

**Region 6 - Enforcement & Compliance Assurance Division**  
**INSPECTION REPORT**

|                                        |                                                                                                                                                                                                                                                    |                |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Inspection Date(s):                    | 09/03/2022                                                                                                                                                                                                                                         |                |
| Media Program:                         | Water                                                                                                                                                                                                                                              |                |
| Regulatory Program(s)                  | Clean Water Act – National Pollution Discharge Elimination System (Brine)                                                                                                                                                                          |                |
| Company Name:                          | Northcote Cleveland LLC                                                                                                                                                                                                                            |                |
| Facility Name:                         | Osage B Lease                                                                                                                                                                                                                                      |                |
| Facility Physical Location:            | Latitude: 36.259597, Longitude: -96.225672                                                                                                                                                                                                         |                |
| (city, state, zip code)                | Prue, Oklahoma, 74060                                                                                                                                                                                                                              |                |
| Mailing address:                       | 701 S Eighth St                                                                                                                                                                                                                                    |                |
| (city, state, zip code)                | Ponca City, Oklahoma, 74601                                                                                                                                                                                                                        |                |
| County/Parish:                         | Osage County                                                                                                                                                                                                                                       |                |
| Facility Phone Number                  | 580-304-1193                                                                                                                                                                                                                                       |                |
| Facility Contact:                      | Cody Mather                                                                                                                                                                                                                                        | Owner/Operator |
|                                        | Cody_mather@hotmail.com                                                                                                                                                                                                                            |                |
| FRS Number:                            | n/a                                                                                                                                                                                                                                                |                |
| Identification/Permit Number:          | OKU000856                                                                                                                                                                                                                                          |                |
| Media Identifier Number:               | n/a                                                                                                                                                                                                                                                |                |
| NAICS:                                 | 211111                                                                                                                                                                                                                                             |                |
| SIC:                                   | 1311                                                                                                                                                                                                                                               |                |
| Personnel participating in inspection: |                                                                                                                                                                                                                                                    |                |
| Matthew Allen                          | EPA, Region 6ECDW                                                                                                                                                                                                                                  | Inspector      |
| Jeff McGuire                           | BIA Osage Agency                                                                                                                                                                                                                                   | Inspector      |
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| EPA Lead Inspector<br>Signature/Date   | <b>MATTHEW ALLEN</b><br><small>Digitally signed by MATTHEW ALLEN<br/>DN: c=US, o=U.S. Government, ou=Environmental Protection Agency,<br/>cn=MATTHEW ALLEN, 0.9.2342.19200300.100.1.1=68001004162907<br/>Date: 2022.09.28 14:32:54 -05'00'</small> | Date           |
|                                        | Matthew Allen                                                                                                                                                                                                                                      |                |
| Supervisor<br>Signature/Date           | <b>JEANNE ECKHART</b><br><small>Digitally signed by JEANNE ECKHART<br/>Date: 2022.10.05 09:05:03 -05'00'</small>                                                                                                                                   | Date           |
|                                        | Jeanne Eckhart ( <i>acting</i> )                                                                                                                                                                                                                   |                |

## **Section I – INTRODUCTION**

### **PURPOSE OF THE INSPECTION**

EPA Region 6 inspector Matthew Allen arrived at the Northcote Cleveland, LLC, Osage B Lease (EPA ID No. OKU000856), at 4:15 PM on 09/03/2022 for an unannounced inspection. There was no company representative present at the beginning of the inspection. The inspection was in response to a spill notification (NRC# 1346621) received from Bureau of Indian Affairs (BIA), Osage Agency, Inspector, Jeff McGuire. The inspection was conducted by the authority of the Clean Water Act to determine compliance with Environmental Protection Agency (EPA) regulations. BIA inspector, Jeff McGuire, accepted an invitation to participate during the inspection. There were three U.S. Army Corps of Engineers personnel present when I arrived for the inspection, but they declined to participate in the inspection. There were no other federal, tribal, state, or local agency representatives present at the time of the inspection.

### **FACILITY DESCRIPTION**

EPA conducted an inspection on the Northcote Cleveland, LLC, Osage B Lease. The spill originated from a 2-inch diameter poly production flowline which transported produced water (oil and saltwater) from the producing well to the oil separation/storage facility (tank battery). The Osage B Lease was located north of New Prue Road, east of the confluence of Mud Creek into Keystone Lake, in Osage County, Oklahoma.

