



Souder, Miller & Associates ♦ 201 S. Halagueno St. ♦ Carlsbad, NM 88220
(575) 689-7040

August 6, 2020

SMA #5E29133, BG53

NMOCD District 1
1625 N. French Drive
Hobbs, New Mexico 88240

**RE: LINER INSPECTION REPORT
THISTLE UNIT 109H**

To Whom it May Concern:

Souder, Miller & Associates (SMA) is pleased to submit this letter report on behalf of Devon Energy Production Company (Devon) summarizing the liner inspection that occurred at the Thistle Unit 22 BS Central Tank Battery (CTB) release that is associated with the Thistle Unit 109H well. The site is located in Unit Letter: B & C in Section 22, T23S, R33E (N32.295239/W-103.560141) Lea County, New Mexico, on BLM land.

Site Characterization

On April 19, 2018, the VRT tower at the Thistle 22 BS CTB Facility developed a hole due to corrosion. In response, The wells producing material to the battery were shut in and the tower was drained and isolated to stop any further release. This event resulted in the release of 0.1 bbls of produced water and 7.5 bbls of crude oil inside the lined secondary containment of the tank battery. Initial response activities were conducted by the operator and included source elimination and site stabilization, which recovered approximately 0.1 bbls of produced water and 7.5 bbls of crude oil.

Based upon New Mexico Office of the State Engineer (NMOSE) the average depth to groundwater in the area is estimated to be 341 feet below grade surface (bgs). There are no water sources within ½-mile of the location, according to the NMOSE and USGS water well databases (https://gis.ose.state.nm.us/gisapps/ose_pod_locations/; accessed July 26, 2020; Appendix C). The nearest significant watercourse is an unnamed intermittent stream, located approximately 3,550 feet to the northeast. Figures 1 and 2 show the release location and surrounding hydrologic features. Figure 3 shows the location of the facility and the release.

Based on the information presented herein, the applicable NMOCD Closure Criteria for this site is for a groundwater depth of >100 feet bgs.

Liner Integrity

At the request of Devon, SMA conducted a liner integrity inspection per the requirements of 19.15.29.11.A(5)(a) NMAC. NMOCD was notified on July 27, 2020 that the liner inspection was to occur. After a thorough visual inspection of the liner within the tank battery containment, the liner appeared to be intact and had the ability to contain the leak in question. The VRT tower from which the release occurred was identified, and SMA verified that the release did not occur outside of the lined containment. A photo log and field notes of the inspection is included in Appendix A.

SMA recommends no further action for this release.

Devon Energy Production Company
Thistle Unit 109H

5E29133, BG53

Souder, Miller and Associates appreciates the opportunity to provide environmental services to you. If you have any questions or comments concerning this report, please feel free to call Lynn A. Acosta at 505-516-7469.

Sincerely,
Souder, Miller & Associates



Lynn A. Acosta
Staff Geoscientist



Shawna Chubbuck
Senior Scientist

Attachments

Figures:

Figure 1: Site Map

Figure 2: Surface Water Protection Map

Figure 3: Site and Sample location Map

Appendices

Appendix A: Photo Log & Field Notes

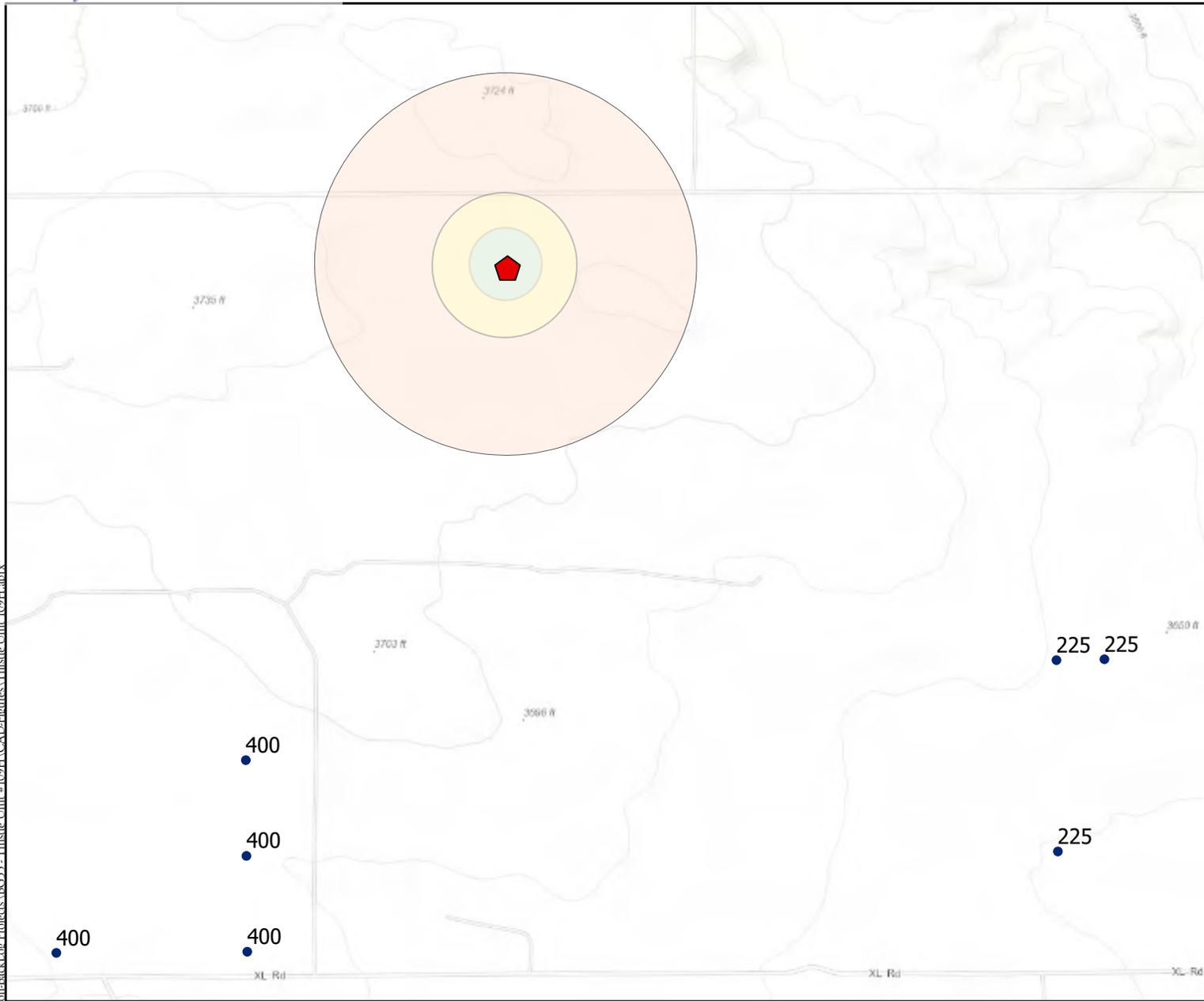
Appendix B: C141

Appendix C: Water Well Data

Devon Energy Production Company
Thistle Unit 109H

5E29133, BG53

FIGURES



Buffer Distance

- .5 Mile
- 1000 Feet
- 500 Feet
- OSE Depth to GW
- Point of Release

Karst Potential

- Critical
- High
- Medium
- Low

0 500 1,000 2,000 3,000
Feet

N

Site Map
Thistle 109H - Devon Energy Production Company
UL: B & C S: 22 T: 23S R: 33E, Lea County, New Mexico

Figure 1

P:\5\Devon\MSA 2020\65E29133\1\Devon-Backlog-Drawings\RG53-Thistle Unit #109H\CAD-Figures\Thistle Unit 109H.aprx
Date Saved: 7/30/2020

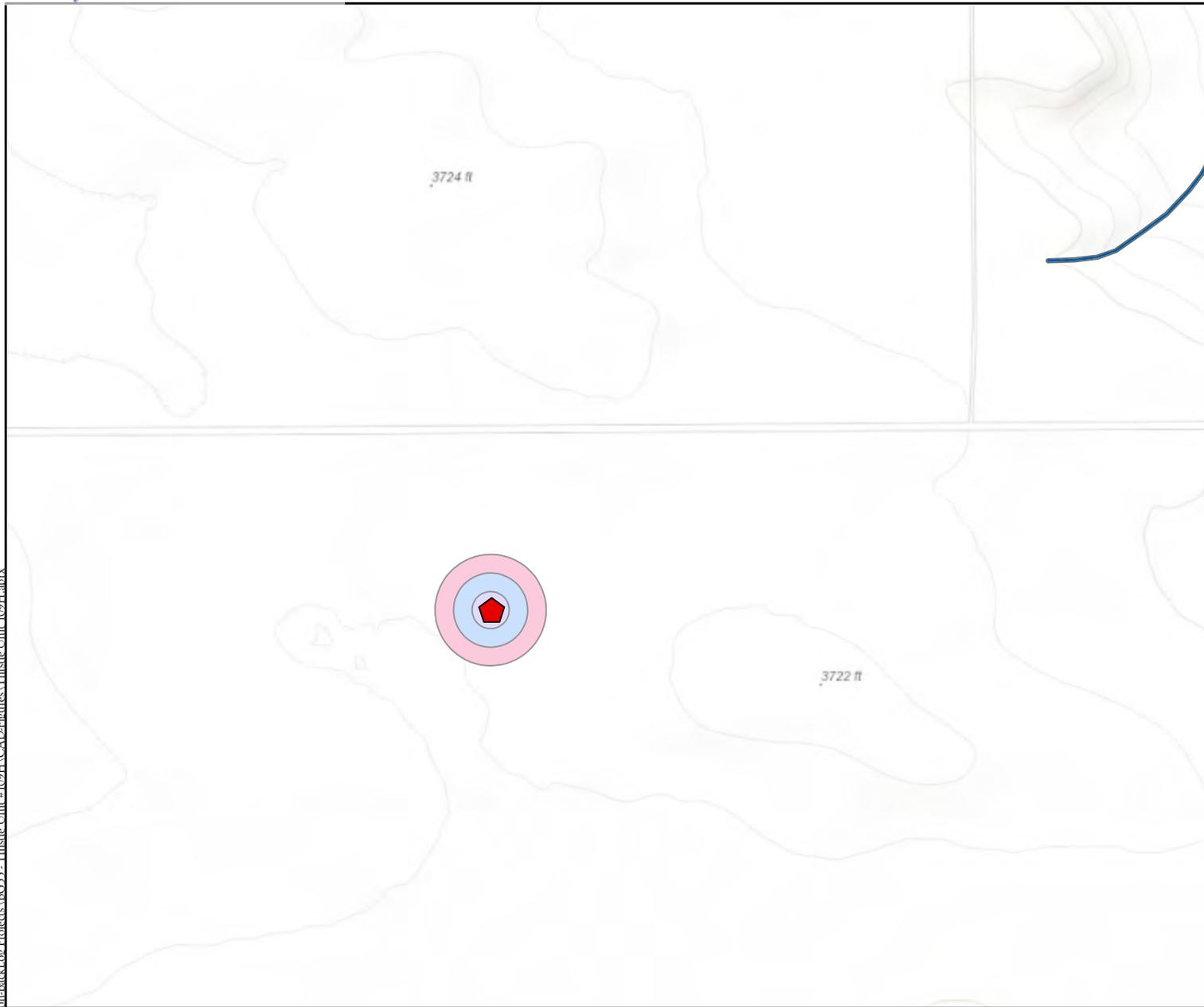
Revisions		
By: _____	Date: _____	Descr: _____
By: _____	Date: _____	Descr: _____

