plugging records are on OCD online system)

API_UWI	Well Name	Longitude	Latitude	Distance, mi	Operator
30-025- 26958	SIMS 001	-103.52006	32.219406	0.23	EXXONMOBIL
30-025- 25604	GOVERNMENT L COM 001	-103.50686	32.219398	0.87	EOG
30-025- 47913	GOVERNMENT L COM 002	-103.51165	32.215775	0.56	EOG
30-025- 41026	SMITH FEDERAL 001	-103.5111	32.20488	0.9	PRE-ONGARD
30-025- 47912	COSSATOT E 002	-103.5196	32.219402	0.24	PRE-ONGARD

# 10 Appendix B: Operators, Subsurface Lessees and Surface Owners within the Area of Review

#### **Subsurface Lessees:**

Bureau of Land Management 301 Dinosaur Trail Santa Fe, NM 87508

Marathon Petroleum Corporation 5555 San Felipe St. Houston, TX 77056 990 Town & Country Blvd., Floor 11 Houston, TX 77024

COG Operating, LLC (ConocoPhillips) 600 West Illinois Avenue Midland, Texas 79701 (432) 683-7443

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

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

#### **Surface Owners:**

Quail Ranch LLC One Concho Center 600 West Illinois Avenue Midland, TX 79701 (432) 520-2517 (505) 954-2000

Merry Ann Byrd P.O. Box 562 Buffalo Gap, TX 79508 (325) 572-3593

Sharon Smith 842 Comanche Trail Abilene, TX 79601 (940) 395-0654

Shirley Ann Roach 818 South San Jose Drive Abilene, TX 79605 (325) 692-8058

John Michael Scott 6501 East Ridge Road, # J-6 Odessa, TX 79762 (817) 483-2687

Diane Amelia Scott Hunsaker 17619 Strathern Street Northridge, CA 91325 (818) 782-4086

Donald Earl Fortner 1033 Park Center Street Benbrook, TX 76126 No phone number found

Linda Jean Butler Duralia 814 West 25<sup>th</sup> Street Odessa, TX 79763 (432) 272-0928

Maedell Annette Butler Davidson 814 West 25<sup>th</sup> Street Odessa, TX 79763 (432) 272-0928

Marissa Lynette Butler 2200 Katy Lane, Apartment D Georgetown, TX 78626 No phone number found

James Erick Butler 323 Sage Trail Springtown, TX 76082 No phone number found

The Estate of Cloma Perkins Garrett c/o Jerry Wayne Mize 207 Willey Street Willard, MO 65781 No phone number found

Jerry Wayne Mize 207 Willey Street Willard, MO 65781 No phone number found

Beverly J. Cook, Trustee of the Beverly J. Cook 2021 Revocable Trust u/t/a dated May 20, 2021 2836 NW 20th Street
Oklahoma City, OK 73107
No phone number found

Jo Anne Krall 1110 Selman Court San Angelo, TX 76905 (325) 703-1004 (325) 703-4317

Mary Nell McKandles Hale 1033 Park Center Street Benbrook, TX 76126 (817) 249-2080

New Mexico Department of Transportation P.O. Box 1149 Santa Fe, NM 87504 (505) 795-1401

NGL Water Solutions Permian, LLC 6120 South Yale Avenue, Suite 605 Tulsa, OK 74136 (918) 481-1119

Southwestern Public Service Company P.O. Box 1979 Denver, CO 80201 (800) 895-1999

Agave Energy Company c/o Lucid Artesia Company 1900 Dalrock Road Rowlett, TX 75088 (469) 298-1594

U.S.A. c/o New Mexico BLM 301 Dinosaur Trail Santa Fe, NM 87508 (505) 954-2000

Gosier Energy, LLC P. O. Box 5462 Midland, TX 79704 No phone number found

RHL Energy LLC P. O. Box 10922 Midland, TX 79702 No phone number found

Vanguard Wireless, LLC c/o InSite Wireless Group, LLC 1199 North Fairfax Street, Suite 700 Alexandria, VA 22314 (705) 535-3009

#### SAMPLE NOTICE LETTER

June XX, 2023

Sample Notice Letter

VIA CERTIFIED MAIL RETURN RECEIPT REQUESTED

Party to be Notified

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 Bell Canyon and Cherry Canyon formation from approximately 5,700 feet to 6,700 feet. The maximum surface pressure will not exceed 1,767 psi with a maximum daily injection volume of thirteen (13) 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 (<a href="https://www.apps.emnrd.nm.gov/ocd/ocdpermitting/">https://www.apps.emnrd.nm.gov/ocd/ocdpermitting/</a> 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 Vice President 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 June 12, 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 3,116 feet from the north line (FNL) and 1,159 feet from the east line (FEL) 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 Bell Canyon and Cherry Canyon formation from approximately 5,700 feet to 7,600 feet. The maximum surface pressure will not exceed 1,767 psi with a maximum daily injection volume of thirteen (13) million standard cubic feet per day (MMSCFD). The proposed 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/.

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# Targa Northern Delaware LLC Hearing Presentation

Targa Northern Delaware LLC Case No. 23649 Exhibit B





# Application for Authorization to Inject C-108 Application for Targa Northern Delaware LLC

RED HILLS AGI #003
PRESENTED IN HEARING BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CASE #23649
JULY 13<sup>TH</sup>, 2023

#### **Prepared For:**

Targa Northern Delaware LLC

#### Prepared By:

New Mexico Institute Of Mining And Technology Petroleum Recovery Research Center Socorro, NM 87801

July 2023

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# New Mexico Tech Petroleum Recovery Research Center

### Witnesses and Outline of the Presentation

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❖ Vice President Regulatory | Targa Resources

Describe the <u>overall Introduction</u> and benefits of Targa's Red Hills Gas Processing Plant and role of AGI project in gas plant operations

#### Dana Ulmer-Scholle

- ❖Research Scientist VI | PRRC | New Mexico Institute of Mining and Technology
- Ph.D. in Geological and Earth Sciences, Southern Methodist University, 1992
- Expert in petroleum geology, reservoir characterization, geologic modeling, and rock characterization

Describe relevant <u>site geology and hydrogeology</u>, analyses of stratigraphy, paleogeography, seismicity, and all components of C-108 application.

#### Paul Ragsdale

- Engineering Consultant | Operations Engineering & Oil and Gas Consulting
- Expert in Drilling, Completions, and Production in Southeast NM

Describe the <u>wellbore design</u> capacity for AGI #003 well drilling, completion, operations, and monitoring plan.
Schematic of the wellbore design, casing, tubing grades, and planned logging program.

#### Jiawei (David) Tu

- \*Research Associate III | PRRC | New Mexico Institute of Mining and Technology
- ❖Ph.D. in Petroleum Engineering, Texas Tech University, 2020
- Expert in reservoir characterization, numerical modeling, and optimization

Describe <u>reservoir dynamic simulations</u> completed to assess the impact of acid gas injection on the target Bell Canyon and Cherry Canyon formations, the resultant acid gas plume, and the pressure profile.



# Section I Overview of the Red Hills Complex

MATTHEW EALES

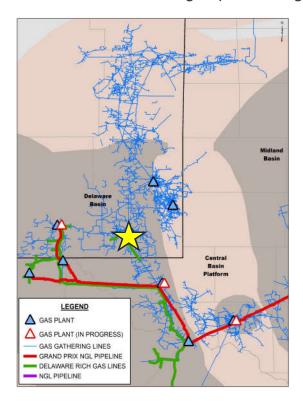
❖VICE PRESIDENT REGULATORY | TARGA RESOURCES

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## Background of the Red Hills Facility



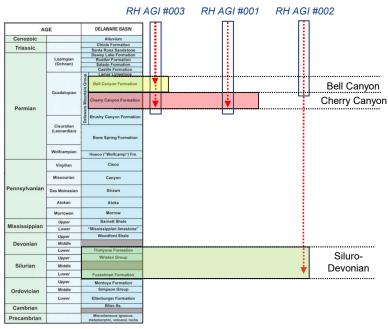
•The Red Hills natural gas processing complex (RH Facility) is in southern Lea County, NM



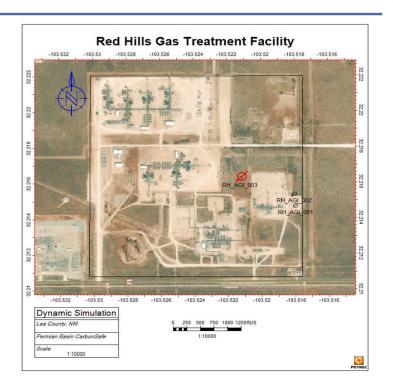


## The Development Plan Of The Red Hills Facility





<sup>\*</sup> Stratigraphic column for the Delaware basin Platform (modified from Broadhead, 2017).



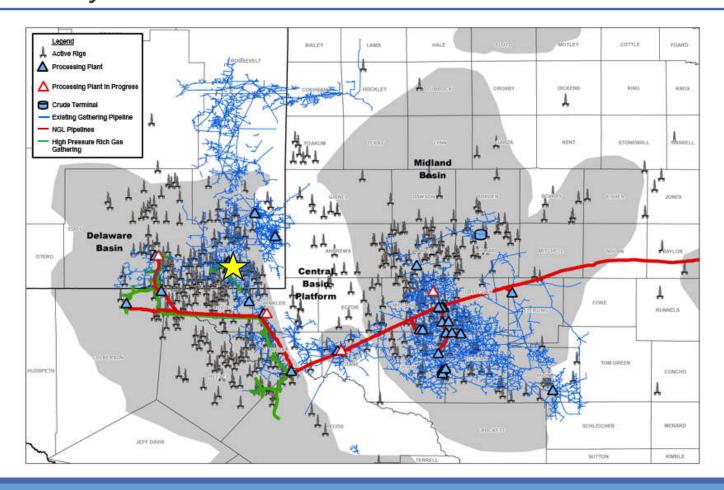
- In August 2018, NMOCC Red Hills <u>AGI #001 well started to inject</u> (30-025-49474) to inject treated acid gas (TAG) into the Cherry Canyon formation
- ❖ In October 2021, NMOCC authorized Red Hills <u>AGI #002 well</u> (30-025-49474) to inject treated acid gas (TAG) into the Siluro-Devonian formation. Targa has requested authorization to <u>temporarily abandon</u> the well due to drilling complications.
- ❖ In August 2022, Targa initiated a feasibility study of AGI #003 well to meet the plant's future growth.

7/6/2023

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# New Mexico Tech Petroleum Recovery Research Center

## O&G Activity In Delaware Basin



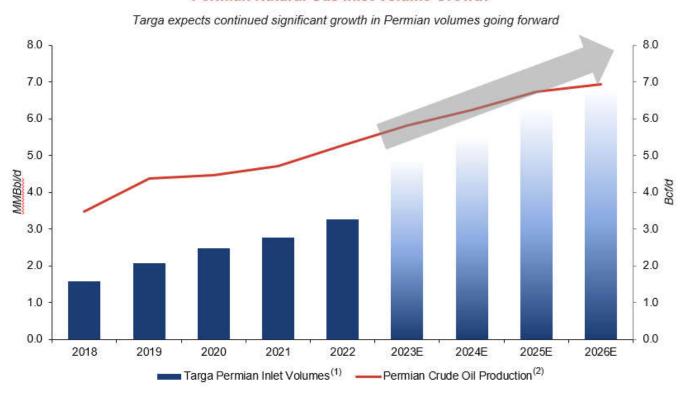
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# New Mexico Tech Petroleum Recovery Research Center

## Expected Volume Growth in Permian

#### Permian Natural Gas Inlet Volume Growth



<sup>2023</sup>E Targa Permian based on projected inlet volumes outlook. 2024E+ Targa Permian inlet volumes based on the historical growth relationship (2019 – 2021) between Targa Permian inlet volumes and Permian crude oil production (excluding growth relationship in 2020 given data outlier for flat Permian crude oil production).

