



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

EOG Y Resources, Inc.

Characterization Plan

Donahue Federal SWD #1

30-015-00087

Section 10, T20S-R24E

Eddy County, New Mexico

March 20, 2018

2RP-4621

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I. Location

From Artesia, NM travel south on US 285 to Rock Daisy Road (MM54). Turn Right (west) and continue for approximately 8.5 miles. Turn right (south) at curve in the road onto Sawbuck Road, continue south for approximately 2 miles, turn right onto lease road and continue for approximately 0.5 miles to 'T' in the road, turn right and continue for approximately 1.0 miles to the SWD Facility.

II. Background

On February 12, 2018, EOG Y Resources, Inc. submitted to the NMOCD District I office a Form C-141 for the release of 9.5 B/O & 1 B/PW with 9.5 B/O & 0.5 B/PW recovered. The affected area is approximately 165' X 35' within the primary berm of the production facility and was contained within the bermed and lined battery. The release was caused by debris plugging up the pumping system; facility continued to receive water until tanks reached overflow level. A vacuum truck was dispatched and recovered all oil and ½ barrel of produced water. A backhoe crew was dispatched and excavated the visibly impacted gravel. The impacted gravel excavated was hauled to an NMOCD approved disposal facility. The remaining 0.5 B/PW was either entrained within the excavated gravel or evaporated within the lined battery.

III. Surface and Ground Water

Area surface geology is Cenozoic Tertiary. Based on information regarding this location (Section 4, T10S-R34E), the New Mexico Office of the State Engineer (NMOSE) database depth to groundwater is follows: (NMOSE-RA 03084, 286'), the United States Geological Survey National Water Information System, is as follows: (USGS #3236101043422801, 281'). The depth to groundwater is approximately greater than 100', per USGS and NMOSE groundwater level. **Based on this information the Site Ranking is a Zero (0).**

Watercourses in the area are dry except for infrequent flows in response to major precipitation events, with the nearest body of surface water being Brantley Lake at 10.3 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. Liner Integrity Test

With the battery being bermed and lined with a 20 millimeter liner, a liner integrity test will be performed to determine if there are any leaks, tears, punctures and/or breaches. The battery will be filled with fresh water and the level gauged. After a period of three (3) hours, the water level will be gauged again, based off of the measurements, the SMA Evaporation Formula will be used to determine either liner integrity is intact where a Closure Report/Form C-141 Final Report will be submitted to the NMOCD II Office requesting closure. Or if there is abnormal water loss that would indicate a liner failure in which, VI. Sampling Procedure will be implemented.

VI. Sampling Procedure

Samples will only be collected if the liner integrity test shows a failure or breach in the liner.

Vertical delineation samples (SP-1 & SP-2) will be collected at a central sample point within the release area. Samples will be collected at 1', 2', 3', and 4' below grade surface (bgs) or when auger refusal is encountered. Due to the nature of the release (oil & produced water), the vertical delineation soil samples will be analyzed for Benzene, BTEX, TPH extended (Chlorides for documentation). All samples will be sent to a NMOCD approved laboratory for analysis.

Horizontal delineation samples will be collected at the 4 cardinal point (CP1-CP4) at what is believed to be the outer edge of the release/excavation area. Samples will be collected at 1' below grade surface (bgs) or when auger refusal is encountered. 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. Due to the nature of the release (oil & produced water), the vertical delineation soil samples will be analyzed for Benzene, BTEX, TPH extended (Chlorides for documentation). All samples will be sent to a NMOCD approved laboratory for analysis.

As a baseline for all sampling analytical data, background sample(s) will be collected up gradient from the release to the east. The point remains on the production pad in an area that has no known release impaction. This creates less damage to the SLO 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.