© Souder, Miller & Associates, 2020, All Rights Reserved

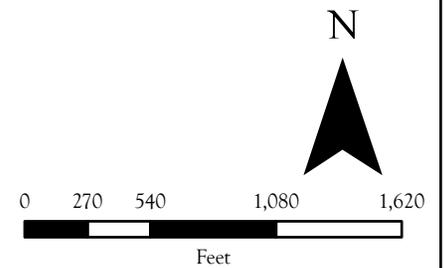
Drawn	Alicia A. Lopez
Date	8/6/2020
Checked	_____
Approved	_____



201 South Halaguena Street
 Carlsbad, New Mexico 88221
 (575) 689-7040
 Serving the Southwest & Rocky Mountains



- Buffer Distance**
-  300 Feet
 -  200 Feet
 -  100 Feet
 -  Springs & Seeps
 -  Streams & Canals
 -  Rivers
 -  Flowlines SENM
 -  NM Wetlands
 -  Lakes & Playas
 -  FEMA Flood Zones 2011
 -  Point of Release



Surface Water Protection Map
 Thistle 109H- Devon Energy Production Company
 UL: B & C S: 22 T: 23S R: 33E Lea County, New Mexico

Figure 2

P:\5 Devon MSA 2020\5E291331\Devon-Backlog-Projects\RG53-Thistle Unit #109H\CAD-Figures\Thistle Unit 109H.aprx

Revisions		
By: _____	Date: _____	Descr: _____
By: _____	Date: _____	Descr: _____

© Souder, Miller & Associates, 2020, All Rights Reserved

Drawn	Lynn A. Acosta
Date	8/6/2020
Checked	_____
Approved	_____

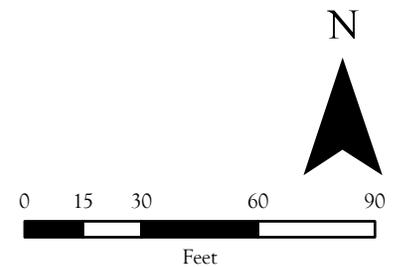


201 South Halaguena Street
 Carlsbad, New Mexico 88221
 (575) 689-7040
 Serving the Southwest & Rocky Mountains



Legend

- Containment Barrier
- ⬠ Point of Release



Site and Sample Location Map
 Thistle Unit 109H - Devon Energy Production Company
 UL: B & C S: 22 T: 23S R: 33E Lea County, New Mexico

Figure 3

P:\5-Devon\MSA 2020\65E291331\Devon-Backlog-Projects\RG53-Thistle Unit #109H\CAD-Figures\Thistle Unit 109H.aprx

Date Saved:
8/6/2020

Revisions		
By: _____	Date: _____	Descr: _____
By: _____	Date: _____	Descr: _____

Drawn	Lynn A. Acosta
Date	8/6/2020
Checked	_____
Approved	_____



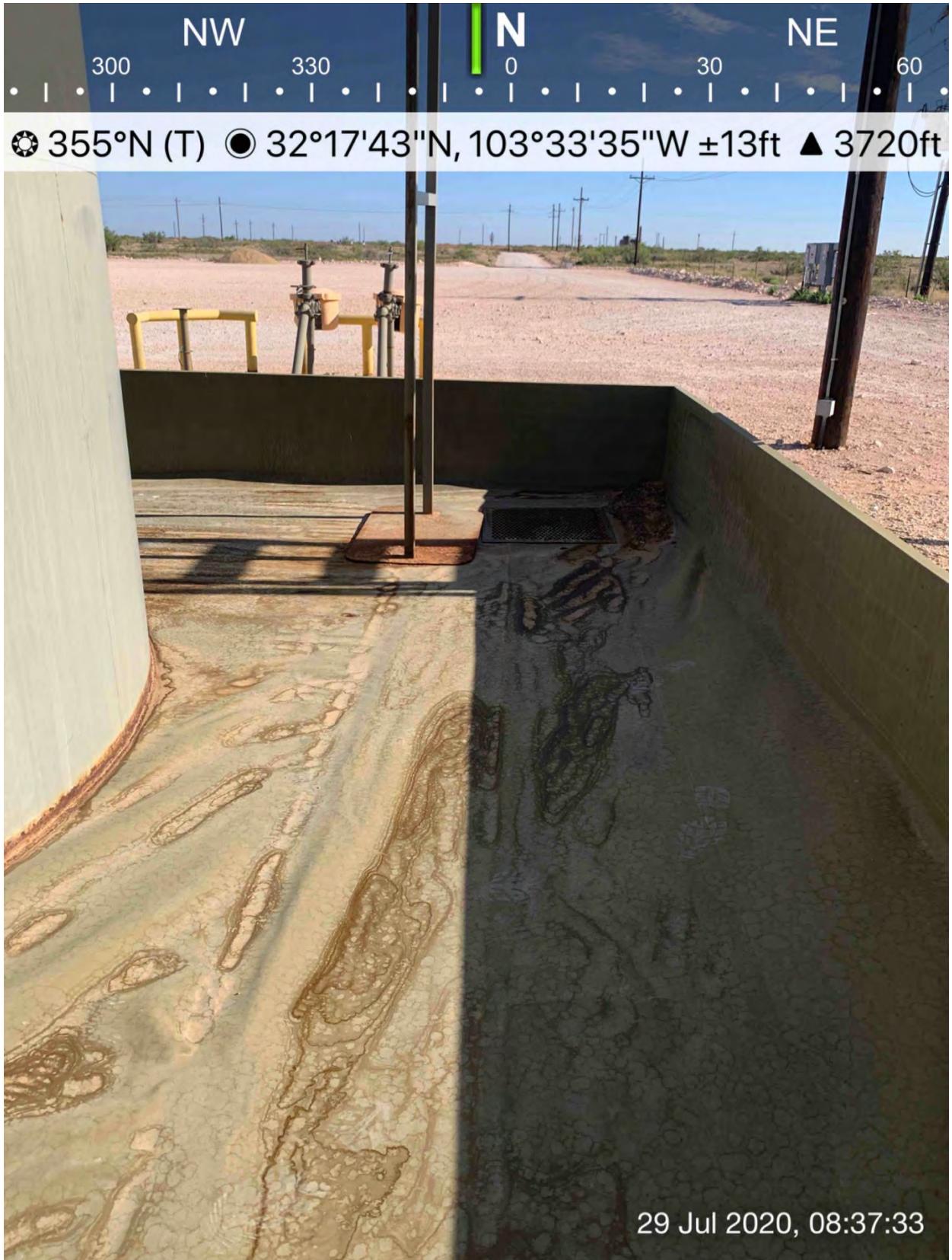
© Souder, Miller & Associates, 2020, All Rights Reserved