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<sup>(2)</sup> Source: Historical data per EIA. 2023E+ forecast represents average estimates from BTU Analytics, Wood Mackenzie, Wells Fargo, Scotiabank, Pickering Energy Partners and Tudor Pickering Holt.



# Section II Site Geology Review

#### DANA ULMER-SCHOLLE

\*RESEARCH SCIENTIST VI | PRRC | NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY

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### Stratigraphy Of The Proposed Injection Zone



**182 wells** within a 2-mi radius of the proposed well penetrate the **Delaware Mountain Group or deeper** 

#### The **Delaware Mountain Group** section:

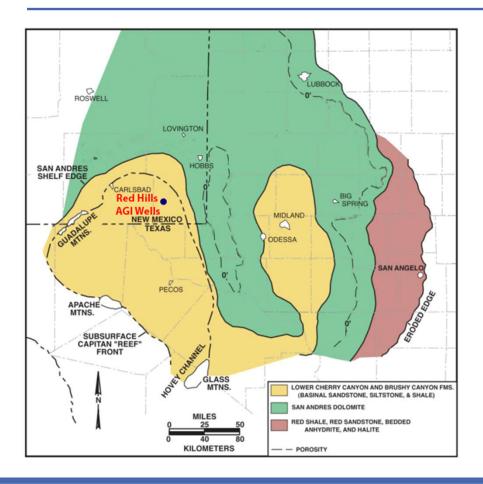
- The proposed well will be located on the northeastern segment of the Delaware sub-basin of the Permian basin (see next slide)
- Consists of interbedded limestones (minor), sandstones, siltstones, and shales
- Deposited in submarine fan and channel complexes by turbidity currents and density flows
- Zones with good porosity and permeability within the Bell Canyon and Cherry Canyon strata are within multiple channel complexes
- The proposed injection zone is capped by 20- to 50-feet-thick, tight Lamar Limestone followed by a roughly 4,000-feet-thick section of anhydrite, gypsum, carbonate, and salts of the Castile and Salado formations. These units have negligible porosity and permeability

А	GE	CE	NTRAL BASIN PLATFORM- NORTHWEST SHELF	DELAWARE BASIN			
Cenozoic	1		Alluvium		Alluvium		
Tulanada			Chinle Formation		Chinle Formation		
Triassic			Santa Rosa Sandstone		Santa Rosa Sandstone		
	0. 8.8	1	Dewey Lake Formation		Dewey Lake Formation		
	Lopingian		Rustler Formation		Rustler Formation		
	(Ochoan)		Salado Formation	2	Salado Formation		
			AC		Castile Formation		
	Guadalupian	d	Tansill Formation	dn	Lamar Limestone		
		ia Group	Yates Formation	Group	Bell Canyon Formation		
			Seven Rivers Formation	tain			
	Guadalupian	Artesia	Queen Formation	uno	Charm Cannan Farmation		
		A	Grayburg Formation	e N	Cherry Canyon Formation		
Permian	2		San Andres Formation	Delaware Mountain	Brushy Canyon Formation		
			Glorieta Formation	å	Drawny carryon romation		
	Cisuralian	1000	Paddock Mbr.		A.		
	(Leonardian)	Yeso	Blinebry Mbr				
	Market Control Control (Control Control	Se	Tubb Sandstone Mbr.		Dana Carina Earmation		
			Drinkard Mbr.		Bone Spring Formation		
			Abo Formation				
	Wolfcampian		Hueco ("Wolfcamp") Fm.	Hueco ("Wolfcamp") Fm.			

<sup>\*</sup> Stratigraphic column for the Delaware basin, the Northwest Shelf and Central Basin Platform (modified from Broadhead, 2017).

## Proposed Injector Location





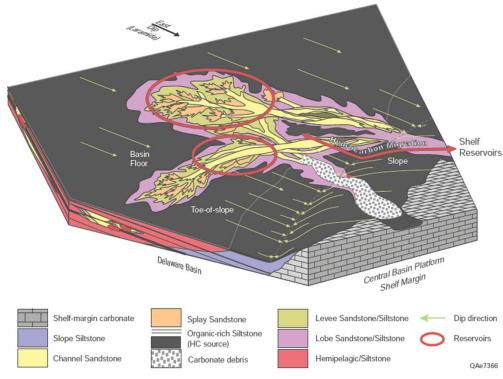
- The area is in the northeastern part of the Delaware Basin within the greater Permian Basin area
- The geologic model is based on both well logs and purchased 3-D seismic for the greater Red Hills area

\*Diagram is modified from Ward et al. (1986).

## Paleogeography & Depositional Environments



- Model is for the eastern margin of the Delaware Basin
- Incised shelf margin channels on the Central Basin Platform margin focused sediments into basin
- Complex depositional pattern of channels, levees, and splay deposits interbedded with hemipelagic sediments
- These channel sandstones within the Bell Canyon and Cherry Canyon formations are the main injection targets

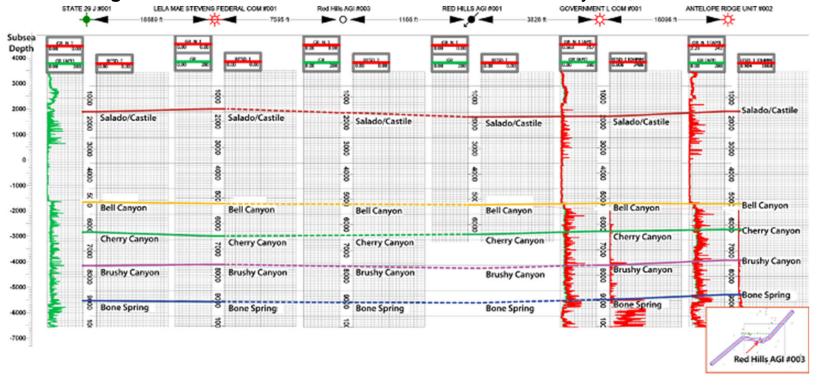


\* Diagram is from Nance (2020)

## Stratigraphy and Cross Section

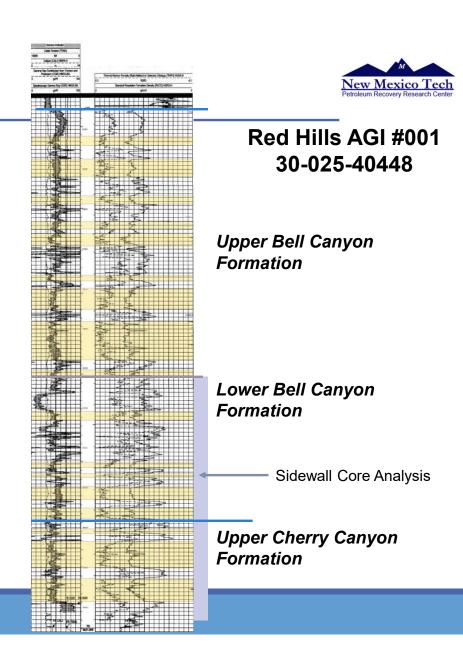


- Delaware Mountain Group: ~2,000 ft of Bell Canyon and Cherry Canyon sandstones
- Confining Zone: ~4,000+ ft of Rustler, Salado and Castile anhydrite, salts and carbonate



## Petrophysical properties

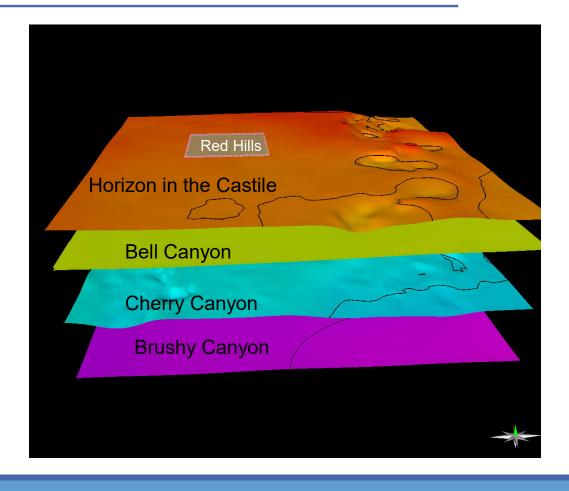
- The closest well (~1,080 ft) to the proposed well is Red Hills AGI #002 (no petrophysical well logs); the next closest well is the Red Hills AGI #001 (~1,170 ft)
- The majority of the porosity within the section is confined to multiple channel sandstone complexes shown in yellow
- Maximum measured porosity of ~24% in lower Bell Canyon to upper Cherry Canyon sandstones
- Overlain by the low porosity and permeability Lamar Limestone, Castile anhydrite and Salado anhydrite and salts



## Seismic Interpretation



- Formation tops based on the 3-D seismic and well logs
- The map shows the seismic area with the smaller box indicating the location of the Red Hills Facility
- The Castile horizon is approximately 1,600 ft above the Bell Canyon horizon
- Both the Bell Canyon and Cherry Canyon formations are approximately 1,200 ft thick in the Red Hills Facility
- Minor relief on the Bell Canyon and Cherry Canyon surfaces
- No faults within the Delaware Mountain Group strata in the Red Hills area were identified

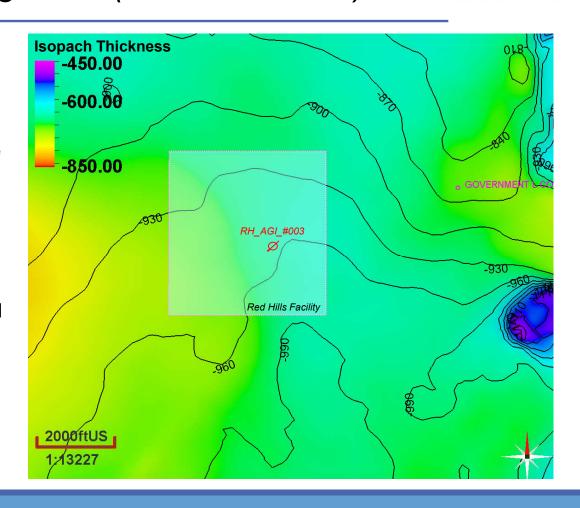


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## Structure Map – Confining Zone (Lamar - Castile)



