



EOG Resources, Inc.
Artesia Division Office
104 S. 4th Street
Artesia, N. M. 88210

APPROVED

By Olivia Yu at 9:11 am, Dec 08, 2017

EOG Y Resources, Inc.

Characterization Plan

Big Sky ABY State #1

30-005-21020

Section 26, T8S-R33E

Chaves County, New Mexico

November 3, 2017

1RP-4792

NMOCD approves of the proposed delineation for 1RP-4792 with these modifications due the presence of a playa within 200 ft. of the release location:

- 1) RRAL is 20.
- 2) Vertically delineate to 5 ft. bgs.
- 3) Establish the background sample location in the pasture, West of the heater treater.

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I. Location

From the intersection of LeDoux Road and Ruidoso Road, take LeDoux Road east/southeast for approximately 2.6 miles (to ranch house), then follow the road northeast for approximately 0.5 miles, then turn left (north) at the entrance of the location.

II. Background

On August 6, 2017, EOG Y Resources, Inc. submitted to the NMOCD District I office a Form C-141 for the release of 20 B/PW with 8 B/PW recovered. The affected area is approximately 35 feet by 50 feet within the primary berm of the production facility and was contained within the bermed battery. The release was caused by a hole in heater from vandalism (gunshot). A vacuum truck was dispatched to recover the remaining produced water and a backhoe crew was contracted to excavate visually impacted soils (approximately 35' X 50' X1' deep).

III. Surface and Ground Water

Area surface geology is Cenozoic Tertiary. Based on information regarding this location (Section 26, T8S-R33E), the New Mexico Office of the State Engineer (NMOSE) database depth to groundwater is approximately 157 feet – 165 feet (NMOSE-CL00314 POD1, Section 34, T8S-R33E & NMOSE-CL00307 POD1, Section 13, T8S-R32E), the United States Geological Survey National Water Information System (USGS-333503103325801, Section 34, T8S-R33E & USGS-333522103302901, Section 25, T8S-R33E) depth to groundwater is approximately 147.4 feet - 157 feet. Watercourses in the area are dry except for infrequent flows in response to major precipitation events, with the nearest body of surface water being Lane Salt Lake at 8.5 miles away.

IV. NMOCD Ranking Criteria

The ranking for this site is zero (0) based on the following:

Depth to ground water	> 100'
Wellhead Protection Area	> 1000'
Distance to surface water body	> 1000'

Based on the ranking criteria, the NMOCD established RRALs for this site are:

Benzene	10 ppm
BTEX	50 ppm
TPH	5,000 ppm
Chlorides	No established RRAL

V. Sampling Procedure

Vertical delineation samples will be collected at 5 sample points (S1-S5) within the release area. Samples will be collected at 0", 6", 1', and 2' below grade surface (bgs) or when auger refusal is encountered. Due to the nature of the release (produced water), the first set of vertical delineation hole soil samples (1' and 2' bgs) will be analyzed for Benzene, BTEX, TPH extended, and chlorides. If these samples are below RRALs for Benzene, BTEX, and TPH extended, no further sampling for these constituents will occur, only chloride will be analyzed with any further soil sampling if the initial sample analyses warrant further delineation. All samples will be sent to a NMOCD approved laboratory for analysis. Based on those results, additional vertical samples may be collected at the same sample points until the RRAL for a site ranking 0 has been met.

Horizontal delineation samples will be collected at the 4 cardinal compass directions (CCD1-CCD4) at what is believed to be the outer edge of the release area. Samples will be collected at 1' bgs and analysis will be run for the identified constituents determined from vertical delineation sampling to have caused impaction to the soil at the site. If a sample point is determined to be impacted by the release, a new sample will be collected moving out further until an area without impaction is located. Once located, samples will be taken to collaborate the impaction path to the next sample point in the sequence.

As a baseline for all sampling analytical data, background samples will be collected up gradient from the release to the northeast. The point remains on the production pad in an area that has no known release impaction. This creates less damage to the landowner's private surface by keeping the activities on the production pad and reduces the vegetative damage that would otherwise be created by moving off of location to collect background samples in the adjoining pasture.

