State of New Mexico
Oil Conservation Division

Incident ID	nAPP2202947197
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? **Plates 2 & 3**	>100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse? **Plate 4**	☐ Yes ☒ 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)? **Plate 4**	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church? **Plate 5**	☐ Yes ☒ 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? **Plate 2 & 3**	☒ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring? **Plate 3**	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field? **Plate 3**	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland? **Plate 6**	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine? **Plate 7**	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology? **Plate 8**	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain? **Plate 9**	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ 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 ½-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.

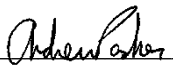
Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2202947197
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: Andrew Parker Title: Env. Scientist

Signature:  Date: April 18, 2022

email: aparker@ameredev.com Telephone: 970-570-9535

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2202947197
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: Andrew Parker Title: Env. Scientist

Signature: Andrew Parker Date: April 18, 2022

email: aparker@ameredev.com Telephone: 970-570-9535

OCD Only

Received by: _____ Date: _____

☒ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Jennifer Nobui Date: 05/18/2022

From: Hensley, Chad, EMNRD
To: Andrew Parker
Cc: Bratcher, Mike, EMNRD; Shane McNeely; Floyd Hammond
Subject: RE: [EXTERNAL] RE: C-141 Release Notification nAPP2202947197 DeSoto Springs 20220124-2200-water
Date: Wednesday, March 16, 2022 3:13:32 PM

Mr. Parker,
OCD approves the below conditions outlined in the previous e-mail.

- Sampling grid you have provided is approved.
- Closure criteria of <50ft.

NOTE: The OCD requires a copy of all correspondence relative to remedial projects be included in all proposal and/or final closure reports. Correspondence required to be included in reports may include, but not necessarily limited to, extension requests, liner inspection notifications, sample event notifications, spill/release/fire notifications, and variance requests. This will allow for notifications and requests to become a documented part of the incident file.

Cheers,

Chad Hensley ● Environmental Science & Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
811 First St. | Artesia, NM 88210
Office: 575.748.1283 | Cell: 575-703-1723
chad.hensley@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Andrew Parker <aparker@ameredev.com>
Sent: Wednesday, March 16, 2022 2:03 PM
To: Hensley, Chad, EMNRD <Chad.Hensley@state.nm.us>
Cc: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Shane McNeely <smcneely@ameredev.com>; Floyd Hammond <fhammond@ameredev.com>
Subject: RE: [EXTERNAL] RE: C-141 Release Notification nAPP2202947197 DeSoto Springs 20220124-2200-water

Mr. Hensley,
Ameredev Operating respectfully asks NMOCD for approval of the proposed confirmation sampling grid to not exceed 500 sq. ft. The attached map presents the sampling grid layout. Sidewall samples will not exceed 200 sq. ft. Ameredev plans on beginning remediation within the next two weeks. There is a stock water well within 500-feet of the release extent. Therefore, closure criteria will adhere to the most stringent concentrations listed in Table 1 of 19.15.29 NMAC where soils in the upper 4-feet have a chloride concentration of less than 600 mg/kg, a TPH concentration of no more than 100 mg/kg, a total BTEX concentration of no more than 50 mg/kg, and a benzene concentration of no more than 10 mg/kg.
Furthermore, I am in receipt of your follow-up email asking for all correspondence be included in forthcoming reports. All correspondence will be included in the reports.
Please advise if this email is sufficient for the above approval request or if Ameredev needs to

submit via the online portal.
Thank you.
Andrew Parker
Environmental Scientist
970-570-9535

From: Hensley, Chad, EMNRD <Chad.Hensley@state.nm.us>
Sent: Friday, March 11, 2022 11:35 AM
To: Andrew Parker <AParker@advanceenergypartners.com>
Cc: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Subject: RE: [EXTERNAL] RE: C-141 Release Notification nAPP2202947197 DeSoto Springs 20220124-2200-water

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good morning Mr. Parker.
Request for confirmation composite samples to exceed 500 sq/ft is denied. The OCD will accept floor and sidewall confirmation composite samples not exceeding 500sq/ft.
Cheers,

Chad Hensley ● Environmental Science & Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
811 First St. | Artesia, NM 88210
Office: 575.748.1283 | Cell: 575-703-1723
chad.hensley@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Sent: Friday, March 11, 2022 11:15 AM
To: Hensley, Chad, EMNRD <Chad.Hensley@state.nm.us>
Subject: FW: [EXTERNAL] RE: C-141 Release Notification nAPP2202947197 DeSoto Springs 20220124-2200-water

---

From: Andrew Parker <aparker@ameredev.com>
Sent: Wednesday, March 2, 2022 4:54 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Subject: [EXTERNAL] RE: C-141 Release Notification nAPP2202947197 DeSoto Springs 20220124-2200-water

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Mr. Bratcher,

Per our phone conversation, I canceled the characterization soil sampling for the above referenced release in consideration of safety for human health and the environment due the presence of buried pipelines. Obtaining soil samples at depth is not recommended without first exposing the pipelines via hydrovac. Therefore, the current plan is to begin remediation by hydrovacing around the buried pipelines then begin excavating within the next 10-days. The attached maps show the location of the buried pipelines.

For confirmation sampling, we propose a confirmation sampling grid larger than 200 sq ft as shown on the attached map titled 'Proposed Confirmation Sampling Grid.pdf'. Please let me know the best way to proceed obtaining approval for the proposed confirmation sampling grid. Options include, but not limited to:

1. This email
2. Notification of proposed sampling grid via NMOCD online?
3. Characterization and remediation plan via NMOCD online?

Supporting Information:

The nearest water well to the release is mapped as MISC-405 on Plate 2 located 325-feet northwest of the release area. Well data obtained from the New Mexico Office of the State Engineer (OSE) identifies this well as CP-00857 POD 1 with a water bearing formation from 300 to 365-feet below ground surface. We acknowledge that the nearby water well triggers cleanup levels to be 600 mg/kg chloride from surface to 4-feet and below.

Furthermore, we performed an EM survey for characterization. The attached maps and description below is reproduced from the draft characterization plan discussing the EM survey.

Interpretation notes:

- *Metal objects such as production equipment, pipelines, and fences will have an influence on the electrical conductivity readings. The user of the EMI survey needs to be aware of false high and low electrical conductivity readings caused metal objects.*

Plate 10 shows the metal susceptibility (interference) readings. Yellow and gray shading identifies areas with greatest metal susceptibility. Dark blue shading identifies areas not influenced by metal. The following areas shows metal susceptibility:

- *Around electrical boxes, pumps, and oil field equipment (production equipment).*
- *Around fences at the west central and southern edges of the survey area.*

Plate 11 shows EC_a in the upper 2-feet of the soil column. Discounting areas of metal interface and correlating EC_a to chloride concentrations

- *Darker green shading represents background concentrations where EC_a<0.2 mS/cm (chloride <600 mg/kg)*
- *Yellow shading represents concentrations where EC_a is approximately 3.0 mS/cm (chloride 3,851 mg/kg)*
- *Red shading represents concentrations where EC_a is approximately 6.0 mS/cm (chloride 7,721 mg/kg)*

Throughout the release extent and in the upper 2-feet, chloride concentrations are anticipated to exceed 19.15.29 NMAC Closure Criteria for areas not in-use for oil and gas operations (not on an active production pad). Closure Criteria for areas not in-use in the upper 4-feet is <600 mg/kg chloride. Remediation will be required, at a minimum, in the upper 2-feet or until the most stringent Closure Criteria is meet for Chloride, TPH, and BTEX.

Plate 12 shows EC_a from approximately 2 to 4 feet below ground surface (bgs). Chloride concentrations between 3,851 and 7,721 mg/kg is likely limited to the southern 1/3 of the release

extent and around the source area. Remediation is likely to extend below 4-feet to meet the most stringent Closure Criteria.

Thank you,
Andrew Parker
Environmental Scientist
970-570-9535

AMEREDEV

From: Andrew Parker
Sent: Saturday, January 29, 2022 1:20 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
Cc: Dayeed Khan <dkhan@ameredev.com>; Shane McNeely <smcneely@ameredev.com>
Subject: C-141 Release Notification nAPP2202947197 DeSoto Springs 20220124-2200-water

OCD,
Attached is the C-141 Release Notification for Incident # nAPP2202947197 DeSoto Springs 20220124-2200-water. The electronic confirmation of reporting is referenced in the below email. Included in the attached is the volume calculation and a copy of the 24 hour major release notice.
Andrew Parker
Environmental Scientist
970-570-9535

AMEREDEV

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Saturday, January 29, 2022 1:07 PM
To: Andrew Parker <AParker@ameredev.com>
Subject: [EXTERNAL] The Oil Conservation Division (OCD) has accepted the application, Application ID: 76684

To whom it may concern (c/o Andrew Parker for AMEREDEV OPERATING, LLC),

The OCD has accepted the submitted *Notification of a release* (NOR), for incident ID (n#) nAPP2202947197,
with the following conditions:

- **When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141.**

Please reference nAPP2202947197, on all subsequent C-141 submissions and communications regarding the remediation of this release.
NOTE: As of December 2019, NMOCD has discontinued the use of the “RP” number.
If you have any questions regarding this application, or don't know why you have received this email, please contact us.

ocd.enviro@state.nm.us

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

Ameredev II, LLC
2901 Via Fortuna Suite 600 • Austin, Texas 78746 • Phone (737) 300-4700

April 18, 2022

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

RE: Characterization and Remediation Workplan
Incident ID: nAPP2202947197
DeSoto Springs 600 ft NE
AEP #: 20220124-2200-water

NMOCD:

Ameredev Operating submits this characterization report and remediation, restoration, & reclamation workplan for incident number nAPP2202947197. The release occurred on January 24, 2022 from the failure of a polypipe at a pipeline rise. The calculated volume of released produced water was 352 barrels.

The release was within a pipeline right-of-way (ROW) for oil and gas operations and occurred on Fee surface. The coordinates of the release point are 32.0770297, -103.2803545 (Lat, Long; NAD83). The release did not impact surface or groundwater. Figure 1 shows the release extent. The release pont was near the top left corner of the photo shown in Figure 1.

Figure 1: Photo of release area from viewing north. Date/Time: 2021-12-25 09:43:13. GPS: 32.0767838 N, 103.2800513 W.

1. Characterization

The following sections address items as described in 19.15.29.11.A, paragraphs 1- 4. Please refer to the C-141 characterization checklist for additional setback criteria and verification (Plates 2-9).

1.1. Site Map

Horizontal extent of the release was determined by visual observations and conducting an electromagnetic induction (EM) survey the day after the release. The release extent mapping utilized GPS technology with sub-meter accuracy.

Plate 1 shows the release extent relative to production equipment and nearby utilities. The source of the release is located at 32.0770297, -103.2803545 (Lat, Long; NAD83). The release extent covered an area of approximately 9,401 sq. ft.

1.2. Depth to Ground Water

The nearest water well to the release is mapped as MISC-405 on Plate 2 located 325-feet northwest of the release area. Well data obtained from the New Mexico Office of the State Engineer (OSE) identifies this well as CP-00857 POD 1 with a water bearing formation from 300 to 365-feet below ground surface. The driller log for CP-00857 POD 1 is located in Appendix A.

The next two nearest water wells to the release were gauged by the USGS as described below.

- USGS-14929 is mapped 0.2-mile east-southeast of the release extent. The USGS database mislocated the well and the actual location is 0.3-miles north; 1,600-feet northeast of the release extent and labeled as “New Windmill” on the topographic map. The water well was last gauged by the USGS on February 29, 1996 and exhibited a depth to water of 253.4-feet below ground surface.
- USGS-14971 located 0.75-miles east-southeast of the release extent. The water well was last gauged by the USGS on October 29, 2018 and exhibited a depth to water of 355-feet below ground surface.

Additional water wells near the release with drilling log data is provided by the OSE. The driller logs for the OSE wells are located in Appendix A.

- CP-00938 (POD 1) located 1-mile east-northeast of the release extent. The drilling log indicates a depth to water at 80-feet below ground surface dated May 12, 2006.
- CP-01285 (POD 1) located 1-mile southwest of the release extent. The drilling log indicates a depth to water at 250-feet below ground surface dated July 6, 2015.

Gauging data from water wells with 1/2-mile of the release indicate that depth-to-water is greater than 100-feet below ground surface.

