

Initial Application Part I

Received: 5/31/2022

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

RECEIVED: 05/31/2022	REVIEWER:	TYPE: SWD	APP NO: pJZT2215952045
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Geological & Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND
 REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Applicant: Mack Energy Corporation

OGRID Number: 013837

Well Name: Labrador SWD #1

API: 30-005-00456

Pool: SWD; Devonian

Pool Code: 96101

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION
 INDICATED BELOW**

1) **TYPE OF APPLICATION:** Check those which apply for [A]

SWD-2488

A. Location - Spacing Unit - Simultaneous Dedication

☐ NSL☐ NSP (PROJECT AREA)☐ NSP (PRORATION UNIT)☐ SD

B. Check one only for [I] or [II]

[I] Commingling - Storage - Measurement

☐ DHC☐ CTB☐ PLC☐ PC☐ OLS☐ OLM

[II] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery

☐ WFX☐ PMX☒ SWD☐ IPI☐ EOR☐ PPR2) **NOTIFICATION REQUIRED TO:** Check those which apply.A. ☒ Offset operators or lease holdersB. ☐ Royalty, overriding royalty owners, revenue ownersC. ☒ Application requires published noticeD. ☒ Notification and/or concurrent approval by SLOE. ☐ Notification and/or concurrent approval by BLMF. ☒ Surface ownerG. ☒ For all of the above, proof of notification or publication is attached, and/or,H. ☐ No notice required**FOR OCD ONLY**☐

Notice Complete

☐Application
Content
Complete

- 3) **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Deana Weaver

Print or Type Name

Signature

Date

5.31.2022

575-748-1288

Phone Number

dweaver@mec.com

e-mail Address

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance ☒ ☒ ☒ Disposal _____ Storage
Application qualifies for administrative approval? ☒ ☒ ☒ Yes _____ No
- II. OPERATOR: Mack Energy Corporation
ADDRESS: P.O. Box 960 Artesia, NM 88210
CONTACT PARTY: Deana Weaver PHONE: 575-748-1288
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? _____ Yes ☒ No
If yes, give the Division order number authorizing the project: _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Deana Weaver TITLE: Regulatory Technician II
SIGNATURE: Deana Weaver DATE: 5.31.22
E-MAIL ADDRESS: dweaver@mec.com
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

III. WELL DATA

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

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

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

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

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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

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

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

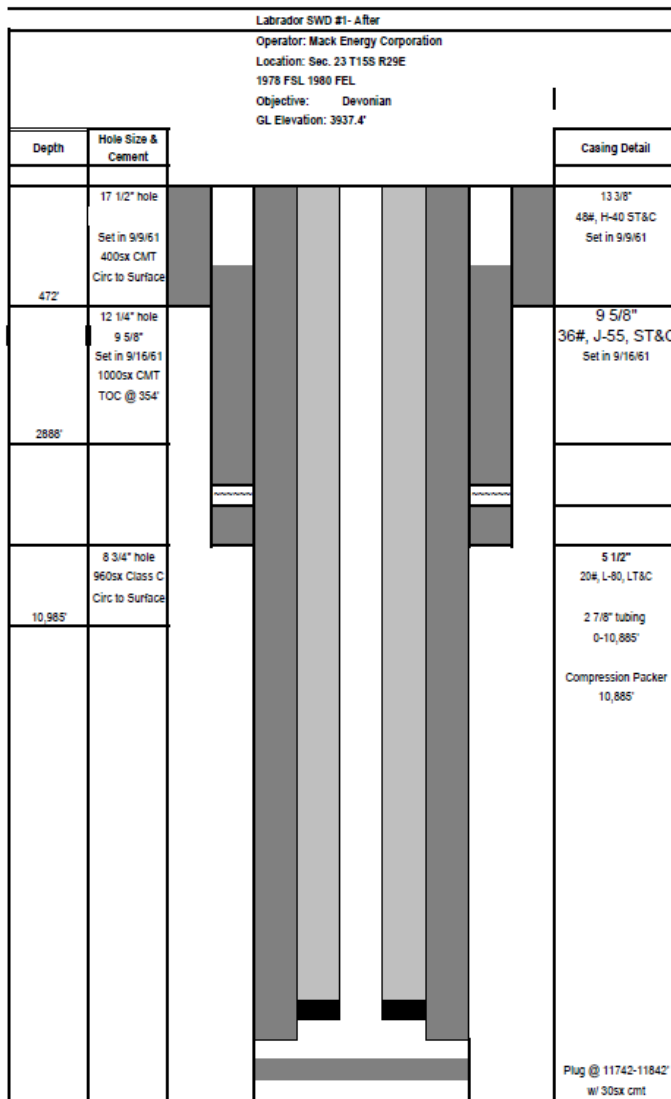
INJECTION WELL DATA SHEET

OPERATOR: Mack Energy CorporationWELL NAME & NUMBER: Labrador SWD #1

WELL LOCATION: 1978 FSL 1980 FEL J 23 15S 29E
 FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 17 1/2" Casing Size: 13 3/8"Cemented with: 400 sx. *or* _____ ft³Top of Cement: 0 Method Determined: Circ
 (in place 1961)Intermediate CasingHole Size: 12 1/4" Casing Size: 9 5/8"Cemented with: 1000 sx. *or* _____ ft³Top of Cement: 354' Method Determined: (in place 1961)Production CasingHole Size: 8 3/4" Casing Size: 5 1/2"Cemented with: 960 sx. *or* _____ ft³Top of Cement: 0 Method Determined: circTotal Depth: 10,985'Injection Interval10,985' feet to 11,525' Open Hole

(Perforated or Open Hole; indicate which)



INJECTION WELL DATA SHEETTubing Size: 2 7/8" Lining Material: IPCType of Packer: Compression PackerPacker Setting Depth: 10,885'Other Type of Tubing/Casing Seal (if applicable): N/AAdditional Data

1. Is this a new well drilled for injection? _____ Yes XX No

If no, for what purpose was the well originally drilled? Oil Well

2. Name of the Injection Formation: Devonian

3. Name of Field or Pool (if applicable): SWD; Devonian

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. Perf's @ 1919-1936'

CIBP @ 1972 w/2sx

Plugs @ Surface(10sx), 400-500'(30sx), 1893-1993', 2838-2938'(35sx), 3995-4095'(30sx), 6105-6205'(30sx), 7445-7545'(30sx), 8400-8600'(30sx), 9639-9739'(30sx), 10150-10250'(30sx), 10935-11035'(30sx), 11742-11842'(30sx)

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: L. Miss 10,435', Devonian 10,985', Montoya 11,525'

Simpson 11,725',

Labrador SWD #1
1980 FSL 1980 FEL
Sec. 23 T15S R29E
Formation Tops

Quaternary	Surface
Top Salt	462'
Base Salt	1023'
Yates	1187'
San Andres	2605'
Glorieta	4060'
Tubb	5382'
Abo	6155'
Wolfcamp	7495'
Atoka	9689'
U. Miss	10,200'
L. Miss	10,435'
Devonian	10,985'
Montoya	11,525'
Simpson	11,725'
Ellenburger	11,992'

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code 96101	³ Pool Name SWD; Devonian
⁴ Property Code	⁵ Property Name LABRADOR SWD	⁶ Well Number 1
⁷ OGRID No. 13837	⁸ Operator Name MACK ENERGY CORPORATION	⁹ Elevation 3937.4

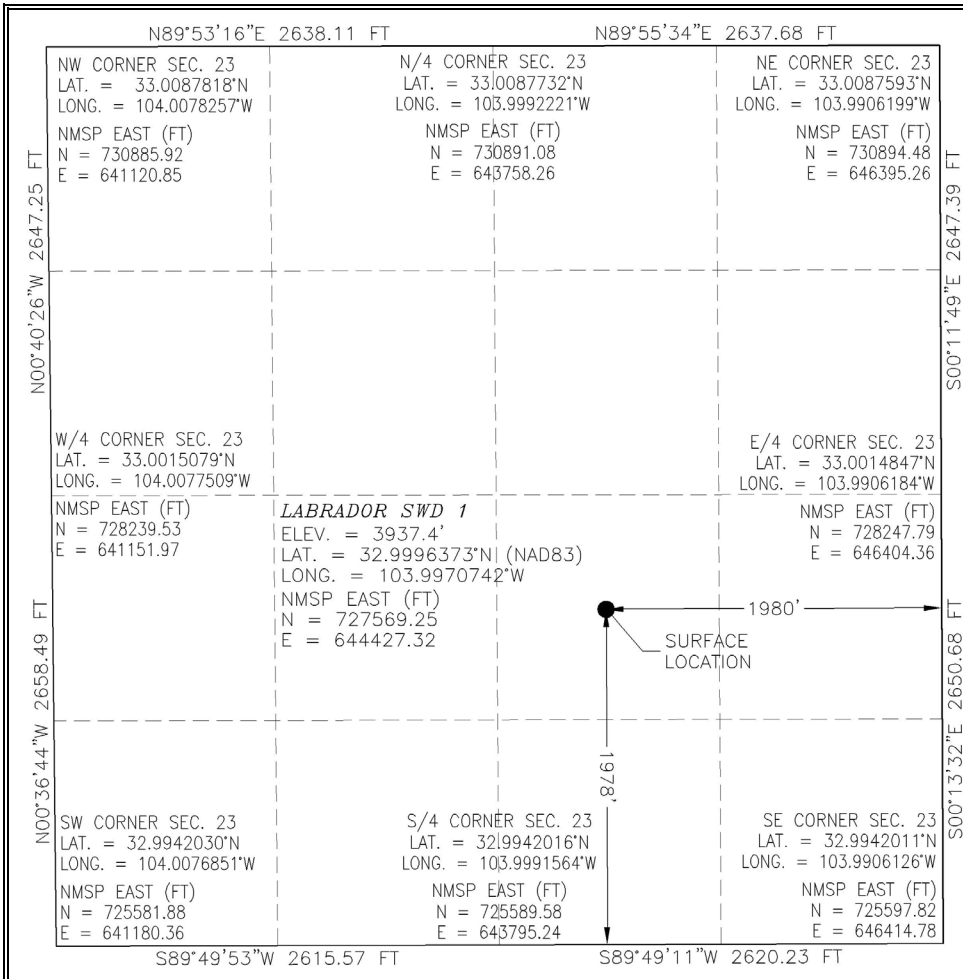
¹⁰ Surface Location

UL or lot no. J	Section 23	Township 15 S	Range 29 E	Lot Idn	Feet from the 1978	North/South line SOUTH	Feet from the 1980	East/West line EAST	County CHAVES
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

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



¹⁷ OPERATOR CERTIFICATION

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

Deana Weaver 4/4/2022
Signature Date
Deana Weaver
Printed Name
dweaver@mec.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

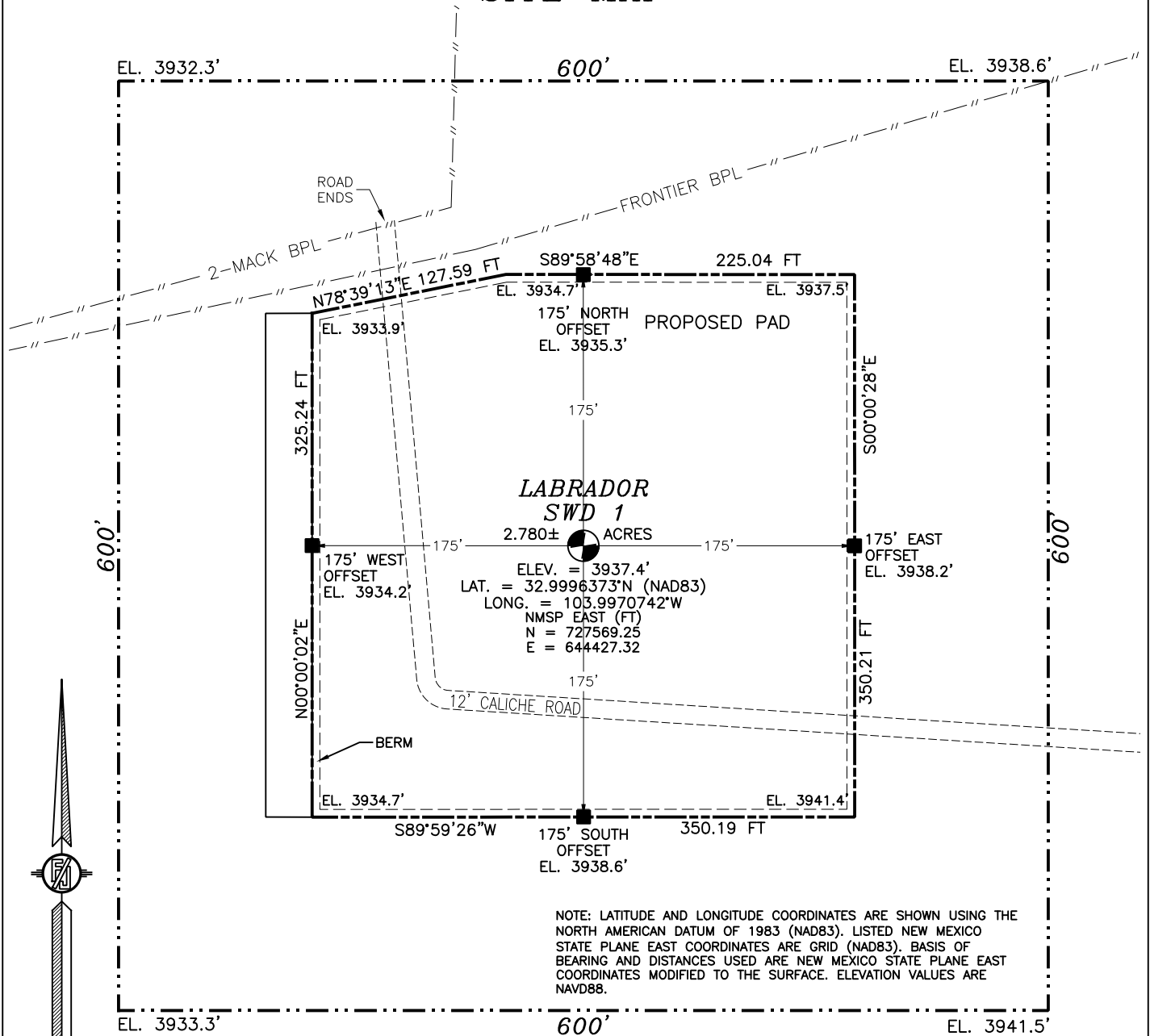
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MARCH 30, 2022

Date of Survey

ALIMON F. JARAMILLO
Signature and Seal of Professional Surveyor
Certificate Number: 12797
SURVEYOR NO. 9361

SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
SITE MAP



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HWY. 82 & CO. RD. 217 (HAGERMAN CUTOFF) GO NORTH ON CO. RD. 217 APPROX. 12 MILES, TURN LEFT (WEST) ON 12' CALICHE LEASE ROAD AND GO APPROX. 0.6 OF A MILE TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

I, FILMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR, CERTIFY THAT I DIRECTED AND SUPERVISED THIS SURVEY, THAT THIS MAP IS A TRUE AND CORRECT REPRESENTATION OF MY KNOWLEDGE AND BELIEFS, AND THAT I HAVE MET THE MINIMUM STANDARDS FOR SURVEYING PRACTICE.