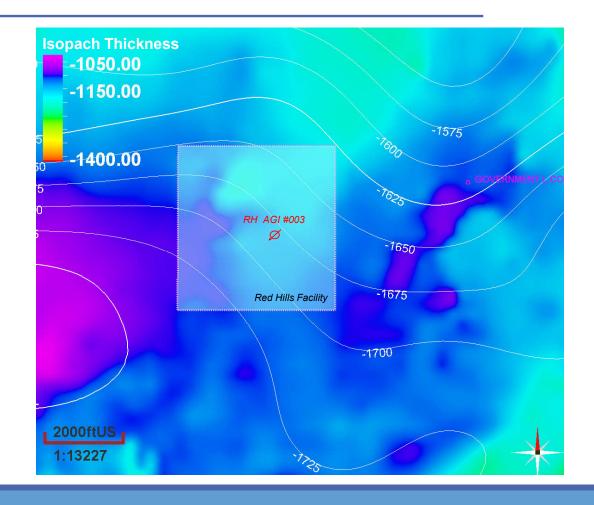
- Isopach and subsea structure map on a seismically correlated horizon within the basin deposited Castile Formation (at ~3,600 ft below the surface)
- The seal starts at ~1,200 ft below surface and goes to over 5,200 ft below the surface (combined Rustler, Salado, Castile, and Lamar formations)
- The total seal is >4,000 ft thick
- The black contour lines are subsea elevations (CI = 30 ft) for an easily picked horizon within the Castile Formation
- The color on the map represents the thickness of the picked horizon within the Castile Formation to the base of the Lamar Limestone



## Structure Map – Injection Zone (Bell Canyon)



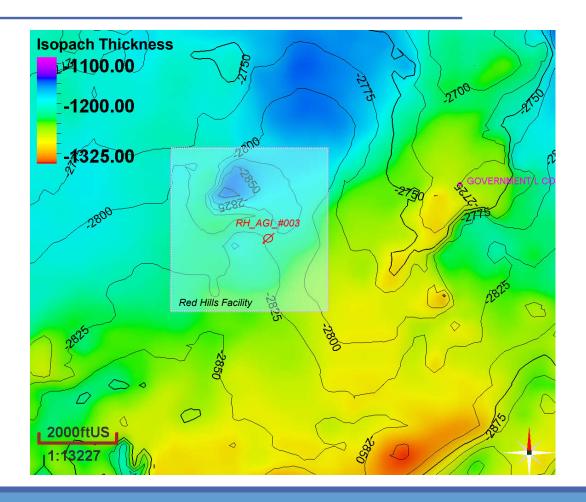
- Isopach and subsea structure map on the Bell Canyon Formation
- The white contour lines are subsea elevation of the Bell Canyon top (CI = 25 ft)
- The color on the map represents the Bell Canyon thickness



## Structure Map – Injection Zone (Cherry Canyon)

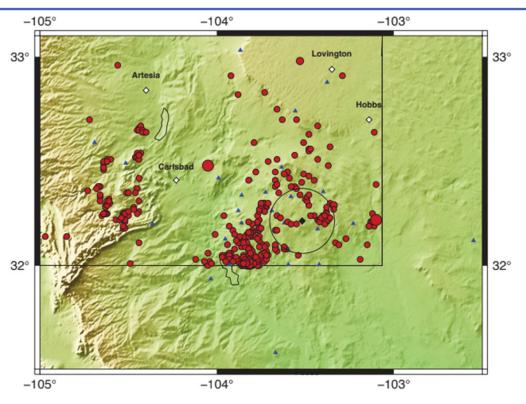


- Isopach and subsea structure map on the Cherry Canyon Formation
- The black contour lines are the subsea elevation of the Cherry Canyon top (CI = 25 ft)
- The color on the map represents the Cherry Canyon thickness



## Seismicity within 10 mi of the Lucid Red Hills AGI site





The plot of events within 10 mi of the Targa Red Hills AGI site, Jan-Dec 2022

- Red circles represent earthquakes (circle size is proportional to magnitude)
- Black diamond represents the Targa site
- Blue triangles represent seismic stations

- The earthquakes ranged in magnitude from M1.03 to an M 3.0 event 12.4km from the site on September 3, 2022
- The second largest event was M2.32
- The closest event to the site during this time period occurred on May 25, 2022, an M1.49 event that was recorded 3.5 4km from the site
- The pattern of seismicity remained relatively constant during this time period, not showing a pronounced increase or decrease
- Red Hills seismic data gathering was initiated January 2022



# Section III Wellbore Design and Operational Programs

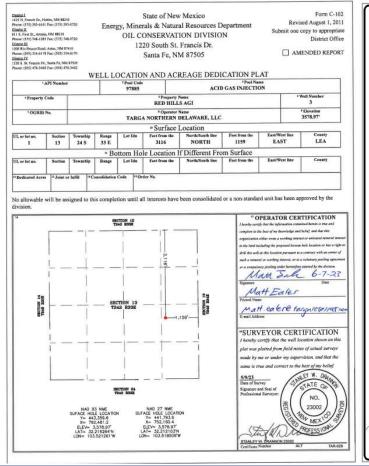
#### PAUL RAGSDALE

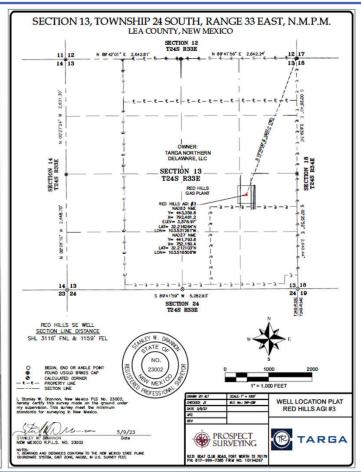
**❖**ENGINEERING CONSULTANT | OPERATIONS ENGINEERING & OIL AND GAS CONSULTING

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## Well Location and Surveyor's Plat







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### Red Hills AGI #003 Wellbore Schematic



Surface - (Conventional)

**Hole Size:** 17.5"

Casing: 13.375" 61# H-40 BTC

Depth Top: Surface Depth Btm: 1307'

TBD sks - Class C + Additives Cement:

Cement Top: Surface - (Circulate)

Intermediate #1 - (Conventional)

**Hole Size:** 12.25"

Casing: 9.625" 47# L-80 BTC

Depth Top: Surface Depth Btm: 5205'

TBD - Class C + Additives Cement: Cement Top: Surface - (Circulate)

Production - (Conventional)

**Hole Size:** 

7" 32# L-80 BTC Casing 1:

Depths: 0' to 5280' & 5580' to 7600' Casing 2: 7" 32# G3 CRA VAMTOP

Depths: 5280' to 5580'

Cement: TBD - Class C + Additives, Well Lock resin 5280'-5580'

Cement Top: Surface - (Circulate) ECP/DV Tool: 5280' & 5580'

**Tubing** 

Depth: 5700'

**Tubing:** 3.5" 9.3# G3 CRA VAMACE

Packer: 7" x 3.5" PermaPak or equivalent (Inconel)

SSSV: 175' PT Gauges: 5690'

XXXXXXXSSSV 175' Rustler 1257' Lamar Lime 5205' Bell Canyon 5245' Packer 5700' Cherry Canyon 6220'

P-T Gauges 5690'

Perforations TBD, 6 spf, 60 deg, ~1400'

Total Depth 7600'

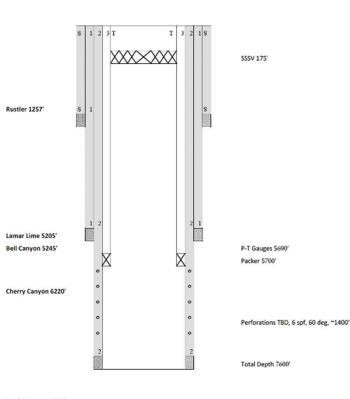
**Brushy Canyon 8019'** 

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## Red Hills AGI #003 Casing and Tubing Design



Casing/ Tubing String	Casing/ Tubing Depth, TVD, ft.	Borehole Diameter, in.	Casing/ Tubing Outside Diameter, in.	Coupling/ Connection	Casing/Tubing Material (Weight/ Grade)	String Weight in air, lb.
Conductor	0 – 100	30	24	Welded	100 lb/ft, J-55	15,700
Surface	0 – 1,307	17-1/2	13-3/8	BTC	72 lb/ft, L-80	94,404
Intermediate	0 – 5,205	12-1/4	9-5/8	BTC	47 lb/ft, L-80	245,810
Production	0 – 7,600	8-1/2	7	VAM TOP	32 lb/ft, CRA-G3- P110	224,000
Tubing	0 – 5,700	N/A	3-1/2	VAM ACE	9.2 lb/ft, CRA-G3	147,568



Brushy Canyon 8019

# New Mexico Tech Petroleum Recovery Research Center

## Red Hills AGI #003 Casing Specification

Casing/ Tubing String	Casing/ Tubing Material	Casing/ Tubing Diameter	Yield	Tensile	Internal Yield	Collapse	Body	Joint Strength
	Weight/ Grade	OD/ID/DRIFT inches	ksi		Burst pressure		Yield 1000 lbs.	1,000 lbs.
Surface	72 lb/ft L-80, BTC	13.375/12.347/ 12.191	55	75	2,410	770	1,685	1,595
Intermediate	47 lb/ft L-80, BTC	9.625/8.681/8.525	80	95	6,870	4,760	1,086	1,122
Production	32 lb/ft VAMTOP CRA-G3- P110	7.0/6.094/5.969	110	125	11,640	10,780	1,025	1,053
Tubing	9.2 lb/ft VAMACE CRA-G3	3.5/2.992/2.867	138	149	15,890	14,890	324	327

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## Red Hills AGI #003 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	5,205	75% open hole excess Lead: 1,481sks 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
Production	7,600	75% open hole excess Lead: 1,555sks 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 Corrosion Resistant Cement	Surface	1 per joint for bottom 3 joints, 1 on every 3 joints for remaining joints

<sup>\*</sup>Cement program may change based on cement engineer recommendation and caliper log result

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## Red Hills AGI #003 Drilling Fluid Design

Hole Size, in.	Drilling Fluid System	Measured Depth, ft	Mud Weight, ppg	Viscosity	Drill Solids, % volume	рН	Circulation Rate, GPM
17-1/2	Fresh Water	0-1,307	8.5 - 9.0	25-30	5	9-10	750
12-1/4	Brine	1,307-5,205	10 - 10.5	36-40	10	9-10	700
8-1/2	Cut Brine	5,205-7,600'	8.5 - 9.0	36-40	5	9-10	600

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# Red Hills AGI #003 Logging and Testing Design

Well Logging	Logging Program	Depth Intervals
	Surface Casing	
Open Hole	Platform Express 150 Array Induction Imager, GR, 4-Arm Caliper	1,307' – 0
	Intermediate Casing	
Open Hole	Platform Express 150 Array Laterolog Imager, GR, 4-Arm Caliper	5,205' - 1,307'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (13 3/8" casing), Gamma Ray	5,205' - 0
	Production Casing	
Open Hole	Platform Express 150 Array Laterolog Imager, GR, 4-Arm Caliper, FMI	7,600' - 5,205'
Cased Hole	Array Sonic Logging Tool, Cement Bond & Variable Density Log (9 5/8" casing), Gamma Ray	7,600' - 0

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### Red Hills AGI #003 Additional Coring and Monitoring

### **Proposed Coring Program**

• Data to be gathered from the wellbore will include open-hole and cased-hole logs and continuous core samples from the target reservoir intervals and seals as well as fluid samples from the injection zone.