1.3. Wellhead Protection Area

Plate 3 shows that the release extent is:

- Not within incorporated municipal boundaries or within a defined municipal fresh water well field.
- Not within ½-mile private and domestic water sources (wells and springs).
- Not 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
- Within 1000 feet of any other fresh water well or spring. Water well MISC-405 (CP-00857 POD 1) is listed as a stock well in the OSE database. Water well USGS-14929 is mislocated in the USGS database and is located 0.3-miles north; 1,600-feet northeast of the release extent and labeled as "New Windmill" on the topographic map.

1.4. Distance to Nearest Significant Water Course

Plate 4 shows that the release extent is:

- Within ½ mile of any significant water course. The intermittent watercourse is located 0.45-miles east of the release.
- Not within 300 feet of a continuously flowing watercourse or any other significant watercourse.
- Not within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

1.5. Soil/Waste Characteristics

The release occurred in an area where depth to water is greater than 100 ft below ground surface (bgs) and on an active ROW used for oil and gas operations.

The USDA Natural Resources Conservation Service (NRCS) soil survey describes the upper 5-feet of lithology as

0 to 1.33 feet - fine sand
1.3 to to 5 feet - sandy clay loam
5 to 5.5 feet – sandy loam

The lithology as descibed by the NRCS is consitent with professional observations during excavation activities within the area of interest.

Initial characterization of the produced water release was limited to field analysis of electrical conductivity. An Electromagentic Induction (EM) Survey was performed to measure the apparent electrical conductivity (EC_a) of the impacted area. EC_a readings were also used to delineate the release extent as shown Plate 1 (site map).

Please refer to Appendix B for a primer on EM Survey depth readings.

Interpretation notes:

- Metal objects such as production equipment, pipelines, and fences will have an influence on the electrical conductivity readings. The user of the EMI survey needs to be aware of false high and low electrical conductivity readings caused metal objects.

Plate 10 shows the metal susceptibility (interference) readings. Yellow and gray shading identifies areas with greatest metal susceptibility. Dark blue shading identifies areas not influenced by metal. The following areas shows metal susceptibility:

- Around electrical boxes, pumps, and oil field equipment (production equipment).
- Around fences at the west central and southern edges of the survey area.

Plate 11 shows EC_a in the upper 2-feet of the soil column. Discounting areas of metal interface and correlating EC_a to chloride concentrations (See Figure 2, below)

- Green shading represents background concentrations where EC_a<0.2 mS/cm (chloride <600 mg/kg)
- Yellow shading represents concentrations where EC_a is approximately 3.0 mS/cm (chloride 3,851 mg/kg)
- Red shading represents concentrations where EC_a is approximately 6.0 mS/cm (chloride 7,721 mg/kg)

Throughout the release extent and in the upper 2-feet, chloride concentrations are anticipated to exceed 19.15.29 NMAC Closure Criteria for areas not in-use for oil and gas operations (not on an active production pad). Closure Criteria for areas not in-use in the upper 4-feet is <600 mg/kg chloride. Remediation will be required, at a minimum, in the upper 2-feet or until the most stringent Closure Criteria is meet for Chloride, TPH, and BTEX.

Plate 12 shows EC_a from approximately 2 to 4 feet below ground surface (bgs). Chloride concentrations between 3,851 and 7,721 mg/kg is likely limited to the southern 1/3 of the release extent and around the source area. Remediation is likely to extend below 4-feet to meet the most stringent Closure Criteria.

Incident ID: nAPP2202947197
DeSoto Springs 600 ft NE
AEP#: 20220124-2200-water

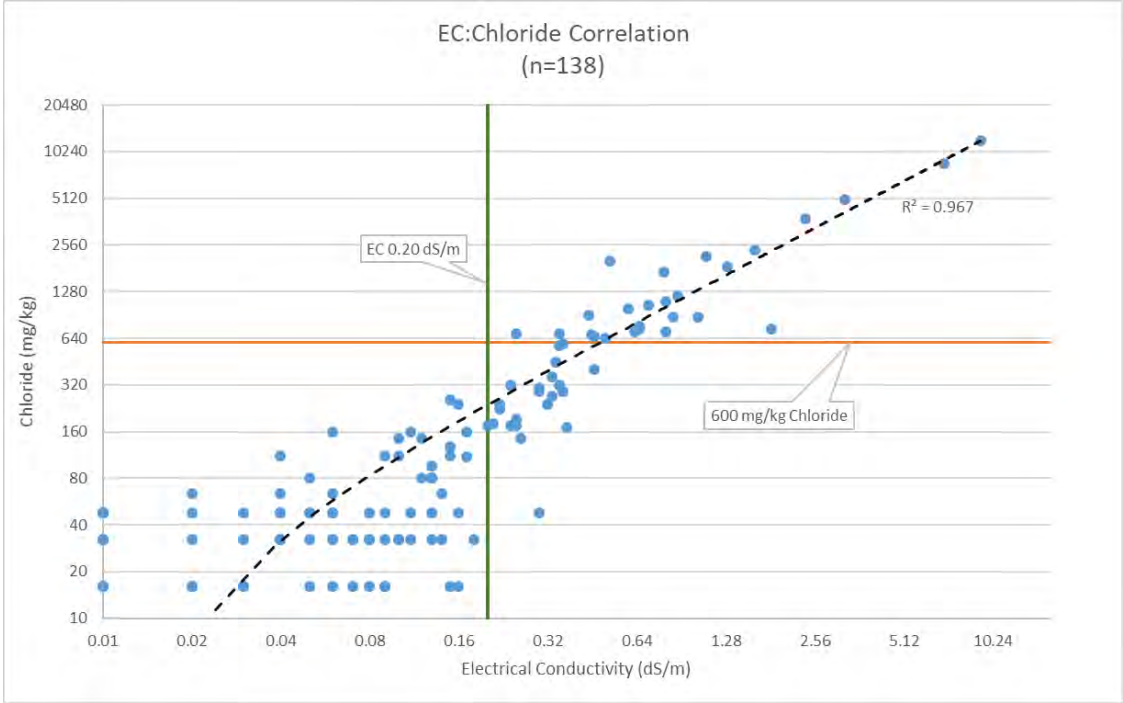


Figure 2: EC_a vs Chloride. Soil samples with an EC_a < 0.2 mS/cm (dS/m) are likely to exhibit chloride concentrations below 600 mg/kg.

Incident ID: nAPP2202947197
DeSoto Springs 600 ft NE
AEP#: 20220124-2200-water

2. Remediation & Restoration Workplan

A water well used for stock watering is located 325-feet northwest of the release. Per 19.15.29.12(4)(a)(c)(i) NMAC, the water well is located within 500-feet of the release and remediation is required to meet Closure Criteria listed in Table 1 of 19.15.29 NMAC as if groundwater is ≤50-feet below ground surface. Closure Criteria is defined as

- Chloride < 600 mg/kg
- TPH (GRO + DRO + MRO) < 100 mg/kg
- TPH (GRO + DRO) < 100 mg/kg
- BTEX < 50 mg/kg
- Benzene < 10 mg/kg

Ameredev proposes to excavate within the release extent until the walls and bases meet the above closure criteria. If confirmation sample concentrations exceed the above closure criteria below 4-feet, Ameredev may

- Continue to remediate the impacted soil to meet closure criteria, or
- Ask NMOCD for a liner variance.

Per NMOCD approval on March 16, 2022 (email confirmation attached), base confirmation sample shall not be representative of more than 500 square feet and wall samples shall not be representative of more than 200 sq. ft. Plate 13 shows the proposed sample grid with associated square footage. Plate 14 shows the proposed confirmation sample points. Table A shows the sample proposed sample point coordinates.

Approximately 1,014 cu. yrds. of material will be excavated and hauled off-site to an approved disposal facility. Remediation will begin within 90-days of workplan approval. If confirmation samples meet the above closure criteria, we will submit a closure report within 45-days of laboratory results.

When the production site is no longer in use for oil and gas operations, the surface shall be remediated, restored, and reclaimed per 19.15.29.13.D

Please contact me with any questions at 970-570-9535.