Figure 1

Site Map

Big Sky ABY State #1

30-005-21020
Section 26, T8S-R33E
Chaves County, New Mexico



Legend

 Release Area (Red Outline)

Google Earth

90 ft



Big Sky ABY State #1

30-005-21020

Section 26, T8S-R33E

Chaves County, New Mexico

- Legend**
- 33.585700 & -103.542989
 - 33.585712 & -103.543167
 - 33.585763 & -103.542984
 - 33.5857920 & -103.543050
 - 33.585799 & -103.543155



Google Earth

50 ft



Figure 2

Vertical Sample Points

Big Sky ABY State #1

30-005-21020

Section 26, T8S-R33E

Chaves County, New Mexico

Legend

- Vertical Delineation Samples



Figure 3

Horizontal Sample Points

Big Sky ABY State #1

30-005-21020

Section 26, T8S-R33E

Chaves County, New Mexico

Legend

- Horizontal Delineation Points
- Release Area (Red Outline)



Figure 4

Background Sample Point

Big Sky ABY State #1

30-005-21020

Section 26, T8S-R33E

Chaves County, New Mexico

Legend

- Background Sample Point



Photos



Geog Resources (575) 748-1471

BIG SKY "ABY" STATE #1

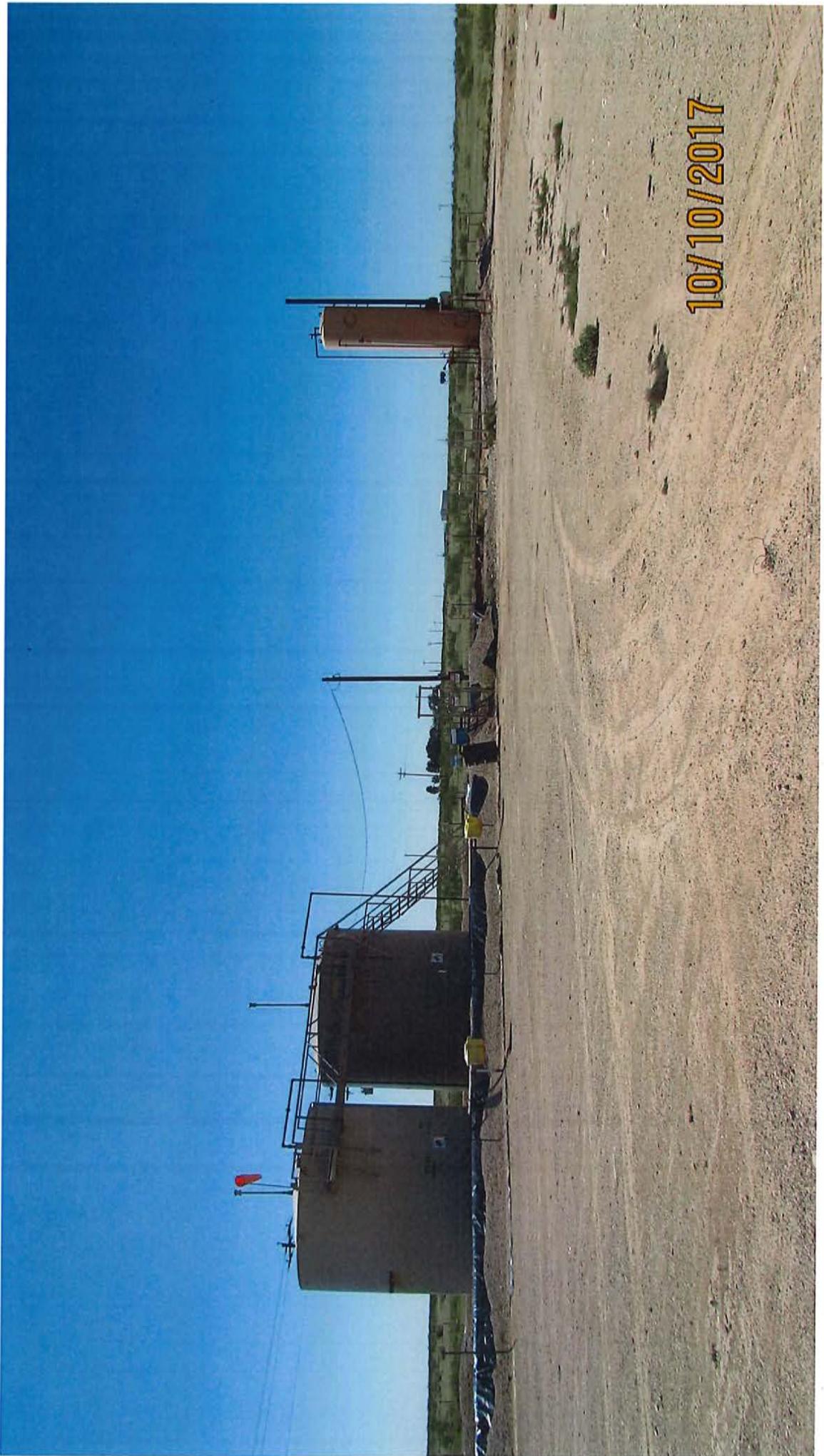
660' FSL & 660' FWL

Sec. 26 - T8S - R33E

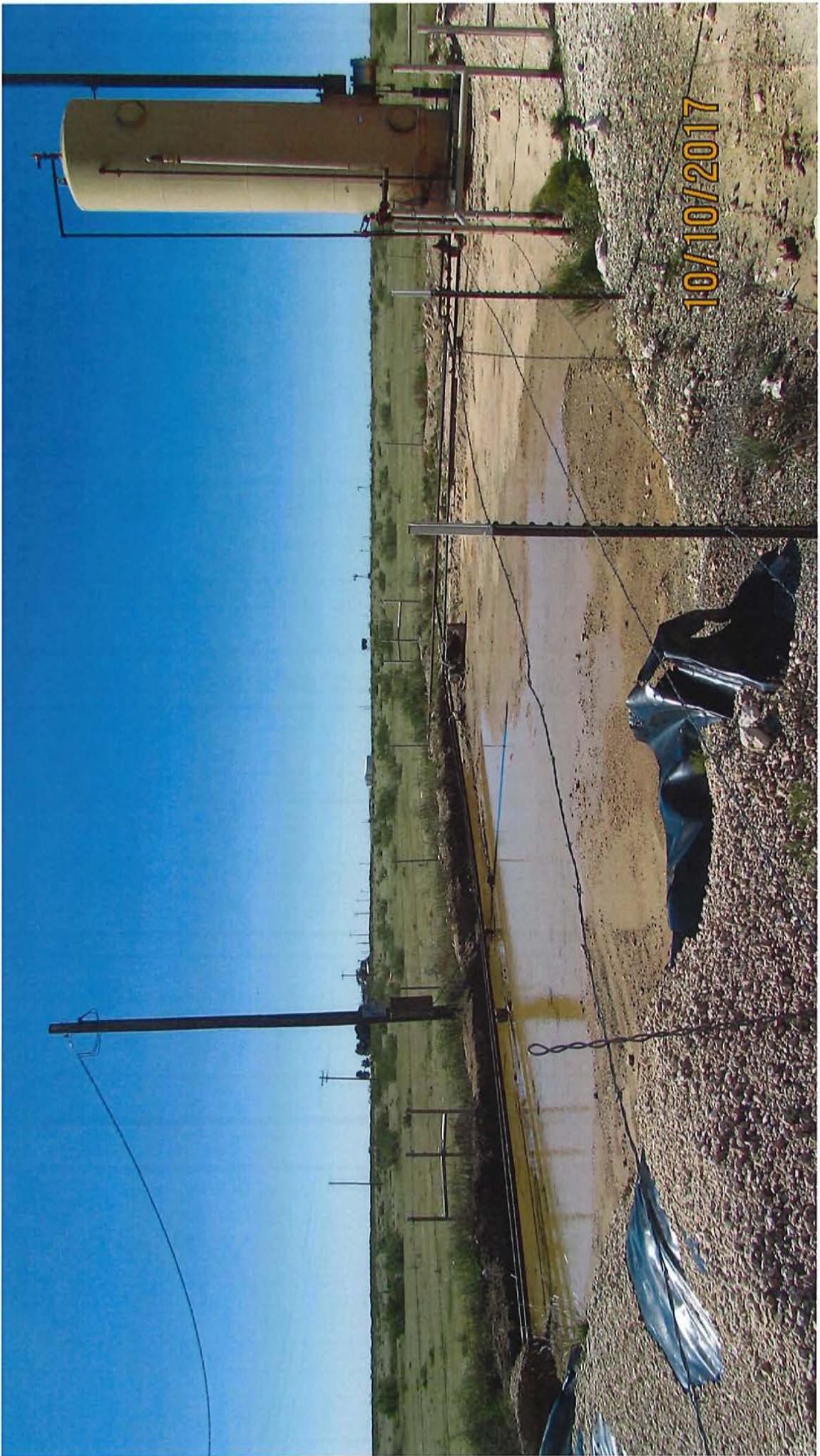
Chaves Co. New Mexico

USE. #LG-2662 APL. #30-005-21020

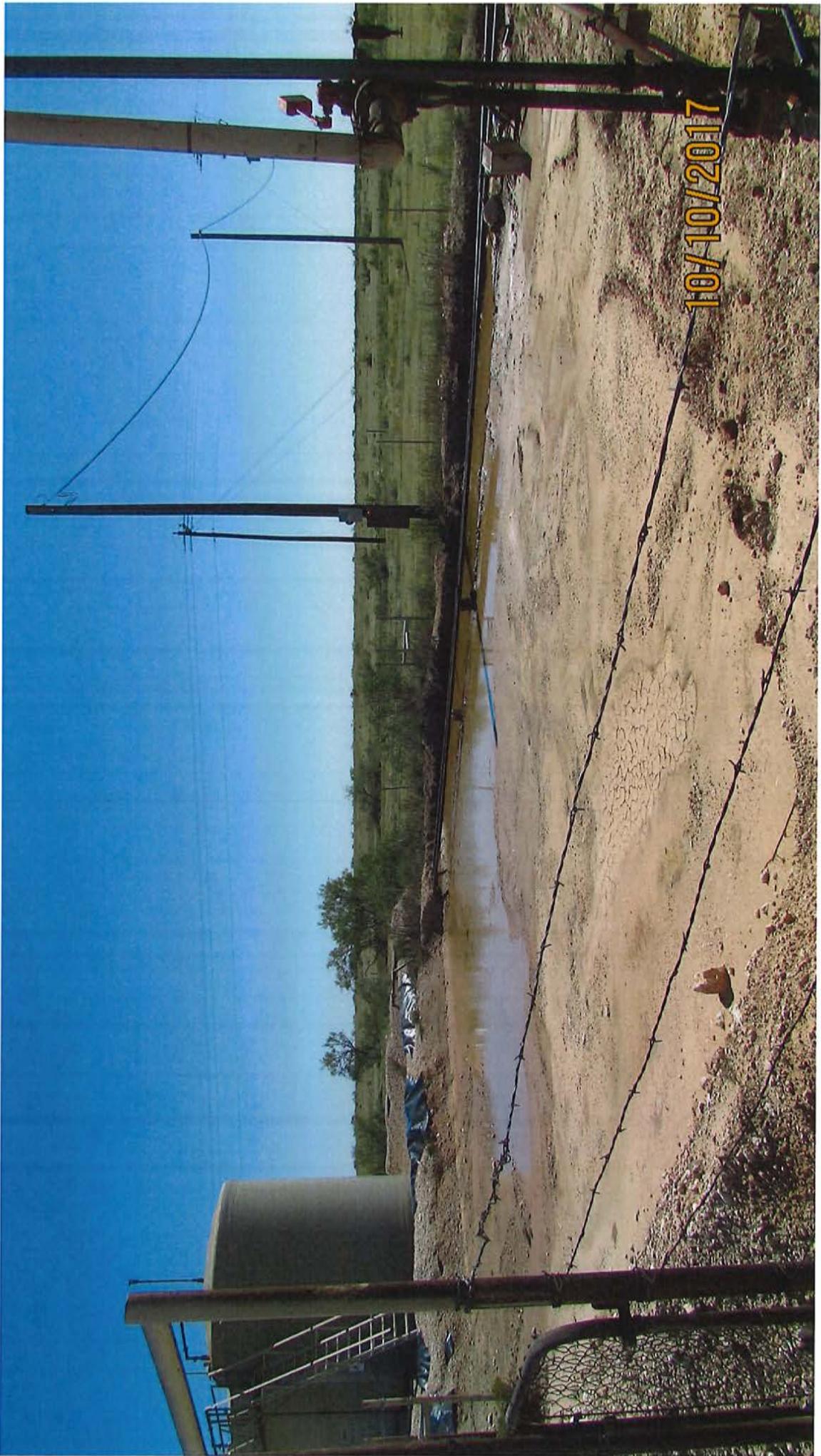
10/10/2017

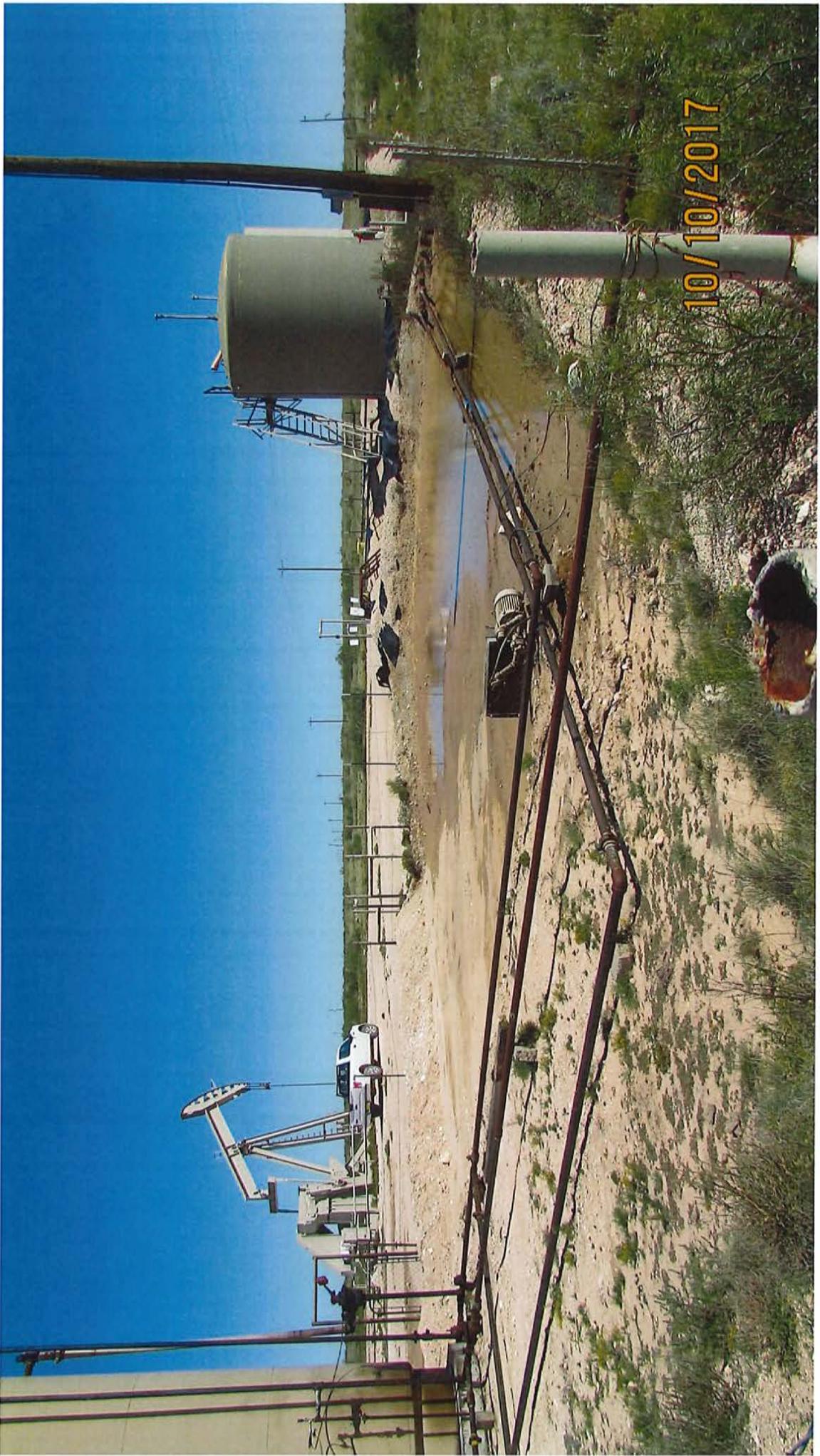


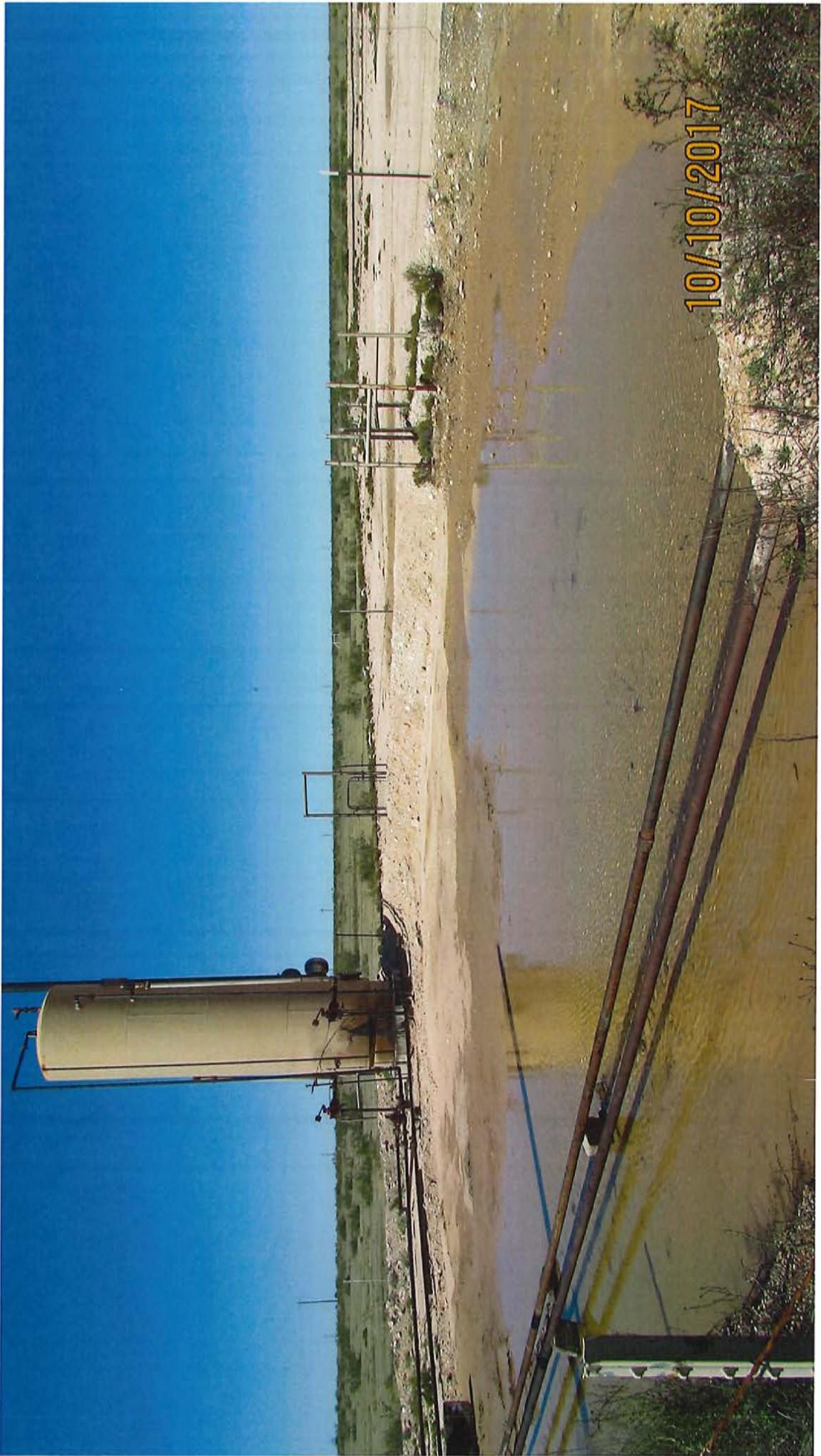
10/10/2017



10/10/2017







10/10/2017

Appendix A

NMOSE Well Log

Big Sky ABY State #1

30-005-21020
Section 26, T8S-R33E
Chaves County, New Mexico

NMOSE CL 00307 POD1 (DTGW 165')

LeDoux Road

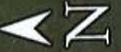
Ruidosa Road