201 South Halaguena Street
 Carlsbad, New Mexico 88221
 (575) 689-7040
 Serving the Southwest & Rocky Mountains

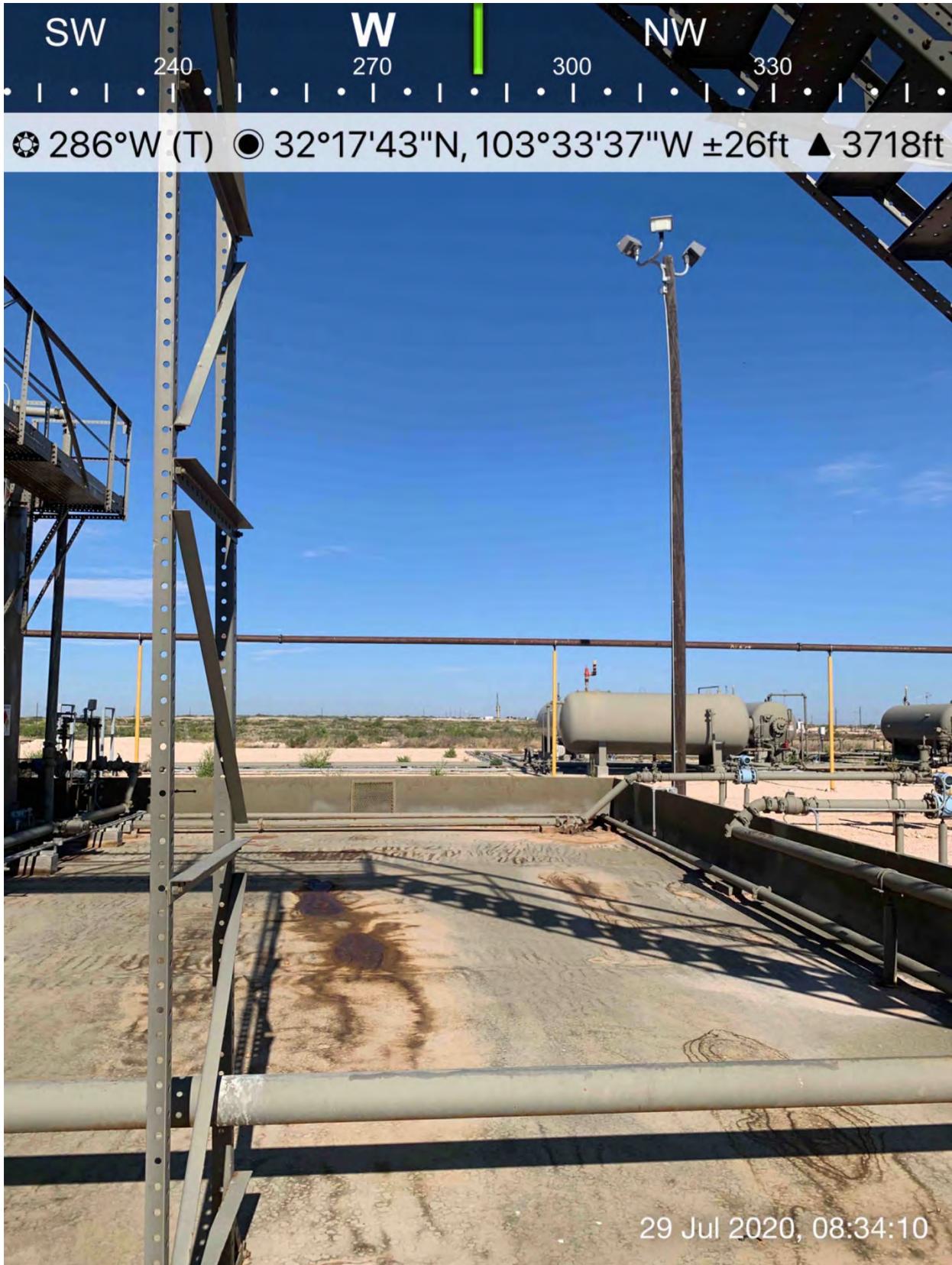
Devon Energy Production Company
Thistle Unit 109H