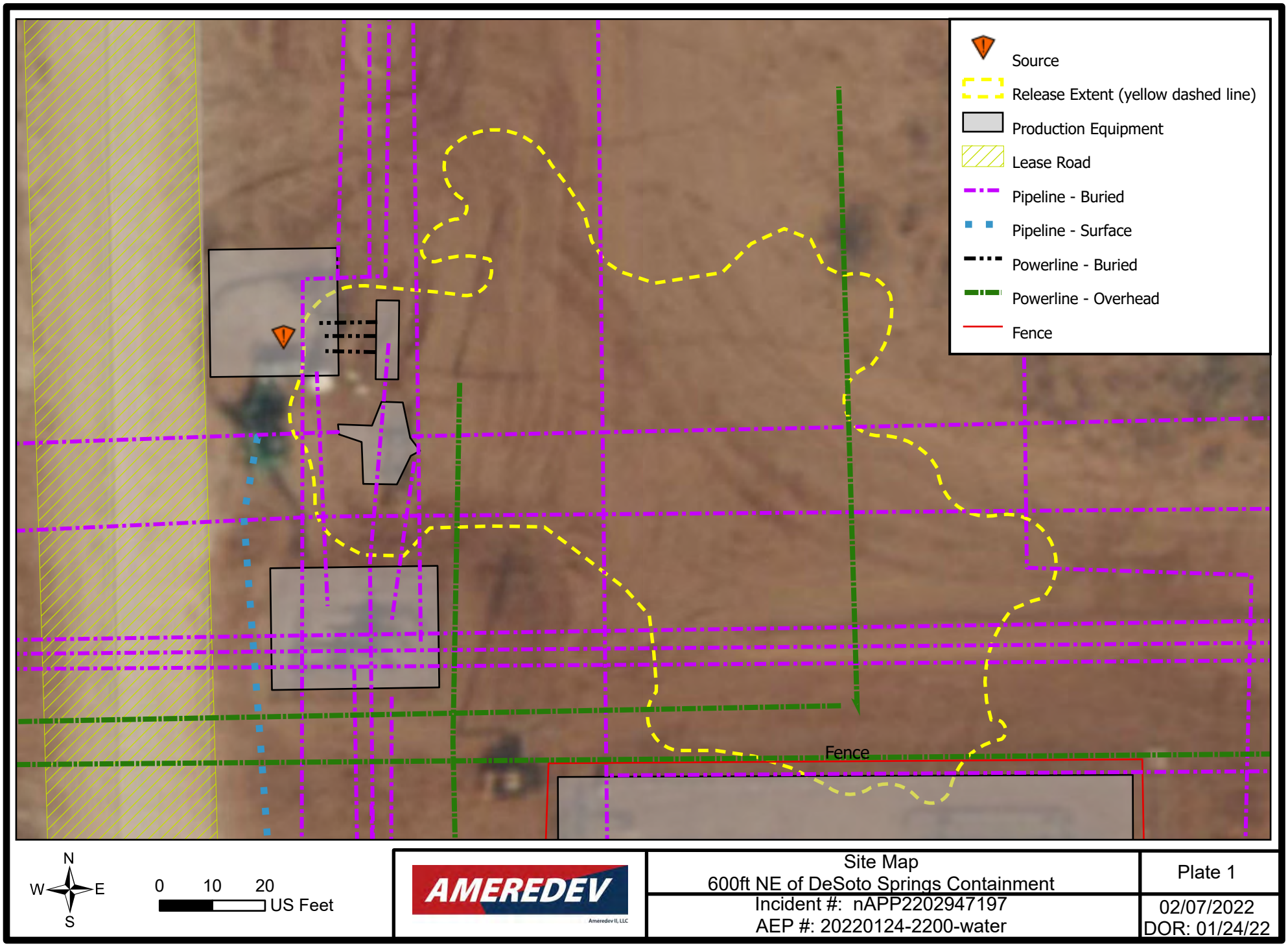
Sincerely,
Ameredev II, LLC

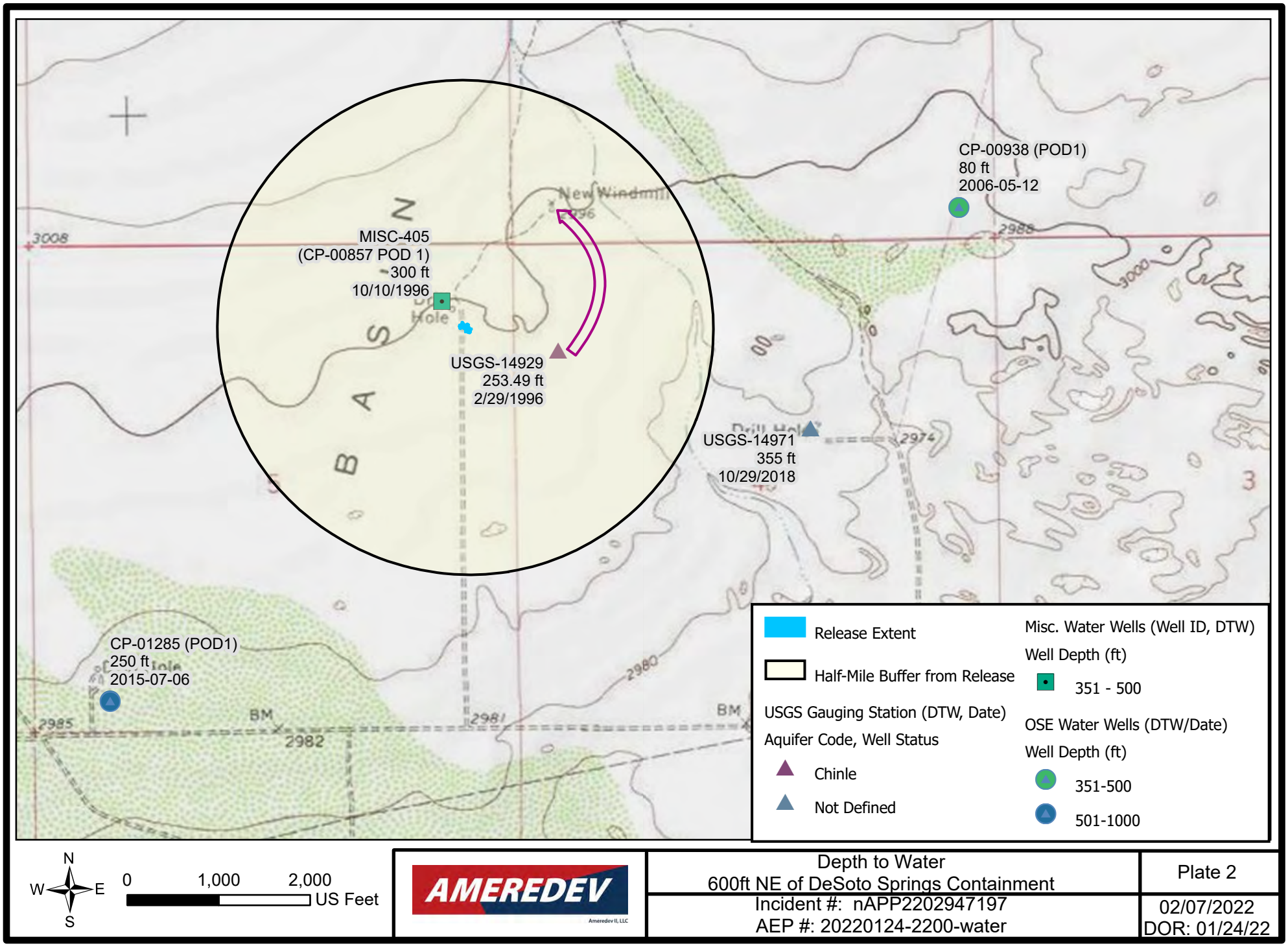
Andrew Parker
Env. Scientist

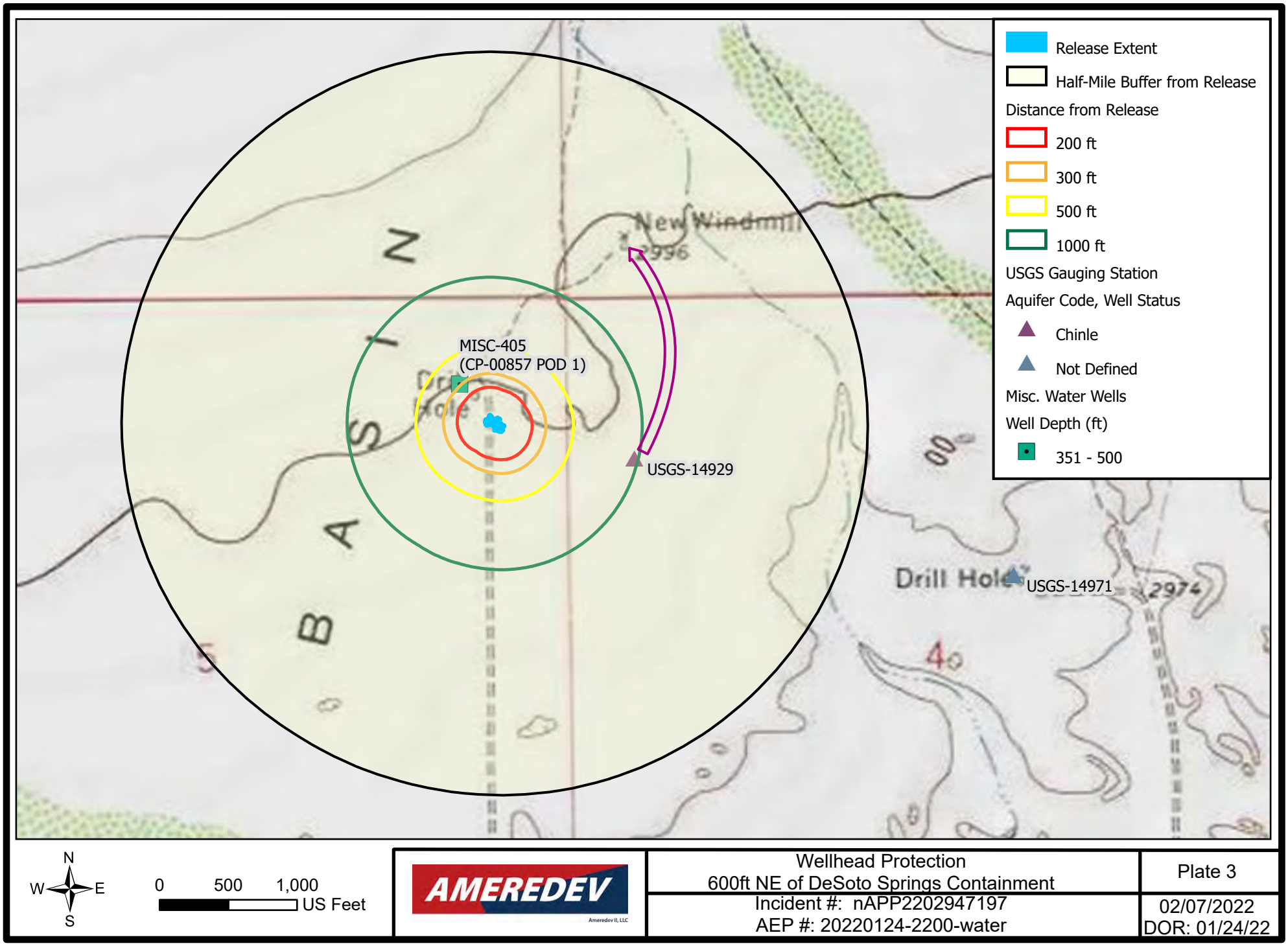
Copy: Shane McNeely, Ameredev II, LLC
Floyd Hammond, Ameredev II, LLC

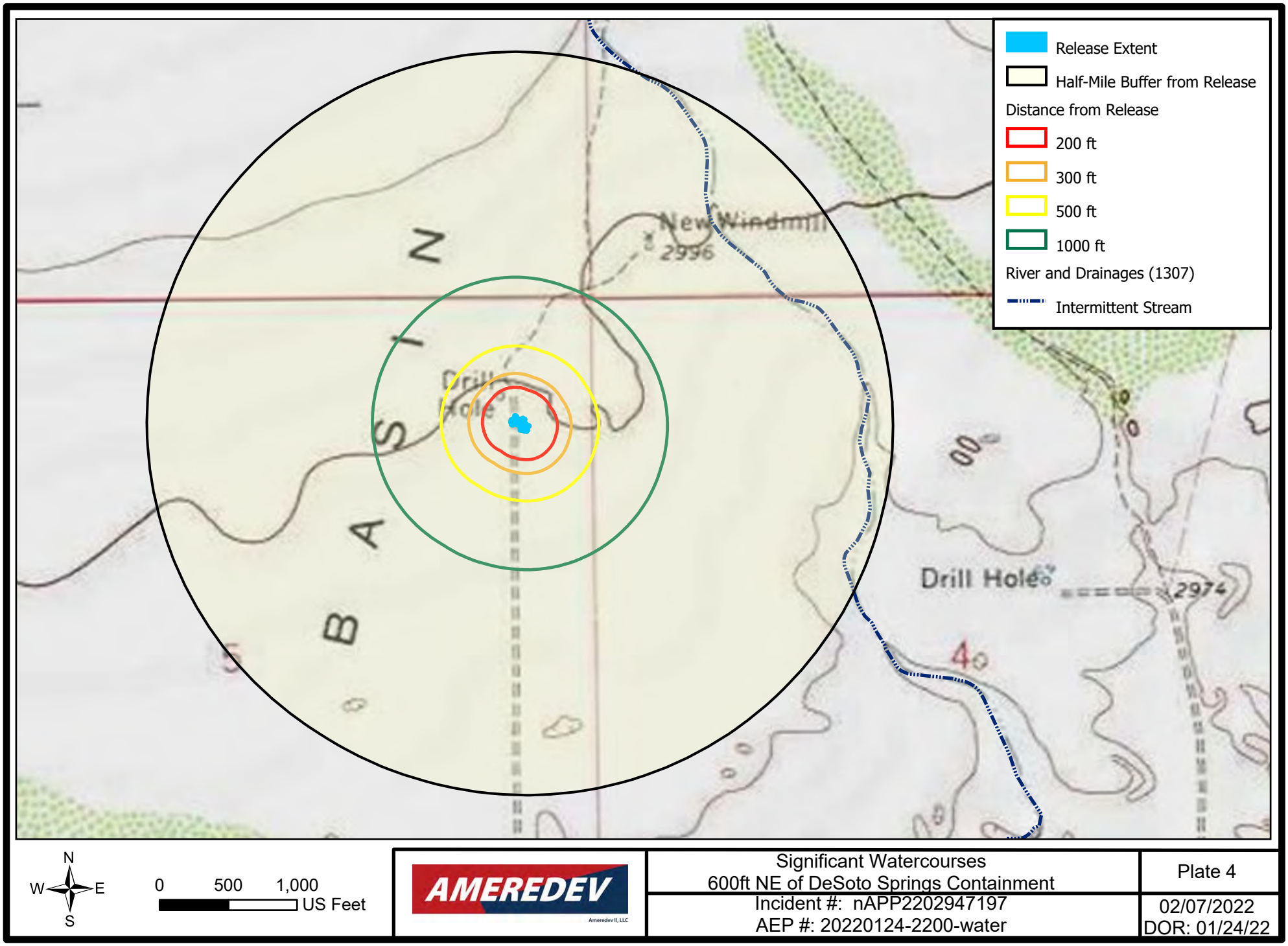
04/18/2022

Plates


Source
Release Extent (yellow dashed line)
Production Equipment
Lease Road
Pipeline - Buried
Pipeline - Surface
Powerline - Buried
Powerline - Overhead
Fence
Fence
N
W
E
S
0
10
20
US Feet
AMEREDEV
Site Map
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 1
02/07/2022
DOR: 01/24/22


MISC-405
(CP-00857 POD 1)
300 ft
10/10/1996
USGS-14929
253.49 ft
2/29/1996
CP-00938 (POD1)
80 ft
2006-05-12
USGS-14971
355 ft
10/29/2018
CP-01285 (POD1)
250 ft
2015-07-06
New Windmill
Drill Hole
BASIN
3008
2988
2974
2980
2985
2982
2981
BM
Release Extent
Half-Mile Buffer from Release
USGS Gauging Station (DTW, Date)
Aquifer Code, Well Status
Chinle
Not Defined
Misc. Water Wells (Well ID, DTW)
Well Depth (ft)
351 - 500
OSE Water Wells (DTW/Date)
Well Depth (ft)
351-500
501-1000
N
W
E
S
0
1,000
2,000
US Feet
AMEREDEV
Depth to Water
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 2
02/07/2022
DOR: 01/24/22