Big Sky ABY State #1

NMOSE CL00314 POD1 (DTGW 157')

Legend

- Big Sky ABY State #1
- LeDoux Road
- NMOSE Water Wells
- Ruidosa Road



1 mi



New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64 Q16 Q4	Sec	Tws	Rng	X	Y
	CL 00314 POD1	1 2 2	34	08S	33E	634611	3716897

Driller License: 1626	Driller Company: TAYLOR, ROY ALLEN	
Driller Name: TAYLOR, ROY A.		
Drill Start Date: 04/18/2016	Drill Finish Date: 04/20/2016	Plug Date:
Log File Date: 04/29/2016	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield: 5 GPM
Casing Size: 5.00	Depth Well: 220 feet	Depth Water: 157 feet

Water Bearing Stratifications:	Top	Bottom	Description
	116	135	Sandstone/Gravel/Conglomerate
	135	185	Sandstone/Gravel/Conglomerate
	182	205	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	160	220



New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)	(NAD83 UTM in meters)		
		Q64 Q16 Q4 Sec Tws Rng	X Y		
	CL 00307 POD1	2 3 4 13 08S 32E	628014 3720298		

Driller License: 1497	Driller Company: COX DRILLING	
Driller Name: COX, TOM W.		
Drill Start Date: 05/15/2015	Drill Finish Date: 05/15/2015	Plug Date:
Log File Date: 05/29/2015	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield: 1 GPM
Casing Size: 5.00	Depth Well: 195 feet	Depth Water: 165 feet

Water Bearing Stratifications:	Top	Bottom	Description
	165	175	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	125	195

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Appendix B

USGS Groundwater Level Information

Big Sky ABY State #1

30-005-21020
Section 26, T8S-R33E
Chaves County, New Mexico

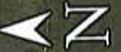
Legend

-  Big Sky ABY State #1
-  USGS Water Wells

Big Sky ABY State #1

USGS #333503103325801 (DTGW 155')

USGS #333522103302901 (DTGW 147.40')



1 mi



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[USGS Water Resources](#)

Data Category: Site Information
Geographic Area: United States

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USGS 333522103302901 08S.33E.25.42422

Available data for this site

Well Site

DESCRIPTION:

Latitude 33°35'23", Longitude 103°30'37" NAD27
 Roosevelt County, New Mexico , Hydrologic Unit 12080001
 Well depth: 151 feet
 Land surface altitude: 4,315.00 feet above NGVD29.
 Well completed in "Ogallala Formation" (121OGLL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1980-02-07	1995-01-26	4