FILMON F. JARAMILLO, P.E. 7987

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

MACK ENERGY CORPORATION
LABRADOR SWD 1

LOCATED 1978 FT. FROM THE SOUTH LINE
AND 1980 FT. FROM THE EAST LINE OF
SECTION 23, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

MARCH 30, 2022

SURVEY NO. 9361

CARLSBAD, NEW MEXICO



0 50 100 200

SCALE 1" = 100'

 DENOTES
RECLAMATION AREA

1.325± ACRES RECLAMATION AREA

MACK ENERGY CORPORATION
LABRADOR SWD 1
LOCATED 1978 FT. FROM THE SOUTH LINE
AND 1980 FT. FROM THE EAST LINE OF
SECTION 23, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

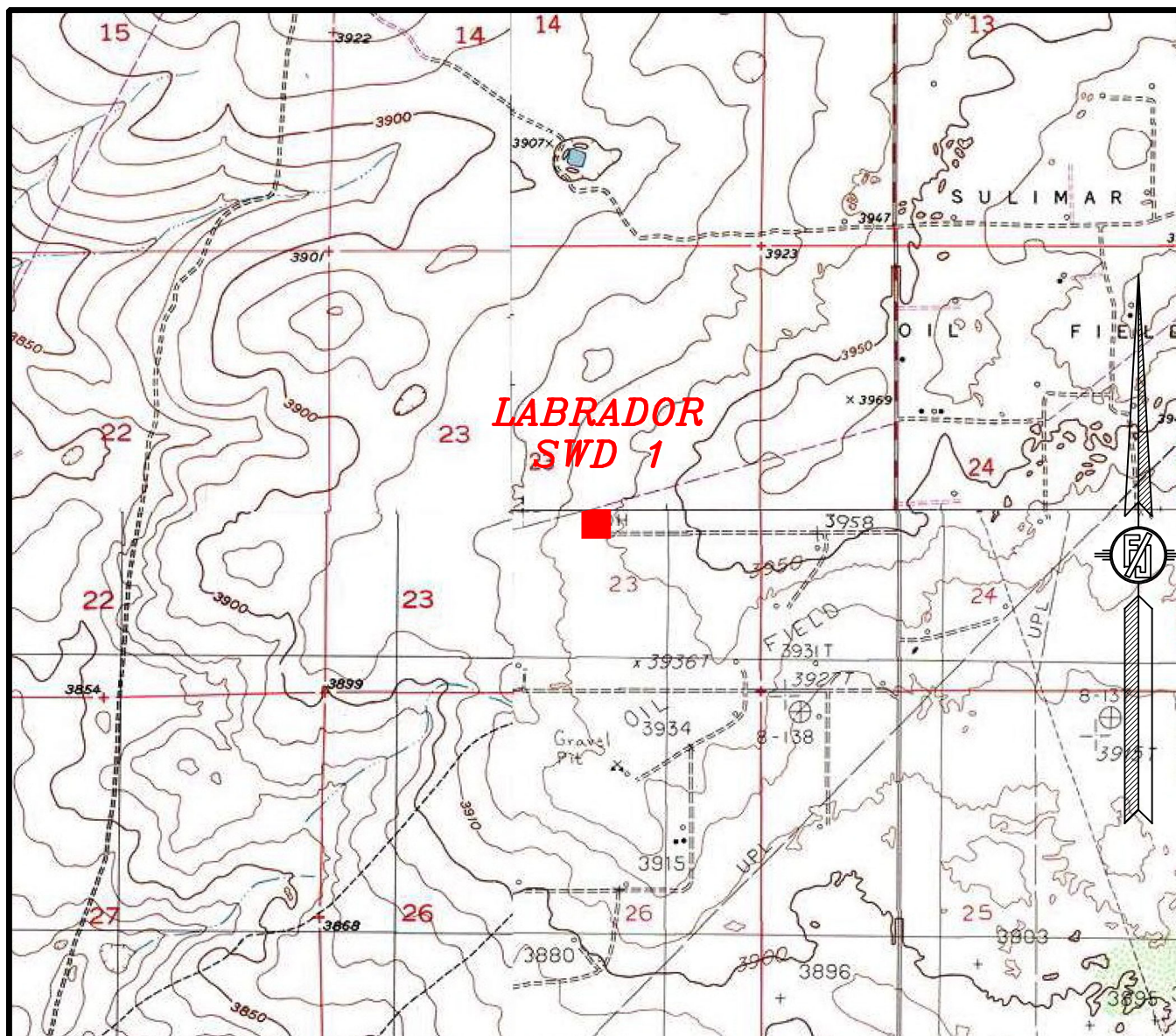
MARCH 30, 2022

SURVEY NO. 9361

MADRON SURVEYING, INC. 301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
HENSHAW TANK
CEDAR POINT
KING CAMP
BASIN WELL

NOT TO SCALE

MACK ENERGY CORPORATION
LABRADOR SWD 1
LOCATED 1978 FT. FROM THE SOUTH LINE
AND 1980 FT. FROM THE EAST LINE OF
SECTION 23, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

MARCH 30, 2022

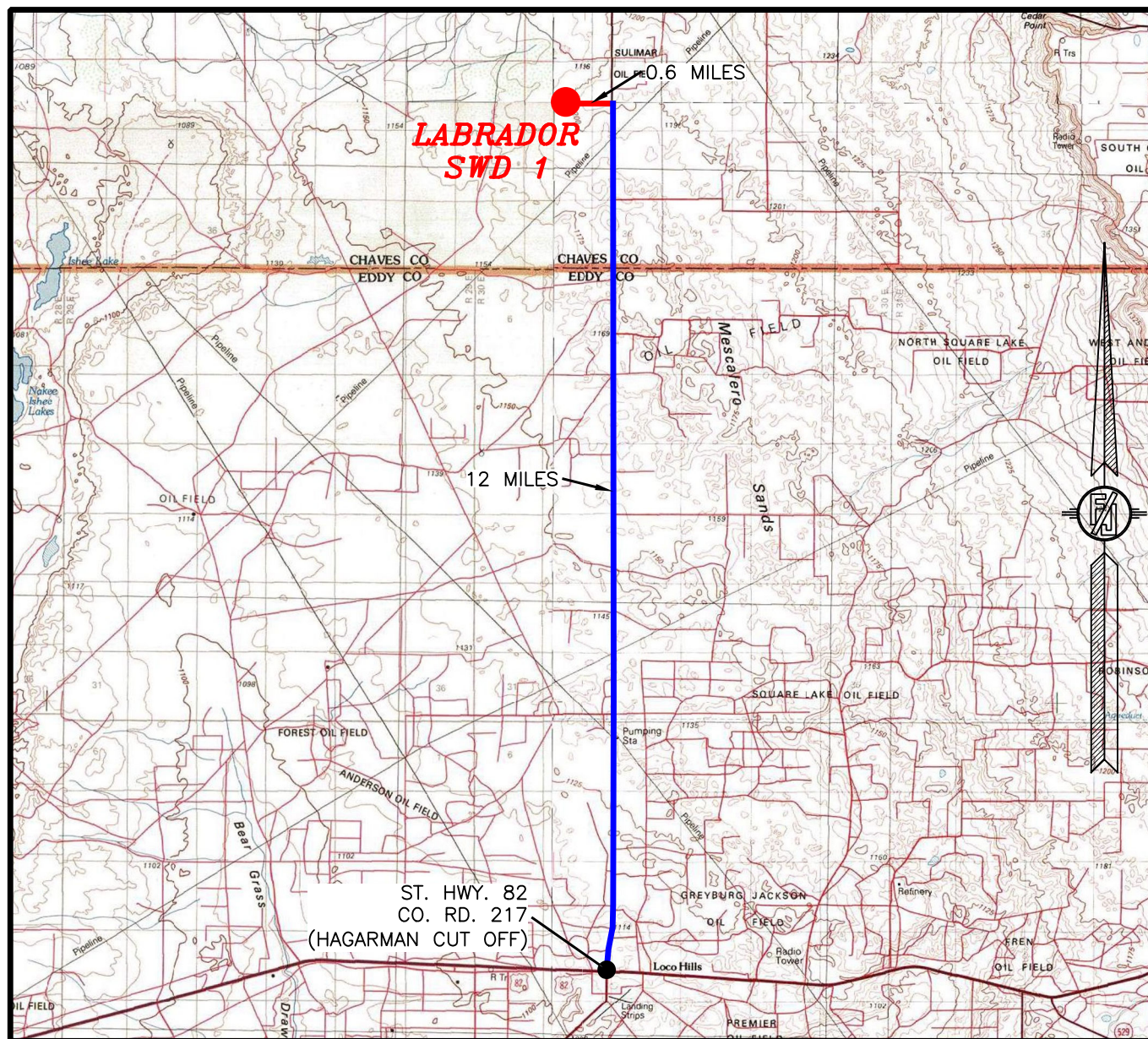
MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SURVEY NO. 9361

SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HWY. 82 & CO. RD. 217 (HAGARMÁN CUTOFF), GO NORTH ON CO. RD. 217 APPROX. 12 MILES, TURN LEFT (WEST) ON 12' CALICHE LEASE ROAD AND GO APPROX 0.6 OF A MILE TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

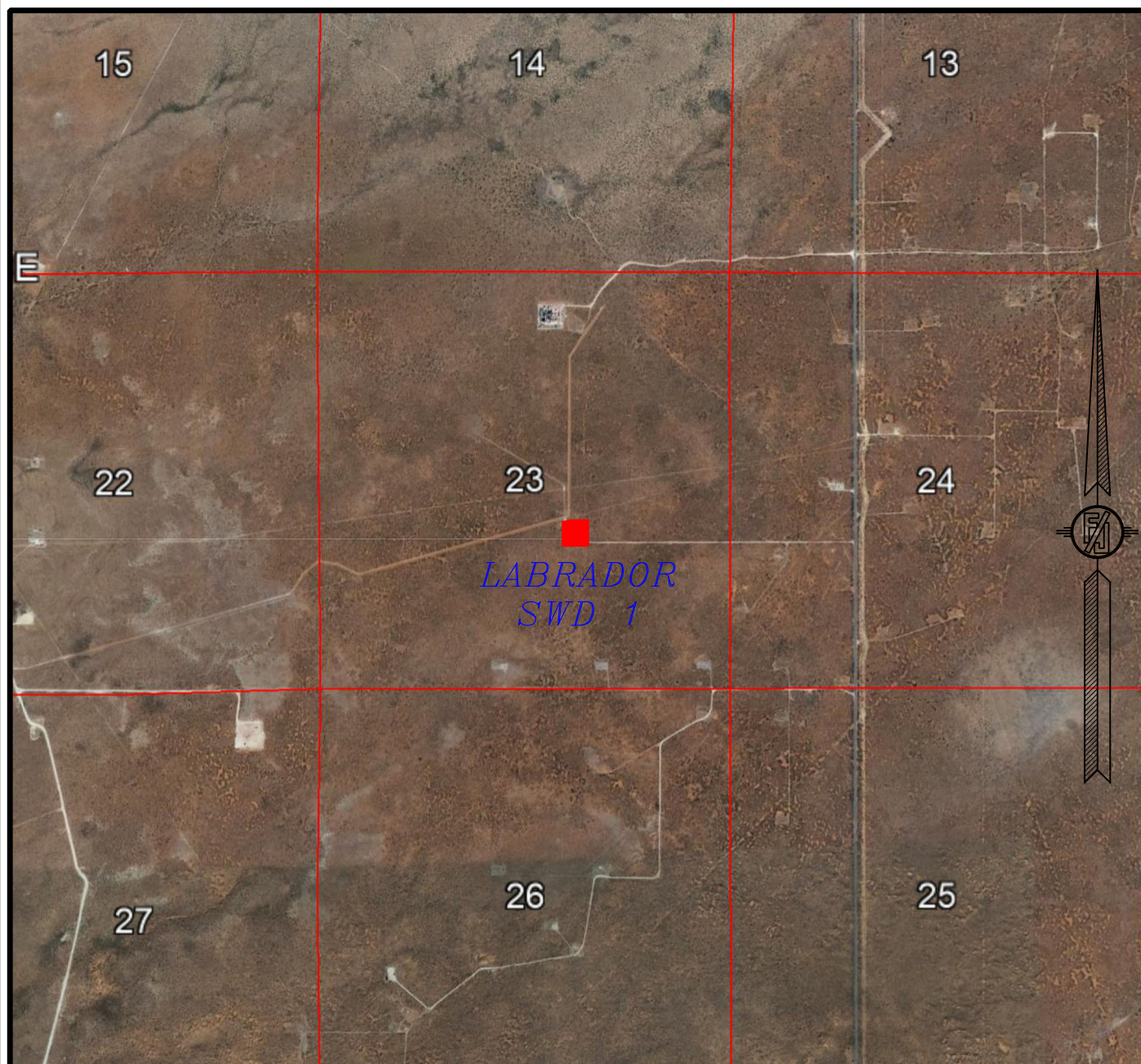
MACK ENERGY CORPORATION
LABRADOR SWD 1
LOCATED 1978 FT. FROM THE SOUTH LINE
AND 1980 FT. FROM THE EAST LINE OF
SECTION 23, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

MARCH 30, 2022

MADRON SURVEYING, INC. 301 SOUTH CANAL
(575) 234-3341

SURVEY NO. 9361
CARLSBAD, NEW MEXICO

SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
DEC. 2019

MACK ENERGY CORPORATION
LABRADOR SWD 1
LOCATED 1978 FT. FROM THE SOUTH LINE
AND 1980 FT. FROM THE EAST LINE OF
SECTION 23, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

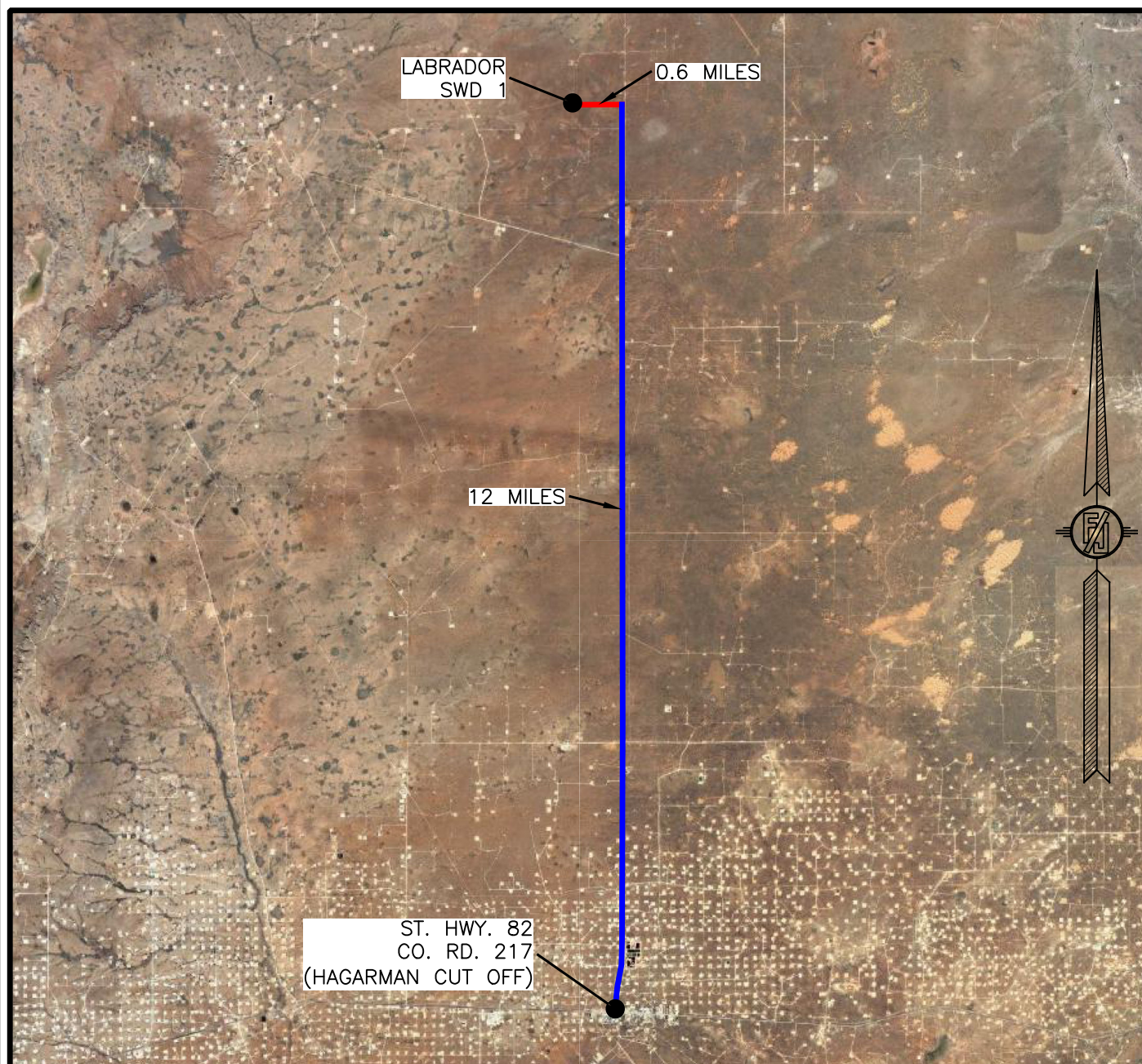
MARCH 30, 2022

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

SURVEY NO. 9361
CARLSBAD, NEW MEXICO

SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
AERIAL ACCESS ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
DEC. 2019

MACK ENERGY CORPORATION
LABRADOR SWD 1
LOCATED 1978 FT. FROM THE SOUTH LINE
AND 1980 FT. FROM THE EAST LINE OF
SECTION 23, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

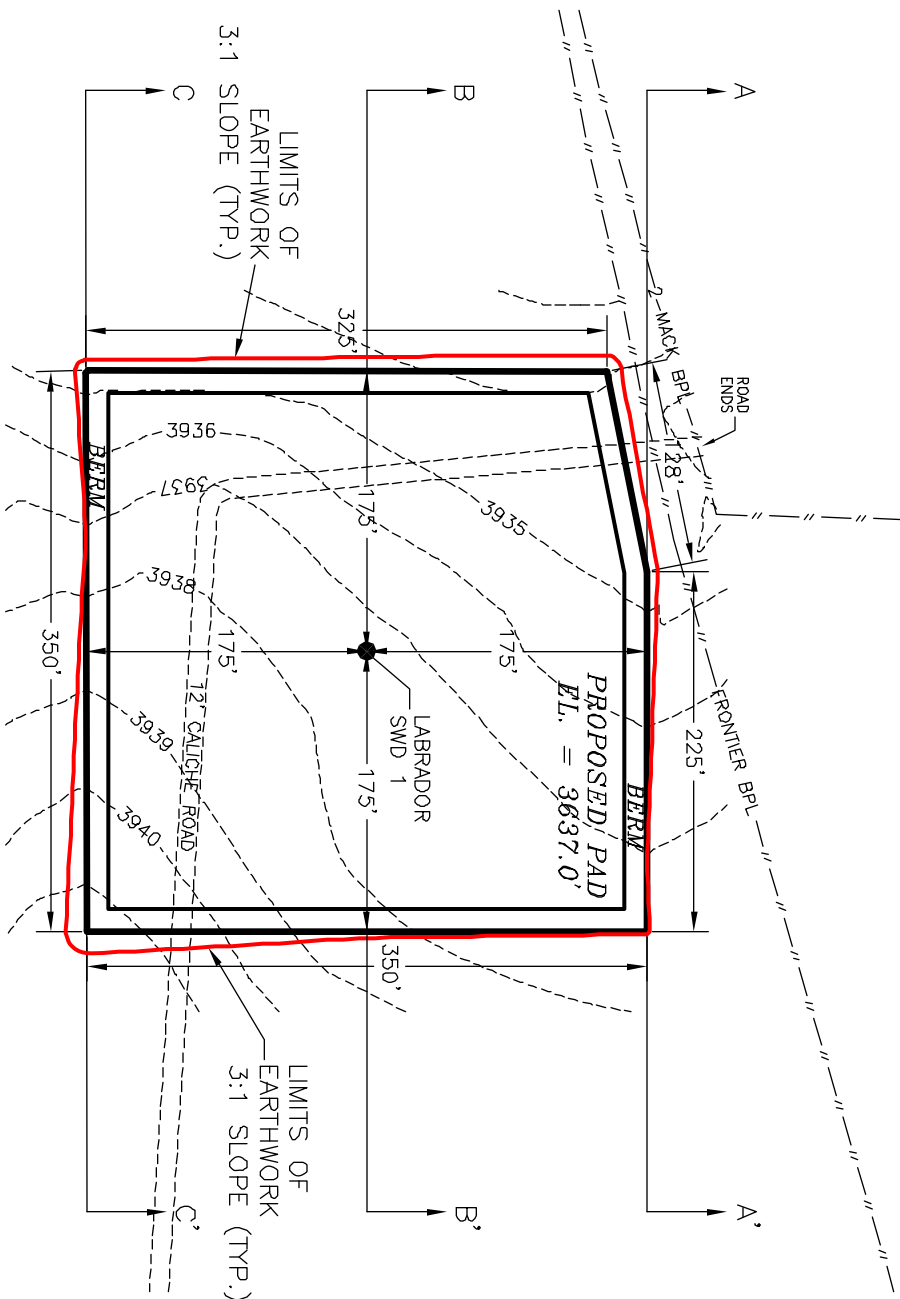
MARCH 30, 2022

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

SURVEY NO. 9361
CARLSBAD, NEW MEXICO

PLAN VIEW

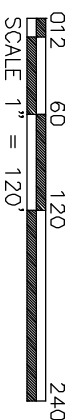


I, FILMON F. JARAMILA, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT THE FOREGOING IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

MACK ENERGY CORPORATION
PAD GRADING AND CROSS SECTIONS
FOR LABRADOR SWD 1
 SECTION 23, TOWNSHIP 16 SOUTH,
 RANGE 29 EAST, N.M.P.M.
 CHAVES COUNTY, STATE OF NEW MEXICO

CUT	FILL	NET
2667 CU. YD	3706 CU. YD	1039 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

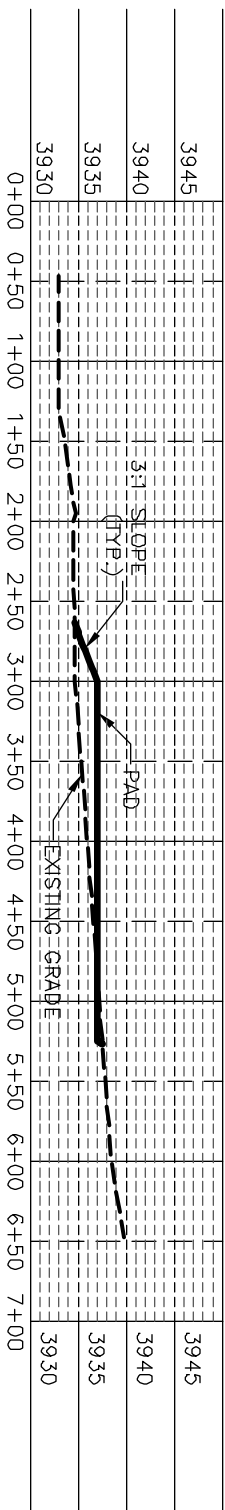


MARCH 30, 2021
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO

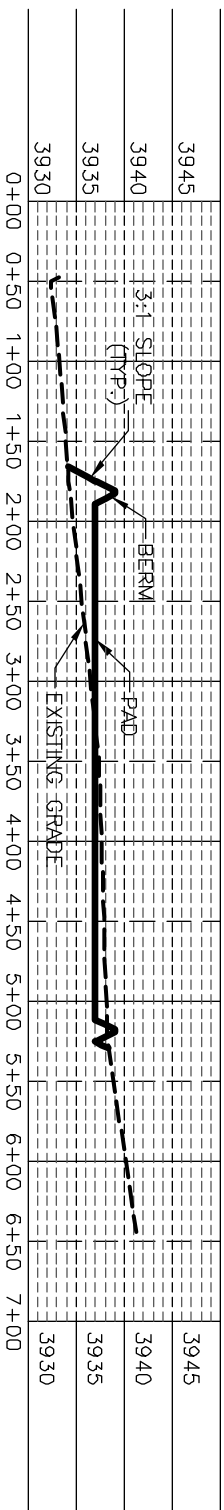
SHEET 1-2
 SURVEY NO. 9361

CROSS-SECTIONS

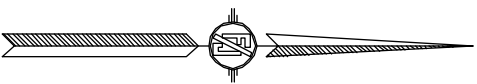
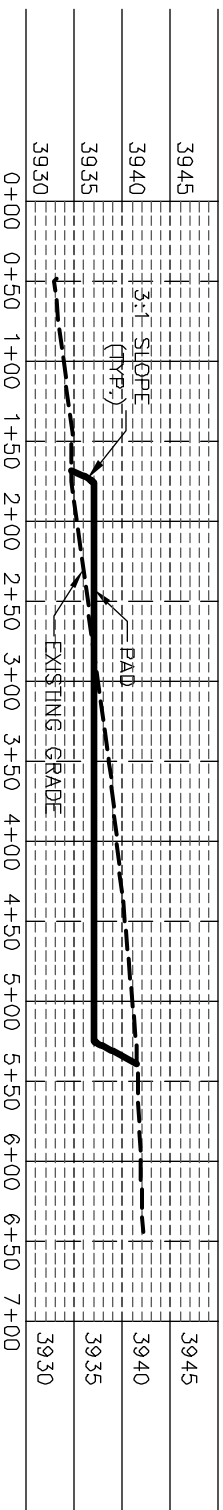
SECTION A-A'



SECTION B-B'



SECTION C-C'



I, FILMON F. JARANKO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFICATE NO. 1039, AM RESPONSIBLE FOR THIS SURVEY, THAT THE SURVEYED LINES AND CORNERS ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAN MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

MACK ENERGY CORPORATION
PAD GRADING AND CROSS SECTIONS
FOR LABRADOR SWD 1
 SECTION 23, TOWNSHIP 16 SOUTH,
 RANGE 29 EAST, N.M.P.M.
 CHAVES COUNTY, STATE OF NEW MEXICO

CUT FILL NET
 2667 CU. YD. 3706 CU. YD. 1039 CU. YD. (FILL)
 EARTHWORK QUANTITIES ARE ESTIMATED

012 60 120 240
 SCALE 1" = 120' - 1" = 20' VER

MARCH 30, 2021
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO

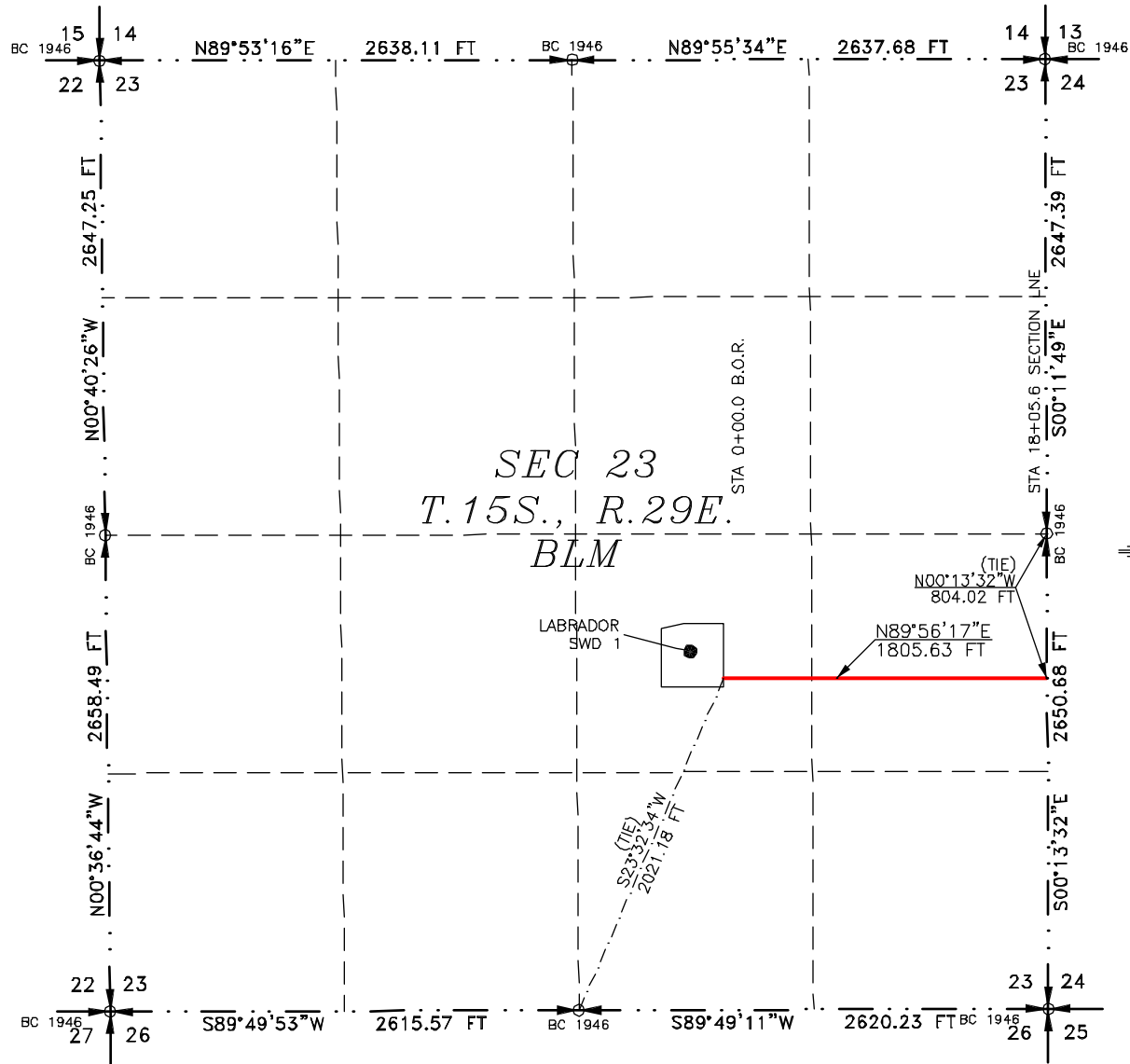
SHEET 2-2
 SURVEY NO. 9361

ACCESS ROAD PLAT

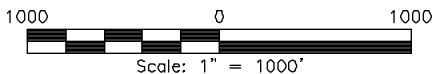
EXISTING CALICHE ROAD FOR ACCESS TO LABRADOR SWD 1

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MARCH 30, 2022



SEE NEXT SHEET (2-4) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 1-4

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 31ST DAY OF MARCH 2022

FILMON F. JARAMILLO, PLS. 12797
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 9361

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341

ACCESS ROAD PLAT

EXISTING CALICHE ROAD FOR ACCESS TO LABRADOR SWD 1

MACK ENERGY CORPORATION
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MARCH 30, 2022

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SE/4 OF SAID SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S23°32'34"W, A DISTANCE OF 2021.18 FEET;
THENCE N89°56'17"E A DISTANCE OF 1805.63 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE EAST QUARTER CORNER OF SAID SECTION 23, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N00°13'32"W, A DISTANCE OF 804.02 FEET;

SAID STRIP OF LAND BEING 1805.63 FEET OR 109.43 RODS IN LENGTH, CONTAINING 1.244 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 SE/4	492.92 L.F.	29.87 RODS	0.339 ACRES
NE/4 SE/4	1312.71 L.F.	79.56 RODS	0.904 ACRES

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 30th DAY OF MARCH 2022

FILIMON F. JARAMILLO
12797
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 2-4

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

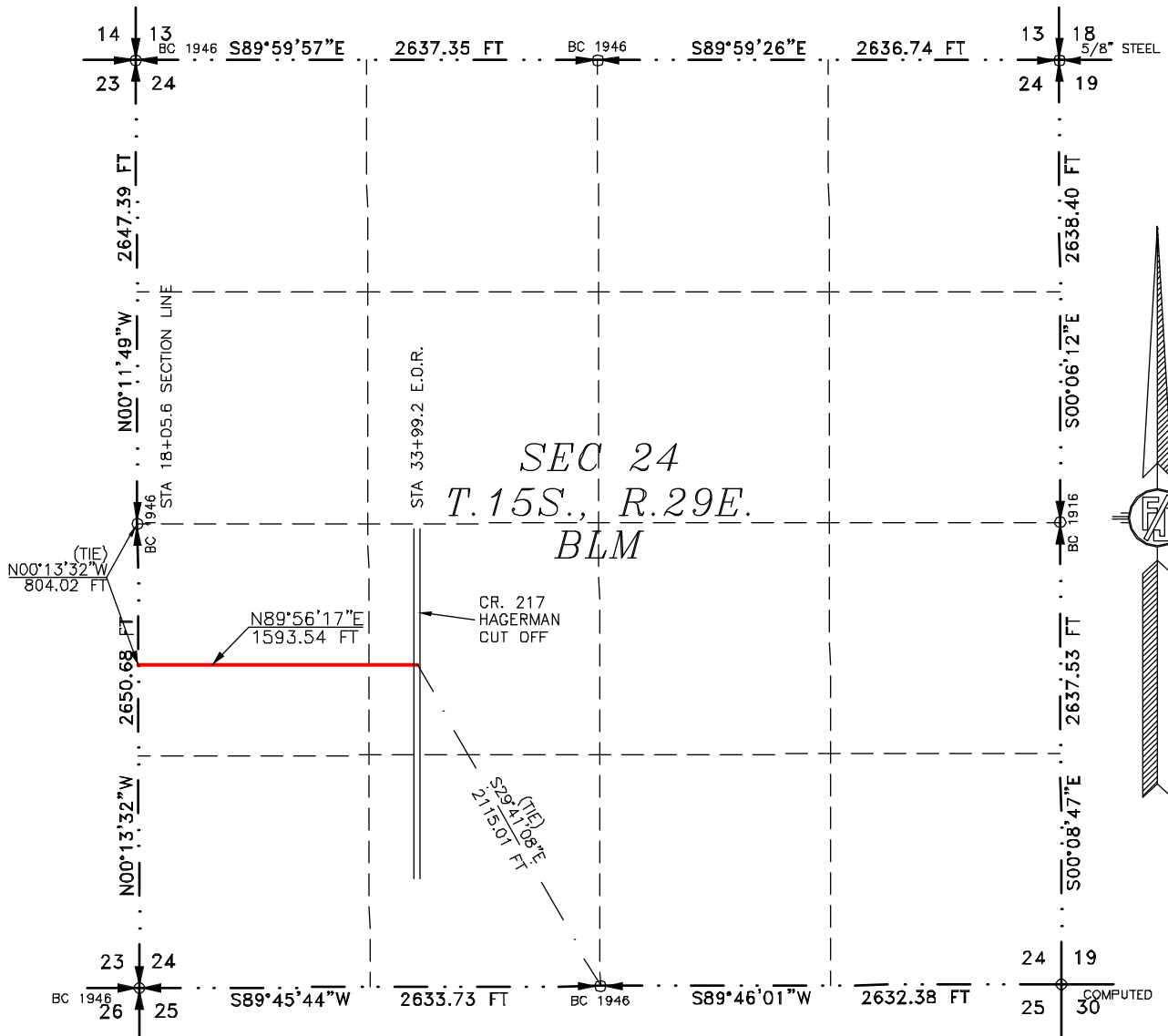
SURVEY NO. 9361

ACCESS ROAD PLAT

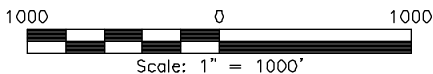
EXISTING CALICHE ROAD FOR ACCESS TO LABRADOR SWD 1

MACK ENERGY CORPORATION

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 24, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MARCH 30, 2022



SEE NEXT SHEET (4-4) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 30th DAY OF MARCH 2022

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 3-4

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341

SURVEY NO. 9361

ACCESS ROAD PLAT

EXISTING CALICHE ROAD FOR ACCESS TO LABRADOR SWD 1

MACK ENERGY CORPORATION
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 24, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
MARCH 30, 2022

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 24, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NW/4 SW/4 OF SAID SECTION 24, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 24, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS N00°13'32"W, A DISTANCE OF 804.02 FEET;
THENCE N89°56'17"E A DISTANCE OF 1593.54 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 24, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S29°41'08"E, A DISTANCE OF 2115.01 FEET;

SAID STRIP OF LAND BEING 1593.54 FEET OR 96.58 RODS IN LENGTH, CONTAINING 1.097 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 SW/4	1317.95 L.F.	79.88 RODS	0.908 ACRES
NE/4 SW/4	275.58 L.F.	16.70 RODS	0.190 ACRES

GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 31ST DAY OF MARCH 2022

FILIMON F. JARAMILLO
12797
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 4-4

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SURVEY NO. 9361

VII. DATA SHEET: PROPOSED OPERATIONS

1. Proposed average and maximum daily rate and volume of fluids to be injected;
Respectively, 2000 BWPD and 4000 BWPD
2. The system is closed or open;
Closed
3. Proposed average and maximum injection pressure;
0-2,030#
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than re-injected produced water;
We will be re-injecting produced water
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water;
N/A

VIII. GEOLOGICAL DATA

1. Lithologic Detail; Dolomite
2. Geological Name; Devonian
3. Thickness; 540'
4. Depth; 10,985' (Open Hole 10,985-11,525')

IX. PROPOSED STIMULATION PROGRAM

1. To be treated with 10000 gallons 15% acid

X. LOGS AND TEST DATA

1. Well data will be filed with the OCD.

XI. ANALYSIS OF FRESHWATER WELLS

Additional Information

Waters Injected:

San Andres

XII. AFFIRMATIVE STATEMENT

RE: Labrador SWD #1

We have examined the available geologic and engineering data and find no evidence of open faults or any other hydraulic connection between the disposal zone and any underground source of drinking water.

Mack Energy Corporation

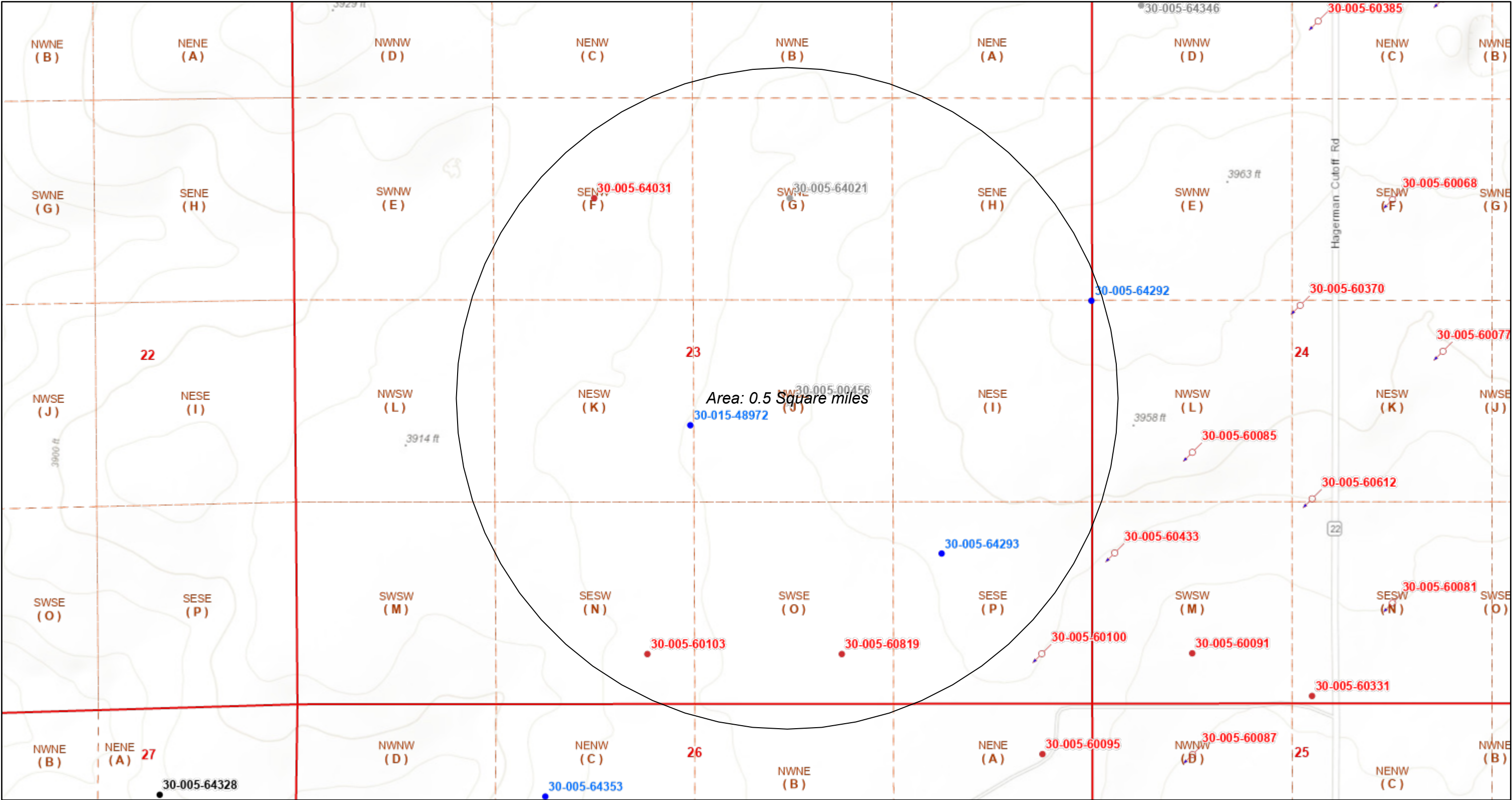
Date:

3/17/22

A handwritten signature in black ink, appearing to read 'C. Sadler', is written over a horizontal line.

Charles Sadler, Geologist

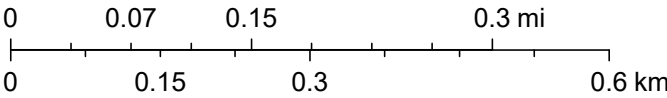
OCD Well Locations



5/12/2022, 11:46:50 AM

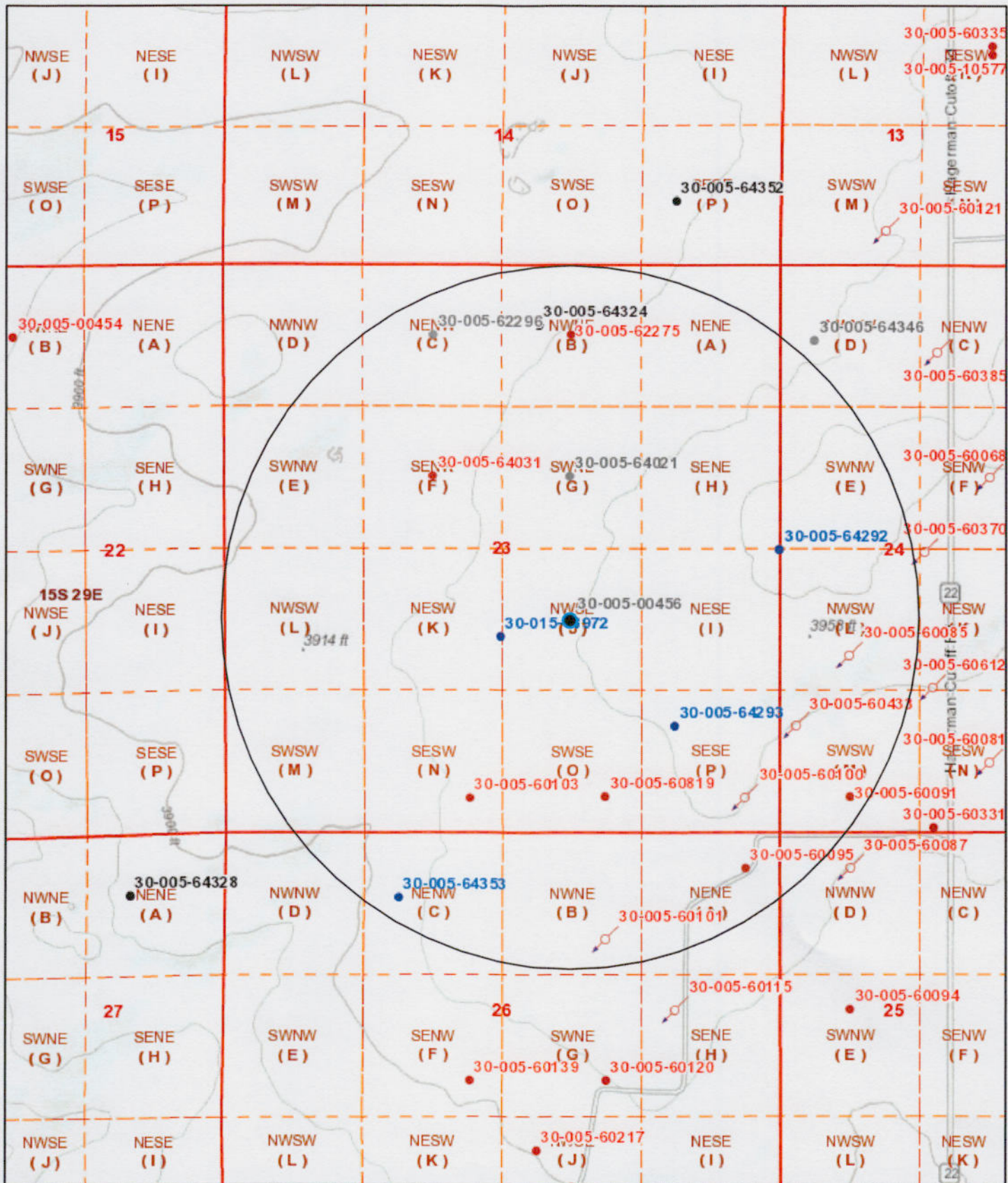
- Override 1
- Wells - Large Scale
- Gas, Cancelled
- Injection, Plugged
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- PLSS Second Division
- PLSS First Division

1:9,028



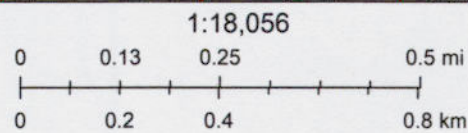
Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the

OCD Well Locations

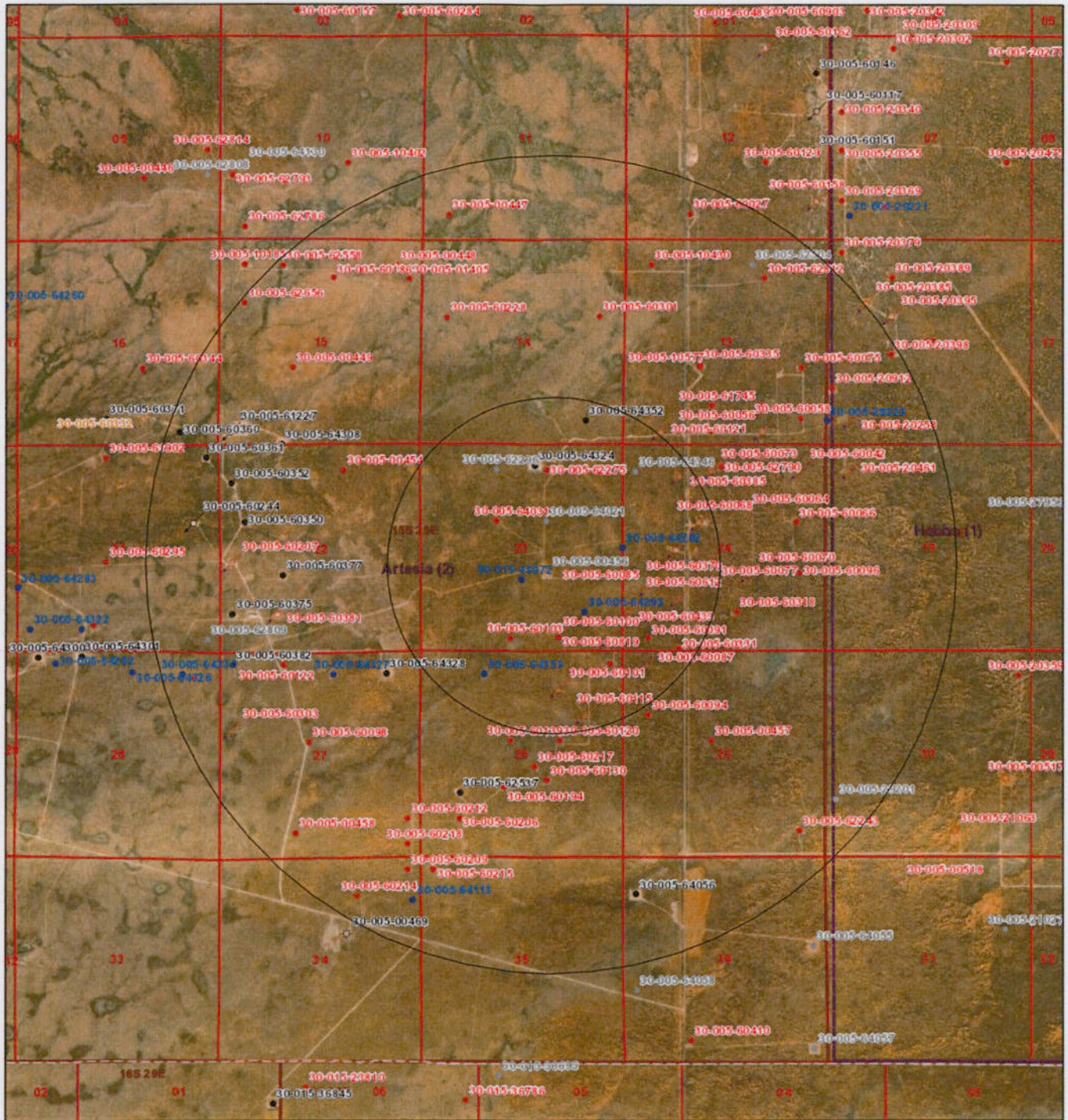


3/11/2022, 9:03:42 AM

- | | | |
|---------------------|----------------------------|----------------------|
| Override 1 | CO2, Plugged | Injection, Active |
| Wells - Large Scale | CO2, Temporarily Abandoned | Injection, Cancelled |
| undefined | Gas, Active | Injection, New |
| Miscellaneous | Gas, Cancelled | Injection, Plugged |
| CO2 Active | Gas, New | |



OCD Well Locations



3/15/2022, 11:21:36 AM

1:36,112

Override 1

Wells - Large Scale

undefined

Miscellaneous

CO₂, Active

CO₂, Cancelled

CO₂, New

CO₂, Plugged

CO₂, Temporarily Abandoned

Gas, Active

Gas, Cancelled

Gas, New

Gas, Plugged

Gas, Temporarily Abandoned

Injection, Active

Injection, Cancelled

Injection, New

Injection, Plugged

Injection, Temporarily Abandoned

Oil, Active

Oil, Cancelled

Oil, New

Oil, Plugged

Oil, Temporarily Abandoned

Salt Water Injection, Active

Salt Water Injection, Cancelled

Salt Water Injection, New

Salt Water Injection, Plugged

Salt Water Injection, Temporarily Abandoned

Water, Active

Water, Cancelled

Water, New

Water, Plugged

Water, Temporarily Abandoned

OCD Districts

OCD District Offices

PLSS First Division

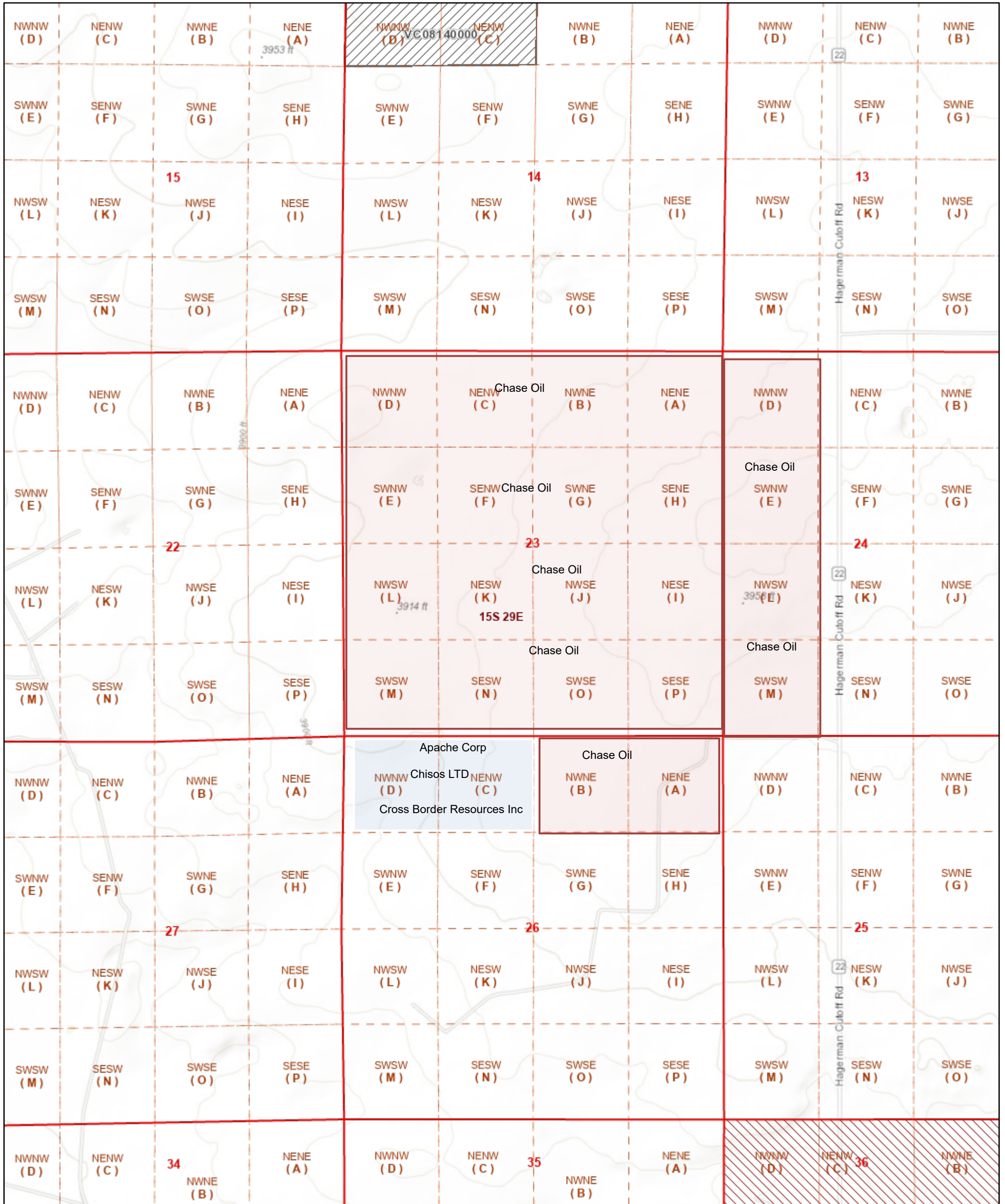
PLSS Townships

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Esri, HERE, Garmin, Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., OCD, Maxar, BLM

OCD Well Locations



5/12/2022, 2:29:56 PM

Areas

Override 1

Override 2

Override 3

PLSS Second Division

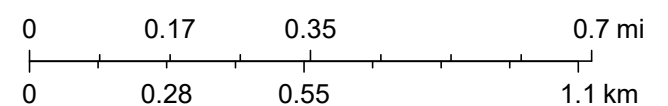
PLSS First Division

PLSS Townships

Oil and Gas Leasing Restrictions

Oil and Gas Leases

1:18,056



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, BLM

Name	Address	City	State	Zip	Certified Mail Id
Cross Border Resources Inc.	14282 Gillis Rd	Farmers	TX	75244-3715	7021 0350 0000 4936 7373
Chisos LTD	1331 Lamar St. Ste 1077	Houston	TX	77010-3135	7021 0350 0000 4936 7380
Apache Corporation	2000 Post Oak Blvd Ste 100	Houston	TX	77056-4400	7021 0350 0000 4936 7397
Bureau of Land Management	2909 W. 2nd St	Roswell	NM	88201-1287	7019 1640 0002 0377 9556
Chase Oil Corporation	11352 Lovington HWY	Artesia	NM	88210	



P.O. Box 960
Artesia, NM 88211-0960
Office (575) 748-1288
Fax (575) 748-7374

March 23, 2022

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

RE: Mack Energy Corporation & Chase Affiliates

Dear Mr. McClure:

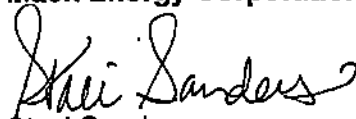
Mack Energy Corporation is a Chase Family owned entity. The following Chase individuals or companies are all affiliates of Mack Energy Corporation and usually own an interest in wells drilled and/or operated by Mack Energy Corporation.

- Mack C. Chase Trust
- Robert C. Chase or RDC Minerals LLC
- Richard L. Chase or Ventana Minerals LLC
- Gerene Dianne Chase Ferguson or DiaKan Minerals LLC
- Broken Arrow Royalties LLC
- Chase Oil Corporation
- Sendero Energy LLC
- Katz Resources LLC
- M Squared Energy LLC

All of these family members and companies all office in the same building so notifications can be hand delivered; therefore we request that the certified mail process be waived when these parties are involved.

If you have any questions or need additional information please do not hesitate to contact me. Your assistance is greatly appreciated.

Sincerely,
Mack Energy Corporation


Staci Sanders
Land Manager

/ss

Re: Application of Mack Energy Corporation for administrative approval for Central Tank Battery and Off Lease Measurement of oil and gas production at a CTB Facility located in Section 28, Township 15S Range 29E, NMPM, Chaves County, New Mexico.

List of Affected Parties

Sendero Energy LLC

Katz Resources LLC

M Squared Energy LLC

Chase Oil Corp

Robert C Chase

Broken Arrow Royalties LLC

Ventana Minerals LLC

DiaKan Minerals LLC

Bureau of Land Management



P.O. Box 960
Artesia, NM 88211-0960
Office (575) 748-1288
Fax (575) 746-9539

May 31, 2022

Via Certified Mail 7019 1640 0002 0377 9556
Return Receipt Requested

Bureau of Land Management
2909 W. 2nd St.
Roswell, NM 88201-1287

To all Interest Owners:

Enclosed for you review is a copy of Mack Energy Corporation's application for a Devonian SWD well. Produced water will be injected at a proposed depth of 10,985-11,525'. The Labrador SWD #1 located 1978 FSL & 1980 FEL, Sec. 23 T15S R29E, Chaves County.

The letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to drill this well as a water disposal. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

Mack Energy Corporation

A handwritten signature in blue ink that reads "Deana Weaver".

Deana Weaver
Regulatory Technician II

DW/

Attachments



P.O. Box 960
Artesia, NM 88211-0960
Office (575) 748-1288
Fax (575) 746-9539

May 31, 2022

Via Certified Mail 7021 0350 0000 4936 7373
Return Receipt Requested

Cross Border Resources Inc.
14282 Gillis Rd.
Farmers, TX 75244-3715

To all Interest Owners:

Enclosed for you review is a copy of Mack Energy Corporation's application for a Devonian SWD well. Produced water will be injected at a proposed depth of 10,985-11,525'. The Labrador SWD #1 located 1978 FSL & 1980 FEL, Sec. 23 T15S R29E, Chaves County.

The letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to drill this well as a water disposal. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

Mack Energy Corporation

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Deana Weaver
Regulatory Technician II

DW/

Attachments



P.O. Box 960
Artesia, NM 88211-0960
Office (575) 748-1288
Fax (575) 746-9539

May 31, 2022

Via Certified Mail 7021 0350 0000 4936 7380
Return Receipt Requested

Chisos LTD
1331 Lamar St. Ste. 1077
Houston, TX 77010-3135

To all Interest Owners:

Enclosed for your review is a copy of Mack Energy Corporation's application for a Devonian SWD well. Produced water will be injected at a proposed depth of 10,985-11,525'. The Labrador SWD #1 located 1978 FSL & 1980 FEL, Sec. 23 T15S R29E, Chaves County.

The letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to drill this well as a water disposal. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

Mack Energy Corporation

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Deana Weaver
Regulatory Technician II

DW/

Attachments



P.O. Box 960
Artesia, NM 88211-0960
Office (575) 748-1288
Fax (575) 746-9539

May 31, 2022

Via Certified Mail 7021 0350 0000 4936 7397
Return Receipt Requested

Apache Corporation
2000 Post Oak Blvd Ste 100
Houston, TX 77056-4400

To all Interest Owners:

Enclosed for you review is a copy of Mack Energy Corporation's application for a Devonian SWD well. Produced water will be injected at a proposed depth of 10,985-11,525'. The Labrador SWD #1 located 1978 FSL & 1980 FEL, Sec. 23 T15S R29E, Chaves County.

The letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to drill this well as a water disposal. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

Mack Energy Corporation

A handwritten signature in blue ink that reads "Deana Weaver".

Deana Weaver
Regulatory Technician II

DW/

Attachments

Legal Notice

Mack Energy Corporation, Post Office Box 960, Artesia, NM 88211-1370, has filed an Application with the New Mexico Oil Conservation Division seeking authorization to inject produced water into the Labrador SWD #1 1978 FSL 1980 FEL of Section 23, T15S, R29E, NMPM, Chaves County, New Mexico. The water will be injected into the Devonian at a disposal depth of 10,985-11,525'. Water will be injected at a maximum surface pressure of 1440# and a maximum injection rate of 4000-6000 BWPD. Any interest party with questions or comments may contact Deana Weaver at Mack Energy Corporation, Post Office Box 960, Artesia, NM 88211-1370 or call 575-748-1288. Objections to this application or requests for hearing must be filed with the Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505, within fifteen days of the date of publication of this notice.

Place a Legal

Thank you, your submission/order has been received

The following details were submitted:

Ad Information

Text

Legal Notice

Mack Energy Corporation, Post Office Box 960, Artesia, NM 88211-1370, has filed an Application with the New Mexico Oil Conservation Division seeking authorization to inject produced water into the Labrador SWD #1 1978 FSL 1980 FEL of Section 23, T15S, R29E, NMPM, Chaves County, New Mexico. The water will be injected into the Devonian at a disposal depth of 10,985-11,525'. Water will be injected at a maximum surface pressure of 1440# and a maximum injection rate of 4000-6000 BWPD. Any interest party with questions or comments may contact Deana Weaver at Mack Energy Corporation, Post Office Box 960, Artesia, NM 88211-1370 or call 575-748-1288. Objections to this application or requests for hearing must be filed with the Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505, within fifteen days of the date of publication of this notice.

Days to Run

1

Billing Information

First Name

Deana

Last Name

Weaver

Address

P.O. Box 960

P.O. Box/Apt #**City**

Artesia

State

NM

Zip Code

88210

Email

dweaver@mec.com

Phone

(575) 748-1288

Upload File:JPG, PDF or Word Doc

File

Labrador SWD #1- Before

Operator: Mack Energy Corporation

Location: Sec. 23 T15S R29E

	1978 FSL	1980 FEL
1978 FSL	1980 FEL	

Objective:

		GL Elevation: 3937.4'	
	Hole Size 8		

[illegible]

Operator: Mack Energy Corporation
Location: Sec. 23 T15S R29E
1978 FSL 1980 FEL
Objective: Devonian
GL Elevation: 3937.4'

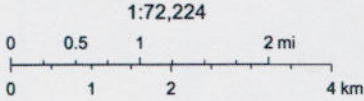
[illegible]

OSE POD Locations Map



3/17/2022, 11:27:45 AM

- Override 1
- OSE District Boundary
- New Mexico State Trust Lands
 - Subsurface Estate
 - Both Estates
- SiteBoundaries



Esri, HERE, Garmin, Esri, HERE, Earthstar Geographics, U.S. Department of Energy Office of Legacy Management

Unofficial Online Map
These maps are distributed "as is" without warranty of any kind.



New Mexico Office of the State Engineer
Active & Inactive Points of Diversion
(with Ownership Information)

No PODs found.

PLSS Search:

Section(s): 25

Township: 15S

Range: 29E



New Mexico Office of the State Engineer
Active & Inactive Points of Diversion
(with Ownership Information)

No PODs found.

PLSS Search:

Section(s): 26

Township: 15S

Range: 29E



Catalyst Oilfield Services
11999 E Hwy 158
Gardendale, TX 79758
(432) 563-0727
Fax: (432) 224-1038

Water Analysis Report

Customer:	Mack Energy Corporation	Sample #:	118208
Area:	Artesia	Analysis ID #:	107555
Lease:	Montreal		
Location:	1H		0
Sample Point:	Wellhead		

Sampling Date:	2/13/2020	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	3/4/2020	Chloride:	101615.8	2866.21	Sodium:	62440.0	2715.99
Analyst:	Catalyst	Bicarbonate:	197.6	3.24	Magnesium:	965.3	79.41
		Carbonate:			Calcium:	2569.0	128.19
TDS (mg/l or g/m3):	172020.9	Sulfate:	3400.0	70.79	Potassium:	660.8	16.9
Density (g/cm3):	1.116	Borate*:	110.4	0.7	Strontium:	57.8	1.32
		Phosphate*			Barium:	3.4	0.05
Hydrogen Sulfide:	7.4	*Calculated based on measured elemental boron and phosphorus.			Iron:	0.2	0.01
Carbon Dioxide:	102				Manganese:	0.550	0.02
Comments:		pH at time of sampling:	7.14				
		pH at time of analysis:					
		pH used in Calculation:	7.14				
		Temperature @ lab conditions (F):	75		Conductivity (micro-mhos/cm):	199270	
					Resistivity (ohm meter):	.0502	

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl

Temp	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
°F										
80	0.58	8.60	-0.09	0.00	-0.08	0.00	-0.05	0.00	1.83	1.78
100	0.59	10.08	-0.16	0.00	-0.08	0.00	-0.08	0.00	1.63	1.78
120	0.60	11.86	-0.23	0.00	-0.07	0.00	-0.10	0.00	1.45	1.78
140	0.61	13.93	-0.28	0.00	-0.03	0.00	-0.10	0.00	1.30	1.78
160	0.63	16.01	-0.32	0.00	0.03	69.97	-0.10	0.00	1.16	1.78
180	0.65	18.38	-0.36	0.00	0.11	226.51	-0.10	0.00	1.05	1.78
200	0.68	21.05	-0.39	0.00	0.19	391.65	-0.09	0.00	0.95	1.48
220	0.73	24.01	-0.42	0.00	0.29	555.31	-0.08	0.00	0.87	1.48



Catalyst Oilfield Services
11999 E Hwy 158
Gardendale, TX 79758
(432) 563-0727
Fax: (432) 224-1038

Water Analysis Report

Customer:	Mack Energy Corporation	Sample #:	100487
Area:	Drilling	Analysis ID #:	94751
Lease:	Maple Ridge		
Location:	Fed #1		0
Sample Point:	Wellhead		

Sampling Date:	7/29/2019	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	8/8/2019	Chloride:	84902.3	2394.79	Sodium:	51250.0	2229.25
Analyst:	Catalyst	Bicarbonate:	241.6	3.96	Magnesium:	1177.0	96.82
		Carbonate:			Calcium:	2566.0	128.04
TDS (mg/l or g/m3):	144232	Sulfate:	3300.0	68.71	Potassium:	564.2	14.43
Density (g/cm3):	1.097	Borate*:	173.9	1.1	Strontium:	53.5	1.22
		Phosphate*			Barium:	1.5	0.02
Hydrogen Sulfide:	14	*Calculated based on measured elemental boron and phosphorus.			Iron:	1.5	0.05
Carbon Dioxide:	162.8				Manganese:	0.460	0.02
Comments:		pH at time of sampling:			6.41		
		pH at time of analysis:					
		pH used in Calculation:			6.41		
		Temperature @ lab conditions (F):			75		
					Conductivity (micro-mhos/cm):		194536
					Resistivity (ohm meter):		.0514

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl

Temp	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
80	-0.09	0.00	-0.09	0.00	-0.09	0.00	-0.04	0.00	1.52	0.91
100	0.01	0.30	-0.15	0.00	-0.08	0.00	-0.06	0.00	1.33	0.91
120	0.10	3.96	-0.20	0.00	-0.06	0.00	-0.08	0.00	1.15	0.61
140	0.21	8.22	-0.25	0.00	-0.01	0.00	-0.08	0.00	1.00	0.61
160	0.31	12.48	-0.28	0.00	0.06	131.82	-0.08	0.00	0.87	0.61
180	0.41	17.35	-0.31	0.00	0.14	299.86	-0.07	0.00	0.76	0.61
200	0.51	21.92	-0.33	0.00	0.24	471.86	-0.06	0.00	0.67	0.61
220	0.61	26.79	-0.35	0.00	0.35	637.46	-0.04	0.00	0.60	0.61



Catalyst Oilfield Services
11999 E Hwy 158
Gardendale, TX 79758
(432) 563-0727
Fax: (432) 224-1038

Water Analysis Report

Customer:	Mack Energy Corporation	Sample #:	55880
Area:	Artesia	Analysis ID #:	53988
Lease:	White Rock		
Location:	Federal #1H		0
Sample Point:	Wellhead		

		Anions		mg/l	meq/l	Cations		mg/l	meq/l
Sampling Date:	12/21/2017	Chloride:		93901.4	2648.62	Sodium:		58100.0	2527.21
Analysis Date:	1/6/2018	Bicarbonate:		241.6	3.96	Magnesium:		969.6	79.76
Analyst:	Catalyst	Carbonate:				Calcium:		2737.0	136.58
TDS (mg/l or g/m3):	161820.5	Sulfate:		5000.0	104.1	Potassium:		571.6	14.62
Density (g/cm3):	1.107	Borate*:		229.5	1.45	Strontium:		66.0	1.51
		Phosphate*				Barium:		0.0	0.
Hydrogen Sulfide:	11	*Calculated based on measured elemental boron and phosphorus.				Iron:		3.8	0.14
Carbon Dioxide:	242					Manganese:		0.000	0.
Comments:					pH at time of sampling:				
					pH at time of analysis:				
					pH used in Calculation:				
					Temperature @ lab conditions (F):				
						Conductivity (micro-ohms/cm):		176042	
						Resistivity (ohm meter):		.0568	

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl

Temp	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
°F										
80	0.43	9.88	0.10	359.72	0.11	305.55	0.18	14.96	0.00	0.00
100	0.49	12.27	0.03	111.03	0.10	296.88	0.16	13.17	0.00	0.00
120	0.55	14.96	-0.03	0.00	0.13	355.53	0.14	11.97	0.00	0.00
140	0.60	17.96	-0.08	0.00	0.17	467.16	0.13	11.67	0.00	0.00
160	0.64	20.95	-0.12	0.00	0.23	615.30	0.14	11.67	0.00	0.00
180	0.69	24.54	-0.15	0.00	0.31	784.69	0.14	12.27	0.00	0.00
200	0.75	28.13	-0.18	0.00	0.40	962.15	0.15	12.87	0.00	0.00
220	0.80	31.72	-0.20	0.00	0.51	1137.23	0.17	13.77	0.00	0.00



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Water Analysis Report

Customer: Mack Energy Corporation Sample #: 81463
Area: Artesia Analysis ID #: 80383
Lease: Prince Rupert
Location: Fed #4H 0
Sample Point: Wellhead

		Anions		Cations	
		mg/l	meq/l	mg/l	meq/l
Sampling Date:	1/10/2019	Chloride:	89383.7	Sodium:	53970.0
Analysis Date:	1/22/2019	Bicarbonate:	175.7	Magnesium:	1013.0
Analyst:	Catalyst	Carbonate:		Calcium:	2725.0
TDS (mg/l or g/m3):	150968.6	Sulfate:	2800.0	Potassium:	644.4
Density (g/cm3):	1.102	Borate*:	190.4	Strontium:	55.6
Hydrogen Sulfide:	5	Phosphate*		Barium:	0.9
Carbon Dioxide:	97	*Calculated based on measured elemental boron and phosphorus.		Iron:	9.0
Comments:				Manganese:	0.857
				Conductivity (micro-ohms/cm):	200079
				Resistivity (ohm meter):	.0500
		pH at time of sampling:	6.65		
		pH at time of analysis:			
		pH used in Calculation:	6.65		
		Temperature @ lab conditions (F):	75		

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
80	0.05	0.91	-0.13	0.00	-0.13	0.00	-0.11	0.00	1.22	0.60
100	0.13	2.72	-0.20	0.00	-0.13	0.00	-0.13	0.00	1.02	0.30
120	0.22	4.84	-0.26	0.00	-0.11	0.00	-0.15	0.00	0.84	0.30
140	0.30	7.26	-0.30	0.00	-0.06	0.00	-0.15	0.00	0.69	0.30
160	0.37	9.68	-0.34	0.00	0.00	6.96	-0.15	0.00	0.56	0.30
180	0.45	12.70	-0.37	0.00	0.08	166.07	-0.14	0.00	0.45	0.30
200	0.52	15.73	-0.40	0.00	0.18	328.81	-0.13	0.00	0.36	0.30
220	0.60	18.75	-0.42	0.00	0.28	485.19	-0.11	0.00	0.28	0.30



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Water Analysis Report

Customer:	Mack Energy Corporation	Sample #:	78595
Area:	Artesia	Analysis ID #:	76096
Lease:	Chilliwick		
Location:	Fed Com 1H		0
Sample Point:	Wellhead		

		mg/l		meq/l	mg/l		meq/l
Sampling Date:	11/28/2018	Anions			Cations		
Analysis Date:	12/3/2018	Chloride:		2941.72	Sodium:		2764.27
Analyst:	Catalyst	Bicarbonate:		2.16	Magnesium:		84.49
TDS (mg/l or g/m3):	175963.5	Carbonate:			Calcium:		143.81
Density (g/cm3):	1.118	Sulfate:		66.62	Potassium:		18.08
		Borate*:		0.68	Strontium:		1.45
		Phosphate*			Barium:		0.01
Hydrogen Sulfide:	4	*Calculated based on measured elemental boron and phosphorus.			Iron:		0.
Carbon Dioxide:	108				Manganese:		0.01
Comments:				pH at time of sampling:			
				pH at time of analysis:			
				pH used in Calculation:	6.95		
		Temperature @ lab conditions (F):		75	Conductivity (micro-ohms/cm):		200381
					Resistivity (ohm meter):		.0499

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Calcite CaCO ₃		Gypsum CaSO ₄ *2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
80	0.28	2.95	-0.07	0.00	-0.05	0.00	-0.04	0.00	1.17	0.30
100	0.32	3.84	-0.14	0.00	-0.06	0.00	-0.07	0.00	0.97	0.30
120	0.36	5.02	-0.21	0.00	-0.05	0.00	-0.09	0.00	0.79	0.30
140	0.39	6.20	-0.26	0.00	-0.01	0.00	-0.10	0.00	0.63	0.30
160	0.43	7.38	-0.31	0.00	0.05	111.64	-0.10	0.00	0.50	0.30
180	0.46	9.16	-0.34	0.00	0.12	261.08	-0.09	0.00	0.38	0.30
200	0.50	10.93	-0.38	0.00	0.21	418.50	-0.08	0.00	0.29	0.30
220	0.55	12.99	-0.41	0.00	0.31	573.26	-0.07	0.00	0.21	0.30



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Water Analysis Report

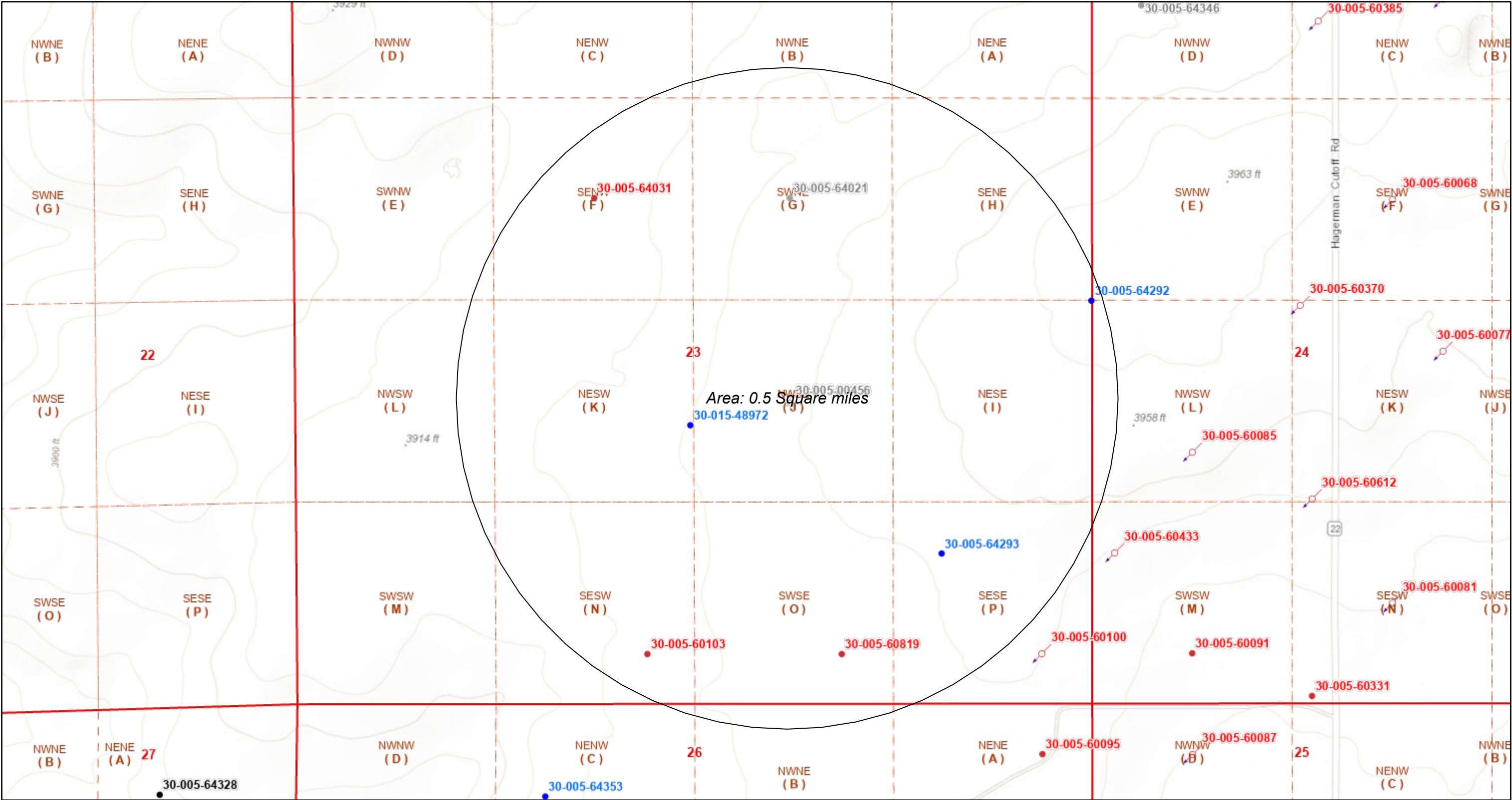
Customer: Mack Energy Corporation Sample #: 81533
Area: Artesia Analysis ID #: 80615
Lease: Saskatoon
Location: Fed Com 1H 0
Sample Point: Wellhead

Sampling Date:	1/10/2019	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	1/23/2019	Chloride:	91681.1	2585.99	Sodium:	54050.0	2351.04
Analyst:	Catalyst	Bicarbonate:	153.7	2.52	Magnesium:	1173.0	96.5
		Carbonate:			Calcium:	2767.0	138.07
TDS (mg/l or g/m3):	151377.2	Sulfate:	700.0	14.57	Potassium:	647.0	16.55
Density (g/cm3):	1.105	Borate*:	144.3	0.91	Strontium:	60.1	1.37
		Phosphate*			Barium:	0.6	0.01
Hydrogen Sulfide:	4	*Calculated based on measured elemental boron and phosphorus.			Iron:	0.0	0.
Carbon Dioxide:	90				Manganese:	0.416	0.02
Comments:		pH at time of sampling:		7.23			
		pH at time of analysis:					
		pH used in Calculation:		7.23			
		Temperature @ lab conditions (F):		75	Conductivity (micro-ohms/cm):		197210
					Resistivity (ohm meter):		.0507

Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Calcite CaCO ₃		Gypsum CaSO ₄ ·2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄	
°F	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount
80	0.57	6.35	-0.72	0.00	-0.71	0.00	-0.66	0.00	0.45	0.30
100	0.57	7.26	-0.79	0.00	-0.72	0.00	-0.69	0.00	0.25	0.00
120	0.58	8.77	-0.84	0.00	-0.69	0.00	-0.70	0.00	0.07	0.00
140	0.59	10.28	-0.89	0.00	-0.65	0.00	-0.71	0.00	-0.08	0.00
160	0.60	12.10	-0.93	0.00	-0.59	0.00	-0.70	0.00	-0.21	0.00
180	0.63	13.91	-0.96	0.00	-0.51	0.00	-0.70	0.00	-0.32	0.00
200	0.66	16.03	-0.99	0.00	-0.41	0.00	-0.69	0.00	-0.42	0.00
220	0.71	18.45	-1.01	0.00	-0.31	0.00	-0.67	0.00	-0.49	0.00

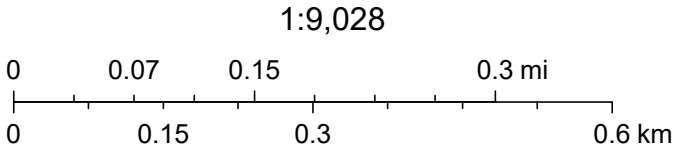
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OCD Well Locations



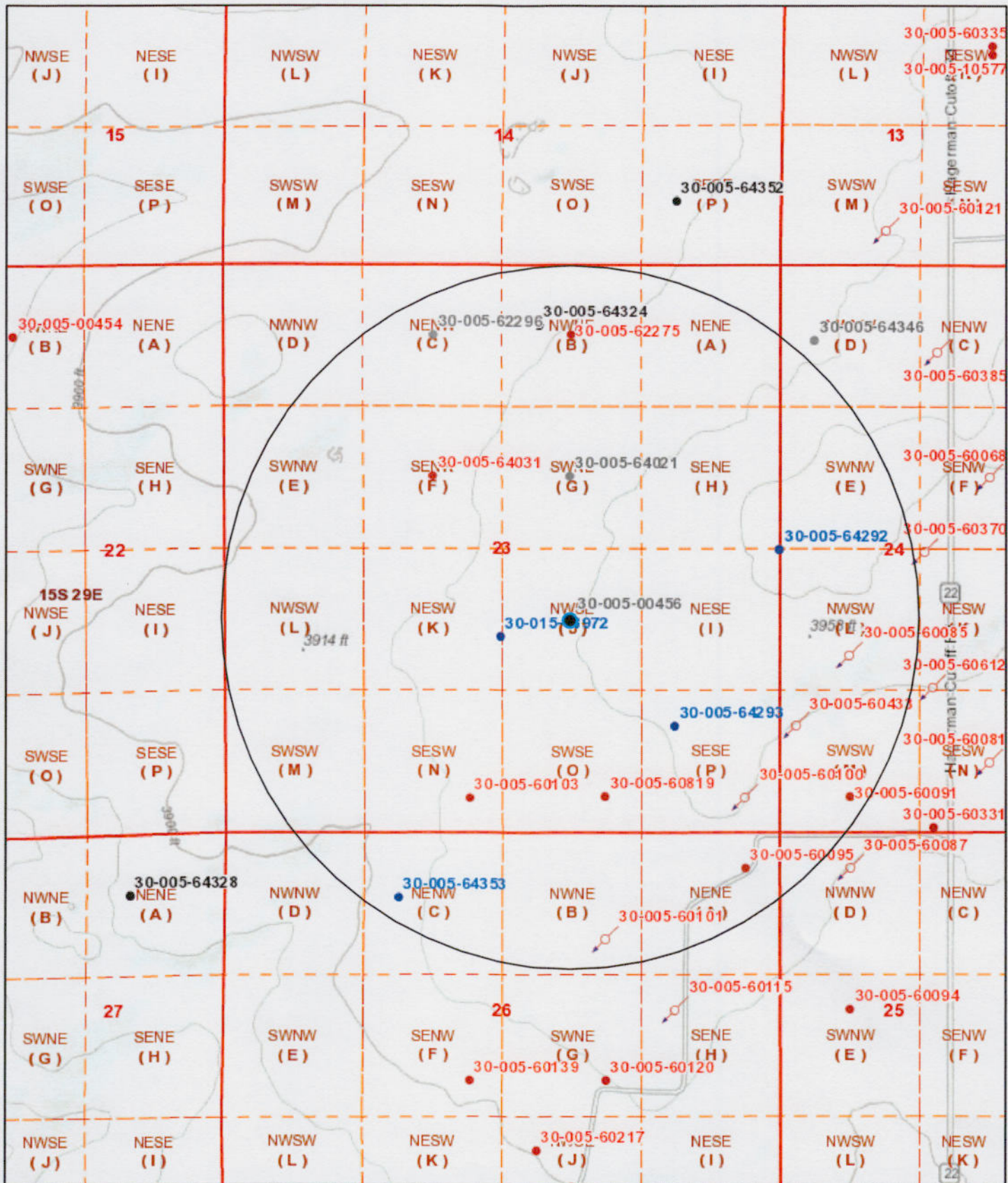
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- Override 1
- Oil, Active
- Oil, Plugged
- Oil, Cancelled
- Oil, New
- PLSS Second Division
- PLSS First Division
- Gas, Cancelled
- Injection, Plugged



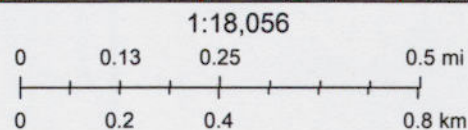
Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the

OCD Well Locations

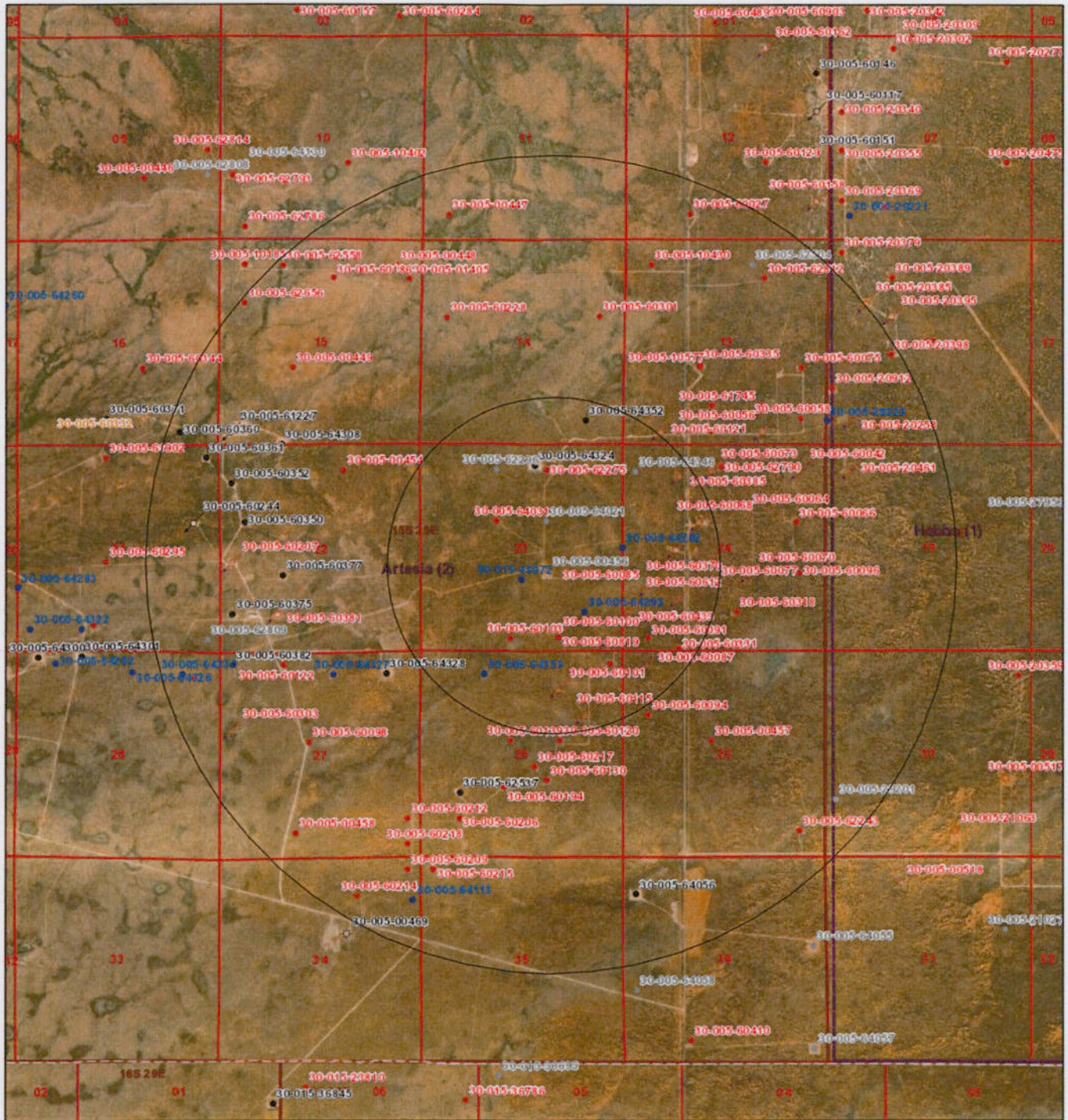


3/11/2022, 9:03:42 AM

- | | | |
|---------------------|----------------------------|----------------------|
| Override 1 | CO2, Plugged | Injection, Active |
| Wells - Large Scale | CO2, Temporarily Abandoned | Injection, Cancelled |
| undefined | Gas, Active | Injection, New |
| Miscellaneous | Gas, Cancelled | Injection, Plugged |
| CO2 Active | Gas, New | |



OCD Well Locations



3/15/2022, 11:21:36 AM

1:36,112

Override 1

Wells - Large Scale

undefined

Miscellaneous

CO₂, Active

CO₂, Cancelled

CO₂, New

CO₂, Plugged

CO₂, Temporarily Abandoned

Gas, Active

Gas, Cancelled

Gas, New

Gas, Plugged

Gas, Temporarily Abandoned

Injection, Active

Injection, Cancelled

Injection, New

Injection, Plugged

Injection, Temporarily Abandoned

Oil, Active

Oil, Cancelled

Oil, New

Oil, Plugged

Oil, Temporarily Abandoned

Salt Water Injection, Active

Salt Water Injection, Cancelled

Salt Water Injection, New

Salt Water Injection, Plugged

Salt Water Injection, Temporarily Abandoned

Water, Active

Water, Cancelled

Water, New

Water, Plugged

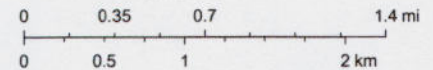
Water, Temporarily Abandoned

OCD Districts

OCD District Offices

PLSS First Division

PLSS Townships



Esri, HERE, Garmin, Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., OCD, Maxar, BLM