## **Section II - OBSERVATIONS**

I observed the Release Point (GPS 36.259597, -96.225672) as seen in photo No. 1 of Appendix 1 (Photo Log) included with this report. At the release point, I observed oil and saltwater impacted soil, rocks, and vegetation. At the time of the inspection, the ruptured flowline had not been repaired and was no longer spilling fluid. A closeup view of the ruptured poly flowline can be seen in photo No. 2. Adjacent to the ruptured flowline, I observed an elevated TDS field reading of 42,040 mg/L in a small pool of water along the flowpath, which was documented in photos No. 4 and 5. I observed an impacted ditch/draw along the flowpath, travelling south toward an unnamed tributary, which can be seen in photo No. 6.

In the main channel of the impacted tributary, upstream from impacted area, I observed a TDS field reading of 74.5 mg/L (see photo No. 7), this field reading should be used when establishing “background” TDS levels for the area.

I observed the Point of Entry (POE) (GPS 36.259401, -96.226191) which was documented in photo No. 9. Oil-stained rocks and vegetation were observed at the POE. I observed an elevated TDS field reading of 83,288 mg/L at the POE (see photo No. 8) this was the highest TDS reading observed during the inspection.

Approximately 150 feet downstream from the POE, along the main channel of the impacted tributary, I observed a pool of water covered an estimated 99% by a thin layer of crude oil. Oil-stained rocks, vegetation and banks were observed at the same location. The banks of the tributary showed a “high water mark,” evidence that recent rainfall impacted the tributary while the oil and produced water were present in the tributary (see photo No. 11). As the inspection continued downstream, I observed oil floating on small pools of water and oil-stained vegetation, banks, rocks, and streambed (see photo No. 12).

I observed a temporary containment dam placed by the operator across the impacted tributary to prevent downstream migration of impacted waters (photo No. 13) (GPS 36.260179, -96.227513).

Continuing downstream beyond the first containment dam, I observed oil, oil-stained streambed, rocks, vegetation, and banks as well as an elevated TDS field reading of 25,918 mg/L (photos No. 14 and 15).

I observed a second temporary containment dam placed by the operator across the impacted tributary. (Photo No. 16) (GPS 36.261333, -96.229855).

During the inspection I briefly spoke with an employee of the operator who was operating a tractor, which placed the temporary containment dams. I also observed the equipment operator working to clear a path along the impacted tributary so cleanup personnel could access the impacted areas. The tractor can be seen in photo No. 18.

As the inspection continued toward Mud Creek/Keystone Lake, I observed the confluence of the impacted tributary with another unnamed tributary (GPS 36.262372, -96.231806). I observed a TDS field reading of 117.4 mg/L in the unimpacted tributary, this reading should be used to establish “background” TDS levels for the area (see photos No. 19, 20 and 21).

I observed the final pool of water along the impacted tributary (GPS 36.262099, -96.231849) and recorded an elevated TDS field reading of 641 mg/L. This TDS field reading was substantially lower than all the previous readings and provided evidence of significant dilution as the impacted tributary mixed with the unimpacted tributary which joined from the north just upstream of the observed location. I observed oil and oil staining in the final pool of water along the impacted tributary (see photos No. 22 and 23). There were no additional containment structures downstream from this location to prevent spill impacts from migrating into Mud Creek/Keystone Lake.

I observed a TDS field reading of 293.5 mg/L where the impacted tributary joined Mud Creek/Keystone Lake. (Photos No. 25, 26 and 27).

I observed oil sheen on Mud Creek/Keystone Lake (GPS 36.260384, -96.233723) which was documented in photo No. 28.

I observed a TDS field reading of 488 mg/L (GPS 36.258222, -96.233154). At the same location I observed floating oil, oil-stained shoreline, oil-stained floating debris, and oil-stained rip rap (limestone rocks) near and along the base of New Prue Road as it crossed Mud Creek/Keystone Lake (see photos No. 29-34).

Each of the TDS field readings taken throughout the inspection were taken with a properly calibrated YSI Pro 30 conductivity meter. All photos referenced in this narrative were included as part of Appendix 1 (photo log) which is attached to this report. Additional photos, GPS location information, time and narrative information are also included in the 34 photos of Appendix 1.

### **Section III – AREAS OF CONCERN**

The areas of concern include oil impacts observed on Mud Creek/Keystone Lake, oil impacts observed along the unnamed tributary and oil observed impacting soil and vegetation along the flowpath of the spill. The operator should remove all oil, oil staining and oil-stained materials from the flowpath, impacted tributary and Mud Creek/Keystone Lake. Another primary area of concern is the removal of all elevated TDS waters from the impacted tributary to prevent further migration into Mud Creek/Keystone Lake. The operator should immediately remove and/or remediate all brine impacted areas along the flowpath, impacted tributary and Mud Creek/Keystone Lake.

### **Section IV – FOLLOW UP**

EPA inspector Matthew Allen conducted a follow up call with owner/operator Cody Mather beginning at 7:20 PM on 09/03/2022, the call lasted 7 minutes. Cody Mather stated he had secured ACME Environmental to install containment booms on Mud Creek/Keystone Lake, and ACME would be assisting in the cleanup effective immediately.

EPA inspector Matthew Allen received a follow up call from Cody Mather at 2:01 PM on 09/04/2022, the call lasted 6 minutes. Mr. Mather stated cleanup was ongoing and he would be available to answer questions or participate in inspections as needed moving forward.

EPA inspector Matthew Allen received a follow up call from Cody Mather 09/07/2022, the call lasted 13 minutes. Mr. Mather gave an update on cleanup progress and scheduled a time to meet for a follow up inspection.

EPA conducted a follow up inspection 09/08/2022 and will continue to follow up to monitor clean up progress. Significant amounts of oil and saltwater had been removed from the impacted area at the time of the follow up inspection, which will be detailed in an additional inspection report.

### **Section V – LIST OF APPENDICES**

Appendix 1 – Photo Log – 34 photos taken 09/03/2022



## Appendix 1

### Photograph Log 34 Photos



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 1

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0698

**Orientation:** NW

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:17 PM

**Latitude:** 36.259597

**Longitude:** -96.225672

**Photographer:** Matthew Allen

**Description:** This was the Release Point of the spill.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 2

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0699

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:18 PM

**Latitude:** 36.259597

**Longitude:** -96.225672

**Photographer:** Matthew Allen

**Description:** This was the rupture in the 2" poly flowline at the release point.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 3

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0700

**Orientation:** SE

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:20 PM

**Latitude:** 36.259597

**Longitude:** -96.225672

**Photographer:** Matthew Allen

**Description:** This was a view from NW of the release point, looking SE or downgradient along the flowpath.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 4

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0701

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:22 PM

**Latitude:** 36.259597

**Longitude:** -96.225672

**Photographer:** Matthew Allen

**Description:** This was an elevated TDS field reading of 42,040 mg/L. This reading was observed in the first pool of water along the flowpath of the spill immediately downgradient from the release point.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 5

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0702

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:22 PM

**Latitude:** 36.259597

**Longitude:** -96.225672

**Photographer:** Matthew Allen

**Description:** This was the pool of water where the field reading of 42,040 mg/L TDS was taken.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 6

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0703

**Orientation:** S

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:24 PM

**Latitude:** 36.259597

**Longitude:** -96.225672

**Photographer:** Matthew Allen

**Description:** This was a photo from the first pool of water documented in photos 4 and 5, with a view toward the south, looking toward the Point of Entry (POE) into the impacted tributary.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 7

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0704

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:27 PM

**Latitude:** 36.259314

**Longitude:** -96.226145

**Photographer:** Matthew Allen

**Description:** This was a "background" TDS measurement observed upstream from the POE along the impacted tributary. This reading was taken in a pool of water which was not impacted by the spill.



**Description:** This was an elevated TDS field reading of 83,288 mg/L observed in the main channel of the impacted tributary at the POE.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 9

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0706

**Orientation:** NE

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:35 PM

**Latitude:** 36.259401

**Longitude:** -96.226191

**Photographer:** Matthew Allen

**Description:** This was the POE and the pool of water where the TDS field reading of 83,288 mg/L TDS was observed. The flowpath can be seen coming into the impacted tributary. The flowpath traveled from the top left of the photo toward the bottom right and appeared light brown with a darker path of brown visible where produced fluids traveled.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 10

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0707

**Orientation:** S

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:36 PM

**Latitude:** 36.259401

**Longitude:** -96.226191

**Photographer:** Matthew Allen

**Description:** This was a pool of water which began at the POE and flowed southwest along the main channel of the impacted tributary. Oil stains were present on the vegetation along the tributary as well as brine impacted grasses. The impacted vegetation can be seen in the photo and appears dark brown where it was impacted by oil and light brown where it was impacted by saltwater. At the time of the inspection the tributary did not have any visible instream flow. At the time of the inspection, the area of impacted vegetation along the tributary varied in width between 1 foot and 4 feet with an estimated average width of 2 feet along each bank of the tributary. As the spill impacts continued downstream, vegetation impacts decreased significantly approximately halfway to Mud Creek/Keystone Lake.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 11

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0708

**Orientation:** NW

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:37

**Latitude:** 36.259534

**Longitude:** -96.226404

**Photographer:** Matthew Allen

**Description:** This was a photo of oil floating in the main channel of the impacted tributary. This represented the most significant amount of oil observed during the inspection. The oil covered the pool of water to an estimated 99% but was only a thin layer with two small areas where the waters' surface was visible.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 12

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0709

**Orientation:** SW

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:40 PM

**Latitude:** 36.259660

**Longitude:** -96.226753

**Photographer:** Matthew Allen

**Description:** This was a photo showing oil sitting on the bedrock channel of the impacted tributary.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 13

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0710

**Orientation:** NW

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:43 PM

**Latitude:** 36.260179

**Longitude:** -96.227513

**Photographer:** Matthew Allen

**Description:** This was a temporary containment dam placed by the operator to ensure no additional fluids migrated downstream.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 14

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0711

**Orientation:** W

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:46 PM

**Latitude:** 36.260309

**Longitude:** -96.228216

**Photographer:** Matthew Allen

**Description:** This was a photo of oil floating on the surface of the impacted tributary. Oil-stained rocks and vegetation were also present in the photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 15

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0712

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:48 PM

**Latitude:** 36.260309

**Longitude:** -96.228216

**Photographer:** Matthew Allen

**Description:** This was an elevated TDS field reading of 25,918 mg/L taken in the same pool of water pictured in photo 15 of this photo log.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 16

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0713

**Orientation:** E

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:53 PM

**Latitude:** 36.261333

**Longitude:** -96.229855

**Photographer:** Matthew Allen

**Description:** This was a photo of the second temporary containment dam installed by the operator to prevent fluid migration downstream.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 17

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0714

**Orientation:** W

**Date of Photo:** 09/03/2022

**Time of Photo:** 4:53 PM

**Latitude:** 36.261333

**Longitude:** -96.229855

**Photographer:** Matthew Allen

**Description:** This was a photo taken from the second temporary containment dam, looking toward the west/downstream. This photo showed the bed and bank features of the impacted tributary and was one of the few places where sediment was present in the tributary which could trap brine and require special attention during the cleanup activities.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 18

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0715

**Orientation:** W

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:03 PM

**Latitude:** 36.261333

**Longitude:** -96.229855

**Photographer:** Matthew Allen

**Description:** This was a tractor which I observed installing the temporary containment dams. During the inspection, I also observed the tractor and operator clearing an access path along the impacted tributary to make the area accessible to cleanup crews and equipment.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 19

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0716

**Orientation:** N

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:08 PM

**Latitude:** 36.262372

**Longitude:** -96.231806

**Photographer:** Matthew Allen

**Description:** This was the confluence of the impacted tributary and another tributary which was not impacted. The impacted tributary entered the picture from the right and is highlighted by the horizontal arrow. The adjoining tributary which was not impacted entered the photo from the top and is highlighted by the vertical arrow. I observed a "background" TDS field reading of 117.4 mg/L just below the horizontal arrow.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0717

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:11 PM

**Latitude:** 36.262471

**Longitude:** -96.231811

**Photographer:** Matthew Allen

**Description:** This was a "background" TDS field reading of 117.4 mg/L observed in the adjoining tributary which was not impacted by the spill.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 21

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0719

**Orientation:** SE

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:12 PM

**Latitude:** 36.262471

**Longitude:** -96.231811

**Photographer:** Matthew Allen

**Description:** This was a photo from the un-impacted tributary looking downstream toward the streambed of the impacted tributary. The impacted tributary maintained a solid sandstone streambed at this location.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 22

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0720

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:16 PM

**Latitude:** 36.262099

**Longitude:** -96.231849

**Photographer:** Matthew Allen

**Description:** This was an elevated TDS field reading of 641 mg/L taken in the last pool of water before the impacted tributary connected to Mud Creek/Keystone Lake. At this point, brine impacts were significantly diluted by the additional tributary which adjoined just upstream.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 23

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0721

**Orientation:** SE

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:18 PM

**Latitude:** 36.262099

**Longitude:** -96.231849

**Photographer:** Matthew Allen

**Description:** This is the last pool of water along the impacted tributary before it spills into Mud Creek/Keystone Lake. The elevated TDS field reading from photo 23 was taken at this location. Oil was present on the water and oil-stained vegetation/rocks were present at this location.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 24

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0723

**Orientation:** SW

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:22 PM

**Latitude:** 36.261400

**Longitude:** -96.233117

**Photographer:** Matthew Allen

**Description:** This was a view as the impacted connected to Mud Creek/Keystone Lake. At the time of the inspection, there was no flow from the impacted tributary into the lake, but recent rainfall had pushed the spill impacts onto Keystone Lake.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 25

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0724

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:26 PM

**Latitude:** 36.261016

**Longitude:** -96.233920

**Photographer:** Matthew Allen

**Description:** This was a TDS field reading of 293.5 taken where the impacted tributary joined Mud Creek/Keystone Lake.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 26

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0725

**Orientation:** N

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:27 PM

**Latitude:** 36.261016

**Longitude:** -96.233920

**Photographer:** Matthew Allen

**Description:** This was a photo from the water of Mud Creek/Keystone Lake looking upstream toward the impacted tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 27

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0726

**Orientation:** SW

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:27 PM

**Latitude:** 36.261016

**Longitude:** -96.233920

**Photographer:** Matthew Allen

**Description:** This was a photo looking downstream toward Mud Creek/Keystone Lake. This photo was taken from the same location as photos 25 and 26.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 28

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0727

**Orientation:** NW

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:30 PM

**Latitude:** 36.260384

**Longitude:** -96.233723

**Photographer:** Matthew Allen

**Description:** This was a photo showing oil sheen floating on the water of Mud Creek/Keystone Lake.

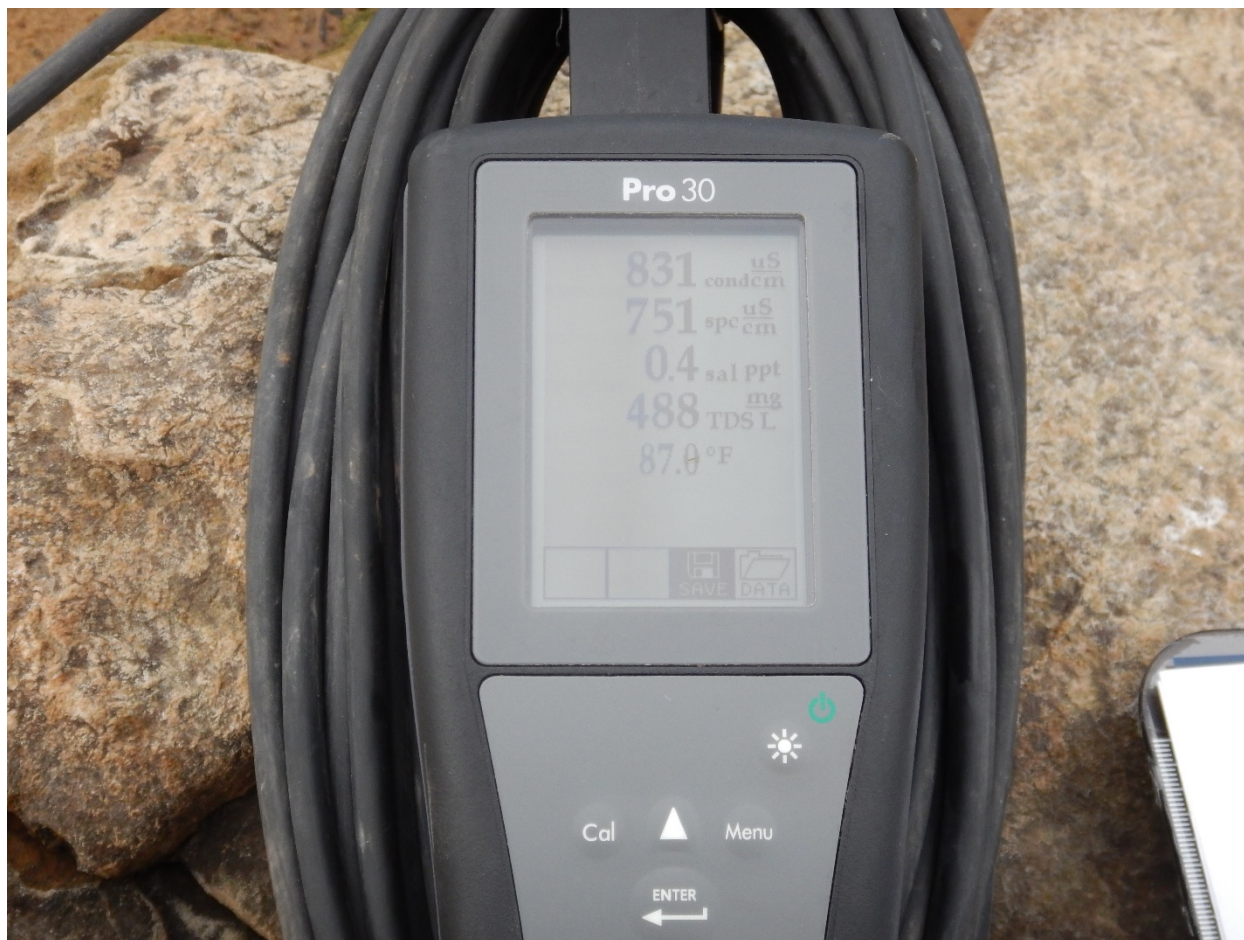


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 29

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0728

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:58 PM

**Latitude:** 36.258222

**Longitude:** -96.233154

**Photographer:** Matthew Allen

**Description:** This was a TDS field reading of 488 mg/L taken in Mud Creek/Keystone Lake.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 30

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0729

**Orientation:** E

**Date of Photo:** 09/03/2022

**Time of Photo:** 5:59 PM

**Latitude:** 36.258222

**Longitude:** -96.233154

**Photographer:** Matthew Allen

**Description:** This was a photo of oil along the shoreline of Mud Creek/Keystone Lake.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 31

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0730

**Orientation:** NW

**Date of Photo:** 09/03/2022

**Time of Photo:** 6:00 PM

**Latitude:** 36.258222

**Longitude:** -96.233154

**Photographer:** Matthew Allen

**Description:** This was a photo of oil-stained shoreline along Mud Creek/Keystone Lake.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 32

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0732

**Orientation:** n/a

**Date of Photo:** 09/03/2022

**Time of Photo:** 6:00 pm

**Latitude:** 36.258222

**Longitude:** -96.233154

**Photographer:** Matthew Allen

**Description:** This was a photo of oil and oil-stained rocks along the rip rap at the base of New Prue Road as it crossed Mud Creek/Keystone Lake.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 33

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0733

**Orientation:** NE

**Date of Photo:** 09/03/2022

**Time of Photo:** 6:00 PM

**Latitude:** 36.258222

**Longitude:** -96.233154

**Photographer:** Matthew Allen

**Description:** This is a photo looking NE along the base of New Prue Road as it crossed Mud Creek/Keystone Lake. Oil and oil-stained shoreline/rip rap were present at the time of the inspection. Oil and oil sheen were floating on the water at this location.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## Photograph Log

Photo No. 34

|                                 |                      |                 |
|---------------------------------|----------------------|-----------------|
| Location: 36.259597, -96.225672 |                      |                 |
| City: Prue                      | County/Parish: Osage | State: Oklahoma |



**Photo File Name:** DSCN0734

**Orientation:** NW

**Date of Photo:** 09/03/2022

**Time of Photo:** 6:00 PM

**Latitude:** 36.258222

**Longitude:** -96.233723

**Photographer:** Matthew Allen

**Description:** This was a view from the base of New Prue Road looking NW up Mud Creek/Keystone Lake toward the impacted tributary. Oil, oil-stained shoreline, and a rainbow-colored oil sheen was present in the photo.