Release Extent
Half-Mile Buffer from Release
Distance from Release
200 ft
300 ft
500 ft
1000 ft
USGS Gauging Station
Aquifer Code, Well Status
Chinle
Not Defined
Misc. Water Wells
Well Depth (ft)
351 - 500
MISC-405
(CP-00857 POD 1)
USGS-14929
USGS-14971
New Windmill
Drill Hole
N
W
E
S
0
500
1,000
US Feet
AMEREDEV
Wellhead Protection
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 3
02/07/2022
DOR: 01/24/22

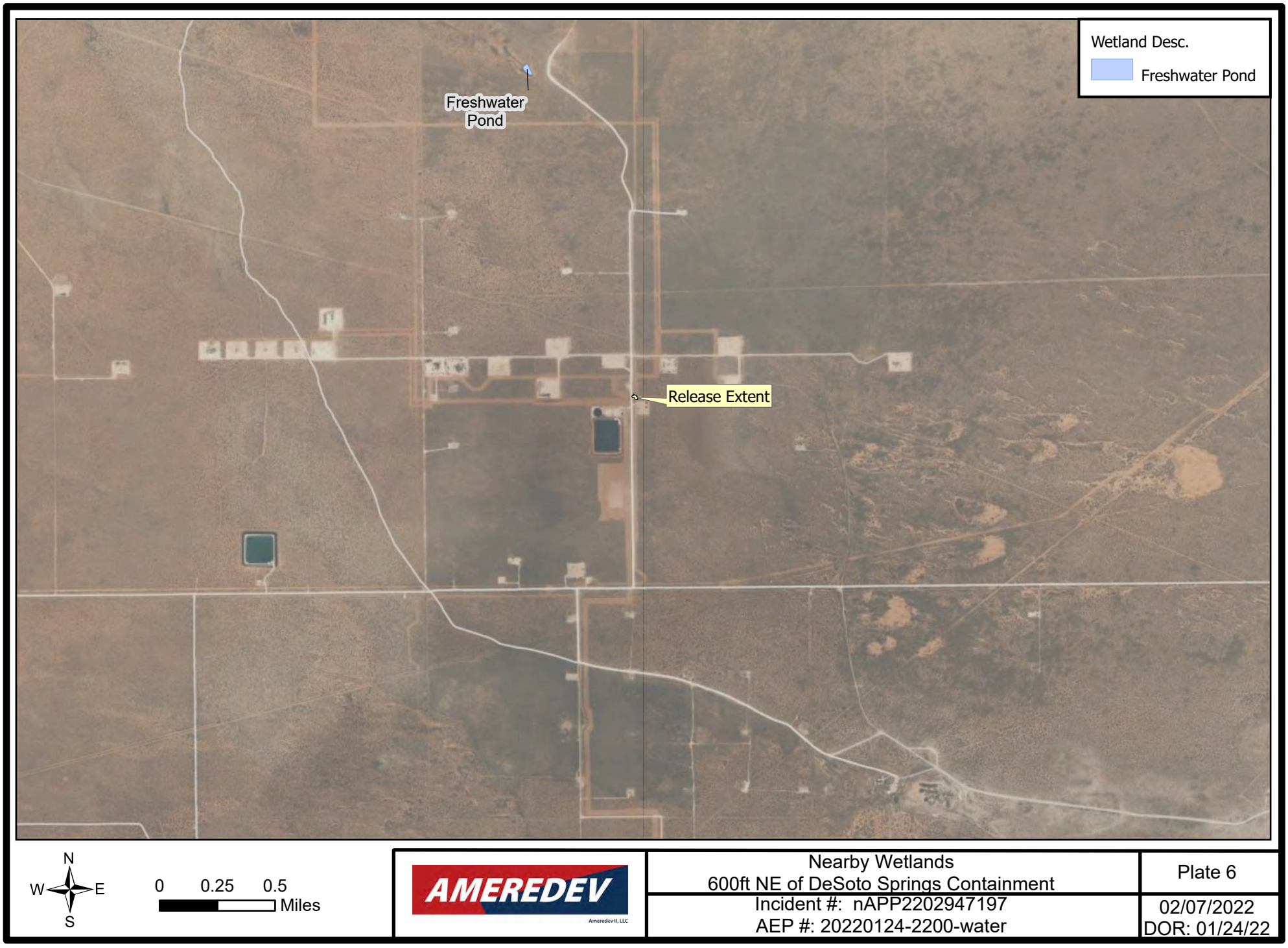

Release Extent
Half-Mile Buffer from Release
Distance from Release
200 ft
300 ft
500 ft
1000 ft
River and Drainages (1307)
Intermittent Stream
New Windmill
2996
Drill Hole
Drill Hole
2974
BASIN
N
W
E
S
0
500
1,000
US Feet
AMEREDEV
Ameredev II, LLC
Significant Watercourses
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 4
02/07/2022
DOR: 01/24/22

AMEREDEV

Nearby Areas
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water

Plate 5

02/07/2022
DOR: 01/24/22



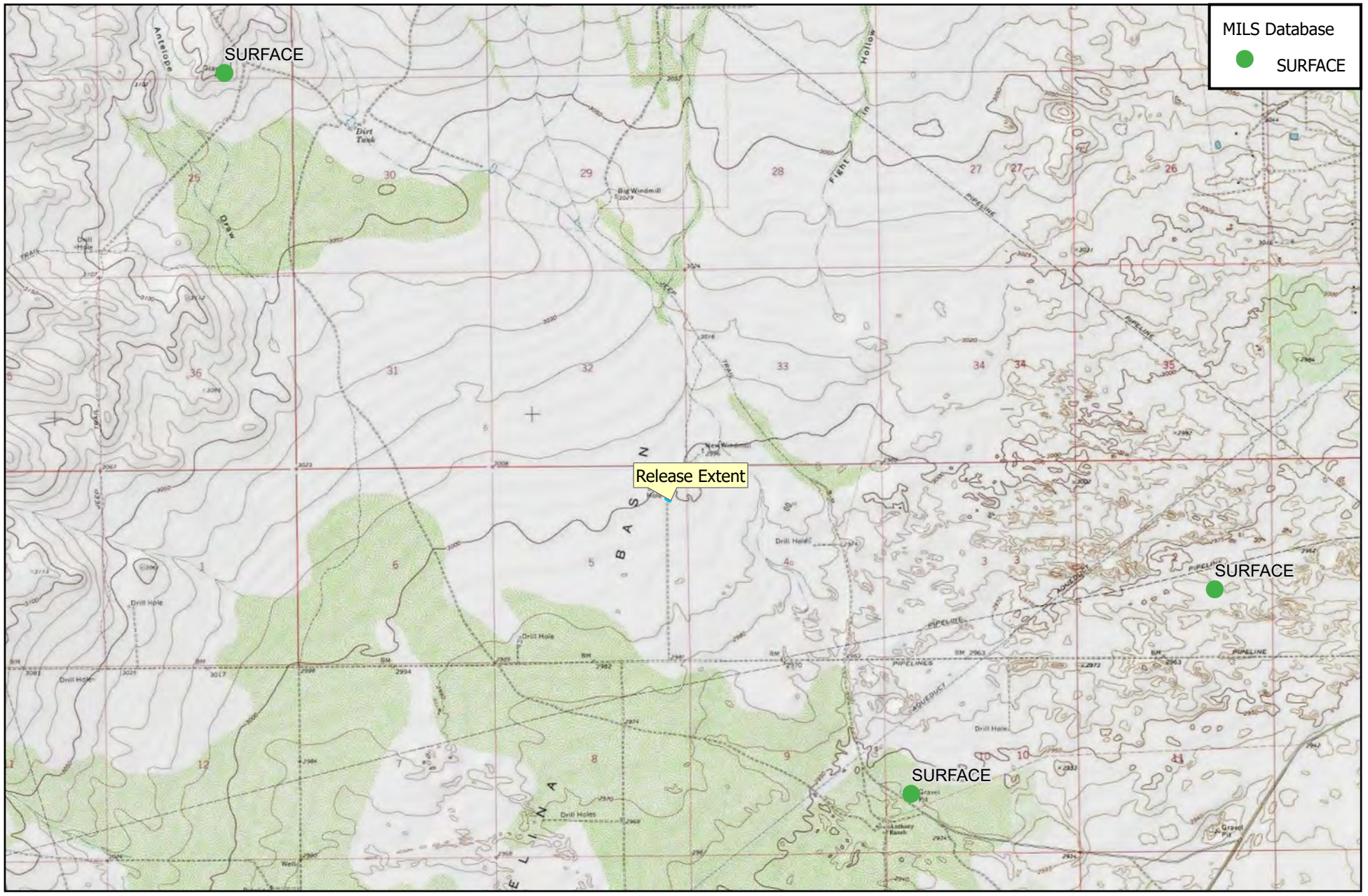
AMEREDEV

Ameredev II, LLC

Nearby Wetlands
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water

Plate 6

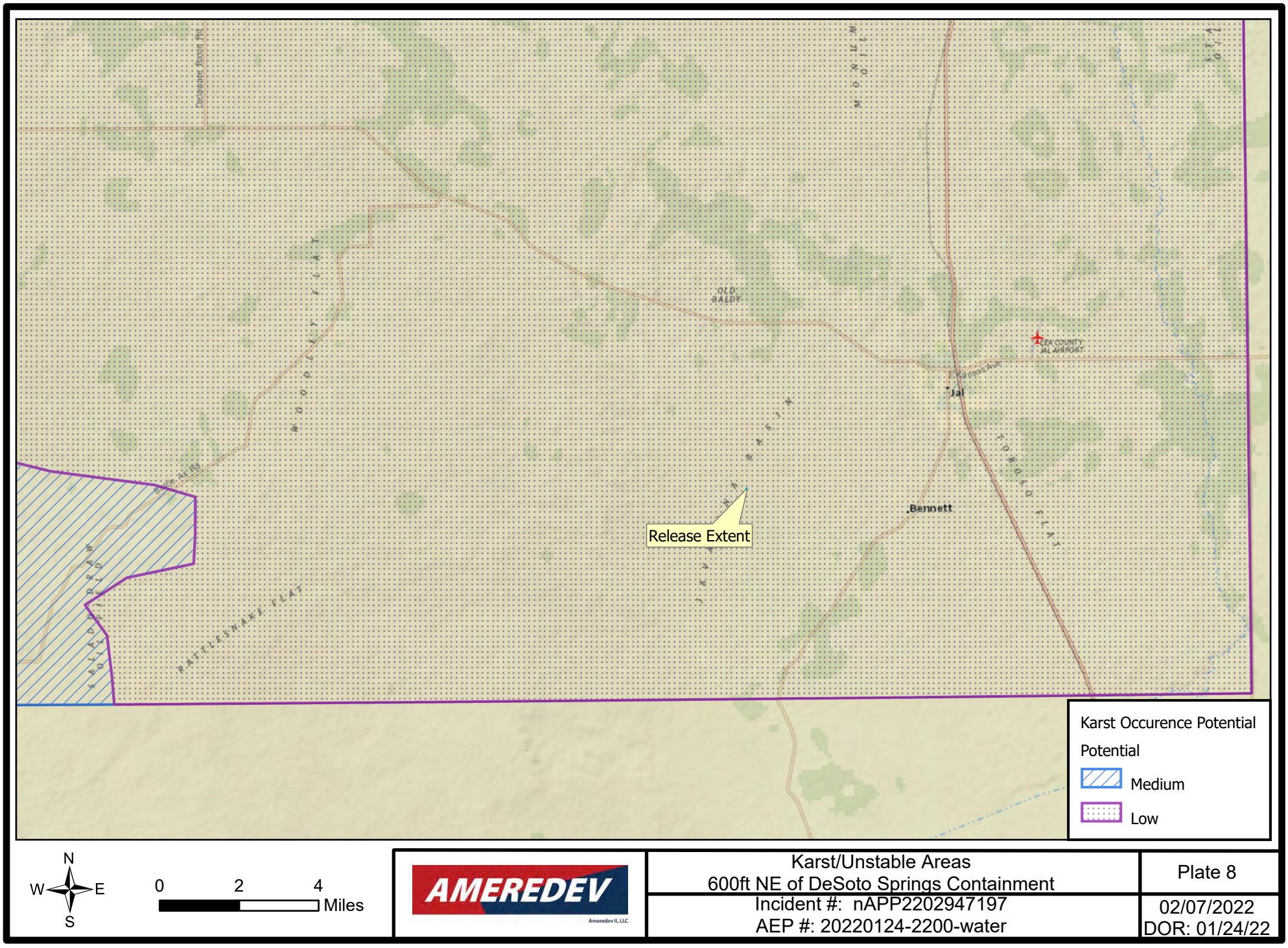
02/07/2022
DOR: 01/24/22



AMEREDEV

Ameredev II, LLC

Mines and Minerals 600ft NE of DeSoto Springs Containment Incident #: nAPP2202947197 AEP #: 20220124-2200-water	Plate 7 02/07/2022 DOR: 01/24/22