### **Proposed Monitoring Program**

- Fiberoptic Line will be attached behind 7" casing to enable monitoring of temperature and acoustics in and above the formation
- Fiberoptic Lines will be attached to the 3-1/2" tubing and 7" production packer to provide real-time data for bottomhole pressure and temperature of the injection zone and real time data for pressure and temperature of the tubing-casing annulus.
- Fiber Optics provide for Distributive Temperature Sensing (DTS), Distributive Acoustic Sensing (DAS) and Point Pressure/Temperature Monitoring. They provide for Real Time Remote Control, Monitoring and Optimization of Injection wells.

### **Daily Monitoring**

- Routine daily inspection of the wellhead and tubing and annulus pressure and temperatures will occur.
- Visual inspection of the flowline piping and wellhead will also occur daily.



# Section IV Reservoir Dynamic Simulation

JIAWEI (DAVID) TU

\*RESEARCH ASSOCIATE III | PRRC | NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY

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# Reservoir Simulation Study of Red Hills AGI #3 in support Targa Northern Delaware LLC C-108 application

#### **RED HILLS AGI #003**

SEC. 13- TWP. 24S-33E LEA COUNTY, NEW MEXICO

#### **Prepared For:**

Targa Northern Delaware LLC

#### **Prepared By:**

New Mexico Institute Of Mining And Technology Petroleum Recovery Research Center Socorro, NM 87801

July 2023

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# Key Considerations of Application for Authorization to Inject

### The objective of this study is to comply with the New Mexico State Rules:

- TITLE 19 NATURAL RESOURCES AND WILDLIFE
- **CHAPTER 15** OIL AND GAS
- PART 26 INJECTION

#### To demonstrate that:

The proposed injection plan for the Red Hills AGI #003

- o will prevent waste,
- o will protect correlative rights, and
- o will not harm public health or the environment.

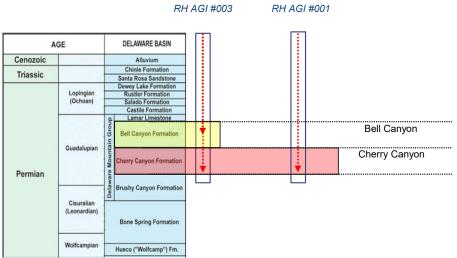
#### Specifically:

- The <u>Bell Canyon and Cherry Canyon</u> formations <u>can receive</u> treated acid gas (TAG) at the proposed injection rate.
- The formation will <u>safely contain</u> the injected TAG volume within the proposed injection and post-injection timeframe.
- The proposed injection well will be operated <u>at or below the maximum surface injection pressure</u> approved by the commission.
- The proposed injection well will allow for the sequestration of TAG, which is in the public interest because it prevents flaring and the associated environmental impacts.

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### Current Subsurface Activities below Red Hills Facility





<sup>\*</sup> Stratigraphic column for the Delaware basin Platform (modified from Broadhead, 2017).

- •In August 2018, NMOCC Red Hills AGI #001 well starts to inject (30-025-49474) to inject treated acid gas (TAG) into the Cherry Canyon formation
- •In August 2022, Targa initiated feasibility study of AGI #003 well to meet the plant's future growth.

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# Model Description

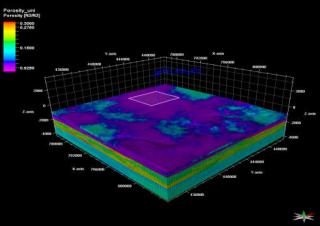
### **Dimension:**

- 3.5 by 3.3 mi<sup>2</sup>
- 182 x 167 x 18
- 547,092 total grids
- The average grid size is 100 ft<sup>2</sup>

### Zones modeled:

Layer No.	Formation	Rock Type
1		
2	SALADO - CASTILE	
3	SALADO - CASTILE	Canrock
4		Caprock
5	LAMAR	
6	LAWAK	
7		
8		
9	BELL CANYON	
10		
11	BELL CANTON	
12		Ch 7
13		Storage Zones
14		
15		
16		
17	CHERRY CANYON	
18		





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### Model Initialization

# New Mexico Tech Petroleum Recovery Research Center

#### Pressure:

- Bell Canyon ~3,400 psi @ RH AGI #003 location
- Cherry Canyon ~3,700 psi @ RH AGI #003 location

### **Temperature:**

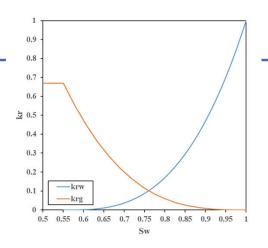
- Bell Canyon ~116°F @ RH AGI #003 location
- Cherry Canyon ~125°F @ RH AGI #003 location

#### Fluid Saturation:

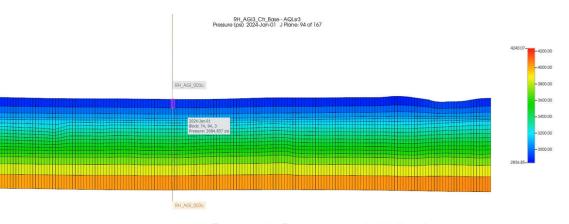
• Initial Sw = 1.0, Swi = 0.55

### Salinity:

20,000 ppm for all intervals is assumed



#### Relative Permeability Curve

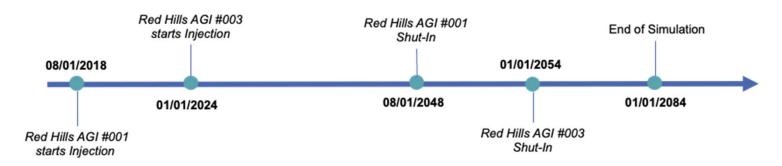


Reservoir Pressure at Initialization

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### Simulated Injection Parameters

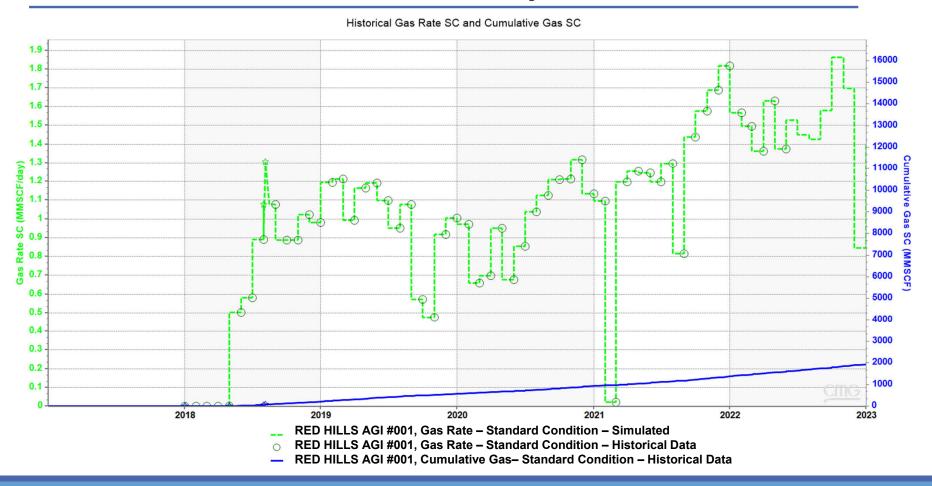


#### Well control calculation:

	Lat.		Top Bell Canyon	Top Cherry Canyon, SSTVD, ft		Formation fracture gradient (pf): 0.63 psi/ft	90% pf
AGI #001	32.215378	-103.518021	5,411	6,364	3,576.66	3,574	3,402
AGI #003	32.216264	-103.521261	5,417	6,403	3,595.59	3,580	3,969

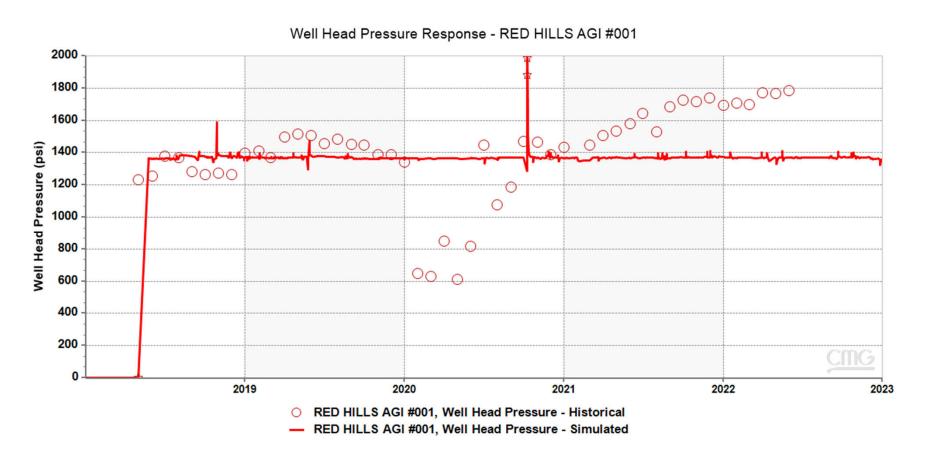
- The proposed injector is simulated with a constant injection rate of 13 MMSCFD.
- The wellhead pressure limit is set to 90% of the maximum surface injection pressure.
- The bottomhole pressure limit is set to 90% of the maximum formation fracture pressure.
- Impacts from the injection rate of AGI #001 are considered.

# Model Validation with RH AGI #001 Injection



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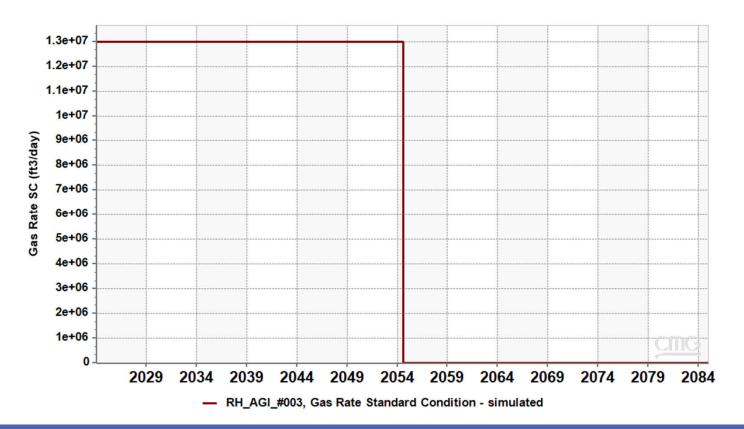
# Model Validation with RH AGI #001 Injection



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# TAG Injection Profile of RH AGI #003

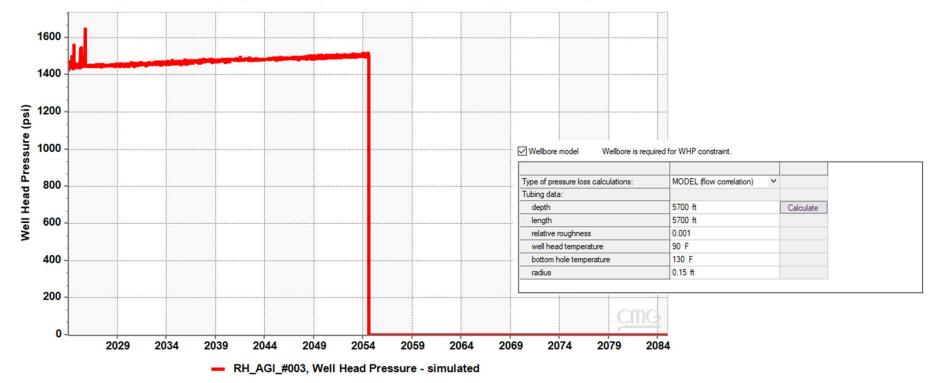
### **Daily injection rate (13 MMSCFD)**