5E29133, BG53

Appendix A
PHOTO LOG & FIELD NOTES









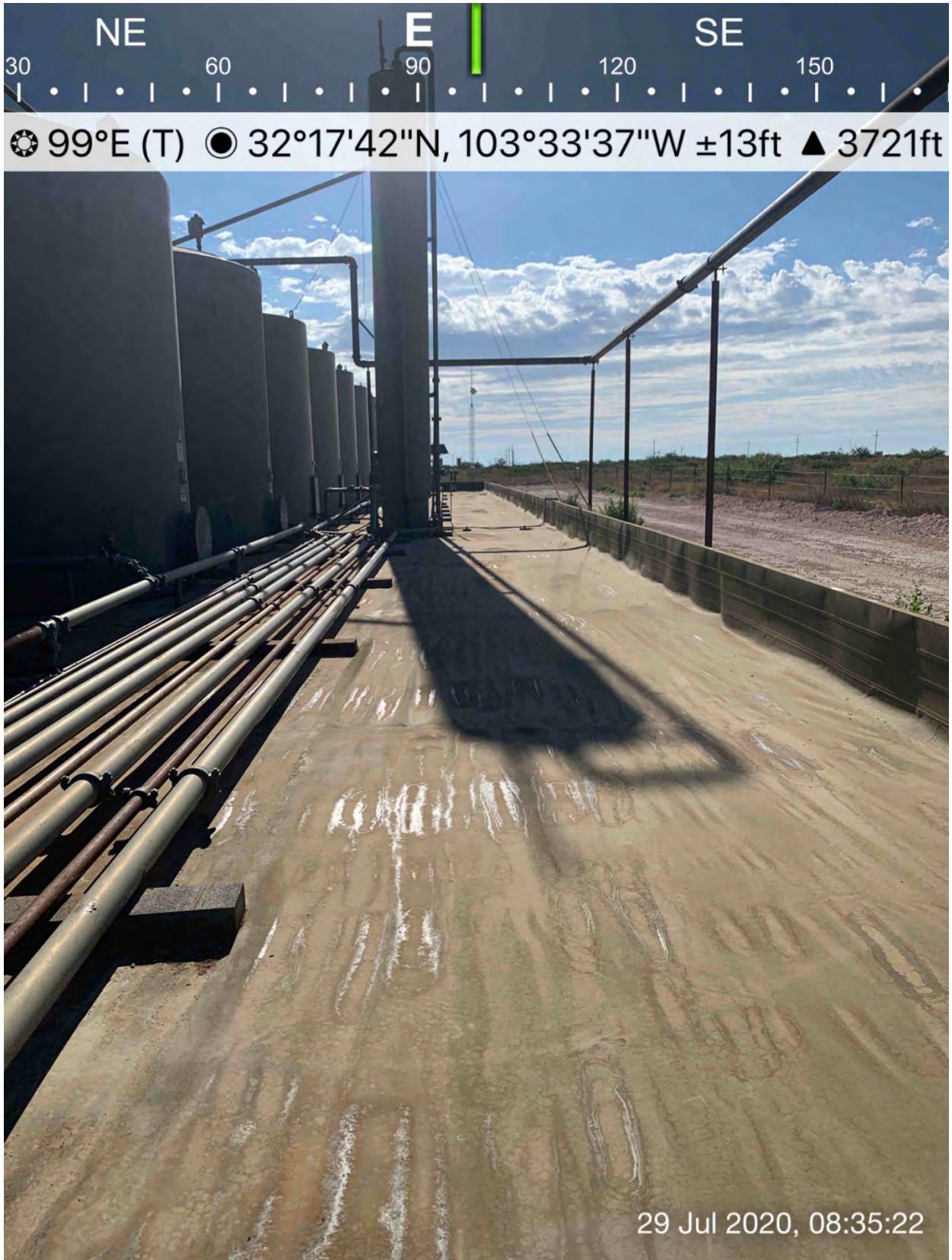


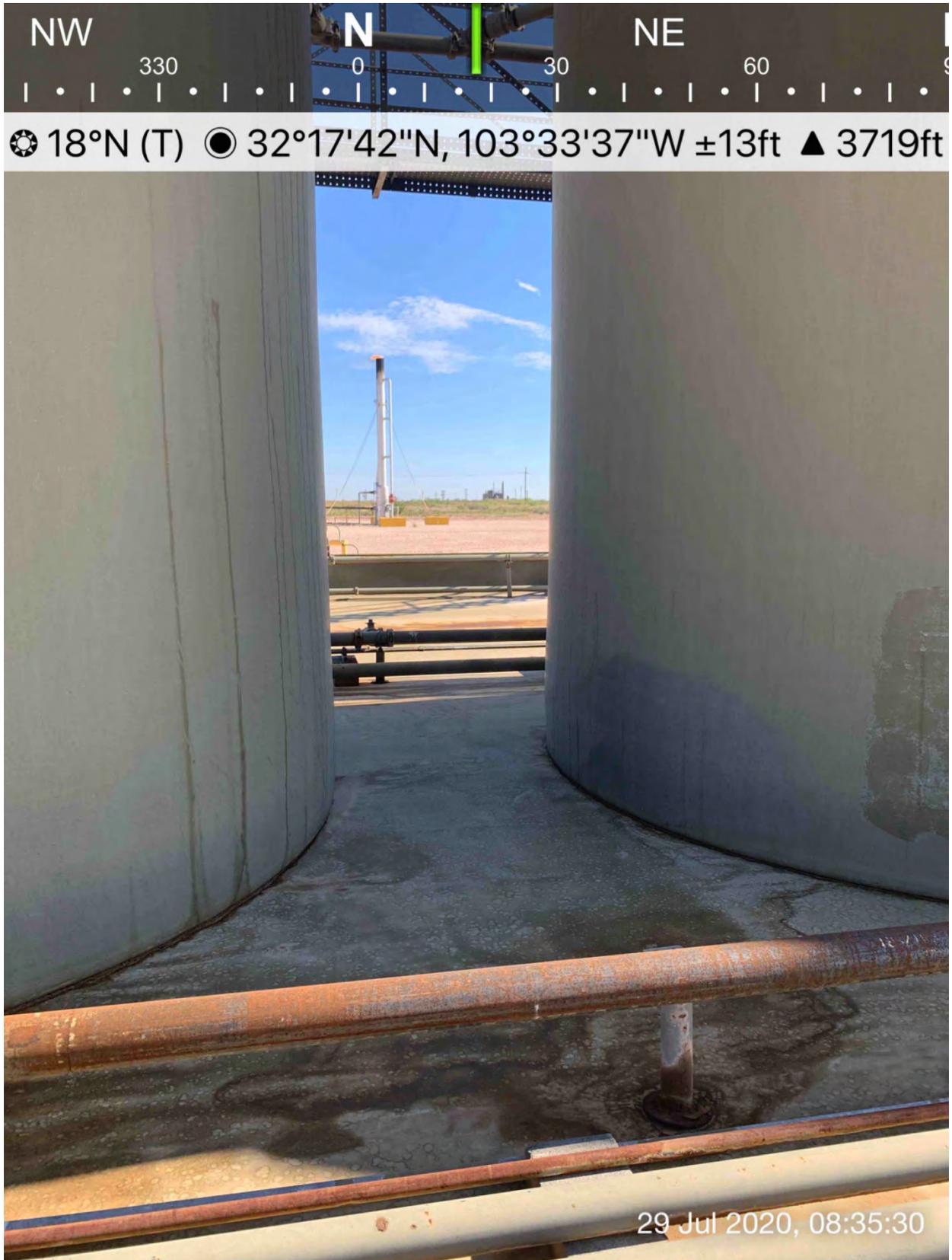


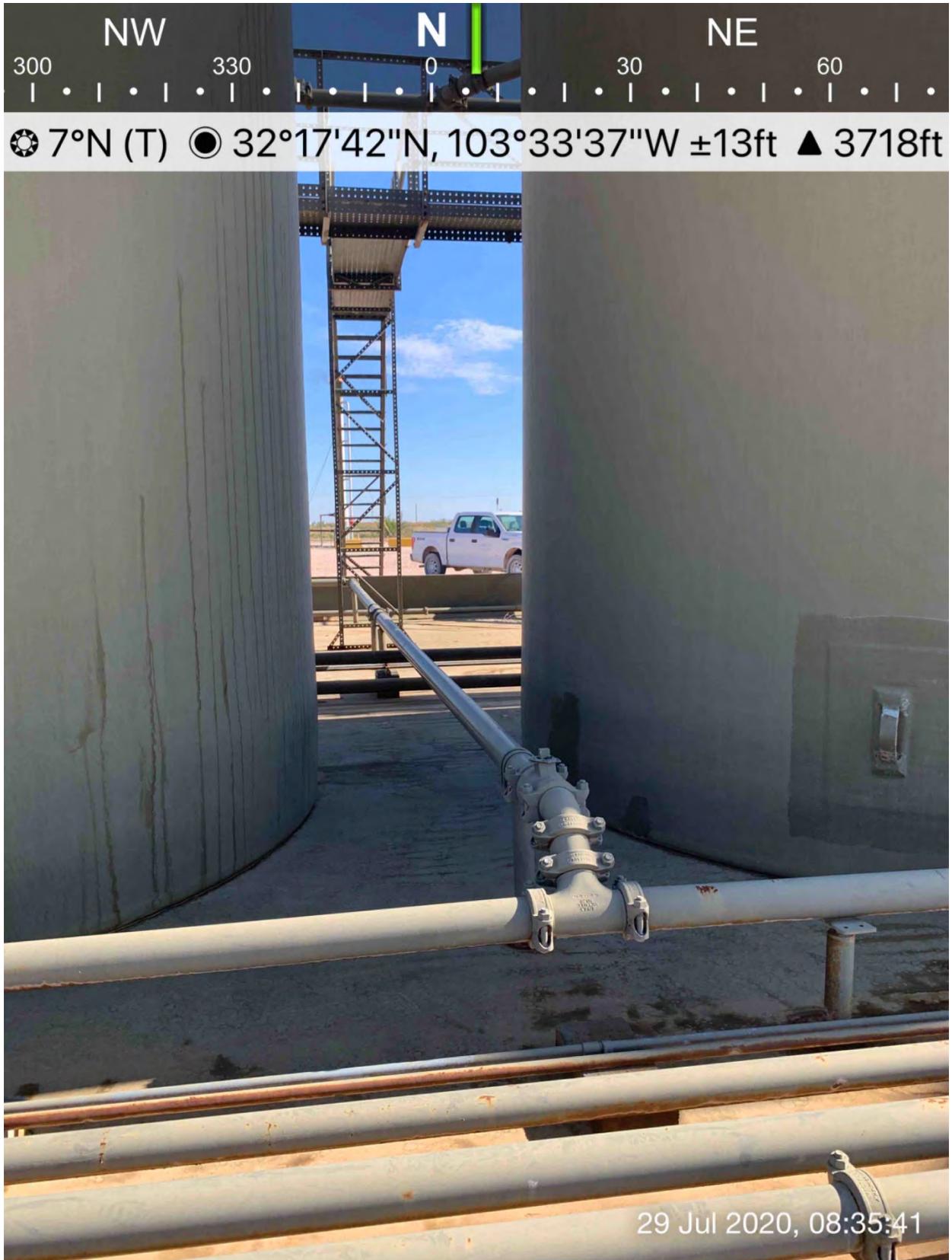
☀ 203°S (T) ● 32°17'42"N, 103°33'37"W ±13ft ▲ 3722ft