Latitude/Longitude Coordinates for Sample Points

SP-1	32.590622°; -104.582212°
SP-2	32.590659°; -104.582231°
CP-1	32.590659°; -104.582212°
CP-2	32.590576°; -104.582209°
CP-3	32.590635°; -104.582103°
CP-4	32.590604°; -104.582298°
Background Sample	32.590748°; -104.582388°

Figure 1

Site Map

Donahue Federal SWD #1

30-015-00087

Section 10, T20S-R24E

Eddy County, New Mexico

Legend

- Donahue Federal SWD #1

Donahue Federal SWD #1

Google Earth

© 2018 Google

200 ft



Figure 2

Vertical Sample Point(s)

Donahue Federal SWD #1

30-015-00087

Section 10, T20S-R24E

Eddy County, New Mexico

Legend

- Donahue Federal SWD #1
- Vertical Sample Points

SP-1
SP-2

Donahue Federal SWD #1

Google Earth

© 2018 Google

100 ft



Figure 3

Horizontal Sample Point(s)

Donahue Federal SWD #1

30-015-00087

Section 10, T20S-R24E

Eddy County, New Mexico

Legend

- Donahue Federal SWD #1
- Horizontal Sample Points

Donahue Federal SWD #1

CP-4

CP-1

CP-3

CP-2



Figure 4

Background Sample Point(s)

Donahue Federal SWD #1

30-015-00087

Section 10, T20S-R24E

Eddy County, New Mexico

Background Sample

Legend

- Background Sample
- Donahue Federal SWD #1

Donahue Federal SWD #1



Photos



eog y resources (575) 748-1471

DONAHUE #1
"S" W D "

Sec. 10 - T 20 S - R 24 E - Unit E

Eddy Co. New Mexico

Le. # NM-81893







Appendix A

Water Well Date Site Map

Donahue Federal SWD #1

30-015-00087

Section 10, T20S-R24E

Eddy County, New Mexico

Water Well Data

Site Ranking is Zero (0). DTGW > 100'
(Approximately 274.5, per NMOSE & USGS Ground Water Levels).

Legend

- Donahue Federal SWD #1
- ◼ NMOSE & USGS Water Wells

NMOSE, RA 03084 (DTGW @ 268')

USGS, 323610104342801 (DTGW @ 281')

Rock-Daisy Rd

23

© C. T. Bank

Donahue Federal SWD #1



Appendix B

NMOSE Well Log



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

RA 03084

1 03 20S 24E

539366 3607752* 

Driller License:

Driller Company:

Driller Name: EXISTING WELL

Drill Start Date: 06/03/1953

Drill Finish Date: 06/12/1953

Plug Date:

Log File Date: 11/19/1953

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield:

Casing Size:

Depth Well: 330 feet

Depth Water: 268 feet

Water Bearing Stratifications:

Top Bottom Description

305 310 Limestone/Dolomite/Chalk

Meter Number: 3588

Meter Make: BROOKS

Meter Serial Number: 9011T506832

Meter Multiplier: 1.0000

Number of Dials: 4

Meter Type: Diversion

Unit of Measure: Barrels 42 gal.

Return Flow Percent:

Usage Multiplier:

Reading Frequency: Quarterly

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount
01/06/2000	2000	6078	A	RPT		0
07/04/2000	2000	6078	A	RPT		0
01/19/2001	2000	6078	A	RPT		0
07/09/2001	2001	6078	A	RPT		0
01/17/2002	2001	6078	A	RPT		0
04/04/2002	2002	6078	A	RPT		0
01/31/2003	2003	6078	A	tw		0
07/31/2003	2003	6078	A	tw		0
10/30/2003	2003	6078	A	tw		0
03/01/2004	2004	6078	A	sj		0
06/01/2004	2004	6078	A	sj		0
09/01/2004	2004	6078	A	sj		0
04/13/2005	2005	6078	A	RPT		0
10/06/2005	2005	6078	A	RPT		0
12/31/2013	2013	6078	A	RPT		0
03/31/2014	2014	6078	A	RPT		0
09/30/2014	2014	6078	A	RPT		0