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### Wellhead pressure response of RH AGI #003

### Wellhead pressure (Injection pressure): Average 1,450 psi

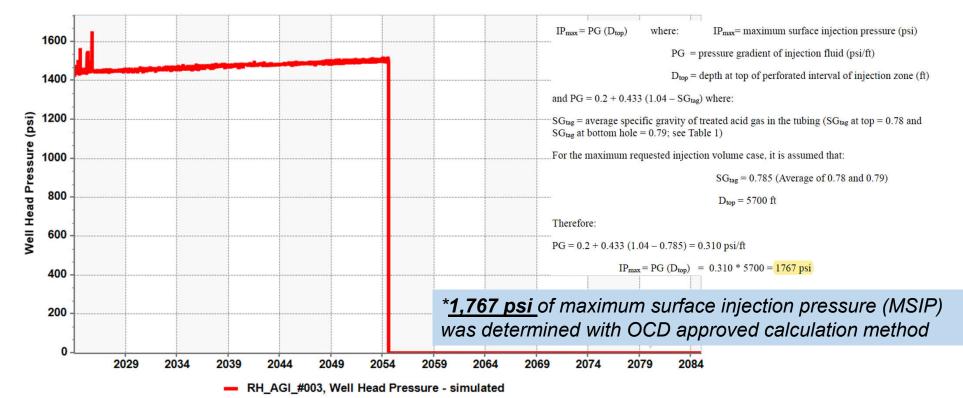


<sup>\*</sup> The initial spikes showing in the WHP are caused by numerical instability of the simulator solver. It is common to appear at the beginning of simulation process, or when operational conditions changed, such as changes in injection and production rules. As the convergence improved over time, the simulated results is stabilized.

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# Wellhead pressure response of RH AGI #003

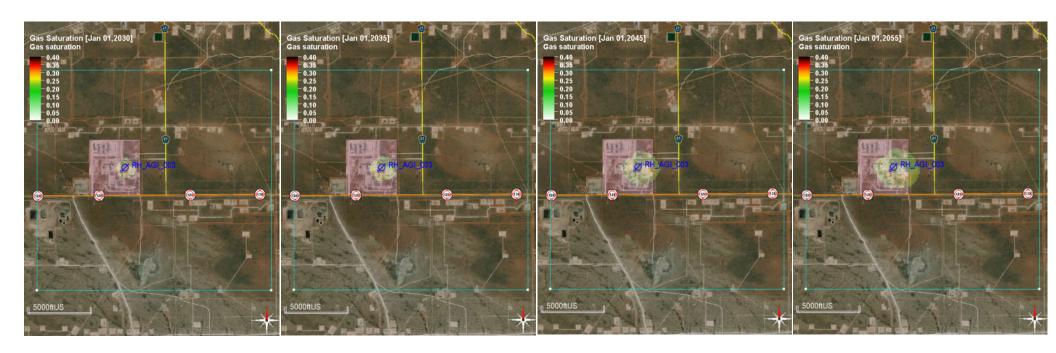
### Wellhead pressure (Injection pressure): Average 1,450 psi



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### TAG Plume Review

### TAG Plume at the end of 30 years: ~0.68 mi

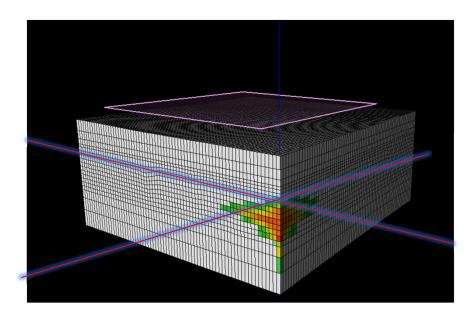


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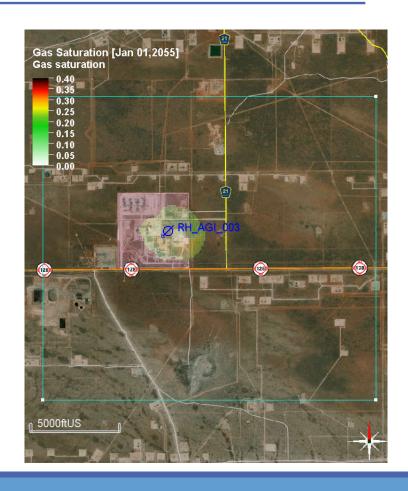
Received by OCD: 7/6/2023 3:23:47 PM

# New Mexico Tech Petroleum Recovery Research Center

### TAG Plume Review



The TAG Plume is safely contained below the caprock in Bell Canyon and Cherry Canyon Formations



### Conclusions and Recommendations

After careful geologic review and engineering study, it shows that:

- The **Bell Canyon and Cherry Canyon** formations **can receive** treated acid gas (TAG) at the proposed injection rate.
- The formation will <u>safely contain</u> the injected TAG volume within the proposed injection and post-injection timeframe.
- The proposed injection well will be operated <u>at or below the maximum surface injection pressure</u> approved by the commission.
- The proposed injection well will allow for the sequestration of TAG, which is in the public interest because it prevents flaring and the associated environmental impacts.

Therefore, the proposed injection plan for the Red Hills AGI #003 will prevent waste, will protect correlative rights, and will not harm public health or the environment

Targa's C-108 Application for Authorization to Inject should be approved.

# **Notice of Hearing Exhibits**

Targa Northern Delaware LLC Case No. 23649 Exhibit C



#### HINKLE SHANOR LLP

ATTORNEYS AT LAW
P.O. BOX 2068
SANTA FE, NEW MEXICO 87504
505-982-4554 (FAX) 505-982-8623

WRITER: Dana S. Hardy, Partner dhardy@hinklelawfirm.com

June 21, 2023

#### <u>VIA CERTIFIED MAIL</u> RETURN RECEIPT REQUESTED

#### TO ALL PARTIES ENTITLED TO NOTICE

Re: Case No. 23649 - 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. 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.

This application (Case Number 23649) has been set for hearing before the New Mexico Oil Conservation Commission at 9:00 am on July 13, 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 in a hybrid format with both in-person and virtual participation options. Information regarding the meeting can be found in the notices posted on the OCC Hearings website: <a href="https://www.emnrd.nm.gov/ocd/occ-info/">https://www.emnrd.nm.gov/ocd/occ-info/</a>.

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 (<a href="https://www.apps.emnrd.nm.gov/ocd/ocdpermitting/">https://www.apps.emnrd.nm.gov/ocd/ocdpermitting/</a>) 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 or (713) 584-1525.

Sincerely,	
/s/ Dana S. Hardy	
Dana S. Hardy	

Enclosure: C-108 Application for Authorization to Inject

PARTY	NOTICE LETTER SENT	RETURN RECEIVED
Agave Energy Company	06/21/23	06/29/23
c/o Lucid Artesia Company		
1900 Dalrock Road		No signature.
Rowlett, TX 75088		
Bureau of Land Management	06/21/23	06/29/23
301 Dinosaur Trail		
Santa Fe, NM 87508		
James Erick Butler	06/21/23	Per USPS Tracking
323 Sage Trail		(Last checked 07/05/23):
Springtown, TX 76082		
		07/03/23 – In transit to
		next facility.
Marissa Lynette Butler	06/21/23	Per USPS Tracking
2200 Katy Lane, Apartment D		(Last checked 07/05/23):
Georgetown, TX 78626		
		06/28/23 – In transit to
		next facility.
Merry Ann Byrd	06/21/23	06/28/23
P.O. Box 562		
Buffalo Gap, TX 79508		
COG Operating, LLC (ConocoPhillips)	06/21/23	06/29/23
600 West Illinois Avenue		
Midland, Texas 79701		
Beverly J. Cook, Trustee of the Beverly	06/21/23	06/27/23
J. Cook 2021 Revocable Trust u/t/a dated		
May 20, 2021		
2836 NW 20th Street		
Oklahoma City, OK 73107		
Maedell Annette Butler Davidson	06/21/23	06/26/23
814 West 25th Street		
Odessa, TX 79763		
Devon Energy Prod. Co. LP	06/21/23	06/29/23
333 Sheridan Ave.		
Oklahoma City, OK 73102		
Linda Jean Butler Duralia	06/21/23	06/26/23
814 West 25th Street		
Odessa, TX 79763		

EOG Resources, Inc.	06/21/23	06/29/23
5509 Champions Drive		
Midland, TX 79706		
The Estate of Cloma Perkins Garrett	06/21/23	Per USPS Tracking
c/o Jerry Wayne Mize		(Last checked 07/05/23):
207 Willey Street		
Willard, MO 65781		07/01/23 – Delivery
		attempted.
Donald Earl Fortner	06/21/23	06/30/23
1033 Park Center Street		
Benbrook, TX 76126		
Gosier Energy, LLC	06/21/23	06/30/23
P. O. Box 5462	00.25.25	0.000
Midland, TX 79704		
Mary Nell McKandles Hale	06/21/23	06/30/23
1033 Park Center Street	00/21/20	00.00.20
Benbrook, TX 76126		
Diane Amelia Scott Hunsaker	06/21/23	Per USPS Tracking
17619 Strathern Street	00/21/25	(Last checked 07/05/23):
Northridge, CA 91325		(East enecked 07/05/25).
11014111450, 011 71323		06/28/23 – In transit to
		next facility.
Jo Anne Krall	06/21/23	Per USPS Tracking
1110 Selman Court	00/21/23	(Last checked 07/05/23):
San Angelo, TX 76905		(Last effected 07/03/23).
Suil Migelo, 174 70705		07/05/23 – Item in transit
		to destination.
Marathon Petroleum Corporation	06/21/23	Per USPS Tracking
5555 San Felipe St.	00/21/23	(Last checked 07/05/23):
Houston, TX 77056		(Last checked 07/03/23).
110031011, 174 / 7030		07/05/23 – Item in transit
		to destination.
Marathon Petroleum Corporation	06/21/23	06/30/23
990 Town & Country Blvd., Floor 11	00/21/23	00/30/23
Houston, TX 77024		No signature.
110ust011, 1A //024		ino signature.