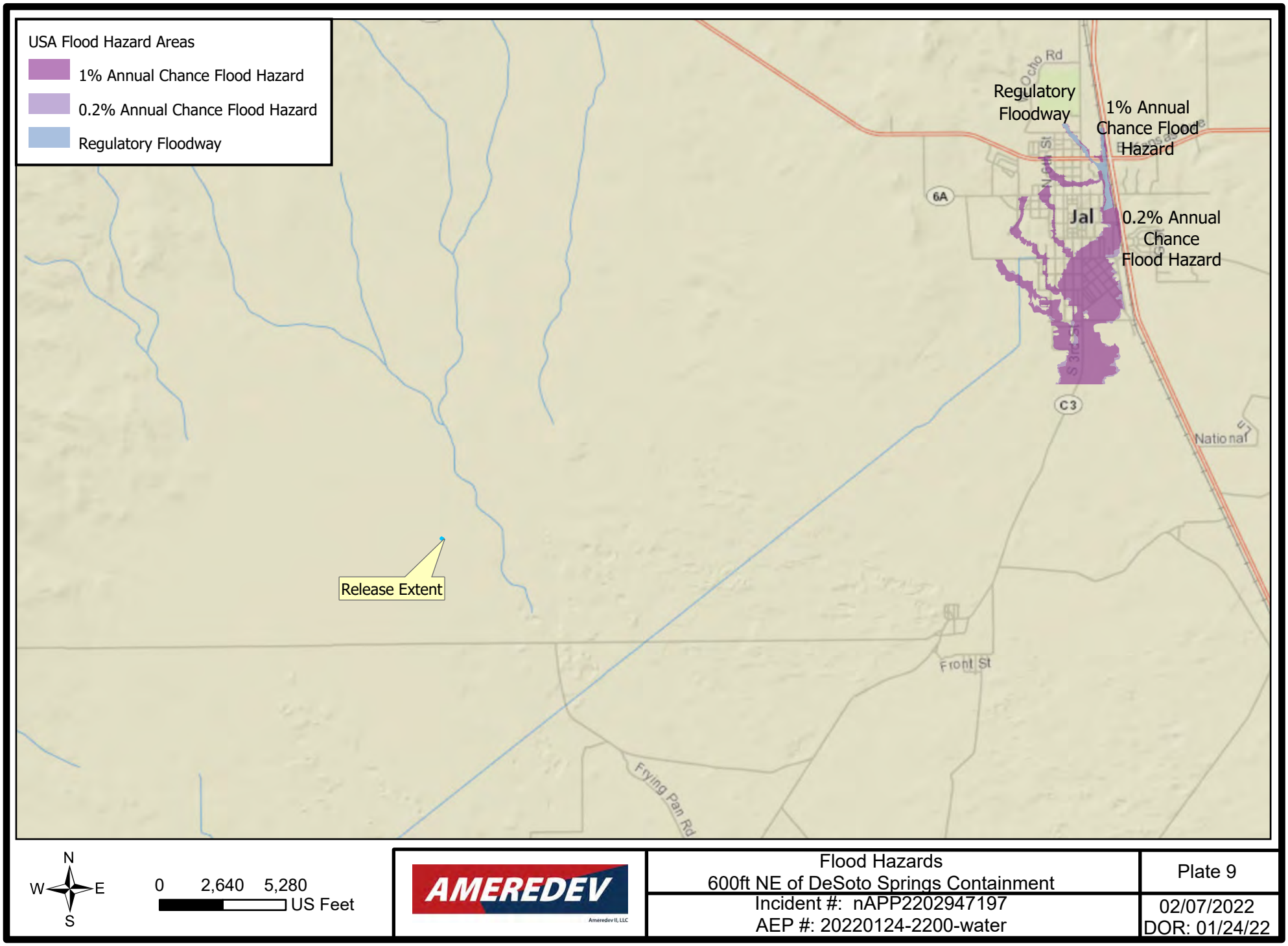


AMEREDEV

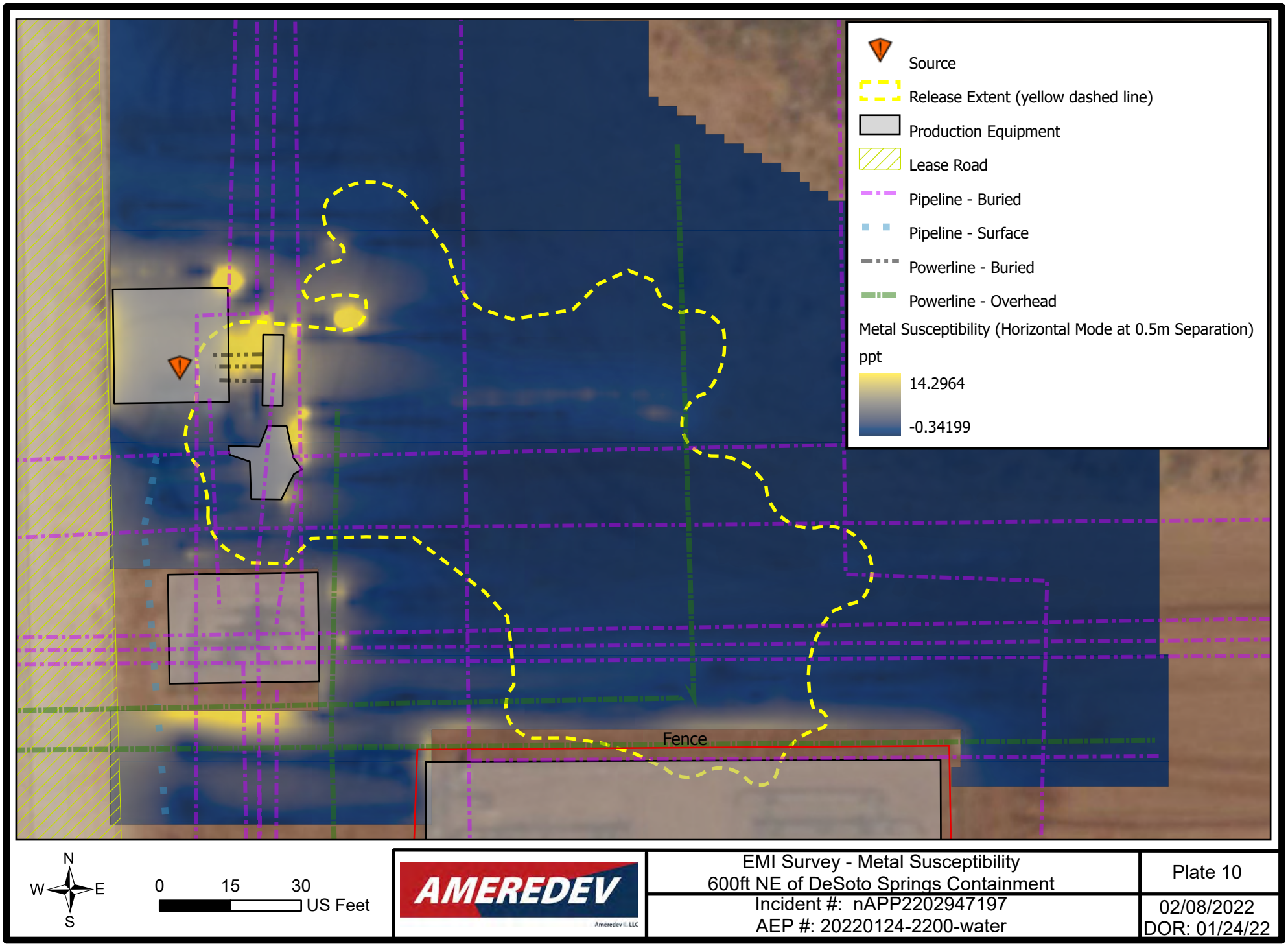
Karst/Unstable Areas
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water

