



P.O. Box 1708 • Artesia, NM 88211
www.hrlcomp.com

December 4, 2020

Mr. Kyle Alpers
Armstrong Energy Corporation
P.O. Box 1973
Roswell, New Mexico 88202

Subject: Liner Inspection and Closure Report
Dora Dean 24 #1
NRM1926756372
Roosevelt County, New Mexico

Dear Mr. Alpers:

Armstrong Energy Corporation (Armstrong) (Client) retained HRL Compliance Solutions, Inc. (HRL) to conduct a liner inspection and prepare this closure report for the September 1, 2019 release at Dora Dean 24 #1 well pad (Site). The Site is in Roosevelt County, New Mexico (Figure 1).

Release Summary and Initial Response

On September 1, 2019, a release of 815 barrels of produced water was observed at the Site. The release was caused by a lightning strike to a storage tank, resulting in a fire. The entire release was contained within the lined earthen berm. Initial response activities included stopping the source of the release, securing the impacted area and removing free liquids within the secondary containment. 660 barrels of produced water was recovered; the remaining 155 barrels was consumed by the fire. On September 4, 2019 the C-141 (Attachment A) was submitted to the New Mexico Oil Conservation Division (NMOCD).

Item	Discussion
Site Name	Dora Dean 24 #1
Latitude	33.86264
Longitude	-103.42913
Unit/Section/Township/Range	Unit B / Section 24 / Township 5 South / Range 33 East
Release Number	NRM1926756372
Date Release Discovered	9/1/2019
Cause of Release	Lightning Strike to a Storage Tank
Type of Material Released	Produced water
Volume Release	815 barrels

INNOVATIVE SOLUTIONS DELIVERED



Mr. Kyle Alpers
Page 2

Item	Discussion
Volume Recovered	660 barrels

Liner Inspection

On September 3, 2019, after the released fluid was removed from the lined earthen berm, Armstrong conducted a site visit and took photographs of the lined earthen berm (Attachment B, Photographs). No holes or breaches were observed in the lined earthen berm. Additionally, these photographs show the maximum fluid line within the berm; which based on its consistency across the berm in addition to the absence of stained soil outside of the berm, demonstrate that the lined earthen berm fully contained the release. Based on these photographs, HRL has determined that the lined earthen berm fully contained the release (Attachment C, Inspection Form).

New Mexico Administrative Code (NMAC) Site Characterization Criteria

Title 19, Chapter 15, Part 29, Section 11 of the New Mexico Administrative Code (NMAC) provides requirements for release characterization once the free liquids and recoverable materials have been removed from the Site.

Site Map

A scaled diagram depicting the site and nearby significant features has been prepared (Figure 1).

Depth to Groundwater

Depth to groundwater at the release was estimated by evaluating data from the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) (Figure 2). The nearest groundwater well was approximately 0.49 miles from the Site; the depth to water in this well was 98.45 feet below ground surface (bgs).

Wellhead Protection Area

There are no sources of water, including springs, wells, or other sources of fresh water, within one-half mile of the release.

Distance to Nearest Significant Watercourse

A significant watercourse is defined as "...a watercourse with a defined bed and bank either named or identified by a dashed blue line on a USGS 7.5-minute quadrangle map or the next lower order tributary with a defined bed and bank" (19.15.17.7 NMAC). There are no significant watercourses within one-half mile of the Site.

Dora Dean 24 #1
December 4, 2020



Mr. Kyle Alpers
Page 3

Additional Site Characterization Criteria

The following additional site characterization criteria were evaluated for the release.

Site Characterization	Response/Discussion
What is the shallowest depth to groundwater beneath the area affected by the release?	Between 50 feet and 100 feet
Did the release impact groundwater or surface water?	No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or other significant watercourse?	No
Are the lateral extents of the release within 200 feet of a lakebed, sinkhole, or playa lake?	No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital institution, or church?	No
Are the lateral extents of the release within 500 feet of a spring or private, domestic fresh water well used by less than five households for domestic or stock watering purposes?	No
Are the lateral extents of the release within 1,000 feet of any fresh water well or spring?	No
Are the lateral extents of the release within any incorporated municipal boundaries?	No
Are the lateral extents of the release within a defined municipal fresh water well field?	No
Are the lateral extents of the release within 300 feet of a wetland?	No
Are the lateral extents of the release overlying a subsurface mine?	No
Are the lateral extents of the release overlying an unstable area such as karst geology?	The Site is in an area of low potential for karst topography
Are the lateral extents of the release within the 100-year floodplain?	No
Did the release impact areas not on an exploration, development, production, or storage site?	No

Conclusions and Recommendations

The September 1, 2019 release of 815 barrels of produced water at the Site was completely contained within the lined containment structure. HRL has determined that the liner integrity was good and completely contained the release; therefore, additional characterization of the soil and/or groundwater at the Site is not necessary. HRL recommends closure of this release.

Dora Dean 24 #1
December 4, 2020



Mr. Kyle Alpers
Page 4

Scope and Limitations

The scope of HRL's services consists of performing a liner integrity inspection and preparation of this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin.

If you have any questions or concerns, please do not hesitate to contact me at (970) 243-3271 or via email at jlinn@hrlcomp.com.

Sincerely,

HRL Compliance Solutions, Inc.

Julie Linn, PG, RG
Project Manager

Figures:

Figure 1: Site Location Map

Figure 2: Depth to Groundwater Map

Attachments:

Attachment A: NMOCD Form C-141

Attachment B: Photographs

Attachment C: Liner Inspection Field Form

Dora Dean 24 #1
December 4, 2020

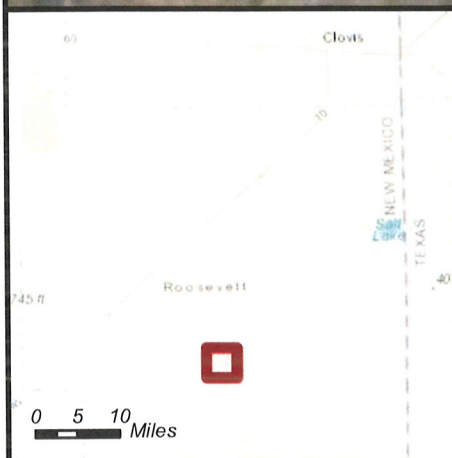


Figure 1: Site Location Map

Dora Dean 24 #1

September 2019 Release

33.86264, -103.42913

Section 24, Township 5 South, Range 33 East



NOTES / COMMENTS:

Mapped Features



Facility Location

DISCLAIMER: This representation and the Geographic Information System (GIS) used to create it are designed as a source of reference and not intended to replace official records and/or legal surveys. HRL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantee as to the quality or accuracy of the underlying data.

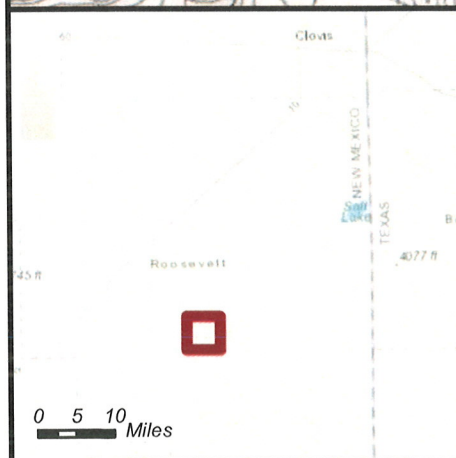
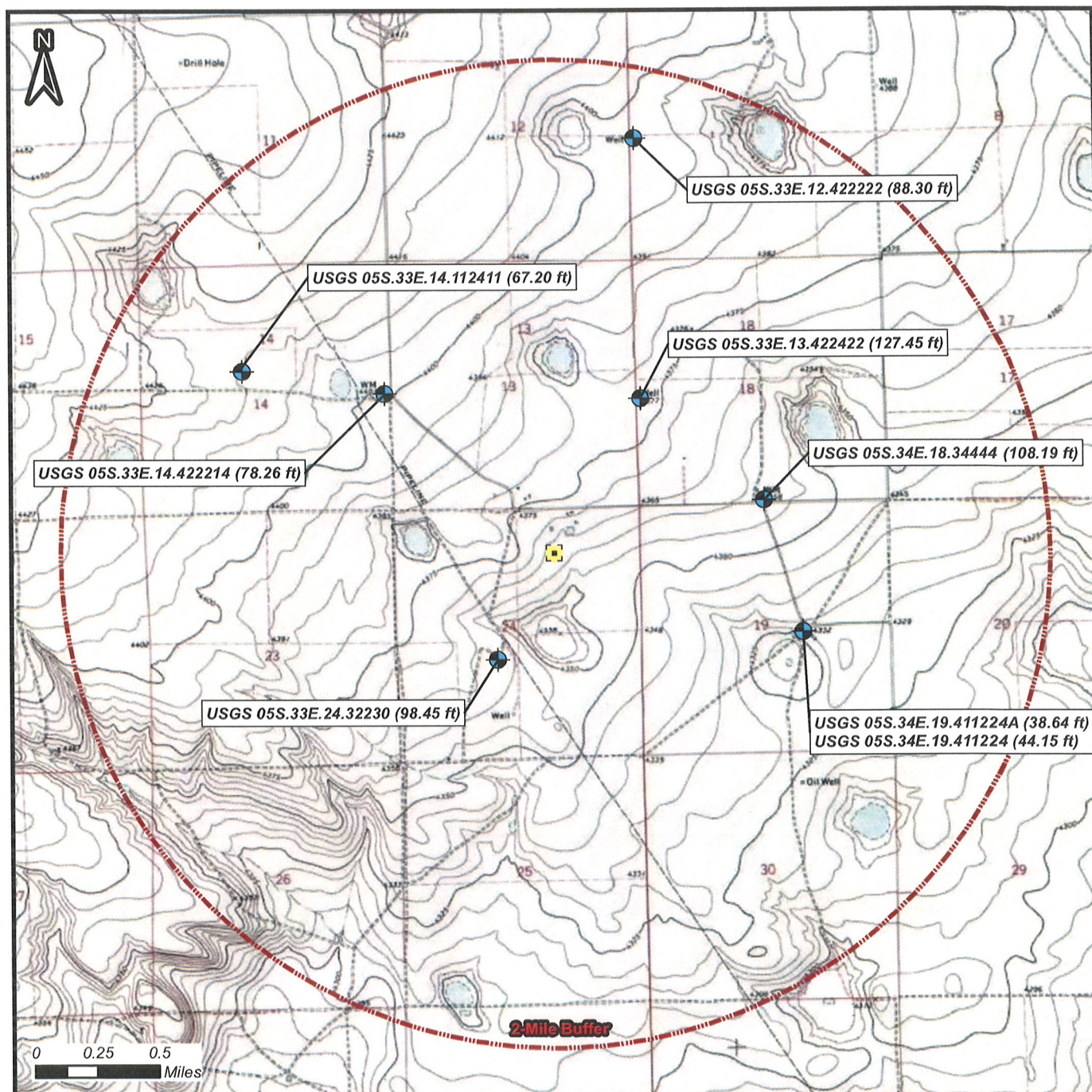


HRL
COMPLIANCE
SOLUTIONS

Author: A. Asay

Revision: 0

Date: 11/24/2020



Mapped Features

- Point of Release
- Groundwater Well
- 2-Mile Buffer

NOTES / COMMENTS:

The nearest well permitted by the NMOSE (CL 00100 POD1) is approximately 5.33 miles to the east-northeast of the facility.

Figure 2: Depth to Groundwater Map

Armstrong
Dora Dean 24 #1
September 2019 Release
33.86264, -103.42913
Section 24, Township 5 South, Range 33 East

Well Number	Water Level Below Ground Surface (ft)	Distance from Source (mi)
USGS 05S.34E.19.411224A	38.64	1.06
USGS 05S.34E.19.411224	44.15	1.06
USGS 05S.34E.18.344444	108.19	0.88
USGS 05S.33E.13.422422	127.45	0.72
USGS 05S.33E.24.32230	98.45	0.49
USGS 05S.33E.14.422214	78.26	0.94
USGS 05S.33E.12.422222	88.30	1.71
USGS 05S.33E.14.112411	67.20	1.46

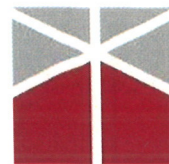
DISCLAIMER: This representation and the Geographic Information System (GIS) used to create it are designed as a source of reference and not intended to replace official records and/or legal surveys. HRL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantee as to the quality or accuracy of the underlying data.

HRL
COMPLIANCE
SOLUTIONS

Author: A. Asay

Revision: 0

Date: 11/25/2020



Attachment A

NMOCD Form C-141

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	ARMSTRONG ENERGY CORPORATION	OGRID	1092
Contact Name	KYLE ALPERS	Contact Telephone	(575) 623-2999 Ext. 305
Contact email	kalpers@aecnm.com	Incident #	(assigned by OCD)
Contact mailing address	P.O. BOX 1973	ROSWELL, NM	88202

Location of Release Source

Latitude 33.86264 Longitude -103.42913
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	DORA DEAN 24 # 1	Site Type	SWD
Date Release Discovered	9/1/2019	API# (if applicable)	30-041-20938

Unit Letter	Section	Township	Range	County
B	24	5S	33E	ROOSEVELT

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 815 BBLS	Volume Recovered (bbls) 660 BBLS
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

LIGHTNING STRIKE ON TANK BATTERY CAUSED A FIRE WHICH DESTROYED MOST OF THE TANKS IN THE BATTERY. THE RELEASE WAS CONTAINED WITHIN THE LINED BERM SECONDARY CONTAINMENT.

Form C-141

Page 2

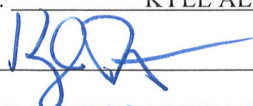
State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? THE VOLUME OF PRODUCED WATER RELEASED EXCEEDED 25 BBLs.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? IMMEDIATE NOTICE WAS NOT PROVIDED TO OCD. THIS FORM IS FIRST NOTIFICATION.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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: <u>KYLE ALPERS</u>	Title: <u>VICE PRESIDENT OF ENGINEERING</u>
Signature: 	Date: _____
email: <u>KALPERS@AECNM.COM</u>	Telephone: <u>575-623-2999 EXT. 305</u>
OCD Only	
Received by: <u>Chad Hensley</u> DENIED	Date: 8/23/2021 <u>09/21/2021</u>



Attachment B

Photographs



Photo of
Release
contained in
earthen berm.
No staining is
observed
outside of the
earthen berm.
Photo Date:
9/1/2019



Photo of
Release
contained in
earthen berm.
No staining is
observed
outside of the
earthen berm.
Photo Date:
9/1/2019





Photo of lined earthen berm after fluids were removed. No staining is observed outside of the earthen berm. Photo Date: 9/3/2019



Photo of lined earthen berm after fluids were removed. No staining is observed outside of the earthen berm. Photo Date: 9/3/2019

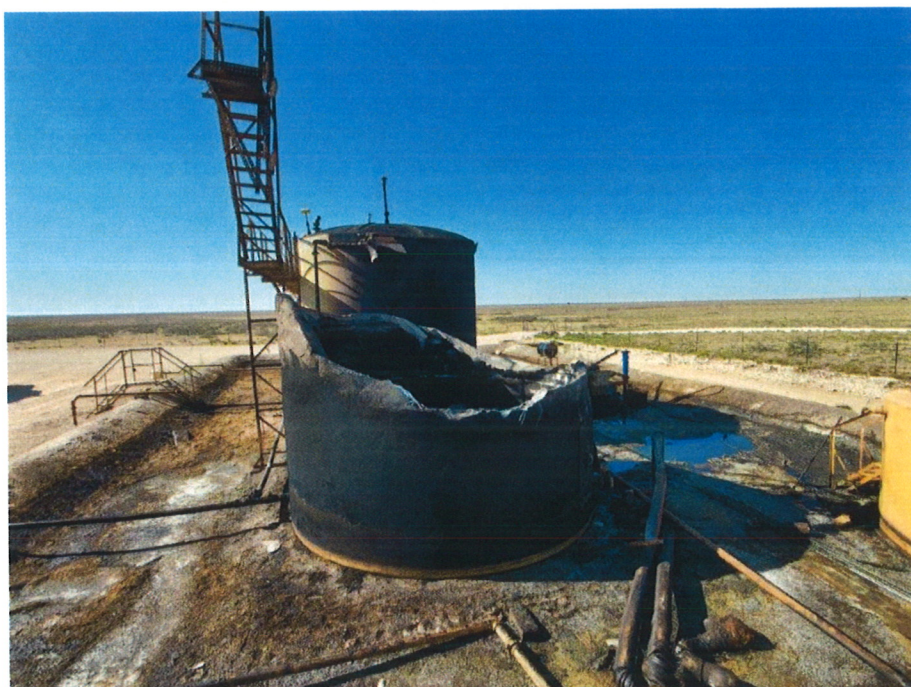




Photo of lined earthen berm after fluids were removed. No staining is observed outside of the earthen berm. Photo Date: 9/3/2019



HRL
COMPLIANCE
SOLUTIONS

Liner Inspection Form

Client Armstrong Energy

Site Name Dora Dean 24 #1

Latitude 33.86264

Longitude -103.42913

Date of Release 9-1-2019

NMOCD Incident Number NRm 1926756372

Date of Inspection 9-3-2019

Observations	Yes	No	Comments
Is the liner present?	X		
Is the liner torn?		X	
Are there visible holes in the liner?		X	
Is the liner retaining any liquids?	X		on 9/1/2019 - Produced water
Does it appear the liner had the ability to contain the leak?	X		

Type of Liner:

PolyStar

☒ Earthen with liner

☐ Earthen no liner

☐ Metal with Poly Lining

☐ Metal with Spray Epoxy Lining

Other (describe here):

Other Concerns or Observations:

Inspector Name

Julie Linn and Natalie Gordon on behalf

Inspector Signature

Julie Linn of Armstrong Energy

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 43724

CONDITIONS

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 43724
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	9/21/2021