Matador Production Company 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	06/21/23	Per USPS Tracking (Last checked 07/05/23): 06/26/23 – Delivered to
		individual at the address.
Jerry Wayne Mize 207 Willey Street Willard, MO 65781	06/21/23	Per USPS Tracking (Last checked 07/05/23):
		07/01/23 – Delivery attempted.
NGL Water Solutions Permian, LLC 6120 South Yale Avenue, Suite 605 Tulsa, OK 74136	06/21/23	06/29/23
New Mexico Dept. of Transportation P.O. Box 1149 Santa Fe, NM 87504	06/21/23	06/26/23
Quail Ranch LLC One Concho Center 600 West Illinois Avenue Midland, TX 79701	06/21/23	06/29/23
RHL Energy LLC P. O. Box 10922 Midland, TX 79702	06/21/23	Per USPS Tracking (Last checked 07/05/23):  06/27/23 – Delivered to
		front desk, reception, or mailroom.
Shirley Ann Roach 818 South San Jose Drive	06/21/23	06/28/23
Abilene, TX 79605  John Michael Scott 6501 East Ridge Road, # J-6 Odessa, TX 79762	06/21/23	No signature.  Per USPS Tracking (Last checked 07/05/23):
		07/01/23 – Delivery attempted.
Sharon Smith 842 Comanche Trail Abilene, TX 79601	06/21/23	06/28/23

Southwestern Public Service Company	06/21/23	06/30/23
P.O. Box 1979		
Denver, CO 80201		
U.S.A.	06/21/23	06/26/23
c/o New Mexico BLM		
301 Dinosaur Trail		
Santa Fe, NM 87508		
Vanguard Wireless, LLC	06/21/23	Per USPS Tracking
c/o InSite Wireless Group, LLC		(Last checked 07/05/23):
1199 North Fairfax Street, Suite 700		
Alexandria, VA 22314		07/05/23 – Preparing for
		delivery.

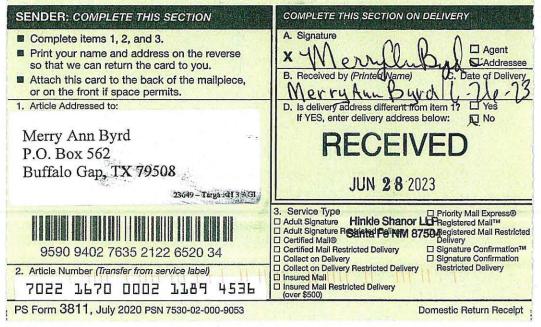


A COMPANY OF THE PARTY OF THE P	
ENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
Complete items 1, 2, and 3.  Print your name and address on the reverse so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.	A. Signature  X
1. Article Addressed to:  Agave Energy Company c/o Lucid Artesia Company 1900 Dalrock Road Rowlett, TX 75088	D. Is delivery address different from item 1? Yes If YES, enter delivery address per www. No  JUN 2 9 2023
9590 9402 7635 2122 6501 60  2. Article Number (Transfer from service label) 7020 0090 0000 0000 0000 0714	3. Service Type PITITIALE SHARP LLP  3. Service Type PITITIALE SHARP LLP  □ Adult Signature Santa Fe NM 8750 Д□ Priority Mail Express® □ Registered Mail™ □ Registered Mail Restricted Delivery □ Collect on Delivery □ Collect on Delivery □ Signature Confirmation™ □ Signature Confirmation™ □ Signature Confirmation™ □ Signature Confirmation™ □ Restricted Delivery □ Insured Mail □ Insured Mail Restricted Delivery □ Cover \$500)
PS Form 3811, July 2020 PSN 7530-02-000-9053	Domestic Return Receipt



SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul> <li>Complete items 1, 2, and 3.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> <li>Attach this card to the back of the mailplece, or on the front if space permits.</li> </ul>	A. Signature  X. Show Moswell   Agent   Addressee  B. Received by (Printed Name)   C. Date of Delivery
1. Article Addressed to:  Bureau of Land Management 301 Dinosaur Trail Santa Fe, NM 87508	D. Is delivery address different from item 1? Yes If Particularly address pelov: No  JUN 2 9 2023
23649 - Targa RH 3 AGI 9590 9402 7635 2122 6521 19 2. Article Number (Transfer from service label) 7022 1670 0002 1189 4673	3. Service Type anta Fe NM 8750 ☐ Priority Mail Express® ☐ Adult Signature Restricted Delivery ☐ Registered Mail™ ☐ Registered Mail Restricted Delivery ☐ Collect on Delivery ☐ Collect on Delivery ☐ Insured Mail ☐ Insured Mail Restricted Delivery (over \$500)
PS Form 3811, July 2020 PSN 7530-02-000-9053	Domestic Return Receipt





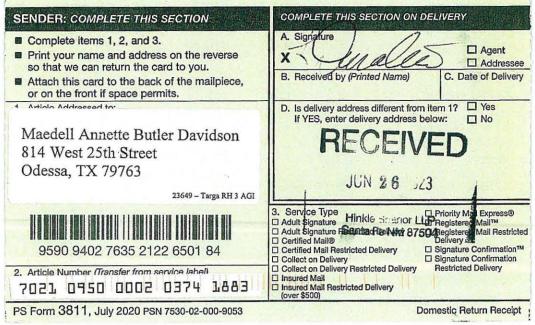


SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul> <li>Complete items 1, 2, and 3.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> <li>Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	A. Signature  X. Multipra.   Agent  Addressee  B. Received by (Printed Name)  C. Date of Delivery
Article Addressed to:	D. Is delivery address different from item 12 Yes
COG Operating, LLC (ConocoPhillips) 600 West Illinois Avenue Midland, Texas 79701	JUN 2 9 2023
23649 – Targa RH 3 AGI	Hinkle Shanor LLP
	3. Service Type Santa Fe NM 87 ⊕Priority Mail Express®  □ Adult Signature □ Adult Signature Restricted Delivery □ Certified Mail® □ Certified Mail Restricted Delivery □ Certified Mail Restricted Delivery □ Signature Confirmation™
9590 9402 7635 2122 6520 89	☐ Collect on Delivery ☐ Signature Confirmation
7022 1670 0002 1189 4642	☐ Collect on Delivery Restricted Delivery Restricted Delivery ☐ Insured Mall Restricted Delivery (over \$500)
PS Form 3811, July 2020 PSN 7530-02-000-9053	Domestic Return Receipt

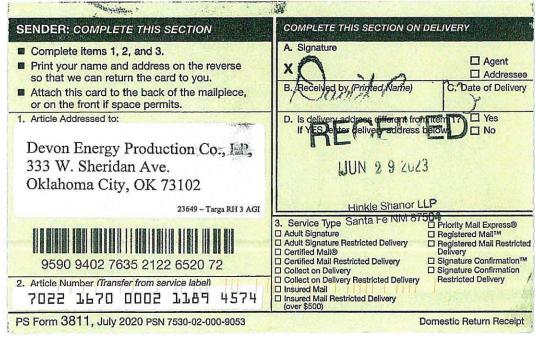


SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul> <li>Complete items 1, 2, and 3.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> <li>Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	A. Signature  X. B. March   Agent   Addressee  B. Received by (Printed Name)   C. Date of Delivery  B. H. M. A. S. C. C. Date of Delivery
Beverly J. Cook, Trustee of the Beverly J. Cook 2021 Revocable Trust u/t/a dated May 20, 2021 2836 NW 20th Street Oklahoma City, OK 73107 23649 - Targa RH 3 AGI	D. Is delivery address different from item 1?
9590 9402 7635 2122 6502 21  2. Article Number (Transfer from service label) 7021 0950 0002 0364 5891	3. Service Type    Adult Signaturblinkle Shanor LLP   Registered Mail™   Adult Signaturblinkle Shanor LLP   Registered Mail™   Certified Mail®   Restricted Delivery   Signature Confirmation™   Collect on Delivery   Signature Confirmation™   Collect on Delivery Restricted Delivery   Registered Mail Restricted Delivery   Registered Mai
PS Form 3811, July 2020 PSN 7530-02-000-9053	Domestic Return Receipt

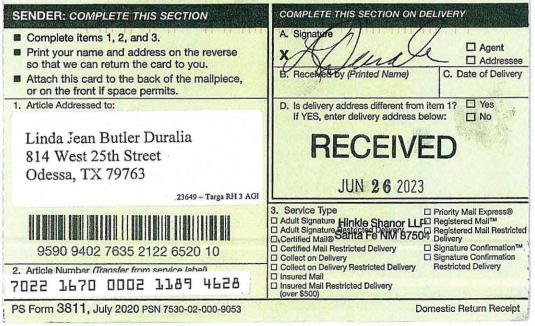




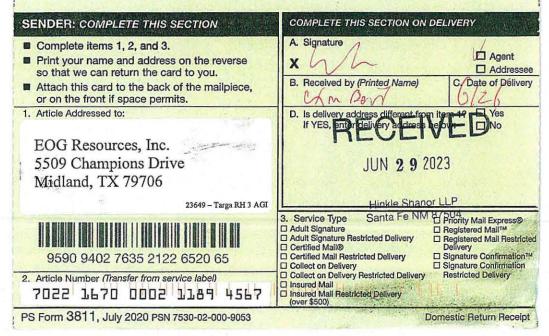










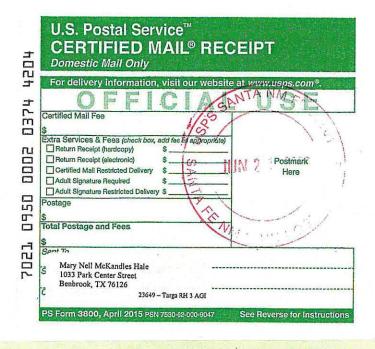


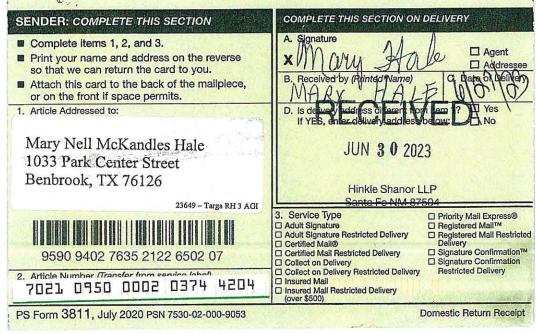


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Complete items 1, 2, and 3.  Print your name and address on the reverse so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.	A. Signature  X Addressee  B. Received by (Printed Name)  C. Date of Delivery  D. Is delivery address differentimental Name)  Yes
Donald Earl Fortner 1033 Park Center Street Benbrook, TX 76126	D. Is delivery address differentifform term in Yes If Yes, enter delivery address below: No JUN 3 0 2023
23649 – Targa RH 3 AGI	Hinkle Shanor LLP
9590 9402 7635 2122 6520 03  2. Article Number (Transfer from service label) 7022 1670 0002 1189 4611	3. Service Type  □ Adult Signature □ Adult Signature Restricted Delivery □ Certified Mail® □ Certified Mail Restricted Delivery □ Certified Mail Restricted Delivery □ Collect on Delivery □ Insured Mail □ Insured Mai
PS Form 3811, July 2020 PSN 7530-02-000-9053	Domestic Return Receipt