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
 Email questions about this site to [New Mexico Water Science Center Water-Data Inquiries](#)

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Title: NWIS Site Information for USA: Site Inventory

URL: <https://waterdata.usgs.gov/nwis/inventory?>



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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =
• 333522103302901

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

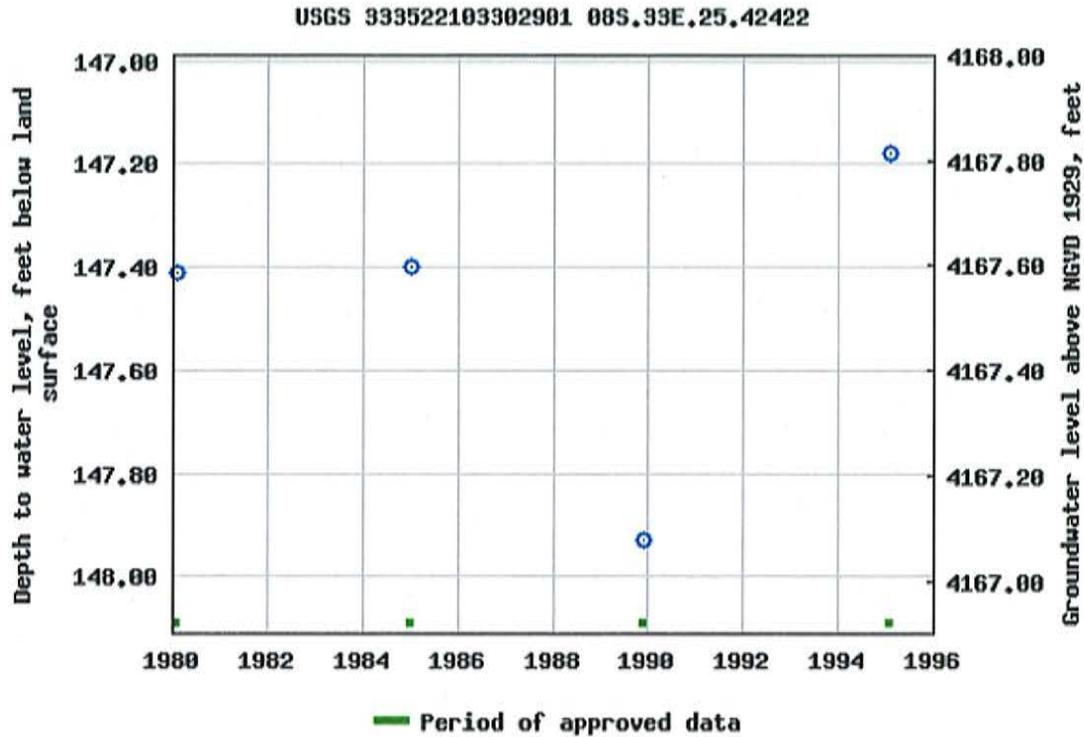
USGS 333522103302901 08S.33E.25.42422

Available data for this site

Roosevelt County, New Mexico
 Hydrologic Unit Code 12080001
 Latitude 33°35'23", Longitude 103°30'37" NAD27
 Land-surface elevation 4,315.00 feet above NGVD29
 The depth of the well is 151 feet below land surface.
 This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

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Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



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1.03 0.87 nadww01



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USGS 333503103325801 08S.33E.34.212211

Available data for this site

Well Site

DESCRIPTION:

Latitude 33°35'03", Longitude 103°32'58" NAD27
 Chaves County, New Mexico , Hydrologic Unit 12080001
 Well depth: 180 feet
 Land surface altitude: 4,355 feet above NGVD29.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1995-02-21	1995-02-21	1

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
 Email questions about this site to [New Mexico Water Science Center Water-Data Inquiries](#)

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Title: NWIS Site Information for USA: Site Inventory

URL: <https://waterdata.usgs.gov/nwis/inventory?>



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Data Category: **Geographic Area:**

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Groundwater levels for the Nation

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site_no list =

- 333503103325801

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 333503103325801 08S.33E.34.212211