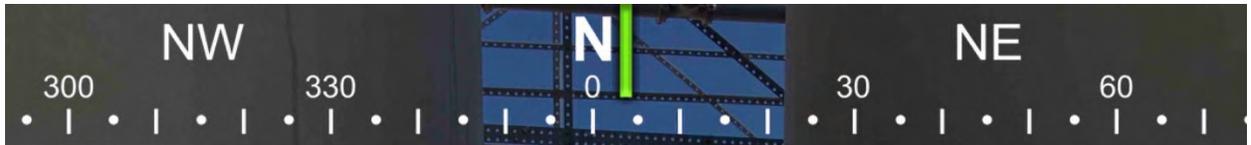


29 Jul 2020, 08:35:10





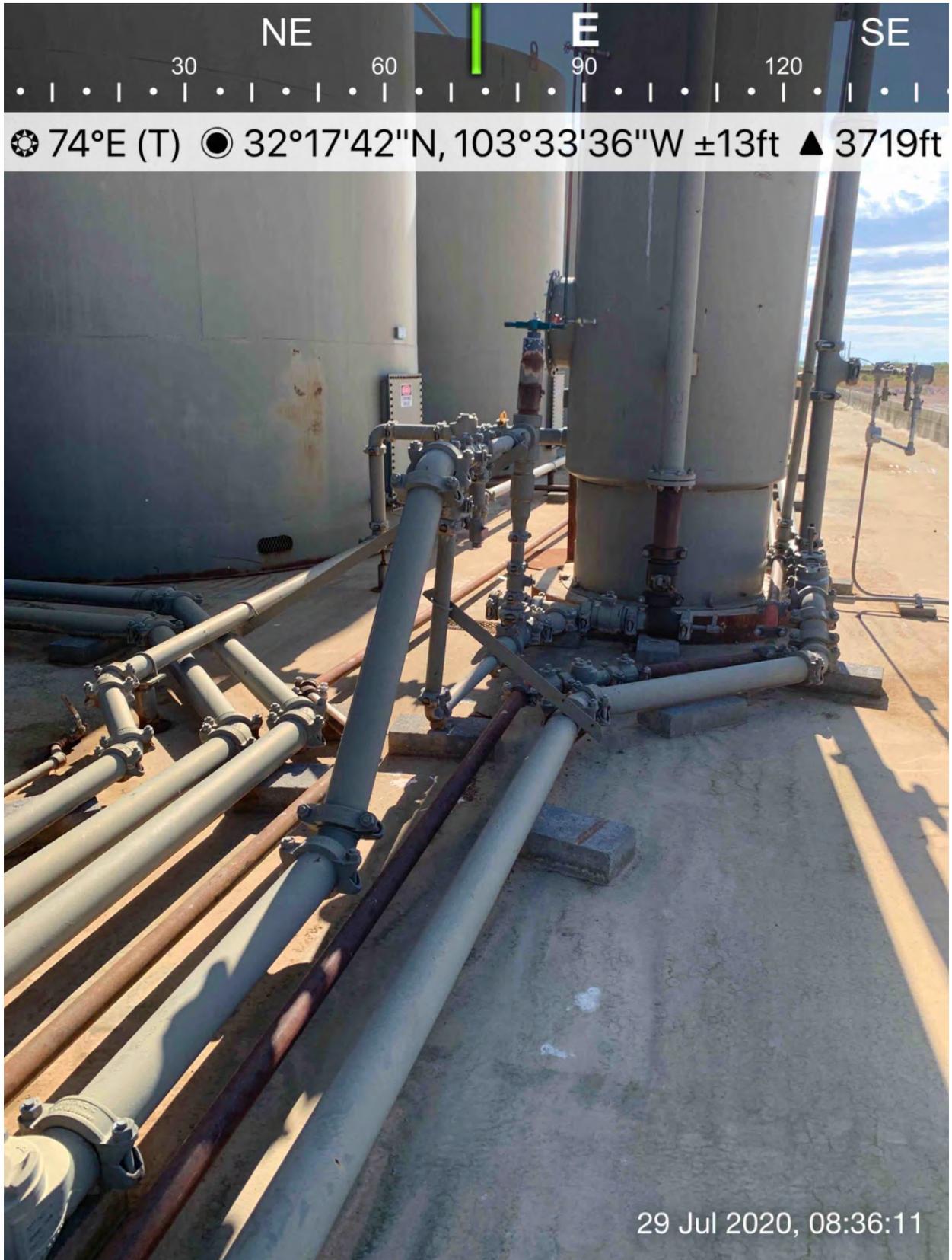


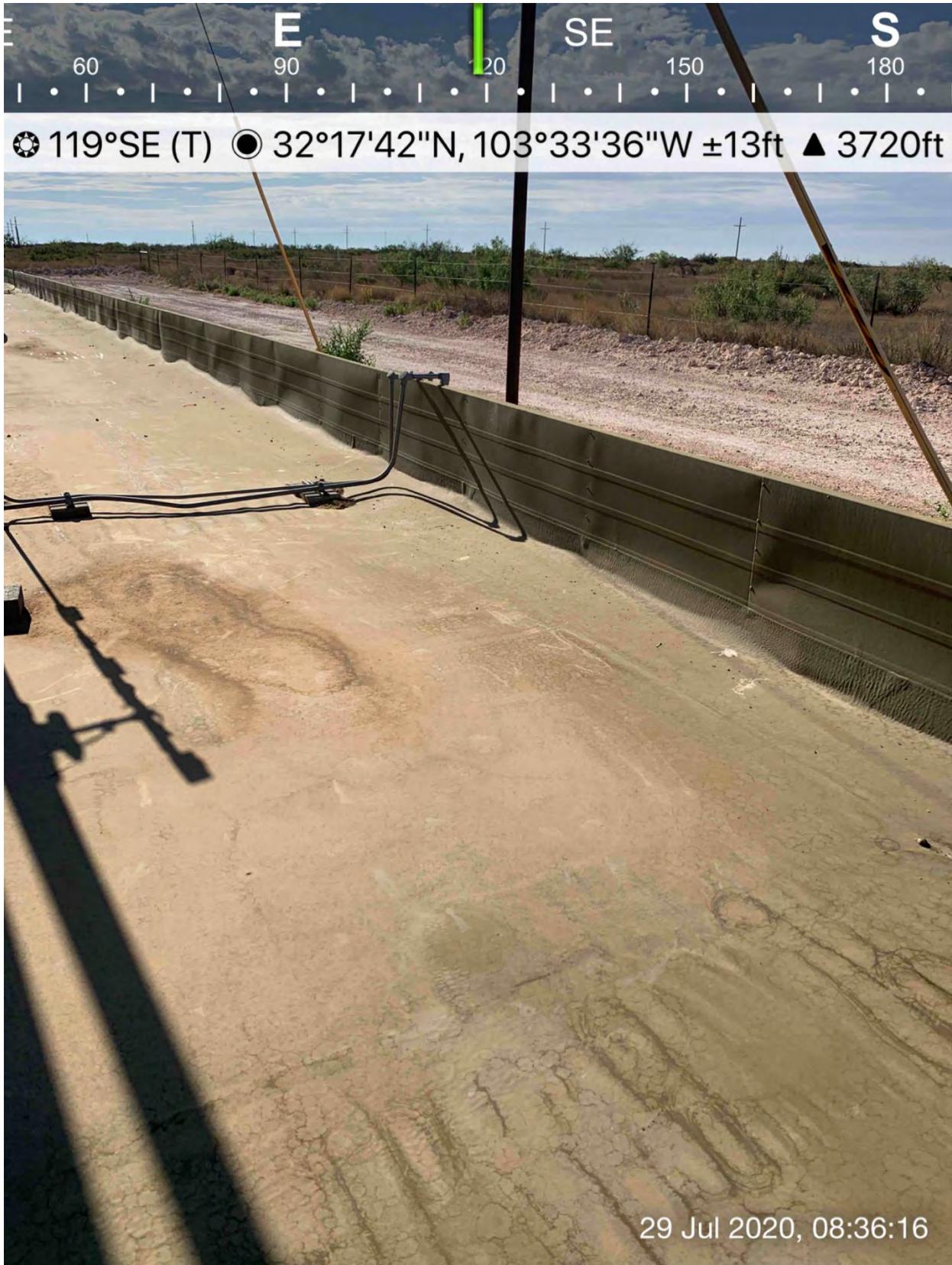


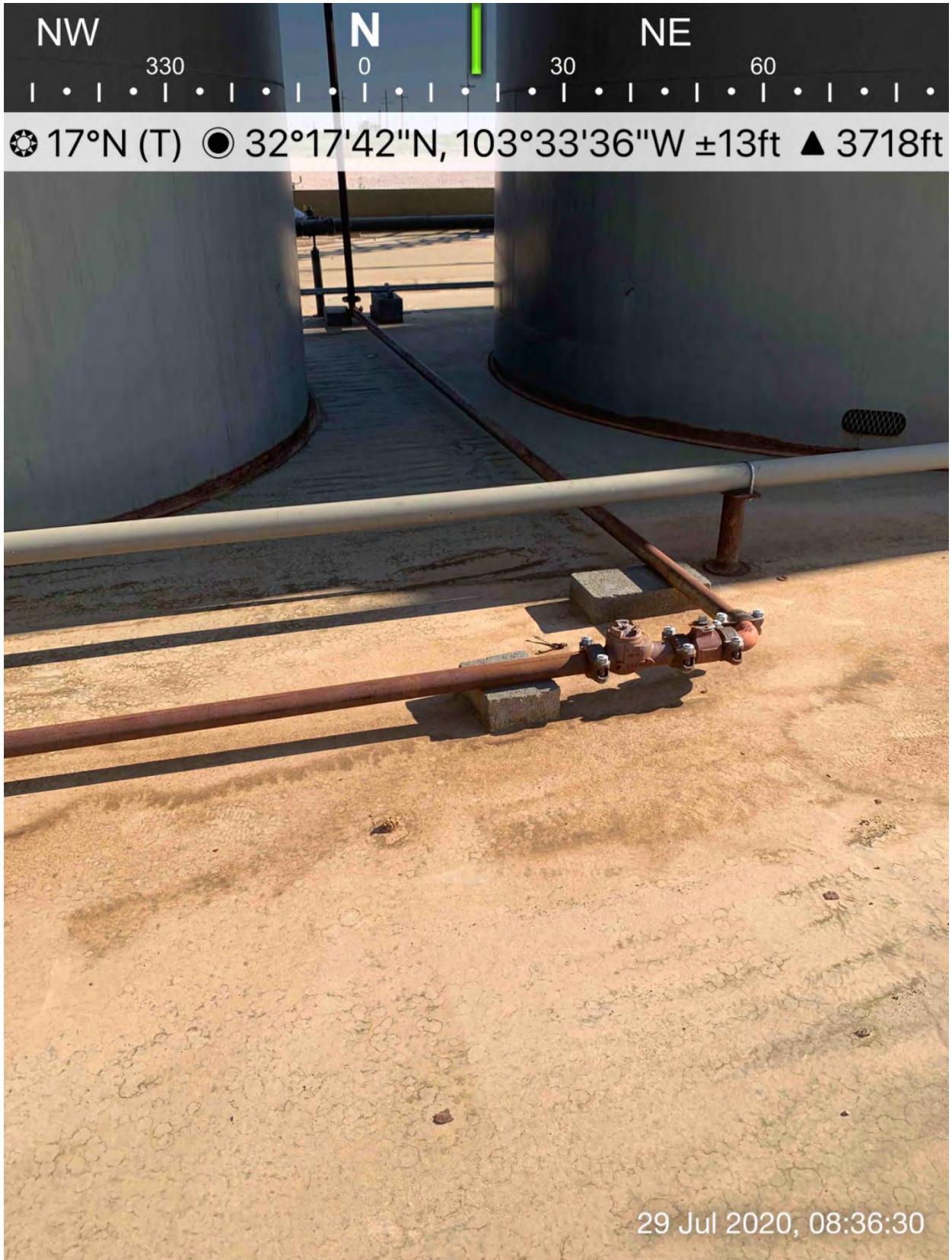
☀ 4°N (T) ● 32°17'42"N, 103°33'36"W ±13ft ▲ 3720ft