*UTM location was derived from PLSS - see Help

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount
12/31/2014	2014	6078	A	RPT		0
06/30/2015	2015	6078	A	RPT		0
09/30/2015	2015	6078	A	RPT		0
12/31/2015	2015	6078	A	RPT		0
09/30/2016	2016	6078	A	RPT	well not in service	0

**YTD Meter Amounts:	Year	Amount
	2000	0
	2001	0
	2002	0
	2003	0
	2004	0
	2005	0
	2013	0
	2014	0
	2015	0
	2016	0

Meter Number:	8260	Meter Make:	BROOKS
Meter Serial Number:	9011T5068321	Meter Multiplier:	1.0000
Number of Dials:	6	Meter Type:	Diversion
Unit of Measure:	Barrels 42 gal.	Return Flow Percent:	
Usage Multiplier:		Reading Frequency:	Quarterly

Appendix C

USGS Groundwater Level Information



[USGS Home](#)
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[Search USGS](#)

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:

Site Information



Geographic Area:

United States



GO

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- **March 16, 2018** - There has been a recent change to the "Subscribe for system changes" function and it is unavailable.

Please send an email to gs-w_support_nwisweb@usgs.gov if you would like us to add you manually until we have addressed the problem.

- [Please see news on new formats](#)
- [Full News](#) 

USGS 323610104342801 20S.24E.03.14322

Available data for this site

SUMMARY OF ALL AVAILABLE DATA

GO

Well Site

DESCRIPTION:

Latitude 32°36'10", Longitude 104°34'28" NAD27

Eddy County, New Mexico

Well depth: 310 feet

Land surface altitude: 3,721 feet above NAVD88.

Well completed in "Artesia Group" (313ARTS) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1961-01-06	1989-02-10	14

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?>



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

Page Last Modified: 2018-03-16 16:17:08 EDT

0.27 0.26 caww01



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National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:

Groundwater ▼

Geographic Area:

United States ▼

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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 323610104342801

Minimum number of levels = 1

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

USGS 323610104342801 20S.24E.03.14322

Available data for this site

Groundwater: Field measurements ▼

GO

Eddy County, New Mexico

Hydrologic Unit Code --

Latitude 32°36'10", Longitude 104°34'28" NAD27

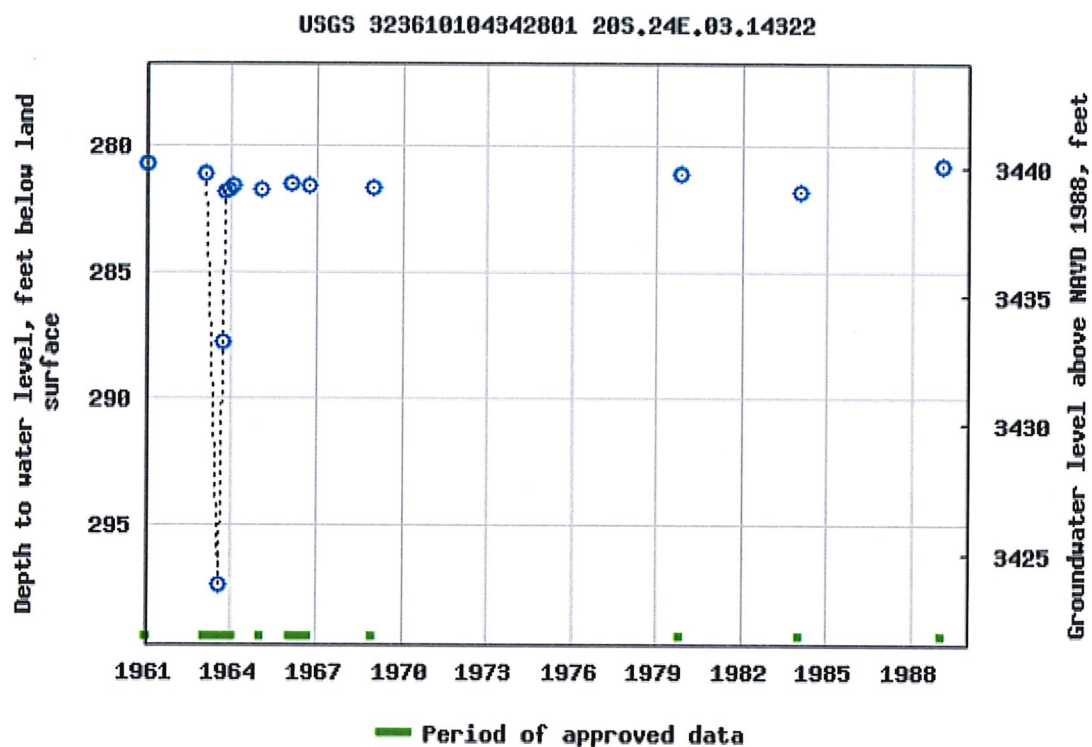
Land-surface elevation 3,721 feet above NAVD88