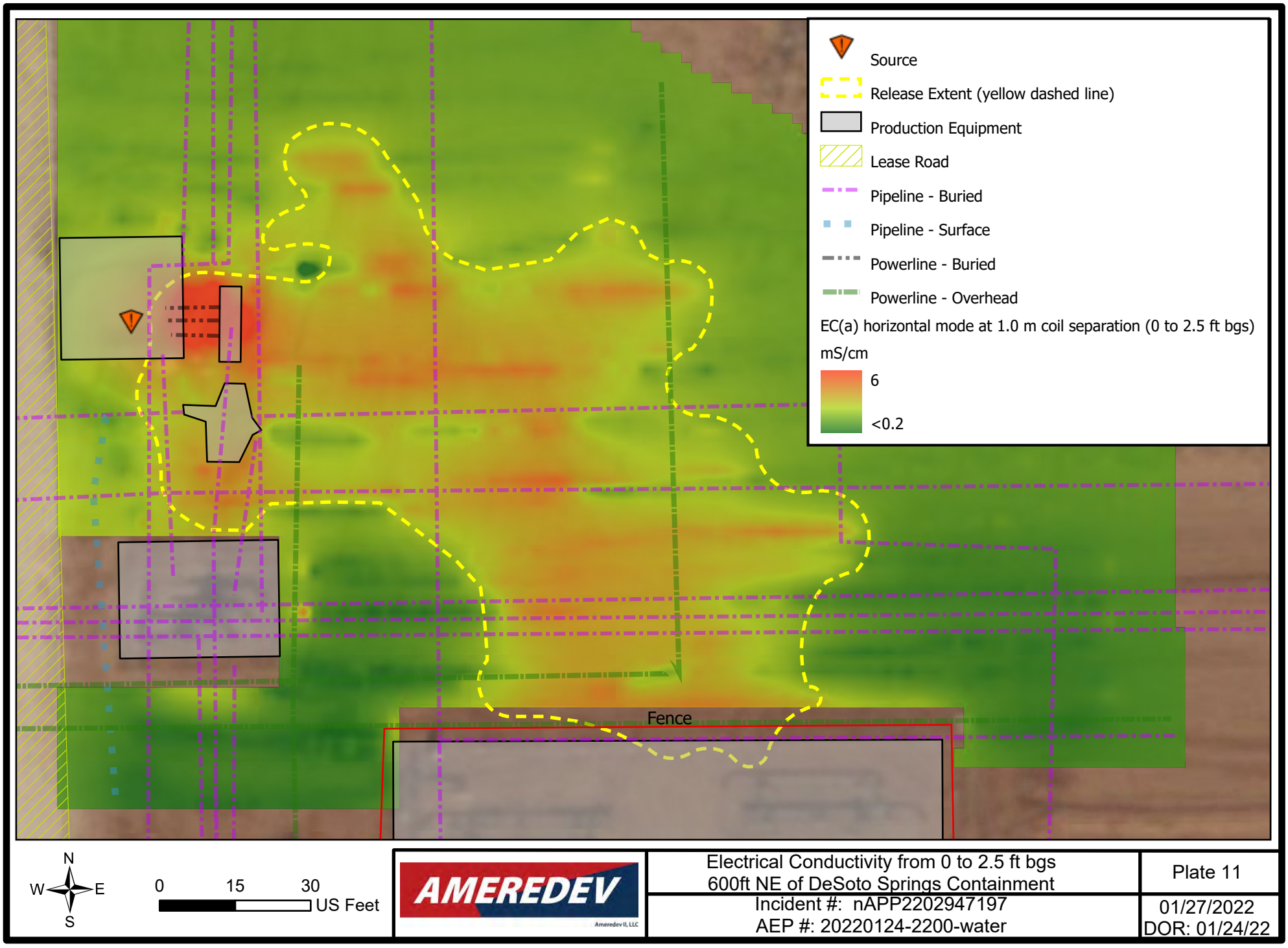
Plate 8

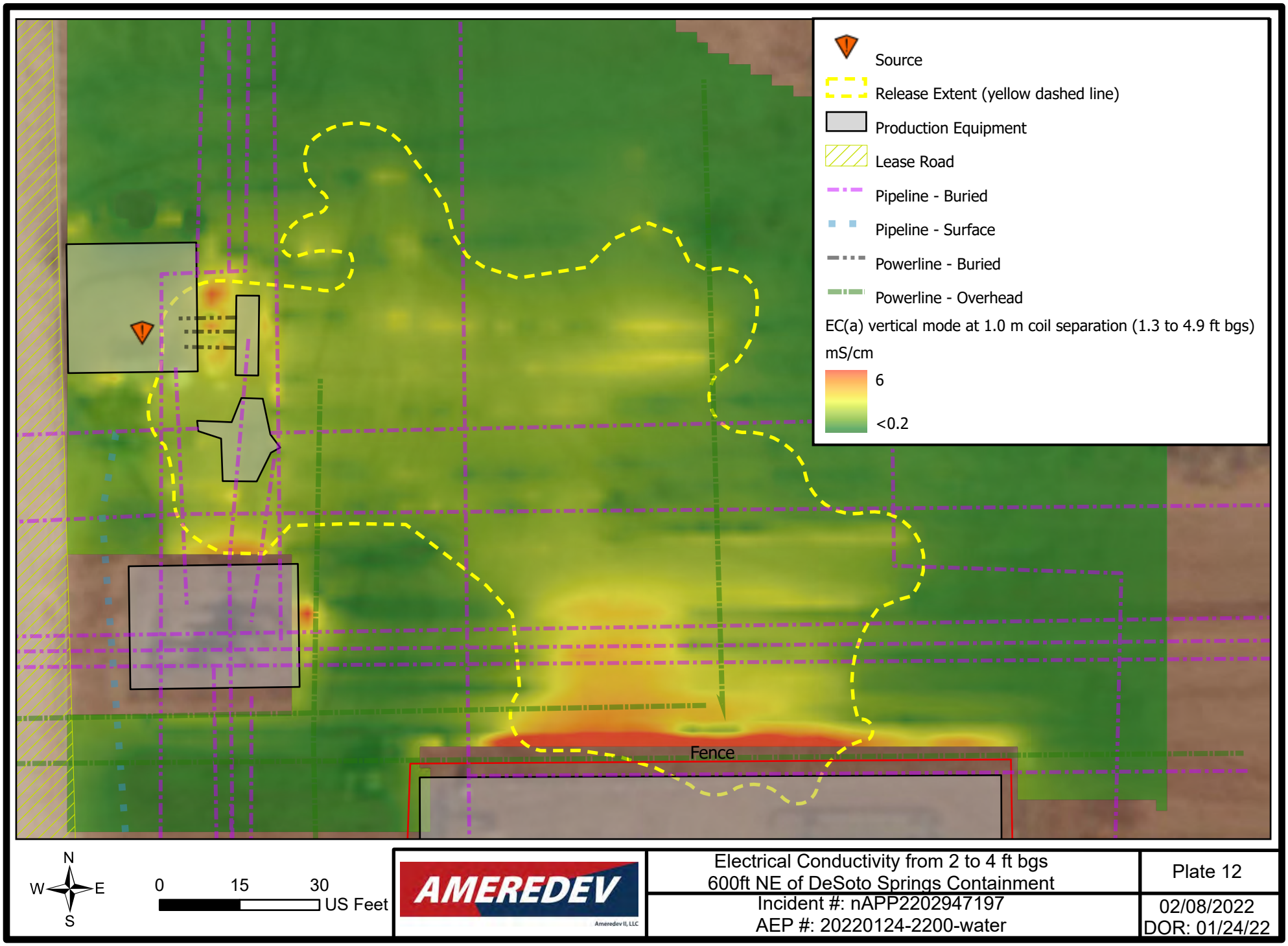
02/07/2022
DOR: 01/24/22



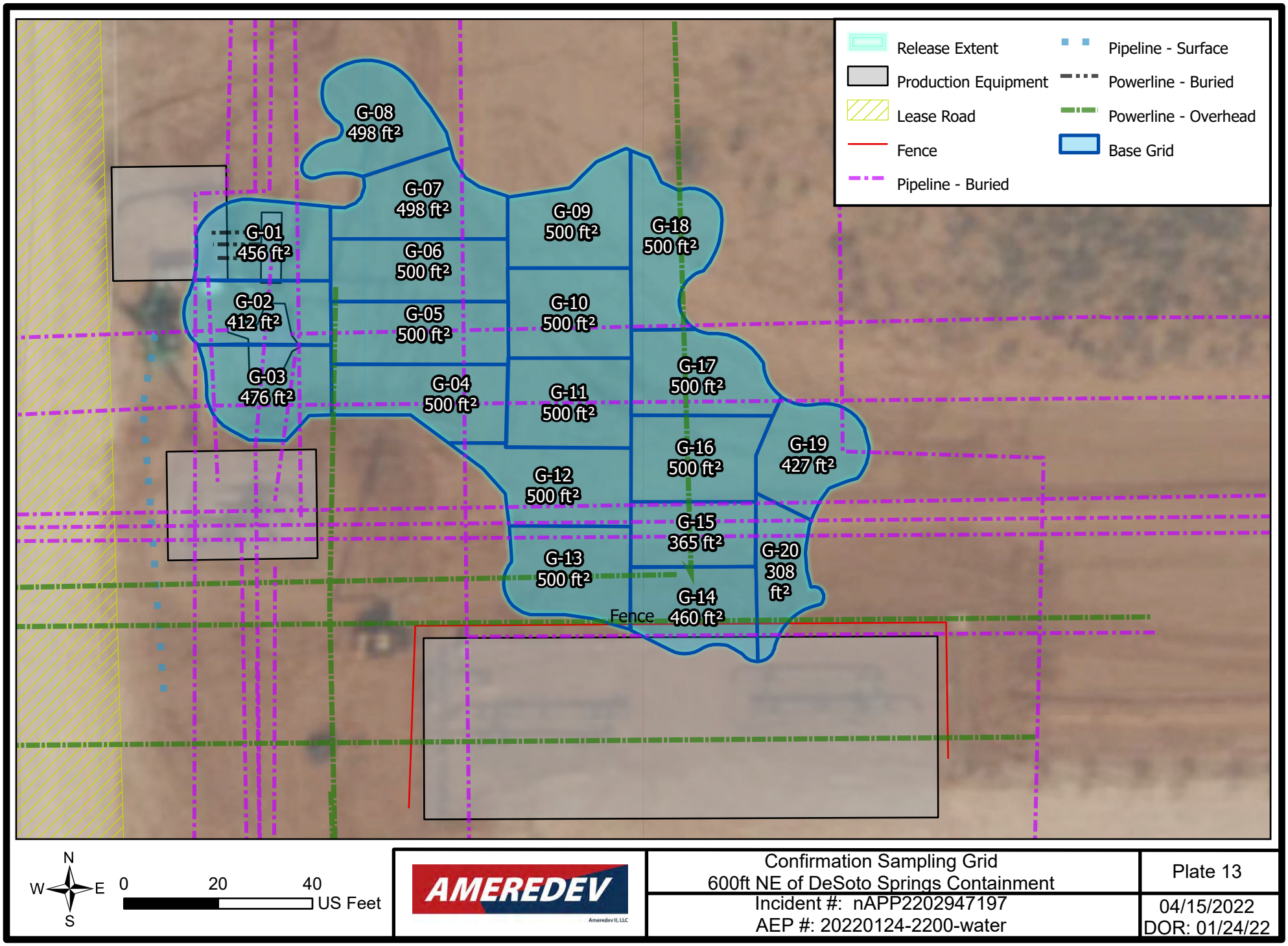
Flood Hazards 600ft NE of DeSoto Springs Containment	Plate 9
Incident #: nAPP2202947197 AEP #: 20220124-2200-water	02/07/2022 DOR: 01/24/22


Source
Release Extent (yellow dashed line)
Production Equipment
Lease Road
Pipeline - Buried
Pipeline - Surface
Powerline - Buried
Powerline - Overhead
Metal Susceptibility (Horizontal Mode at 0.5m Separation)
ppt
14.2964
-0.34199
Fence
N
W
E
S
0
15
30
US Feet
AMEREDEV
Ameredev II, LLC
EMI Survey - Metal Susceptibility
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 10
02/08/2022
DOR: 01/24/22


Source
Release Extent (yellow dashed line)
Production Equipment
Lease Road
Pipeline - Buried
Pipeline - Surface
Powerline - Buried
Powerline - Overhead
EC(a) horizontal mode at 1.0 m coil separation (0 to 2.5 ft bgs)
mS/cm
6
<0.2
Fence
N
W
E
S
0
15
30
US Feet
AMEREDEV
Ameredev II, LLC
Electrical Conductivity from 0 to 2.5 ft bgs
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 11
01/27/2022
DOR: 01/24/22



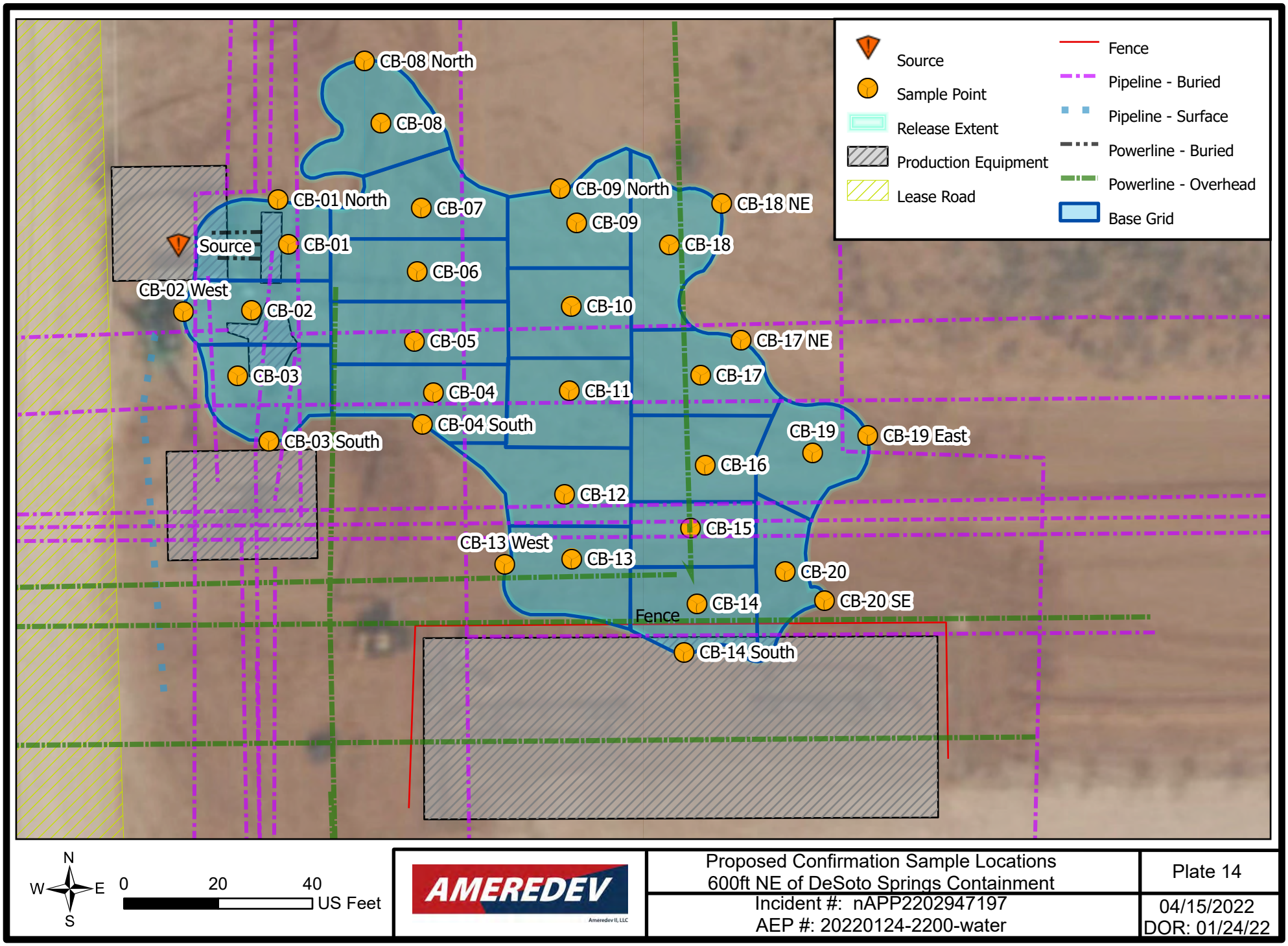
Electrical Conductivity from 2 to 4 ft bgs 600ft NE of DeSoto Springs Containment	Plate 12
Incident #: nAPP2202947197 AEP #: 20220124-2200-water	02/08/2022 DOR: 01/24/22