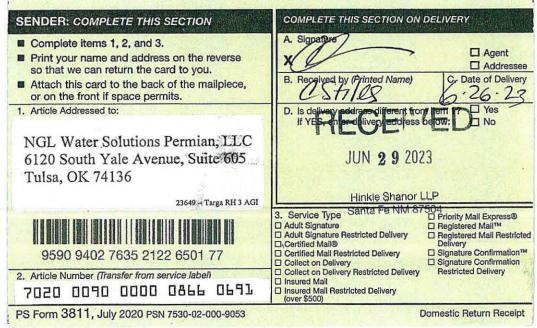






SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON	DELIVERY
<ul> <li>Complete items 1, 2, and 3.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> </ul>	A. Signature	☐ Agent ☐ Addressee
Attach this card to the back of the mailpiece, or on the front if space permits.	B. Received by (Printed Name)	C. Date of Delivery
1. Article Addressed to:	D. Is delivery address different from If YES, enter delivery address.	n item 17 Yes below: No
Marathon Petroleum Corporation 990 Cown & Country 2014, Floor 11 Houston, TX 77024	JUN 3 0 202	
23649 – Targa RH 3 AGI	Santa Fe NW 87	504
9590 9402 7 <mark>6</mark> 35 2122 6520 96	3. Service Type  Adult Signature  Adult Signature Restricted Delivery  Certified Mail®  Certified Mail Restricted Delivery  Collect on Delivery	<ul> <li>□ Priority Mail Express®</li> <li>□ Registered Mail I™</li> <li>□ Registered Mail Restricted Delivery</li> <li>□ Signature Confirmation™</li> <li>□ Signature Confirmation</li> </ul>
2. Article Number (Transfer from service label) 7022 1670 0002 1189 4659	☐ Collect on Delivery Restricted Delivery ☐ Insured Mail ☐ Insured Mail Restricted Delivery (over \$500)	Restricted Delivery
PS Form 3811, July 2020 PSN 7530-02-000-9053		Oomestic Return Receipt

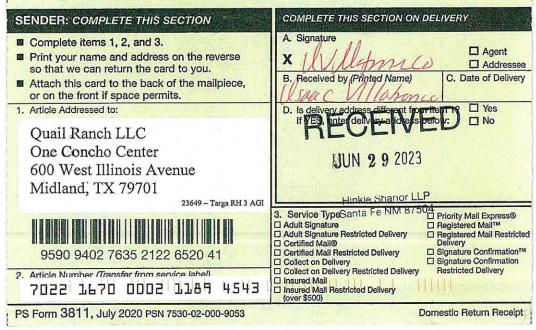




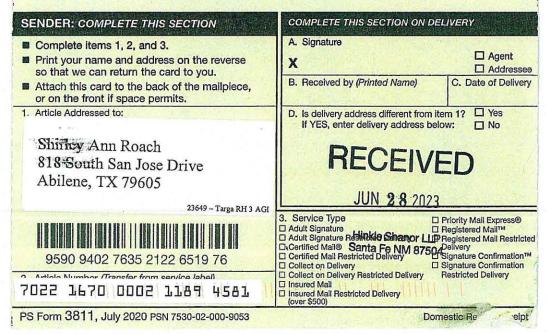








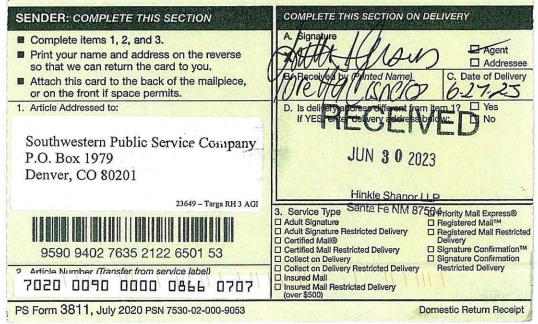
















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5	For delivery information, visit our website at www.usps.com®.
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	Extra Services & Fees (check box, add fee as appropriate)
2000	Return Receipt (electronic) \$ Postmark
	Return Receipt (electronic) \$ Postmark   Cartified Mail Restricted Delivery \$   Here   Adult Signature Restricted Delivery \$   Adult Signature Restricted Delivery \$
20	Postage
0420	Total Postage and Fees
7057	Sent To  Sames Erick Butler
7	323 Sage Trail Springtown, TX 76082 23649 – Targa RH 3 AGI
	PS Form 3800 April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

FAQs >

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July 3, 2023

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OKLAHOMA CITY OK DISTRIBUTION CENTER June 29, 2023, 7:34 am

#### Arrived at USPS Regional Facility

OKLAHOMA CITY OK DISTRIBUTION CENTER June 28, 2023, 3:27 pm

#### **Departed USPS Regional Facility**

FORT WORTH TX DISTRIBUTION CENTER June 24, 2023, 12:08 am

#### **Arrived at USPS Regional Facility**

FORT WORTH TX DISTRIBUTION CENTER June 23, 2023, 11:55 am

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

#### **Arrived at USPS Facility**

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

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FAQs >

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Your package is moving within the USPS network and is on track to be delivered to its final destination. It is currently in transit to the next facility.

#### **Get More Out of USPS Tracking:**

USPS Tracking Plus®

**Delivered** 

**Out for Delivery** 

**Preparing for Delivery** 

## **Moving Through Network**

In Transit to Next Facility

June 28, 2023

#### **Departed USPS Regional Facility**

AUSTIN TX DISTRIBUTION CENTER June 24, 2023, 8:36 am

#### Arrived at USPS Regional Facility

AUSTIN TX DISTRIBUTION CENTER June 23, 2023, 1:06 pm

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

Arrived at USPS Facility
ALBUQUERQUE, NM 87101
June 21, 2023, 9:43 pm

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USPS Tracking Plus®	~
Product Information	~
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## **Need More Help?**

Contact USPS Tracking support for further assistance.



FAQs >

Remove X

**Tracking Number:** 

## 70210950000203741913

Copy Schedule a Redelivery (https://tools.usps.com/redelivery.htm)

### **Latest Update**

This is a reminder to arrange for redelivery of your item before July 10, 2023 or your item will be returned on July 11, 2023. You may arrange redelivery by using the Schedule a Redelivery feature on this page or may pick up the item at the Post Office indicated on the notice.

#### Get More Out of USPS Tracking:

USPS Tracking Plus®

#### **Delivery Attempt: Action Needed**

Reminder to Schedule Redelivery of your item before July 10, 2023

July 1, 2023

#### **Notice Left (No Authorized Recipient Available)**

WILLARD, MO 65781 June 26, 2023, 10:45 am

#### **Departed USPS Regional Facility**

SPRINGFIELD MO DISTRIBUTION CENTER June 26, 2023, 8:58 am

#### **Arrived at USPS Regional Facility**

SPRINGFIELD MO DISTRIBUTION CENTER June 25, 2023, 9:06 pm

#### In Transit to Next Facility

June 25, 2023

#### **Arrived at USPS Regional Facility**

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Released to Imaging: 7/6/2023 3:32:08 PM

KANSAS CITY MO DISTRIBUTION CENTER June 23, 2023, 5:20 pm

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

#### **Arrived at USPS Facility**

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

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## **Need More Help?**

Contact USPS Tracking support for further assistance.

4598	U.S. Postal Service™ CERTIFIED MAIL® RECEIPT  Domestic Mail Only
=	For delivery information, visit our website at www.usps.com®.
1189	OFFIC AND FOR
2000	Extra Services & Fees (check box, add fee as enpropriate)  Return Receipt (hardcopy)  Return Receipt (electronic)  Certified Mail Restricted Delivery \$  Adult Signature Required \$  Adult Signature Restricted Delivery \$
1670	Postage
7	Total Postage and Fees
7022	S Total Postage and Fees  Sent To  Street and Ap:  Diane Amelia Scott Hunsaker 17619 Strathern Street Northridge, CA 91325  City, State, Zh  23649 – Targa RH 3 AGI
	PS Form 3800, April 2015 PSN 7580-02-000-9047 See Reverse for Instructions

FAQs >

Remove X

#### **Tracking Number:**

## 70221670000211894598

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

#### **Latest Update**

Your package is moving within the USPS network and is on track to be delivered to its final destination. It is currently in transit to the next facility.

#### **Get More Out of USPS Tracking:**

USPS Tracking Plus®

**Delivered** 

**Out for Delivery** 

**Preparing for Delivery** 

## **Moving Through Network**

In Transit to Next Facility

June 28, 2023

#### **Departed USPS Regional Facility**

SANTA CLARITA CA DISTRIBUTION CENTER June 24, 2023, 12:55 pm

#### Arrived at USPS Regional Facility

SANTA CLARITA CA DISTRIBUTION CENTER June 24, 2023, 1:52 am

#### **Departed USPS Regional Facility**

LOS ANGELES CA DISTRIBUTION CENTER June 23, 2023, 5:42 pm

#### **Arrived at USPS Regional Facility**

LOS ANGELES CA DISTRIBUTION CENTER June 23, 2023, 8:59 am

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

#### **Arrived at USPS Facility**

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

**Hide Tracking History** 

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USPS Tracking Plus®	~
Product Information	~
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## **Need More Help?**

Contact USPS Tracking support for further assistance.



FAQs >

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#### **Tracking Number:**

## 70210950000203645884

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

### **Latest Update**

Your item departed our USPS facility in OKLAHOMA CITY OK DISTRIBUTION CENTER on July 5, 2023 at 8:48 am. The item is currently in transit to the destination.

#### **Get More Out of USPS Tracking:**

USPS Tracking Plus®

## **Moving Through Network**

**Departed USPS Regional Facility** 

OKLAHOMA CITY OK DISTRIBUTION CENTER July 5, 2023, 8:48 am

#### **Arrived at USPS Regional Facility**

OKLAHOMA CITY OK DISTRIBUTION CENTER July 4, 2023, 10:45 am

#### Addressee Unknown

SAN ANGELO, TX 76905 June 26, 2023, 10:26 am

#### **Departed USPS Regional Facility**

ABILENE TX DISTRIBUTION CENTER June 25, 2023, 1:06 am

#### **Arrived at USPS Regional Facility**

ABILENE TX DISTRIBUTION CENTER June 24, 2023, 10:45 pm

#### In Transit to Next Facility

Page 130 of 149

Released to Imaging: 7/6/2023 3:32:08 PM

June 24, 2023

#### **Departed USPS Regional Facility**

LUBBOCK TX DISTRIBUTION CENTER June 23, 2023, 10:47 pm

#### **Arrived at USPS Regional Facility**

LUBBOCK TX DISTRIBUTION CENTER June 23, 2023, 6:21 pm

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

#### Arrived at USPS Facility

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

**Hide Tracking History** 

Text & Email Updates	~
USPS Tracking Plus®	~
Product Information	~
See Less ^	
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Enter tracking or barcode numbers	

## **Need More Help?**

Contact USPS Tracking support for further assistance.

ப	U.S. Postal Service™ CERTIFIED MAIL® RECEIPT
9994	Domestic Mail Only
=======================================	For delivery information, visit our website at www.usps.com®.
-	OFFICIAL SE
1189	Certified Mail Fee \$ Extra Services & Fees (check box, add fee as appropriate)    Return Receipt (hardcopy)
2000	Return Receipt (hardcopy)   \$   Postmark     Cartified Mail Restricted Delivery \$   Postmark     Adult Signature Required   \$   2023     Adult Signature Restricted Delivery \$   Postmark     Adult Signature Restricted Postmark     Adult Signature Restricted Postmark     Adult Signature Restricte
1670	Postage \$
	Total Postage and Fees
П	Sent To
7022	Street and A Marathon Petroleum Corporation 5555 San Felipe St.
	City, State, Houston, TX 77056 23649 - Targa RH 3 AGI
	PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

FAQs >

Remove X

#### **Tracking Number:**

## 70221670000211894666

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

#### **Latest Update**

Your item departed our USPS facility in NORTH HOUSTON TX DISTRIBUTION CENTER on July 5, 2023 at 11:36 am. The item is currently in transit to the destination.