Available data for this site

Chaves County, New Mexico

Hydrologic Unit Code 12080001

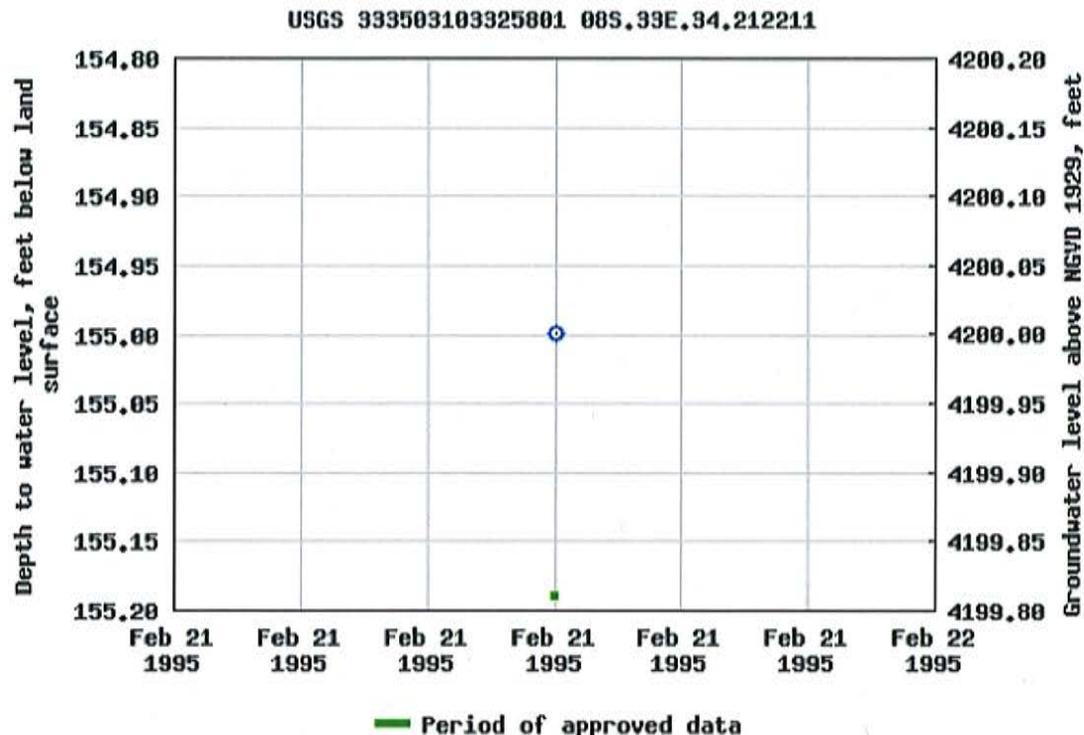
Latitude 33°35'03", Longitude 103°32'58" NAD27

Land-surface elevation 4,355 feet above NGVD29

The depth of the well is 180 feet below land surface.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

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Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



Page Contact Information: [USGS Water Data Support Team](#)

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Appedix C

Form C-141 Initial

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-141
Revised August 8, 2011

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

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company EOG Y Resources, Inc.	Contact Robert Asher
Address 104 S. 4 th Street Artesia, NM 88210	Telephone No. 575-748-1471
Facility Name Big Sky ABY State #1	Facility Type Well

Surface Owner State	Mineral Owner State	API No. 30-005-21020
------------------------	------------------------	-------------------------

LOCATION OF RELEASE

Unit Letter M	Section 26	Township 8S	Range 33E	Feet from the 660	North/South Line South	Feet from the 660	East/West Line West	County Chaves
------------------	---------------	----------------	--------------	----------------------	---------------------------	----------------------	------------------------	------------------

Latitude 33.58612 Longitude -103.54252

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 20 B/PW	Volume Recovered 8 B/PW
Source of Release Heater Treater	Date and Hour of Occurrence 08/06/2017; PM	Date and Hour of Discovery 08/06/2017; PM
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? N/A	<div style="border: 2px solid blue; padding: 5px; color: white; font-weight: bold; font-size: 1.2em;">RECEIVED</div> <p>By Olivia Yu at 5:42 pm, Aug 18, 2017</p>
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impact	

If a Watercourse was Impacted, Describe Fully.* N/A

Describe Cause of Problem and Remedial Action Taken.*

Hole in heater treater from vandalism (gunshot), caused the release. Vacuum truck(s) and roustabout crews were called.

Describe Area Affected and Cleanup Action Taken.

An approximate area of 50'X35'. The well and valves were closed. Vacuum truck recovered remaining produced water. The impacted soils were excavated (1' depth) and hauled to an NMOCD approved facility. Site check on 8/15/2017 and initial vertical and horizontal delineation samples were collected (8/15/2017) to be analyzed for TPH & BTEX (chlorides for documentation). Depth to Ground Water: >100' (approximately 157', Section 34, T8S-R33E, per NMOSE), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Robert Asher	Approved by Environmental Specialist:	
Title: Environmental Supervisor	Approval Date: 8/18/2017	Expiration Date:
E-mail Address: Robert.asher@eogresources.com	Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>
Date: August 16, 2017	Phone: 575-748-4217	

* Attach Additional Sheets If Necessary

1RP-4792

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pOY1723064269