Confirmation Sampling Grid
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water

Plate 13

04/15/2022
DOR: 01/24/22


CB-08 North
CB-08
CB-01 North
CB-07
CB-09 North
CB-18 NE
CB-09
Source
CB-01
CB-18
CB-06
CB-02 West
CB-02
CB-10
CB-05
CB-17 NE
CB-03
CB-17
CB-04
CB-11
CB-04 South
CB-19
CB-19 East
CB-03 South
CB-16
CB-12
CB-15
CB-13 West
CB-13
CB-20
CB-14
CB-20 SE
Fence
CB-14 South
Source
Sample Point
Release Extent
Production Equipment
Lease Road
Fence
Pipeline - Buried
Pipeline - Surface
Powerline - Buried
Powerline - Overhead
Base Grid
N
W
E
S
0
20
40
US Feet
AMEREDEV
Proposed Confirmation Sample Locations
600ft NE of DeSoto Springs Containment
Incident #: nAPP2202947197
AEP #: 20220124-2200-water
Plate 14
04/15/2022
DOR: 01/24/22

Tables

Table A
Proposed Confirmation
Sample Location Coordinates

Sample ID	Latitude	Longitude
CB-01	32.07703537	-103.28028793
CB-01 North	32.07706142	-103.28029467
CB-02	32.07699692	-103.28031364
CB-02 West	32.07699660	-103.28036023
CB-03	32.07695879	-103.28032354
CB-03 South	32.07692058	-103.28030258
CB-04	32.07694804	-103.28018963
CB-04 South	32.07692935	-103.28019740
CB-05	32.07697810	-103.28020219
CB-06	32.07701861	-103.28019992
CB-07	32.07705578	-103.28019658
CB-08	32.07710539	-103.28022381
CB-08 North	32.07714182	-103.28023460
CB-09	32.07704633	-103.28009035
CB-09 North	32.07706618	-103.28010138
CB-10	32.07699761	-103.28009457
CB-11	32.07694834	-103.28009650
CB-12	32.07688783	-103.28010034
CB-13	32.07685017	-103.28009598
CB-13 West	32.07684734	-103.28014191
CB-14	32.07682333	-103.28001047
CB-14 South	32.07679501	-103.28001961
CB-15	32.07686729	-103.28001438
CB-16	32.07690417	-103.28000388
CB-17	32.07695669	-103.28000643
CB-17 NE	32.07697682	-103.27997851
CB-18	32.07703294	-103.28002695
CB-18 NE	32.07705675	-103.27999081
CB-19	32.07691052	-103.27993019
CB-19 East	32.07692039	-103.27989233
CB-20	32.07684157	-103.27994986
CB-20 SE	32.07682421	-103.27992300

Appendix A

OSE Well Logs

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
NA	CP 00857 POD1	1	2	2	05	26S	36E	662244	3550380

Driller License: 1184 **Driller Company:** WEST TEXAS WATER WELL SERVICE
Driller Name: COLLIS, ROBERT E. (LD)

Drill Start Date: 10/09/1996 **Drill Finish Date:** 10/10/1996 **Plug Date:**
Log File Date: 01/15/1997 **PCW Rcv Date:** **Source:** Shallow
Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 100 GPM
Casing Size: **Depth Well:** 365 feet **Depth Water:**

Water Bearing Stratifications:	Top	Bottom	Description
	300	365	Sandstone/Gravel/Conglomerate

Meter Number: 18966 **Meter Make:**
Meter Serial Number: **Meter Multiplier:** 1.0000
Number of Dials: 1 **Meter Type:** Diversion
Unit of Measure: Gallons **Return Flow Percent:**
Usage Multiplier: **Reading Frequency:** Quarterly (No Reading Expected)

**YTD Meter Amounts:	Year	Amount
	2017	0

Meter Number: 19007 **Meter Make:** OCTAVE
Meter Serial Number: 19235055 **Meter Multiplier:** 1.0000
Number of Dials: 9 **Meter Type:** Diversion
Unit of Measure: Gallons **Return Flow Percent:**
Usage Multiplier: **Reading Frequency:** Monthly

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
02/01/2017	2017	2599614	A	RPT		0	
04/01/2017	2017	2627531	A	RPT		3.598	
05/01/2017	2017	2631319	A	RPT		0.488	
06/01/2017	2017	2652251	A	RPT		2.698	
07/01/2017	2017	2720508	A	RPT		8.798	
08/01/2017	2017	2782114	A	RPT		7.941	
09/01/2017	2017	2858989	A	RPT		9.909	
10/01/2017	2017	2906622	A	RPT		6.140	

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
11/01/2017	2017	2912696	A	RPT		0.783	
12/01/2017	2017	2998304	A	RPT		11.034	
02/01/2018	2018	3146658	A	RPT		19.122	
03/01/2018	2018	3212353	A	RPT		8.468	
04/01/2018	2018	3286487	A	RPT		9.555	
05/01/2018	2018	3381113	A	RPT		12.197	
06/01/2018	2018	3470486	A	RPT		11.520	
07/01/2018	2018	3547614	A	RPT		9.941	
09/01/2018	2018	3569776	A	RPT		2.857	
12/01/2018	2018	4076874	A	RPT		65.362	
01/01/2019	2018	4181523	A	RPT		13.489	
02/01/2019	2019	4296954	A	RPT		14.878	
03/01/2019	2019	4346796	A	RPT		6.424	
04/01/2019	2019	4365803	A	RPT		2.450	
05/01/2019	2019	4418132	A	RPT		6.745	
07/31/2019	2019	0	A	RPT		0	
09/30/2019	2019	325518	A	RPT		41.957	
10/31/2019	2019	388564	A	RPT		8.126	
12/31/2019	2019	622880	A	RPT		30.202	
01/19/2020	2020	672026	A	RPT		6.335	
01/19/2020	2020	0	A	RPT		0	
01/31/2020	2020	336667	A	RPT		1.033	
03/31/2020	2020	9198198	A	RPT		27.195	
08/31/2020	2020	25497766	A	RPT		50.022	
09/30/2020	2020	29234202	A	RPT		11.467	
11/30/2020	2020	36579854	A	RPT		22.543	
12/31/2020	2020	40821185	A	RPT		13.016	
01/31/2021	2021	45738623	A	RPT		15.091	

**YTD Meter Amounts:	Year	Amount
	2017	51.389
	2018	152.511
	2019	110.782
	2020	131.611
	2021	15.091

Meter Number:	19056	**Meter Make:**	MASTER METER
Meter Serial Number:	19814845	**Meter Multiplier:**	10.0000
Number of Dials:	6	**Meter Type:**	Diversion
Unit of Measure:	Gallons	**Return Flow Percent:**	
Usage Multiplier:		**Reading Frequency:**	Quarterly

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
11/30/2020	2020	38460	A	RPT		0	
12/31/2020	2020	42150	A	RPT		0.113	
01/31/2021	2021	49850	A	RPT		0.236	

**YTD Meter Amounts:	Year	Amount
	2020	0.113
	2021	0.236

File ... CP-857

NEW MEXICO OFFICE OF THE STATE ENGINEER

Update Well Location

Date: 03/27/2020 POD No.: CP-00857-POD1 OSE Staff: Chris Angel

Instructions:

Use this form to correct or update POD location(s) based on In-Office Geospatial Applications. Update WATERS by creating a UWL transaction in the pertinent file number(s). Create and image a map, if necessary.

Current Location:

NM State Plane (NAD83) - In feet	NM West Zone ☐ NM Central Zone ☐ NM East Zone ☐	X (in feet): Y (in feet):		
UTM (NAD83) - In meters	UTM Zone 13N ☐ UTM Zone 12N ☐	Easting (in meters): Northing (in meters):		
Lat/Long (WGS84) - To 1/10th of second ☐ Check if seconds are decimal format	Lat:	deg	min	sec
	Long:	deg	min	sec
Other Location Information (complete the below, if applicable):				
PLSS Quarters or Halves: SW1/4NE1/4NE1/4	Section: 05	Township: 26 South	Range: 36 East	
County: Lea	Subasin: Capitan			

Updated Location:

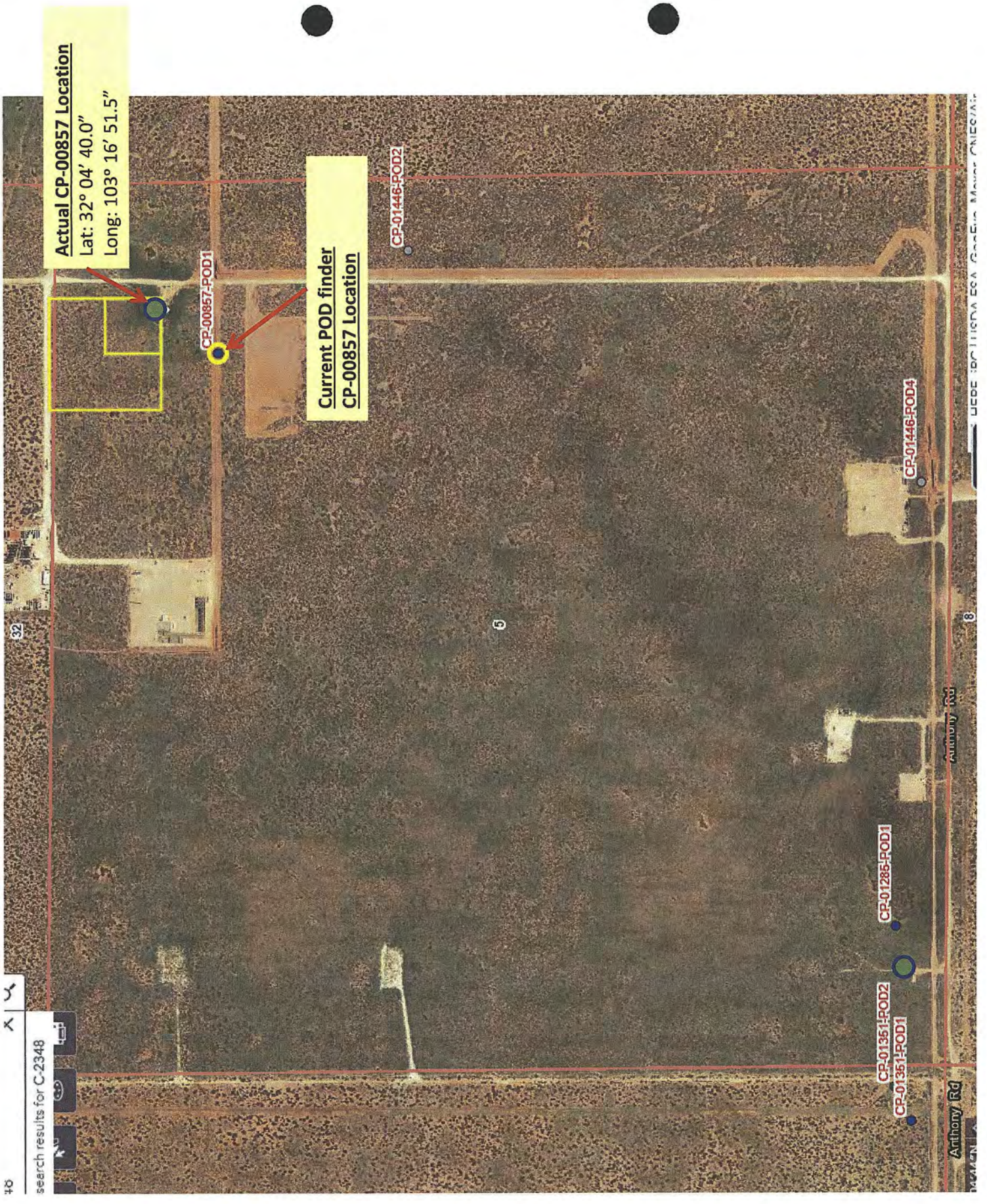
NM State Plane (NAD83) - In feet	NM West Zone ☐ NM Central Zone ☐ NM East Zone ☐	X (in feet): Y (in feet):		
UTM (NAD83) - In meters	UTM Zone 13N ☐ UTM Zone 12N ☐	Easting (in meters): Northing (in meters):		
Lat/Long (WGS84) - To 1/10th of second ☐ Check if seconds are decimal format	Lat: 32	deg	04 min	40.0 sec
	Long: 103	deg	16 min	51.5 sec
Other Location Information (complete the below, if applicable):				
PLSS Quarters or Halves: SE1/4NW1/4NE1/4NE1/4	Section: 05	Township: 26 South	Range: 36 East	
County: Lea	Subasin: Capitan			

Comments:

A GPS was used to locate the well on the attached map.

Update Well Location Form, Rev. 12/11/18

File No.: CP-857 Trn. No.: 670905


Actual CP-00857 Location
Lat: 32° 04' 40.0"
Long: 103° 16' 51.5"
Current POD finder
CP-00857 Location
CP-00857-POD1
CP-01446-POD2
CP-01446-POD4
CP-01286-POD1
CP-01351-POD2
CP-01351-POD1
Anthony Rd
Anthony Rd
search results for C-2348
32
5
8

Revised June 1972

L 16330

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Anthony Ranch Owner's Well No. Recompletion

Street or Post Office Address P.O. Box 398

City and State Jal, New Mexico 88252

Well was drilled under Permit No. _____ and is located in the:

a. ~~NW~~ ¼ ~~NW~~ ¼ SW¼NE¼NE¼ ¼ of Section 5 Township 26 S Range 36 E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____ Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor West Texas Water Well Service License No. WD-1184

Address 3432 W. University, Odessa, TX 79764

Drilling Began 10-9-96 Completed 10-10-96 Type tools air rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 365 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
West Texas Wate	r Well Service pulled casing from existing			well and
deepened it 65'				
300	365	65	Broken sandstone with streaks	
			of brown sand 100 gpm+	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
0	15	9 7/8		13	Poured Slurry

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY #130947

Date Received 01/15/97

Quad _____ FWL _____ FSL _____

File No. CP-857 Use Stock Location No. 26.36.5.22322

Section 6. LOG OF HOLE

Depth in Feet		Thickness in Feet	Color and Type of Material Encountered
From	To		

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER OFFICE
ROSWELL NEW MEXICO
'97 JAN 15 AM 11 22

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Robert E. Collis
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Jay Anthony Owner's Well No. _____
Street or Post Office Address P.O. Box 398
City and State Jal New Mexico 88252

Well was drilled under Permit No. CP-938 and is located in the:

a. _____ ¼ _____ ¼ SE ¼ SE ¼ of Section 33 Township ~~26~~ 25S Range 36E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Duran Drilling License No. WD-1607
Address P.O. Box 1561 Seminole Tx. 79360

Drilling Began 5-10-06 Completed 5-12-06 Type tools Rotary Size of hole 8 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 360 ft.

Completed well is ☐ shallow ☑ artesian. Depth to water upon completion of well 80 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
250	285	35	layers of rocks + Sand	20
300	360	60	layers of rocks + Sand	25

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
5 in			0	360	361		260	360

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
0	10	8 3/4	7		

STATE ENGINEER ROSWELL, NEW MEX. 2006 MAY 30 A 11:30

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY ~~#358498~~ 477042

Date Received 05/30/06

Quad _____ FWL _____ FSL _____

File No. CP-938 Use Stk Location No. 25.36.33.44

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	Topsoil
5	75	70	Caliche + Sand
75	85	10	layers of Rocks + Sand
85	250	165	Red Clay + White Sand
250	285	35	layers of Rock + White Sand
285	300	15	Clay + White Sand
300	360	60	layers of Rocks + White Sand

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2006 AUG 16 PM 3:11

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Luis R. Duran
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

STR

~~358498~~

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

COPY

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S): CP-1285
WELL OWNER NAME(S): DINWIDDIE CATTLE COMPANY, LLC & ATKINS ENGINEERING A	PHONE (OPTIONAL): 575-354-2489
WELL OWNER MAILING ADDRESS: P.O. BOX 3156	CITY: ROSWELL STATE: NM ZIP: 88202

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	03	55	N
LONGITUDE	103	17	37	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SE 1/4, SW 1/4, SW 1/4, SECTION 05, TOWNSHIP 26 SOUTH, RANGE 36 EAST N.M.P.M

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1607	LUIS A. (TONY) DURAN	DURAN DRILLING

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
7/01/15	7/6/15	511	510	250

STATIC WATER LEVEL IN COMPLETED WELL (FT):

COMPLETED WELL IS: ○ ARTESIAN ○ DRY HOLE ◉ SHALLOW (UNCONFINED)

DRILLING FLUID: ○ AIR ○ MUD ADDITIVES – SPECIFY: DRILLING MUD

DRILLING METHOD: ◉ ROTARY ○ HAMMER ○ CABLE TOOL ○ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	190	16	STEEL	STEEL PERF	10	1/4	-
190	510	16	STEEL PERF	STEEL	10	1/4	1/8

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20	16	20 BGS 80 LBS CEMENT		MIXER
20	510	16	36 YARDS 1/4 GRAVEL PACK		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	CP-1285	POD NUMBER		TRN NUMBER	664512
LOCATION	26S.36E.5.3.3.3				PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	1	1	TOPSOIL	O Y ◉ N	
1	16	15	CALICHE	O Y ◉ N	
16	230	214	CLAY	O Y ◉ N	
230	285	55	ROCK	O Y ◉ N	
285	290	5	SAND	◉ Y O N	20
290	315	25	ROCK	◉ Y O N	40
315	507	192	SAND	◉ Y O N	30
507	510	3	RED BED	O Y ◉ N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	
				O Y O N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: O PUMP O AIR LIFT ◉ BAILER O OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 90

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:
LUIS A. DURAN

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Luis A Duran / LUIS A. DURAN — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

7-6-15 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	CP-1285	POD NUMBER	TRN NUMBER	
LOCATION	26S.36E.5.3.3.3		comm.	PAGE 2 OF 2

Appendix B

EMI Survey Primer

1 Electromagnetic Induction Survey (EMI) Primer

Conducting an EMI survey allows for assessment of apparent electrical conductivity (EC_a) without intrusive sampling and allows for assessment of EC_a with depth. The survey was conducted using an EM38-MK2 manufactured by Geonics Limited.

The EMI Survey was conducted in the horizontal and vertical dipole modes at 0.5 and 1.0 meter coil separations. Sensitivity to surface material is greatest at the 0.5 coil separation, zero feet in the horizontal mode and 0.66 feet in the vertical mode (below table and Figure 1a). At the 1.0 meter coil separation, greatest sensitivity is zero feet in the horizontal mode and 1.31 feet in the vertical mode (Figure 1b). Furthermore, at the 1.0 meter coil separation, sensitivity to subsurface material has a greater depth range. For example, at the 0.5 meter coil separation in the vertical mode the sensitivity ranges from 0.7 to 2.5 feet below ground surface; at the 1.0 meter coil separation in the vertical mode the sensitivity ranges from 1.3 to 4.9 feet below ground surface.

Coil Separation	Dipole Mode	Greatest Sensitivity	Relative Range	
meters		meters (feet)	Depth (meters)	Depth (feet)
0.5				
	Horizontal	0	0 - 0.4	0 - 1.3
	Vertical	0.2 (0.66)	0.2 - 0.8	0.7 - 2.5
1				
	Horizontal	0	0 - 0.8	0 - 2.5
	Vertical	0.4 (1.31)	0.4 - 1.5	1.3 - 4.9

The difference in sensitivity ranges in the two coil configurations and dipole modes is important; the horizontal dipole mode will be relatively sensitive to variations near surface whereas the vertical dipole mode will be insensitive near the surface and sensitive at greater depths. This difference in sensitivity allows for a quick method for determining whether the near surface soil is more conductive (higher chloride concentration) than soils at depth, where

> *if a higher EC_a reading is obtained in the horizontal position than the vertical position, chloride has likely impacted the upper surface more than soils at lower depths. If a higher EC_a reading is obtained in the vertical position than the horizontal position, chloride has likely impacted soils at lower depths than the upper surface soils.*

It is important to note that the EM38 is very susceptible to metal and electrical interferences. A metal object small as a steel nail can cause the apparent electrical conductivity to read high or go negative. EMI surveys near pipelines, wellheads, tank batteries, and powerlines must account for these interferences.

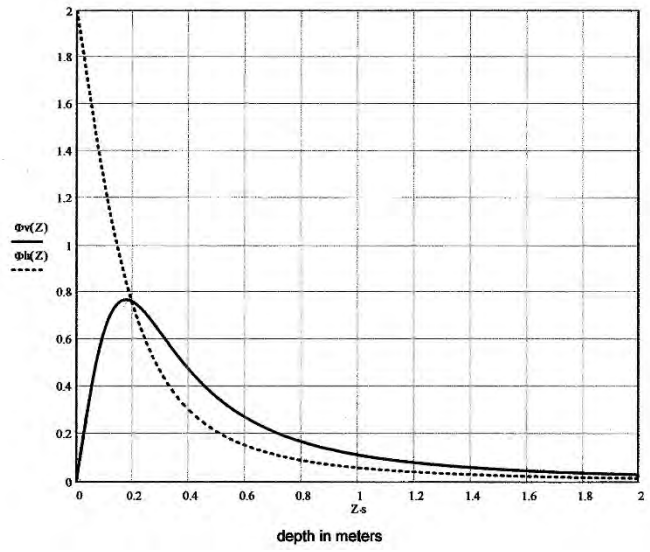


Figure 1a: 0.5-meter coil separation. Relative sensitivity with depth. Dashed line horizontal dipole mode. Solid line vertical dipole mode.

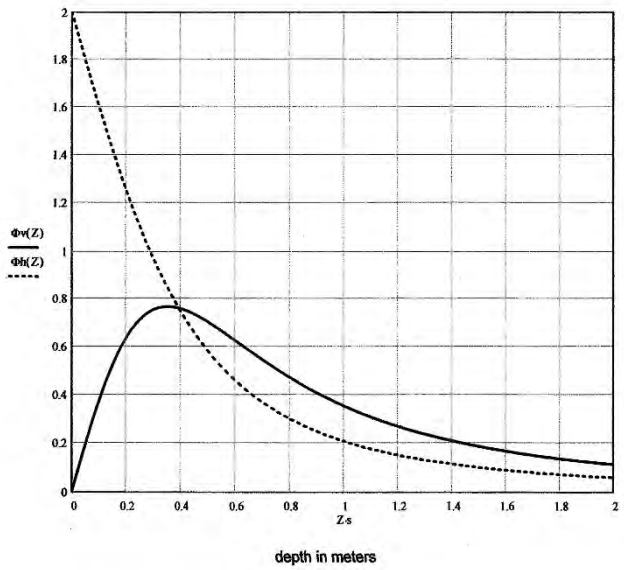


Figure 1b: 1.0-meter coil separation. Relative sensitivity with depth. Dashed line horizontal dipole mode. Solid line vertical dipole mode.

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 99096

COMMENTS

Operator: AMEREDEV OPERATING, LLC 2901 Via Fortuna Austin, TX 78746	OGRID: 372224
	Action Number: 99096
	Action Type: [C-141] Release Corrective Action (C-141)

COMMENTS

Created By	Comment	Comment Date
jharimon	An Initial C-141 has not yet been submitted.	4/18/2022

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 99096

CONDITIONS

Operator: AMEREDEV OPERATING, LLC 2901 Via Fortuna Austin, TX 78746	OGRID: 372224
	Action Number: 99096
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Remediation Plan Approved.	5/18/2022