**Get More Out of USPS Tracking:** 

USPS Tracking Plus®

**Delivered** 

**Out for Delivery** 

**Preparing for Delivery** 

## **Moving Through Network**

**Departed USPS Regional Facility** 

NORTH HOUSTON TX DISTRIBUTION CENTER July 5, 2023, 11:36 am

In Transit to Next Facility

July 4, 2023

Arrived at USPS Regional Facility

NORTH HOUSTON TX DISTRIBUTION CENTER June 24, 2023, 1:19 am

**Departed USPS Facility** 

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

Arrived at USPS Facility
ALBUQUERQUE, NM 87101
June 21, 2023, 9:43 pm

Hide Tracking History

Text & Email Updates	~
USPS Tracking Plus®	~
Product Information	~
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Track Another Package	
Enter tracking or barcode numbers	

## **Need More Help?**

Contact USPS Tracking support for further assistance.

50	U.S. Postal Service <sup>™</sup> CERTIFIED MAIL <sup>®</sup> RECEIPT  Domestic Mail Only
45	For delivery information, visit our website at www.usps.com®.
	OFFICIALANDA
1189	Certified Mall Fee  \$ Extra Services & Fees (check box, add fee as appropriate) /    Return Receipt (hardcopy)
2000	Return Receipt (hardcopy)   S   Postmark     Return Receipt (electronic)   S   Postmark     Certified Mail Restricted Delivery   S   Postmark     Adult Signature Required     Adult Signature Restricted Delivery   S   Postmark     Postmark   Postmark   Postmark     Adult Signature Restricted Delivery   S   Postmark     Postmark   Postmark   Postmark   Postmark     Postmark   Postmark   Postmark   Postmark     Postmark   Postmark   Postmark   Postmark     Postmark   Postmark   Postmark   Postmark   Postmark     Postmark   Postmark   Postmark   Postmark   Postmark   Postmark     Postmark   Postma
1670	5
	Total Postage and Fees
П	Sent To
7022	Sireet and Matador Production Company 5400 LBJ Freeway, Suite 1500 City, State, Dallas, TX 75240
	23649 – Targa RH 3 AGI
	PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

FAQs >

Remove X

#### **Tracking Number:**

## 70221670000211894550

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

#### **Latest Update**

Your item was delivered to an individual at the address at 10:41 am on June 26, 2023 in DALLAS, TX 75240.

#### Get More Out of USPS Tracking:

USPS Tracking Plus®

#### **Delivered**

Delivered, Left with Individual

DALLAS, TX 75240 June 26, 2023, 10:41 am

#### **Departed USPS Regional Facility**

DALLAS TX DISTRIBUTION CENTER June 23, 2023, 10:59 pm

#### Arrived at USPS Regional Facility

DALLAS TX DISTRIBUTION CENTER June 23, 2023, 3:02 pm

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

#### **Arrived at USPS Facility**

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

Enter tracking or barcode numbers

Text & Email Updates

USPS Tracking Plus®

Product Information

See Less 

Track Another Package

# **Need More Help?**

Contact USPS Tracking support for further assistance.

~	U.S. Postal Service™ CERTIFIED MAIL® RECEIPT  Domestic Mail Only
m	For delivery information, visit our website at www.usps.com®.  Certified Mall Fee  Sextra Services & Fees (check box, edd fee as appropriate)  Return Receipt (hardcopy)  Return Receipt (electronic)  Certified Mall Restricted Delivery  Adult Signature Required  Adult Signature Required
0450	Adult Signature Restricted Delivery \$   Description   Description

FAQs >

Remove X

#### **Tracking Number:**

## 70210950000203645877

Copy Schedule a Redelivery (https://tools.usps.com/redelivery.htm)

### **Latest Update**

This is a reminder to arrange for redelivery of your item before July 10, 2023 or your item will be returned on July 11, 2023. You may arrange redelivery by using the Schedule a Redelivery feature on this page or may pick up the item at the Post Office indicated on the notice.

#### **Get More Out of USPS Tracking:**

**USPS Tracking Plus®** 

#### **Delivery Attempt: Action Needed**

Reminder to Schedule Redelivery of your item before July 10, 2023

July 1, 2023

#### **Notice Left (No Authorized Recipient Available)**

WILLARD, MO 65781 June 26, 2023, 10:45 am

#### **Departed USPS Regional Facility**

SPRINGFIELD MO DISTRIBUTION CENTER June 26, 2023, 8:58 am

#### **Arrived at USPS Regional Facility**

SPRINGFIELD MO DISTRIBUTION CENTER June 25, 2023, 9:06 pm

#### In Transit to Next Facility

June 25, 2023

#### **Arrived at USPS Regional Facility**

KANSAS CITY MO DISTRIBUTION CENTER June 23, 2023, 4:58 pm

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

#### **Arrived at USPS Facility**

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

**Hide Tracking History** 

Text & Email Updates	~
Schedule Redelivery	~
USPS Tracking Plus®	~
Product Information	~
See Less 🔨	
Track Another Package	
Enter tracking or barcode numbers	

## **Need More Help?**

Contact USPS Tracking support for further assistance.

U.S. Postal Service™ **CERTIFIED MAIL® RECEIPT** 57 Domestic Mail Only 2 For delivery information, visit our website at www.usps.com®. NME **1980** Certified Mall Fee Extra Services & Fees (check box, add (se as appropriate)
| Return Receipt (hardcopy) \$ |
| Return Receipt (electronic) \$ |
| Certifled Mail Restricted Delivery \$ | 0000 0600 Total Postage and Fees 7020 RHL Energy LLC P. O. Box 10922 Midland, TX 79702 23649 - Targa RH 3 AGI PS Form 3800, April 2015 PSN 7530-02-000-9047

FAQs >

Remove X

#### **Tracking Number:**

## 70200090000008660752

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

### **Latest Update**

Your item was delivered to the front desk, reception area, or mail room at 3:37 pm on June 27, 2023 in MIDLAND, TX 79701.

#### **Get More Out of USPS Tracking:**

USPS Tracking Plus®

#### **Delivered**

Delivered, Front Desk/Reception/Mail Room

MIDLAND, TX 79701 June 27, 2023, 3:37 pm

#### **Available for Pickup**

DOWNTOWN MIDLAND 100 E WALL ST MIDLAND TX 79701-9998 M-F 0830-1700 June 24, 2023, 12:55 pm

#### **Arrived at Post Office**

MIDLAND, TX 79701 June 24, 2023, 12:53 pm

#### **Arrived at USPS Regional Facility**

MIDLAND TX DISTRIBUTION CENTER June 23, 2023, 7:47 pm

In Transit to Next Facility

June 23, 2023

**Departed USPS Facility** 

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

**Arrived at USPS Facility** 

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

**Hide Tracking History** 

Text & Email Updates	~
USPS Tracking Plus®	~
Product Information	~
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Track Another Package	
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## **Need More Help?**

Contact USPS Tracking support for further assistance.

4094	U.S. Postal Service <sup>™</sup> CERTIFIED MAIL® RECEIPT  Domestic Mail Only		
#	For delivery information, visit our website at www.usps.com®.		
5	OFFICIAL USE		
779	Certified Mail Fee  \$ Extra Services & Fees (check box, add fee as appropriate)  Return Receipt (hardcopy)		
2000	☐ Return Receipt (electronic) \$ ☐ Postmatk ☐ Certified Mall Restricted Delivery * \$ ☐ Here ☐ Adult Signature Required \$ ☐		
1670	Postage \$ Total Postage and Fees		
7025	Sent To Street and Apt.  Solution  Street and Apt.  Solution  John Michael Scott 6501 East Ridge Road, # J-6 Odessa, TX 79762  City, State, Ziff  23649 - Targa RH 3 AGI		
	PS Form 3800. April 2015 PSN 7530-02-000-9047 See Reverse for Instructions		

FAQs >

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#### **Tracking Number:**

## 70221670000211894604

Copy Schedule a Redelivery (https://tools.usps.com/redelivery.htm)

### **Latest Update**

This is a reminder to arrange for redelivery of your item before July 10, 2023 or your item will be returned on July 11, 2023. You may arrange redelivery by using the Schedule a Redelivery feature on this page or may pick up the item at the Post Office indicated on the notice.

#### Get More Out of USPS Tracking:

USPS Tracking Plus®

#### **Delivery Attempt: Action Needed**

Reminder to Schedule Redelivery of your item before July 10, 2023

July 1, 2023

#### **Notice Left (No Authorized Recipient Available)**

ODESSA, TX 79762 June 26, 2023, 4:49 pm

#### In Transit to Next Facility

June 25, 2023

#### **Departed USPS Regional Facility**

MIDLAND TX DISTRIBUTION CENTER June 24, 2023, 2:18 am

#### **Arrived at USPS Regional Facility**

MIDLAND TX DISTRIBUTION CENTER June 23, 2023, 7:47 pm

#### **Departed USPS Facility**

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Released to Imaging: 7/6/2023 3:32:08 PM

ALBUQUERQUE, NM 87101 June 22, 2023, 1:44 am

**Arrived at USPS Facility** 

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

**Hide Tracking History** 

Text & Email Updates	~
Schedule Redelivery	~
USPS Tracking Plus®	~
Product Information	~
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## **Need More Help?**

Contact USPS Tracking support for further assistance.

U.S. Postal Service™ **CERTIFIED MAIL® RECEIPT** 0745 Domestic Mail Only 0866 Extra Services & Fees (check box, add fee as appropriate) 0000 Return Receipt (hardcopy) Postmark Return Receipt (electronic) Certified Mail Restricted Delivery Adult Signature Required Adult Signature Restricted Delivery \$ 0600 Total Postage and Fees 7020 S
Sent To
Vanguard Wireless, LLC
c/o InSite Wireless Group, LLC
1199 North Fairfax Street, Suite 700
Alexandria, VA 22314
23649 - Targa MAI 23649 - Targa RH 3 AGI

FAQs >

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#### **Tracking Number:**

## 70200090000008660745

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

### **Latest Update**

Your item arrived at the Post Office at 8:47 am on July 5, 2023 in SANTA FE, NM 87501.

#### Get More Out of USPS Tracking:

**USPS Tracking Plus®** 

**Delivered** 

**Out for Delivery** 

## **Preparing for Delivery**

**Arrived at Post Office** 

SANTA FE, NM 87501 July 5, 2023, 8:47 am

In Transit to Next Facility

July 4, 2023

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 July 3, 2023, 4:48 pm

#### Arrived at USPS Facility

ALBUQUERQUE, NM 87101 July 3, 2023, 1:40 pm

#### **Departed USPS Regional Facility**

MERRIFIELD VA DISTRIBUTION CENTER

June 30, 2023, 7:48 pm

#### **Arrived at USPS Regional Facility**

MERRIFIELD VA DISTRIBUTION CENTER June 29, 2023, 6:53 pm

#### **Out for Delivery**

ALEXANDRIA, VA 22314 June 28, 2023, 6:10 am

#### **Departed USPS Regional Facility**

DULLES VA DISTRIBUTION CENTER June 27, 2023, 4:08 pm

#### **Arrived at USPS Regional Facility**

DULLES VA DISTRIBUTION CENTER June 27, 2023, 5:57 am

#### **Departed USPS Facility**

ALBUQUERQUE, NM 87101 June 23, 2023, 1:29 am

#### **Arrived at USPS Facility**

ALBUQUERQUE, NM 87101 June 21, 2023, 9:43 pm

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