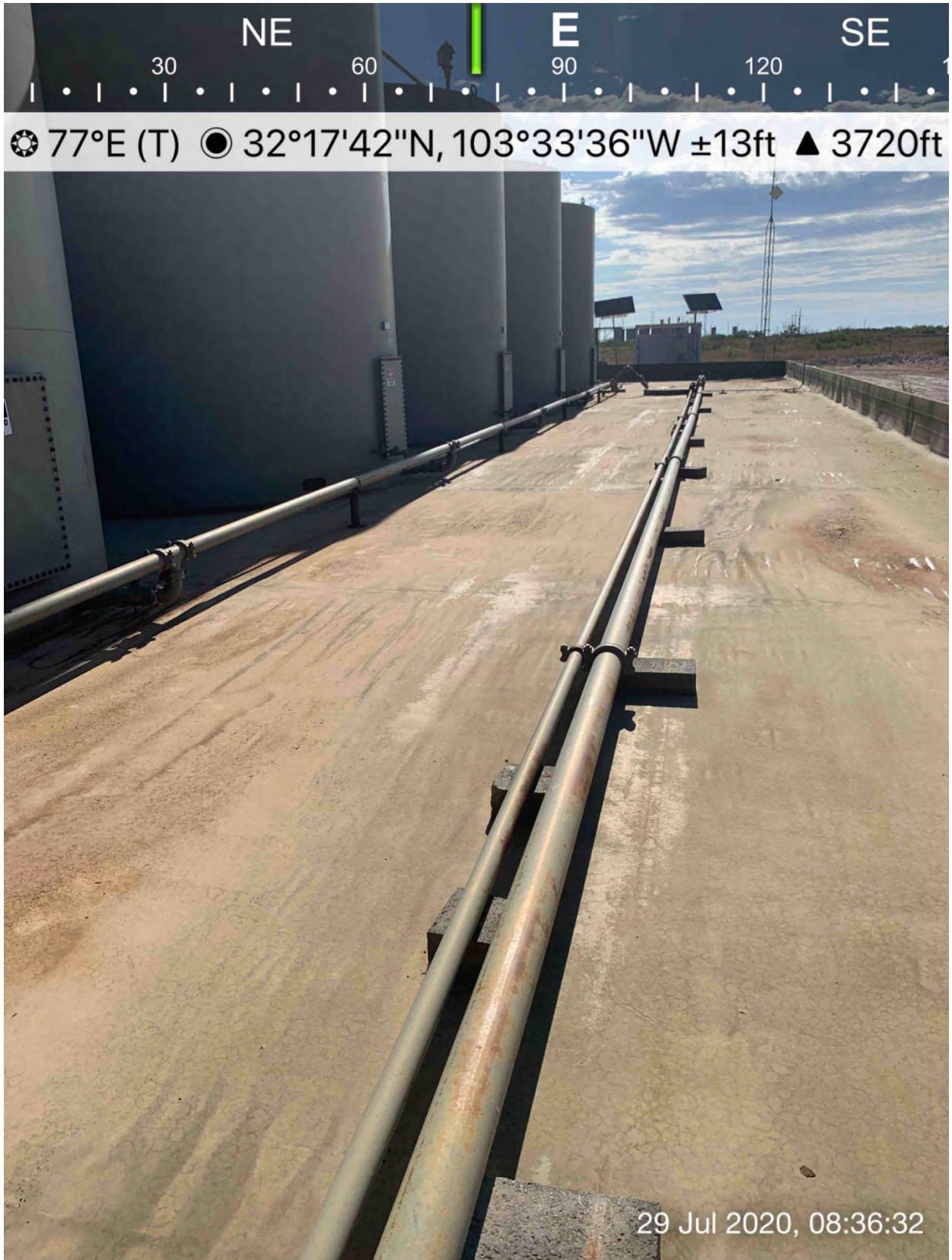


29 Jul 2020, 08:36:06

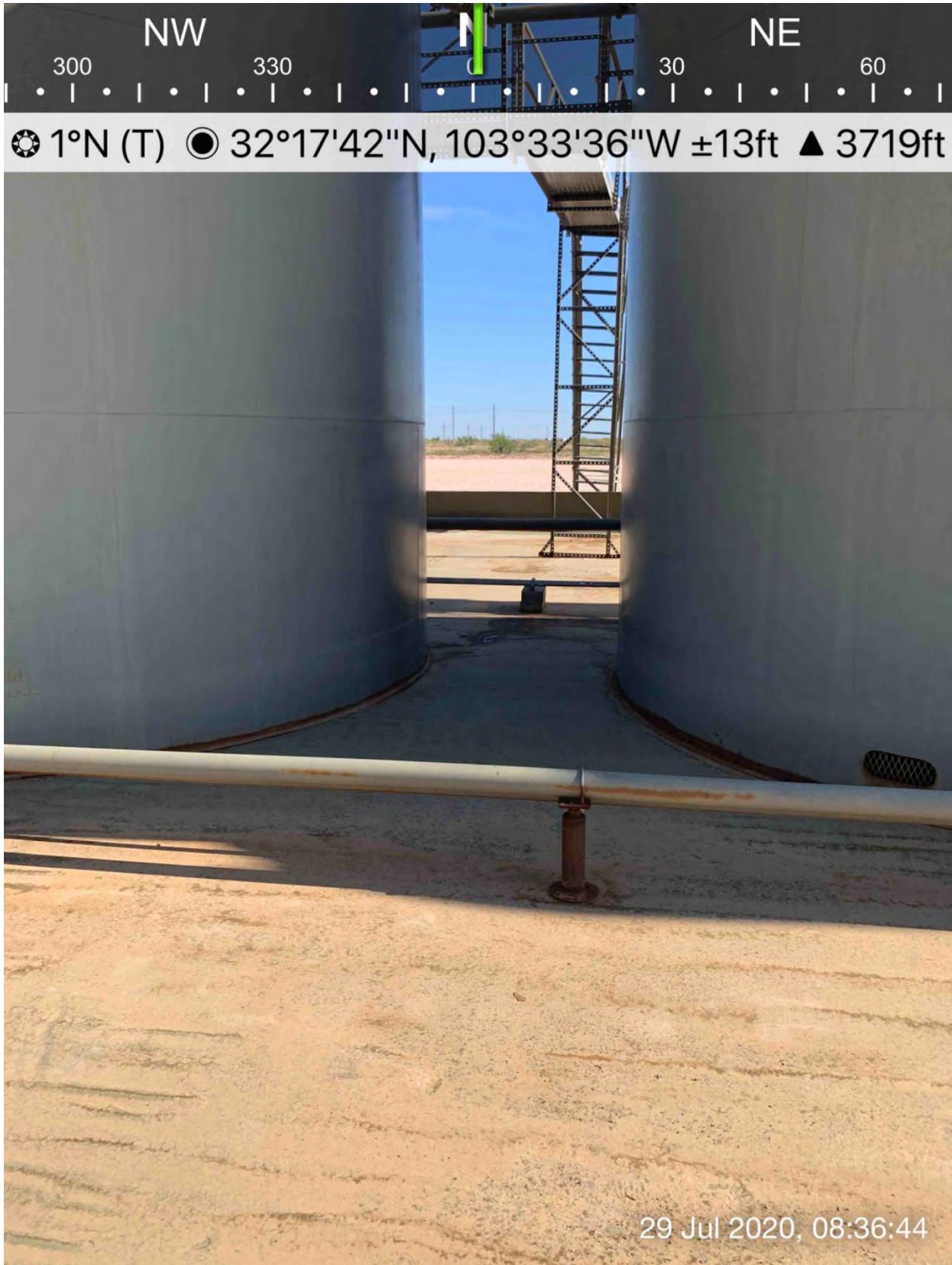


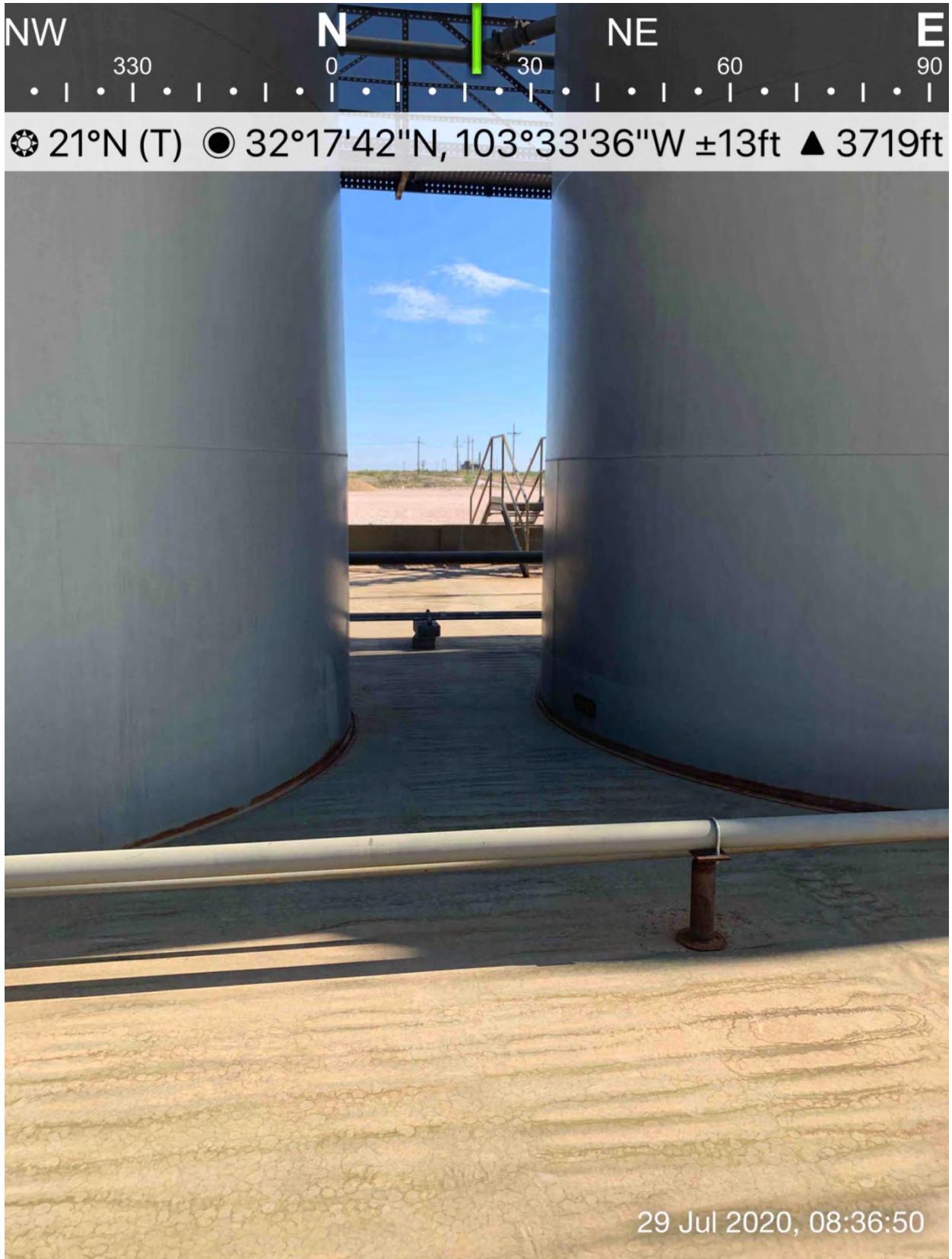


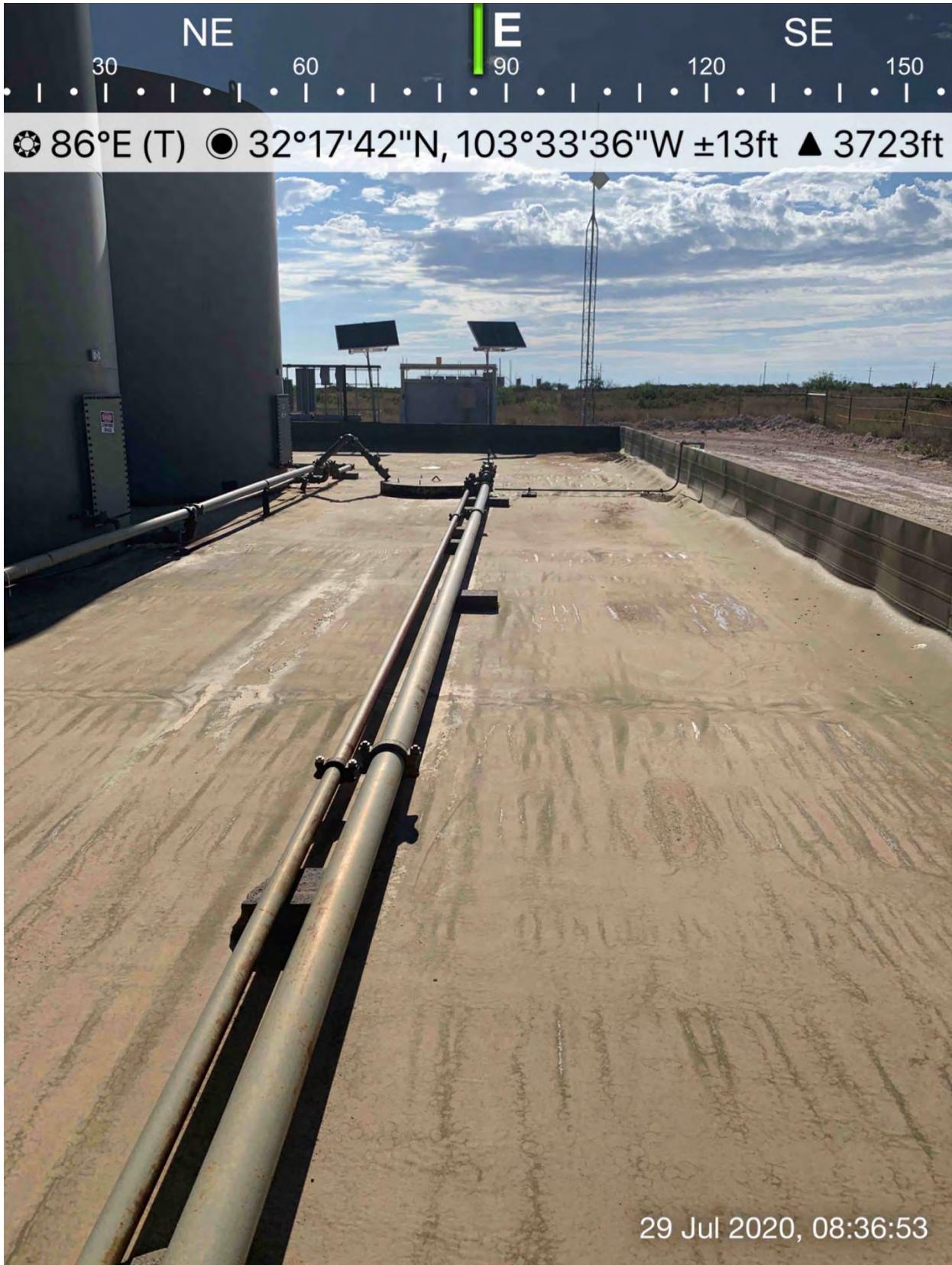


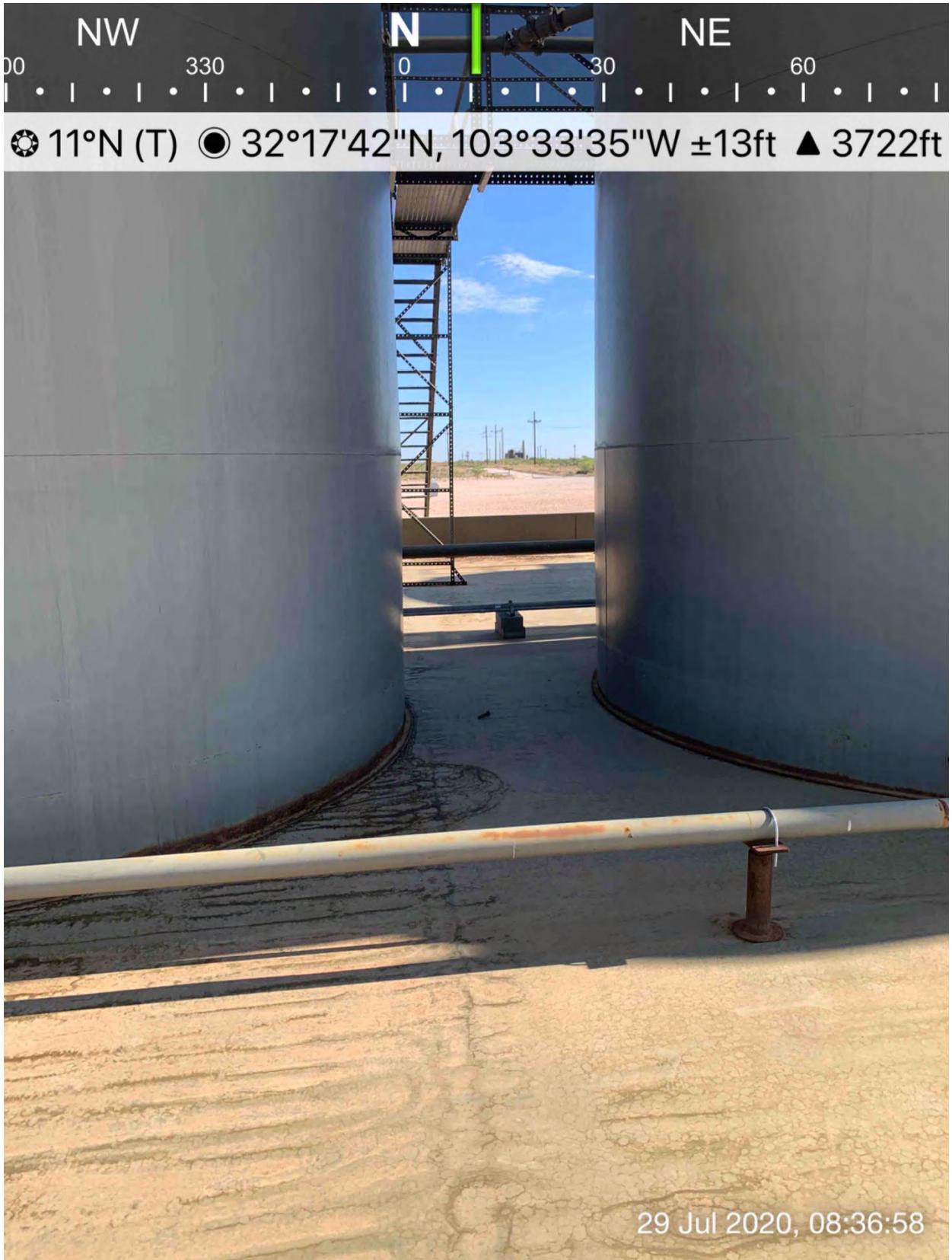


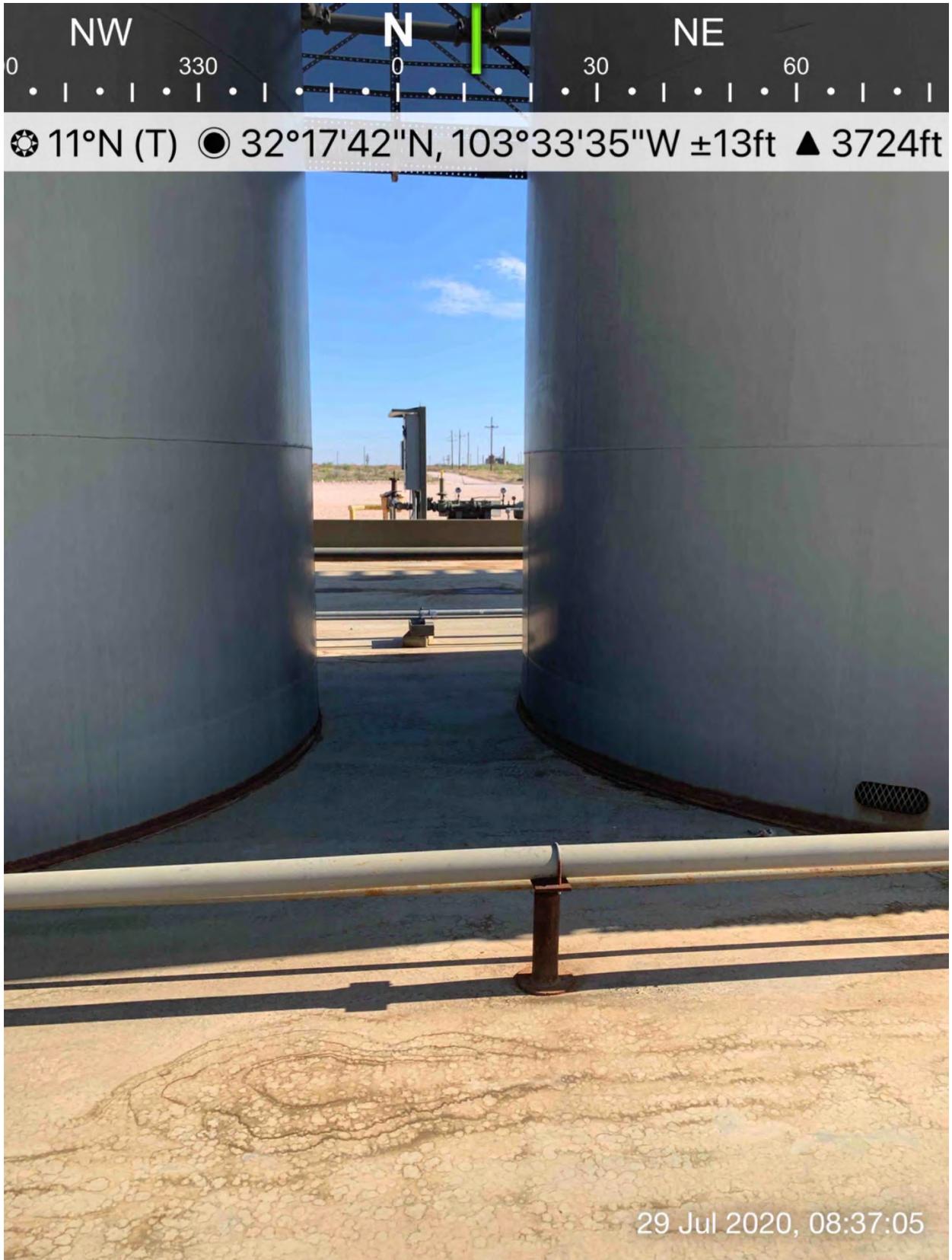






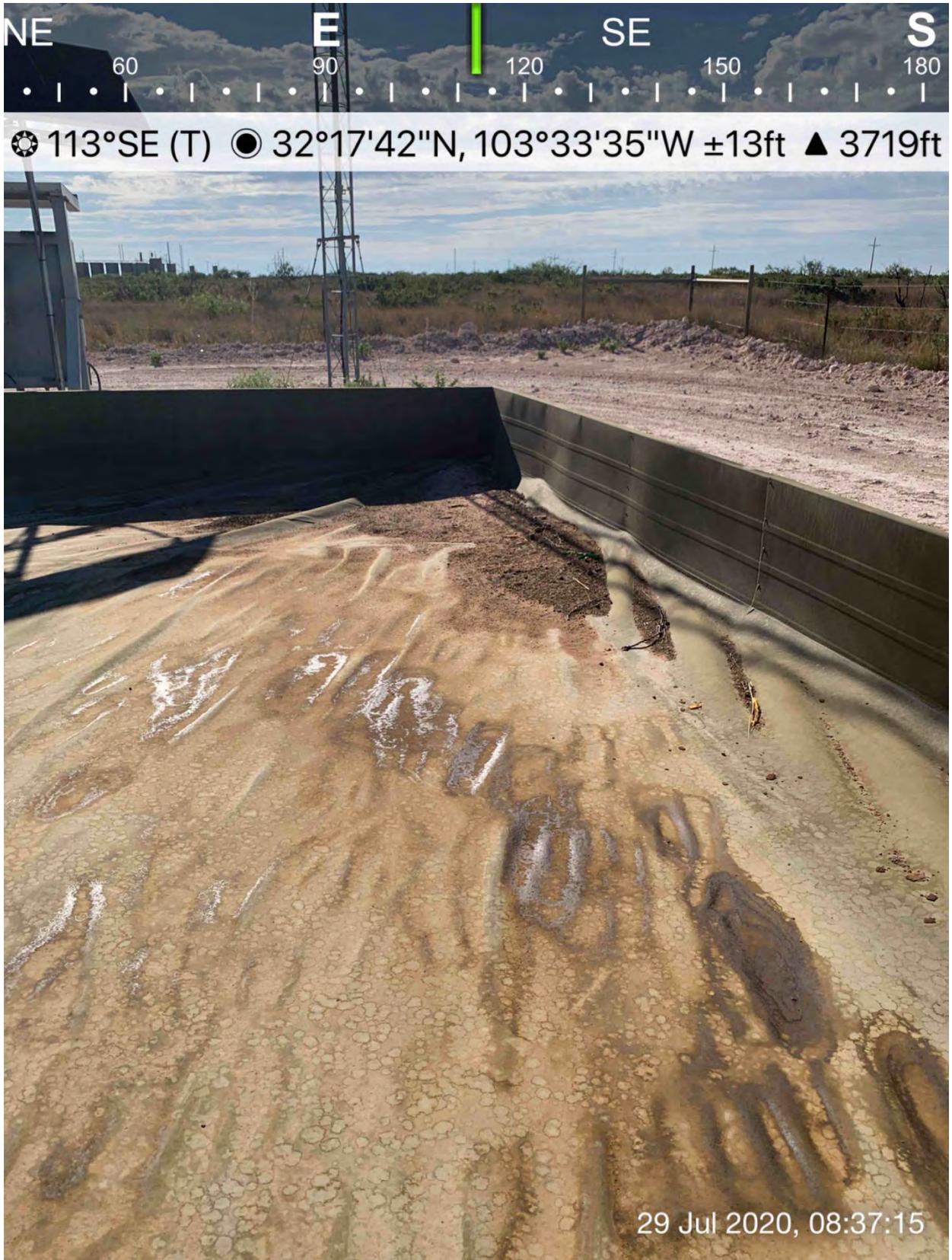






☀ 11°N (T) ☉ 32°17'42"N, 103°33'35"W ±13ft ▲ 3724ft

29 Jul 2020, 08:37:05



**Souder, Miller & Associates
Liner Inspection Form**



Project Name: Thistle Unit 10914 Inspection Date: 7/29/2020
Client Name: Devon Energy
Client Representative(s): _____
SMA Inspector(s): Alicia A Lopez
Project Location: Thistle Unit 22 CTB Latitude: 32.295239 Longitude: -103.560141

Inspection Parameters as Outlined in 19.15.29.11.A(5) NMAC

PRIOR TO INSPECTION:

Two (2) Business Day Notification of Inspection to Appropriate Division Office (Y/N): Y

Date of Notice: 7/27/2020

Material Covering Liner Removed by Client (Y/N): Y

Affected Areas Exposed by Client (Y/N): Y

INSPECTION:

Liner Thoroughly Inspected for Damage (Y/N): Y

All Damaged Areas Observed Marked in **White Paint** on Liner
Photos and Field Notes Detailing Failures Attached to This Form

To Be Completed by Client Representative:

Can Responsible Party Demonstrate:
Liner Integrity Was Maintained (per SMA Inspection) (Y/N): _____
Release Was Contained to Lined Containment Area (Y/N): _____
Liner Was Able to Contain the Leak (Y/N): _____

If YES:
Certify on Form C-141 That Liner Remains Intact

If NO to Any of Above:
Responsible Party Must Delineate Horizontal & Vertical Extent
Depending on Release:
See Table 1 19.15.29.12 NMAC
See Subparagraph (e) Paragraph (5) of Subsection A 19.15.29.11 NMAC

Additional Comments:

SMA INSPECTOR SIGNATURE

[Signature]
Date: 7/29/2020

CLIENT REPRESENTATIVE

Tom Bynum
Date: 7/29/2020

Devon Energy Production Company
Thistle Unit 109H

5E29133, BG53

APPENDIX B
C141

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

Form C-141
Revised April 3, 2017