The depth of the well is 310 feet below land surface.

This well is completed in the Artesia Group (313ARTS) 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?>



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

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1.03 0.89 nadww01

Appendix D

Form C-141 Initial

NM OIL CONSERVATION

ARTESIA DISTRICT

State of New Mexico
Energy Minerals and Natural Resources

FEB 12 2018

Form C-141
Revised April 3, 2017

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

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

RECEIVED

Submit 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.	25575	Contact Robert Asher
Address 104 S. 4 th Street Artesia NM 88210		Telephone No. 575-748-1471
Facility Name Donahue Federal SWD #1		Facility Type SWD Facility

Surface Owner Federal	Mineral Owner Federal	API No. 30-015-00087
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LOCATION OF RELEASE

Unit Letter E	Section 10	Township 20S	Range 24E	Feet from the 1980	North/South Line North	Feet from the 660	East/West Line West	County Eddy
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Latitude 32.59024 Longitude -104.58223 NAD83

NATURE OF RELEASE

Type of Release Crude Oil/Produced Water	Volume of Release 9.5 B/O & 1 P/W	Volume Recovered 9.5 B/O & 0.5 P/W
Source of Release Produced Water Tanks	Date and Hour of Occurrence 01/25/2018; 8:00 AM	Date and Hour of Discovery 01/25/2018; AM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour N/A	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

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

Describe Cause of Problem and Remedial Action Taken.*
Pump system became plugged with debris; Facility continued to receive water until tanks reached overflow level. Vacuum truck and roustabout crew were called.

Describe Area Affected and Cleanup Action Taken.*
The impacted area was approximately 165' X 35' within the primary bermed/lined battery (this containment is bermed with a 20 mil liner). All released oil and 50% (0.5 B/PW) was recovered. A liner integrity test will be conducted, if results are within the allowable limits to affirm integrity a Final Report, C-141 will be submitted to the NMOCD requesting closure. If the results indicate integrity failure a characterization plan will be submitted to the NMOCD. Depth to Ground Water: >1000' (268' per NMOSE & 282' per USGS), 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	Signed By:	
Title: Environmental Supervisor	Approved by Environmental Specialist:	
E-mail Address: robert_asher@eogresources.com	Approval Date: 2/16/18	Expiration Date: N/A
Date: February 12, 2018	Conditions of Approval: See attached	Attached ☐ 2RP-4621
Phone: 575-748-4217		

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/12/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-41021 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 3/12/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

Bratcher, Mike, EMNRD

From: Yvette Moore <Yvette_Moore@eogresources.com>
Sent: Monday, February 12, 2018 11:40 AM
To: Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD
Cc: Bob Asher; Chase Settle
Subject: C-141 Initial Donahue Federal SWD #1
Attachments: Form C-141 Initial (Donahue Federal SWD #1).pdf

Please find the attached C-141 Initial for the location listed below:

Donahue Federal SWD #1
30-015-00087
1980 FNL' & 660 FWL'
Sec 10-20S-24E
Eddy County, New Mexico



Yvette Moore

Rep Safety & Environmental II
Safety & Environmental Department
Artesia Division
(575)748-4223
yvette_moore@eogresources.com