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 Devon Energy Production Company	Contact Merle Lewis, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-748-3371
Facility Name Thistle Unit 109H (Release occurred at the Thistle 22 BS CTB Facility)	Facility Type Battery

Surface Owner State	Mineral Owner State	API No. 30-025-42680
---------------------	---------------------	----------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B & C	22	23S	33E					Lea

Latitude _32.295239_ **Longitude** _103.560141_ **NAD83**

NATURE OF RELEASE

Type of Release Oil & Produced Water	Volume of Release 7.5bbls oil 0.1bbls produced water	Volume Recovered 7.6bbls
Source of Release VRT tower	Date and Hour of Occurrence April 19, 2018 @ 1:30 PM MST	Date and Hour of Discovery April 19, 2018 @ 1:30 PM MST
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour N/A	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

RECEIVED
By Olivia Yu at 9:12 am, May 07, 2018

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

Describe Cause of Problem and Remedial Action Taken.*
The VRT tower developed hole due to corrosion. Wells producing to the battery were shut in and the tower was drained and isolated to stop any further release.

Describe Area Affected and Cleanup Action Taken.*
Approximately 7.5bbls of oil & 0.1bbls of produced water were released into the lined SPCC containment ring. A vacuum truck was dispatched to the location and all 7.6bbls of fluid were recovered from the lined containment. All fluid stayed inside the lined SPCC containment. Once fluids were removed the liner was visually inspected by Devon field staff for any pinholes or punctures and none were found. Based on this inspection there is no evidence that the spill fluids left containment.

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: <i>Michael Shoemaker</i>	OIL CONSERVATION DIVISION	
Printed Name: Michael Shoemaker	Approved by Environmental Specialist: <i>oy</i>	
Title: Environmental Professional	Approval Date: 5/7/2018	Expiration Date:
E-mail Address: mike.shoemaker@dvn.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 05/03/18 Phone: 575.748.3371	Please inspect liner in question. Provide NMOCD with a concise report of the inspection with affirmation the liner has and will continue to contain liquids.	

nOY1812734046

* Attach Additional Sheets If Necessary

Incident ID	nOY1812734046
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	225 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	nOY1812734046
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Tom Bynum Title: EHS Consultant

Signature: *Tom Bynum* Date: 8/6/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

Incident ID	nOY1812734046
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Tom Bynum Title: EHS Consultant
 Signature: Tom Bynum Date: 8/6/2020
 email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: _____ Date: _____

Incident ID	nOY1812734046
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Tom Bynum Title: EHS Consultant
 Signature: *Tom Bynum* Date: 8/6/2020
 email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Thistle 22 BS CTB

7.5bbl oil & 0.1bbl pw_4.19.18



This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: Michael Shoemaker
Map is current as of: 03-May-2018



23 S - 33 E - 22
N E N W

S22,T23S,R33E

7.5bbls oil & 0.1bbls pw

Devon Energy Production Company
Thistle Unit 109H

5E29133, BG53

**APPENDIX C
WATER WELL DATA**



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
C_03582 POD1	C	LE	LE	4	1	1	14	23S	33E	636583	3575666	1888	590		
C_02278	CUB	LE	LE	3	4	2	28	23S	33E	634484	3571989*	2349	650	400	250
C_02280	CUB	LE	LE	3	2	4	28	23S	33E	634489	3571586*	2710	650	400	250
C_02283	CUB	LE	LE	4	2	2	26	23S	33E	637896	3572431*	2845	325	225	100

Average Depth to Water: **341 feet**
 Minimum Depth: **225 feet**
 Maximum Depth: **400 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 635570.94

Northing (Y): 3574071.72

Radius: 3000

*UTM location was derived from PLSS - see Help

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.

7/29/20 2:42 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER