

Region 6 - Enforcement & Compliance Assurance Division

INSPECTION REPORT

Inspection Date(s):	04/13/2023	
Media Program:	Water	
Regulatory Program(s)	Clean Water Act – National Pollution Discharge Elimination System (NPDES) – Brine Program	
Company Name:	Citation Oil and Gas Corporation	
Facility Name:	Bayou Unit	
Facility Physical Location:	34.166000, -97.360000	
(city, state, zip code)	Lone Grove, Oklahoma 73443	
Mailing address:	14077 Cullen Road	
(city, state, zip code)	Houston, Texas 77069	
County/Parish:	Carter County	
Facility Phone Number	(281) 891 – 1000	
Facility Contact:	Robert Redweick	Citation Oil and Gas Corp Representative
	env-occ@cogc.com & healdtonfield@cogc.com	
FRS Number:	n/a	
EPA Identification Number:	OKU002155	
Media Identifier Number:	n/a	
NAICS:	211111	
SIC:	1311	
Personnel participating in inspection:		
Jeanne Eckhart	U.S. EPA Region 6 – ECDWE	Lead Inspector
Tamara Griffin	U.S. EPA Region 6 – ECDWE	Inspector
Brad Ice	Oklahoma Corporation Commission	Manager of Field Operations
Shawn Coslett	Oklahoma Corporation Commission	Manager of Pollution Abatement
Jeff Perkins	Oklahoma Corporation Commission	District III Manager
Everett Plummer	Oklahoma Corporation Commission	Field Supervisor
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Robert Reynolds	Oklahoma Corporation Commission	Oil and Gas Specialist
Clayton Christian	Oklahoma Corporation Commission	Field Inspector
Josh Lakey	Oklahoma Corporation Commission	Field Inspector
EPA Lead Inspector Signature/Date	JEANNE ECKHART Jeanne Eckhart Digitally signed by JEANNE ECKHART Date: 2023.06.07 11:14:59 -05'00'	
Acting Supervisor Signature/Date	DAMON MCELROY Damon McElroy Digitally signed by DAMON MCELROY DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=DAMON MCELROY, 0.9.2342.19200300.100.1.1=68001003655653 Date: 2023.06.07 13:24:56 -05'00'	
		Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 Inspectors, Jeanne Eckhart and Tamara Griffin, arrived at the Citation Oil and Gas Corporation (EPA ID No. OKU002155) at 9:00 AM on 04/13/2023 for a Clean Water Act (CWA) inspection under the National Pollution Discharge Elimination System (NPDES). This was an inspection in response to a referral from the Oklahoma Corporation Commission (OCC) received by EPA Region 6. We met with Oklahoma Corporation Commission representatives on site for the entire inspection. There were no company representatives on site during the beginning of the inspection. The inspection was conducted by the authority of the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) to determine compliance with federal regulations.

FACILITY DESCRIPTION

EPA conducted an initial CWA inspection near the multiple production and injection wells due to historical and potential ongoing sources of contamination referred to EPA. The identified historical and potentially ongoing contamination migrated downgradient in two tributaries that flowed into Walnut Creek. The surface and soil around the area including a main area of concern (GPS: 34.165328, -97.360706) indicated potentially ongoing brine contamination as well as evident historical contamination. EPA staff conducted a creek surveys of two tributaries and Walnut Creek and observed multiple wells across the Bayou Unit area during the inspection in response to state regulatory concerns. Not all wells in the area of concern were observed or assessed during this EPA inspection.

Geology in this area was not assessed as a part of this inspection report. EPA was provided some well records and other information associated with different potential well issues in this area of concern and preliminary site assessments. EPA will continue to assess this information external to this inspection report.

Section II - OBSERVATIONS

There were multiple wells in this area of concern that I observed, including seven wells associated with the well owner Citation Oil and Gas Corporation. OCC representatives on site did express concerns associated with several wells on site, including integrity and other potential well construction issues for the production and injection wells during the inspection. **Appendix A**, Photo Nos. 1 – 21 are photographs of the multiple production and injection wells observed during the inspection.

EPA inspectors observed other wells and operations in the area of concern but did not assess all the wells owned or operated by Ardmore Production and Exploration Company during the inspection in the area of concern, see Table 1 in **Appendix B** for the 149 identified wells within 0.5 mile of the 3-acre area of concern (GPS: 34.165328, -97.360706). These 149 wells are oil and gas associated, including production wells, underground injection control wells, plugged wells, or wells with an unknown status.

Table 2 in **Appendix B** shows the currently nine (9) identified water wells in or near the area of concern. Other potential sources of drinking water were not assessed during this inspection. This information was sourced from the Oklahoma Water Resources Board (OWRB) records.

Appendix C shows the latest Mesonet data from nearby Mesonet stations in Oklahoma, including Newport, Ardmore, and Ringling. This data was downloaded from the Mesonet Oklahoma public website for this report to indicate rainfall within the last 10 days of the inspection had not occurred. (Data Source: https://mesonet.org/index.php/site/about/monthly_summaries)

I assessed the surface water quality in the area with a properly calibrated YSI Pro 30 Conductivity Meter. The assessment can be seen in the **Appendix A** Photo Log, Photo Nos. 22-89. GPS location information for each observation is recorded with each photo in the photo log. I assessed two tributaries and Walnut Creek in this area. The first tributary flows from a pond seen in Photo No. 22 down to a confluence with Walnut Creek seen in Photo No. 66. The second tributary was assessed from Photo No. 67 (furthest downstream on this arm of the tributary) upstream to Photo No. 83, which showed the observed 3-acre area of concern (main area of concern described in Table 1 in **Appendix B**). An additional downstream assessment on Walnut Creek can be seen in **Appendix A**, Photo Nos. 84-86 at Texaco Road. Finally, an upstream assessment on Walnut Creek was observed and seen in **Appendix A**, Photo Nos. 87-89.

With the conductivity meter, I took Total Dissolved Solids (TDS) readings throughout the creek surveys. The first tributary assessed (Photo Nos. 22 – 61 and 63-66) showed elevated TDS readings throughout the over 0.75-mile-long tributary that flowed to Walnut Creek. The furthest upstream on the tributary we assessed during the inspection was located at an approximately one-acre pond, seen in **Appendix A**, Photo No. 22. The pond, according to historical imagery was constructed between 2006 and 2008. The pond has been constructed over what appears to be a historical tributary and was connected via spill way from the back side of an earthen dam to the tributary, which flows north towards Walnut Creek. The confluence of the tributary with Walnut Creek is approximately 0.75 mile downstream from this pond. The pond had a TDS reading of 171 milligrams per liter (mg/L) TDS (*note the meter probe likely did not reach the deepest part of the large pond*) during the inspection (Photo No. 23). On the back side of the dam for the pond, a TDS reading of 2,295 mg/L was taken (Photo No. 25). Approximately 170 feet downstream from the pond on the north side of the nearest road culverts an elevated TDS reading of 5,973 mg/L was taken (Photo No. 29). Throughout the assessment tributary features were observed including bed, bank (*e.g.*, high water markings), riparian vegetation (*e.g.*, cattails), and some aquatic life was observed, including perch and minnows. Along the bank in this tributary some discoloration including black banks and seepage along the banks of the tributary from shallow underground flow of unknown source were observed throughout the first 0.25 mile of tributary. Additionally elevated TDS readings were taken throughout this tributary including:

- Approx. 500 feet downstream from the pond (north) a TDS reading of 4,775 mg/L (Photo No. 31)
- Approx. 600 feet downstream from the pond (north) a TDS reading of 11,217 mg/L (Photo No. 35)
- Approx. 620 feet downstream from the pond (north) a TDS reading of 12,620 mg/L (Photo No. 39)
- Approx. 870 feet downstream from the pond (north) a TDS reading of 6,997 mg/L (Photo No. 42)
- Approx. 1200 feet downstream from the pond (north) a TDS reading of 7,346 mg/L (Photo No. 50)

- Approx. ¼ mile downstream from the pond (north) a TDS reading of 6,247 mg/L (Photo No. 58)
- Approx. ½ mile downstream from the pond (north) a TDS reading of 6,250 mg/L (Photo No. 61)

At the confluence of this tributary and Walnut Creek a TDS reading of 11,431 mg/L (Photo No. 66) was taken in Walnut Creek. Ordinary high water mark, flow, debris, bed features, bank features, riparian vegetation, and black discoloration in Walnut Creek were observed here during the inspection. See **Appendix A**, Photo Nos. 63-66.

The second tributary assessed was east of the first tributary (Photo Nos. 67 - 83) showed elevated TDS readings throughout the over 0.25-mile-long tributary that flowed to Walnut Creek. The furthest upstream on the tributary we assessed during the inspection was located at an approximately 3-acre of concern with evident surface contamination, seen in **Appendix A**, Photo Nos. 79 - 83. Throughout the assessment of this tributary features were observed including bed and bank (e.g., high water markings) were observed. Along the banks throughout this second tributary some discoloration including black banks and darker colored soils were observed along the ¼ mile of tributary assessed. Additionally elevated TDS readings were taken throughout this tributary and within the large 3 acre area of concern including:

- Approx. ¼ mile downstream from 3 acre area of concern above the confluence of the second tributary with Walnut Creek a TDS reading of 27,863 mg/L (Photo No. 69)
- Approx. 940 feet downstream from 3 acre area of concern above the confluence of the second tributary with Walnut Creek a TDS reading of 27,661 mg/L (Photo No. 72)
- Approx. 500 feet downstream from 3 acre area of concern above the confluence of the second tributary with Walnut Creek a TDS reading of 38,122 mg/L (Photo No. 75)
- Approx. 470 feet downstream from 3 acre area of concern above the confluence of the second tributary with Walnut Creek a TDS reading of 51,161 mg/L (Photo No. 78)
- Within the 3 acre area of concern above the confluence of the second tributary with Walnut Creek a TDS reading of 7,116 mg/L (Photo No. 82)

The furthest downstream location we assessed along Walnut Creek was taken along Texaco Road and Walnut Creek seen in **Appendix A**, Photo Nos. 84 – 86. An elevated TDS reading of 2,674 mg/L was taken at this location. Creek bed features, bank features, and riparian vegetation were observed at this location.

I also assessed Walnut Creek upstream from the Bayou Unit along Walnut Creek and Hwy 70. This was assessed as a “background” reading during the inspection and observations are seen in **Appendix A**, Photo Nos. 87 - 89. Bed, bank, and riparian vegetation were observed in this location of the creek. A TDS reading of 1,713 mg/L was taken.

During the creek surveys, an inactive and abandoned well was documented during the creek surveys in Photo No. 62 (GPS: 34.1682509, -97.3598759). The owner of the well was not identified during the inspection.

Section III – AREAS OF CONCERN

This site has multiple concerns that EPA identified. There are some known and unknown potential production well, injection well, and abandoned well issues within this larger area of concern. EPA has not fully assessed this extent of these issues as a part of this inspection report, but will continue to work with OCC to assess the site.

I observed in particular, potential endangerment to underground sources of drinking water and lack of mechanical integrity for production wells and injection wells through the larger area of concern. There are potential pressure issues associated with the enhanced recovery operations across the field. The enhanced recovery operations, or water flood, is of large concern for EPA as potential conduits in the area are not fully assessed and thus potentially contributing to ongoing contamination. Historical contamination is also present and was never fully remediated or assessed, thus potentially endangering Undergrounds Sources of Drinking Water (USDWs). Further assessment is needed and should include: identification of potential public health and environmental issues within the larger area of concern, geological assessments, technical assessment of the wells in the area of concern, as well as any other appropriate information to identify potential concerns associated with the Safe Drinking Water Act and other OCC regulatory requirements.

The surface water quality across two tributaries and Walnut Creek showed elevated TDS levels throughout the inspection. This was a large concern as well as under the Clean Water Act. Potentially ongoing contamination as well as historical contamination has contributed to elevated TDS levels in the tributaries and in Walnut Creek. The surface in the area of concern had large erosion issues, lack of vegetation, and the soil appearance was indicative of brine/produced water contamination from upstream oil and gas field activities. EPA will continue to assess this issue under the Clean Water Act.

Well operations and maintenance throughout the area were of concern for multiple wells, including oil staining and other well daily operations lacking best management practices. EPA will continue to assess these concerns with OCC. EPA staff have referred any tank battery operations in the larger area of concern to the EPA Region 6 Spill Prevention, Control, and Countermeasure (SPCC) program to have further assessment for SPCC regulatory requirements.

Section IV – FOLLOW UP

EPA will continue to follow up with OCC and operators in the area of concern as needed.

Section V – LIST OF APPENDICES

Appendix A – Photo Log – 89 photos taken 4/13/2023

Appendix B – Wells within Main Area of Concern (GPS: 34.165328, -97.360706)

Appendix C – Mesonet Data near Area of Concern

Appendix A

Photograph Log 89 Photos



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4757.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 9:50 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #58 sign at the time of the inspection in Carter County, Oklahoma.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4758.JPG

Orientation: SW

Date of Photo: 04/13/2023

Time of Photo: 9:55 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #58 at the time of the inspection. According to OCC representatives on site, the top perforations of this well were around 2,000 feet. At the time of the inspection this well was temporarily abandoned or a TA injection well. I observed oil staining on and around the well indicating a lack of best management practices at the well.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4759.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 9:56 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #58 at the time of the inspection. At the time of the inspection this well was temporarily abandoned or a TA well. I observed the tubing pressure gauge (company gauge), which showed approximately 610 psig, shown in this photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4760.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 9:56 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #58 at the time of the inspection. At the time of the inspection this well was temporarily abandoned or a TA well. I observed the casing pressure gauge (company gauge), shown in this photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4762.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 10:05 AM

Latitude: 34.1627977

Longitude: -97.3663766

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #59 at the time of the inspection. There was not a sign at this well that I identified. At the time of the inspection this well was considered an active injection well and was hooked up for injection activities.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4763.JPG

Orientation: NW

Date of Photo: 04/13/2023

Time of Photo: 10:07 AM

Latitude: 34.1627977

Longitude: -97.3663766

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #59 at the time of the inspection. the time of the inspection this well was considered an active injection well and was hooked up for injection activities. Some oil staining was present around this well during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4764.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 10:07 AM

Latitude: 34.1627977

Longitude: -97.3663766

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #59 at the time of the inspection. the time of the inspection this well was considered an active injection well and was hooked up for injection activities. Some oil staining was present around this well during the inspection. I observed the casing pressure gauge (company gauge), shown in this photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4765.JPG

Orientation: SW

Date of Photo: 04/13/2023

Time of Photo: 10:07 AM

Latitude: 34.1627977

Longitude: -97.3663766

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #59 at the time of the inspection. the time of the inspection this well was considered an active injection well and was hooked up for injection activities. Some oil staining was present around this well during the inspection. I observed the tubing pressure gauge (company gauge), which showed approximately 1150 psig, shown in this photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4766.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 10:15 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was an inactive and possibly abandoned production well near (just south) injection well #59 shown in Photo Nos. 5-8.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4768.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 10:20 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was an and active injection well in the same vicinity (east ~20 feet away) as the inactive and possibly abandoned production well near (just south) injection well #59 (Photo No. 9) and injection well #59 (Photo Nos. 5-8). This is in the injection well sign at Bayou Unit #61.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4770.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 10:21 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was an active injection well in the same vicinity (east ~20 feet away) as the inactive and possibly abandoned production well near (just south) injection well #59 (Photo No. 9) and injection well #59 (Photo Nos. 5-8). It was connected during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4770.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 10:21 AM

Latitude: 34.1628557

Longitude: -97.3684204

Photographer: Jeanne Eckhart

Description: This was an and active injection well in the same vicinity (east ~20 feet away) as the inactive and possibly abandoned production well near (just south) injection well #59 (Photo No. 9) and injection well #59 (Photo Nos. 5-8). It was connected during the inspection. During the inspection this tubing gauge (company gauge) showed under 1200 psig.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4771.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 10:32 AM

Latitude: 34.164603

Longitude: -97.364222

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #27 at the time of the inspection. At the time of the inspection this well was temporarily abandoned or a TA injection well. I observed some oil staining on and around the well indicating a lack of best management practices at the well.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4772.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 10:32 AM

Latitude: 34.164603

Longitude: -97.364222

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #27 at the time of the inspection. At the time of the inspection this well was temporarily abandoned or a TA injection well. I observed some oil staining on and around the well indicating a lack of best management practices at the well. This photo shows the annulus gauge (company) at the time of the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4772.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 10:32 AM

Latitude: 34.164603

Longitude: -97.364222

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #27 at the time of the inspection. At the time of the inspection this well was temporarily abandoned or a TA injection well. I observed some oil staining on and around the well indicating a lack of best management practices at the well. This photo shows the tubing gauge (company) at the time of the inspection, which shows approximately 240 psig.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4774.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 10:37 AM

Latitude: 34.164603

Longitude: -97.364222

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #26 at the time of the inspection. This well is near well #27, seen in Photo Nos. 13-15. This photo shows the well sign.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4775.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 10:33 AM

Latitude: 34.164603

Longitude: -97.364222

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #26 at the time of the inspection. This well is near well #27, seen in Photo Nos. 13-15. This photo shows the hooked up injection well during the inspection with some oil staining around the well. The tubing had a gauge (company) on this well, but this photo doesn't clearly show the gauge reading at the time of the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4776.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 10:38 AM

Latitude: 34.164603

Longitude: -97.364222

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #26 at the time of the inspection. This well is near well #27, seen in Photo Nos. 13-15. This photo shows a gauge (company) on the casing.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4778.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 10:52 AM

Latitude: 34.1642961

Longitude: -97.3601415

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #22 at the time of the inspection. This photo shows the well sign at the time of the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4779.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 10:52 AM

Latitude: 34.1642961

Longitude: -97.3601415

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #22 at the time of the inspection. This photo shows the active injection well at the time of the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 21

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4780.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 10:52 AM

Latitude: 34.1642961

Longitude: -97.3601415

Photographer: Jeanne Eckhart

Description: This was the injection well Bayou Unit #22 at the time of the inspection. This photo shows the tubing gauge (company) during the inspection, which read approximately 1500 psig.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 22

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4787.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 11:39 AM

Latitude: 34.162733

Longitude: -97.366786

Photographer: Jeanne Eckhart

Description: This was the location of the beginning of the creek survey in the area of concern. This photo shows an approximately 1-acre pond that had algae present during the inspection. The pond, according to historical imagery was constructed between 2006 and 2008. The pond has been constructed over what appears to be a historical tributary and was connected via spill way from the back side of an earthen dam to the tributary, which flows north towards Walnut Creek. The confluence of the tributary with Walnut Creek is approximately 0.75 miles downstream from this pond.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 23

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4781.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 11:38 AM

Latitude: 34.162733

Longitude: -97.366786

Photographer: Jeanne Eckhart

Description: This was the location of the beginning of the creek survey in the area of concern. This photo shows an approximately 1-acre pond that had algae present during the inspection. The pond has been constructed over what appears to be a historical tributary and was connected via spill way and from the back side of the earthen dam to the tributary, which flows north towards Walnut Creek. The confluence of the tributary with Walnut Creek is approximately 0.75 miles downstream from this pond. With a calibrated YSI meter, I took a Total Dissolved Solids (TDS) reading of 171 milligrams per liter (mg/L).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 24

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4785.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 11:40 AM

Latitude: 34.162733

Longitude: -97.366786

Photographer: Jeanne Eckhart

Description: This was the location of the beginning of the creek survey in the area of concern. This photo shows an overflow area of the 1 acre pond during the inspection. The overflow area had water and algae in it during the inspection and appeared to be pooled up. The tributary is directly north of this overflow point/pooled up area of water and flows north towards Walnut Creek. The confluence of the tributary with Walnut Creek is approximately 0.75 miles downstream from this pond.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 25

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4786.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 11:43 AM

Latitude: 34.162933

Longitude: -97.366808

Photographer: Jeanne Eckhart

Description: This photo shows a TDS reading of 2,295 mg/L directly behind the earthen dam structure along the tributary of Walnut Creek during the creek survey. The confluence of the tributary with Walnut Creek is approximately 0.75 miles downstream from the pond.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 26

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4793.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 11:55 AM

Latitude: 34.163203

Longitude: -97.366594

Photographer: Jeanne Eckhart

Description: This photo shows the location near the road culvert in the tributary of Walnut Creek, approximately 170 feet downstream from the pond during the inspection (*north of the pond*). This location of the tributary shows bed features, flow conditions during the inspection, and road infrastructure to support tributary flow conditions over time with a culvert. This photo shows an upstream view of the tributary from the road culvert location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 27

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4794.JPG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 11:55 AM

Latitude: 34.163203

Longitude: -97.366594

Photographer: Jeanne Eckhart

Description: This photo shows the location near the road culvert in the tributary of Walnut Creek, approximately 170 feet downstream from the pond during the inspection (*north of the pond*), and the same location as Photo No. 26. This location of the tributary shows bed features (rocks), bank features, and flow conditions during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 28

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4795.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 11:55 AM

Latitude: 34.163203

Longitude: -97.366594

Photographer: Jeanne Eckhart

Description: This photo shows the location near the road culvert in the tributary of Walnut Creek, approximately 170 feet downstream from the pond during the inspection (*north of the pond*), and the same location as Photo No. 26. This location of the tributary shows bed features (rocks), bank features, and flow conditions during the inspection. This photo shows a downstream view of the tributary from the road culvert location. Some algae growth and riparian vegetation was observed in this part of the tributary as well.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 29

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4792.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 11:55 AM

Latitude: 34.163203

Longitude: -97.366594

Photographer: Jeanne Eckhart

Description: This photo shows the location near the road culvert in the tributary of Walnut Creek, approximately 170 feet downstream from the pond during the inspection (*north of the pond*), and the same location as Photo No. 26. A TDS reading of 5,973 mg/L was taken at this location during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 30

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4800.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 12:03 PM

Latitude: 34.1638833

Longitude: -97.3659578

Photographer: Jeanne Eckhart

Description: This photo showed the tributary (looking upstream towards the pond) during the inspection approximately 500 feet downstream from the pond seen in Photo No. 22 of this Appendix. Some riparian vegetation was visible during the inspection, including cattails growing along the tributary bed area through this part of the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 31

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4802.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 12:08 PM

Latitude: 34.1638833

Longitude: -97.3659578

Photographer: Jeanne Eckhart

Description: This photo showed the tributary (looking upstream towards the pond) during the inspection approximately 500 feet downstream from the pond seen in Photo No. 22 of this Appendix. A TDS reading of 4,775 mg/L was taken at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 32

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4803.JPG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 12:14 PM

Latitude: 34.1641005

Longitude: -97.3656142

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 600 feet downstream from the pond seen in Photo No. 22 of this Appendix. Bed, bank, and some aquatic life was observed at this location, including 5 small perch. The tributary had a pooled-up area of fluids at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 33

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4804.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 12:14 PM

Latitude: 34.1641005

Longitude: -97.3656142

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 600 feet downstream from the pond seen in Photo No. 22 of this Appendix. Bed, bank, and some aquatic life was observed at this location, including 5 small perch. The tributary had a pooled-up area of fluids at this location. This was the upstream view of the tributary at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 34

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4805.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:14 PM

Latitude: 34.1641005

Longitude: -97.3656142

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 600 feet downstream from the pond seen in Photo No. 22 of this Appendix. Bed, bank, and some aquatic life was observed at this location, including 5 small perch. The tributary had a pooled-up area of fluids at this location. This was the downstream view of the tributary at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 35

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4806.JPG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 12:14 PM

Latitude: 34.1641005

Longitude: -97.3656142

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 600 feet downstream from the pond seen in Photo No. 22 of this Appendix. A TDS reading of 11,217 mg/L was taken at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 36

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4807.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 12:18 PM

Latitude: 34.1641790

Longitude: -97.3655679

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 620 feet downstream from the pond seen in Photo No. 22 of this Appendix. This photo shows an overview of the location and tributary at the location that Photos No. 14-17 were taken at and an additional upstream view of the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 37

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4808.JPG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 12:18 PM

Latitude: 34.1641790

Longitude: -97.3655679

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 620 feet downstream from the pond seen in Photo No. 22 of this Appendix. I observed what appeared to be seepage into the tributary at this location. Additionally, an aquatic or biological type of sheen was observed on the water at this location. I also observed a large turtle shell at this location indicating presence of aquatic life. I observed approximately 20 minnows as well in this part of the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 38

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4810.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:18 PM

Latitude: 34.1641790

Longitude: -97.3655679

Photographer: Jeanne Eckhart

Description: This photo showed the tributary during the inspection approximately 620 feet downstream from the pond seen in Photo No. 22 of this Appendix. I observed bed and bank indicators at this part of the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 39

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4811.JPG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 12:18 PM

Latitude: 34.1641790

Longitude: -97.3655679

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 620 feet downstream from the pond seen in Photo No. 22 of this Appendix. A TDS reading of 12,620 mg/L was taken at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 40

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4812.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:22 PM

Latitude: 34.1645874

Longitude: -97.3650858

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 870 feet downstream from the pond seen in Photo No. 22 of this Appendix. I observed stream characteristics of bed and bank at this location in the tributary. I also observed some discolored algal growth and debris in the stream. There was some slight black discoloration along the banks of the tributary during the inspection, which can also be seen Photo No. 41 of this Appendix.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 41

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4813.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:22 PM

Latitude: 34.1645874

Longitude: -97.3650858

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 870 feet downstream from the pond seen in Photo No. 22 of this Appendix. There was some slight black discoloration along the banks of the tributary during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 42

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4814.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:23 PM

Latitude: 34.1645874

Longitude: -97.3650858

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 870 feet downstream from the pond seen in Photo No. 22 of this Appendix. A TDS reading was taken at this location and was 6,997 mg/L.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 43

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4818.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 12:28 PM

Latitude: 34.1648257

Longitude: -97.3649145

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1000 feet downstream from the pond seen in Photo No. 22 of this Appendix. There was some slight black discoloration observed along the banks of the tributary during the inspection, seen towards the bottom left of this photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 44

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4819.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:28 PM

Latitude: 34.1648257

Longitude: -97.3649145

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1000 feet downstream from the pond seen in Photo No. 22 of this Appendix. There was some slight black discoloration observed along the banks of the tributary during the inspection, seen towards the bottom right of this photo.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 45

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4820.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:29 PM

Latitude: 34.1648257

Longitude: -97.3649145

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1000 feet downstream from the pond seen in Photo No. 22 of this Appendix. There was some slight black discoloration observed along the banks of the tributary during the inspection, seen along the eastern bank of the tributary at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 46

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4824.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 12:33 PM

Latitude: 34.165000

Longitude: -97.364608

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1200 feet downstream from the pond seen in Photo No. 22 of this Appendix. There was bed, bank and some algal growth observed during the inspection. I observed seepage into the tributary on the eastern banks during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 47

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN482.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:32 PM

Latitude: 34.165000

Longitude: -97.364608

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1250 feet downstream from the pond seen in Photo No. 22 of this Appendix. The tributary was flowing during the inspection and riparian vegetation (cattails) were observed at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 48

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4827.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 12:40 PM

Latitude: 34.165000

Longitude: -97.364608

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1200 feet downstream from the pond seen in Photo No. 22 of this Appendix. The tributary was flowing during the inspection and riparian vegetation (cattails) were observed at this location. Additionally, some seepage from the tributary bank was observed on the east side.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 49

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4826.JPG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 12:40 PM

Latitude: 34.165000

Longitude: -97.364608

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1200 feet downstream from the pond seen in Photo No. 22 of this Appendix. The tributary was flowing during the inspection and riparian vegetation (cattails) were observed at this location. Additionally, some seepage from the tributary bank was observed on the east side.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 50

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4825.JPG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 12:39 PM

Latitude: 34.165000

Longitude: -97.364608

Photographer: Jeanne Eckhart

Description: This photo showed the tributary location during the inspection approximately 1200 feet downstream from the pond seen in Photo No. 22 of this Appendix. A TDS reading of 7,346 mg/L was taken during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 51

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4838.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 12:52 PM

Latitude: 34.165406

Longitude: -97.364386

Photographer: Jeanne Eckhart

Description: This photo showed an upstream view of the tributary approximately ¼ mile downstream from the pond in Photo No. 22.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 52

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4840.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 12:55 PM

Latitude: 34.165528

Longitude: -97.364308

Photographer: Jeanne Eckhart

Description: This photo showed a downstream view of the tributary about ¼ mile downstream from the pond in Photo No. 22. Bed features, bank features, and riparian vegetation were observed as well as flow in the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 53

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4842.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 12:55 PM

Latitude: 34.165528

Longitude: -97.364308

Photographer: Jeanne Eckhart

Description: This photo showed a side stream profile of the tributary about ¼ mile downstream from the pond in Photo No. 22. Bed features, bank features, and riparian vegetation were observed as well as flow in the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 54

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4841.JPG

Orientation: SW

Date of Photo: 04/13/2023

Time of Photo: 12:55 PM

Latitude: 34.165528

Longitude: -97.364308

Photographer: Jeanne Eckhart

Description: This photo showed an upstream view of the tributary about ¼ mile downstream from the pond in Photo No. 22. Bed features, bank features, and riparian vegetation were observed as well as flow in the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 55

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4844.JPG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 1:07 PM

Latitude: 34.1661148

Longitude: -97.3642687

Photographer: Jeanne Eckhart

Description: This photo showed an upstream view of the tributary over ¼ mile downstream from the pond shown in Photo No. 22. I observed bed features, bank features, and riparian vegetation like cattails in the tributary during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 56

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4845.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 1:07 PM

Latitude: 34.1661148

Longitude: -97.3642687

Photographer: Jeanne Eckhart

Description: This photo showed a stream profile view across the tributary over ¼ mile downstream from the pond shown in Photo No. 22. I observed bed features, bank features, and riparian vegetation like cattails in the tributary during the inspection. An additional side tributary was flowing into the main tributary from the west and the confluence was observed here.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 57

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4846.JPG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 1:07 PM

Latitude: 34.1661148

Longitude: -97.3642687

Photographer: Jeanne Eckhart

Description: This photo showed a downstream view of the tributary over ¼ mile downstream from the pond shown in Photo No. 22. I observed bed features, bank features, and riparian vegetation like cattails in the tributary during the inspection. A large tree was observed across the stream bank at this location as well.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 58

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4846.JPG

Orientation: W

Date of Photo: 04/13/2023

Time of Photo: 1:05 PM

Latitude: 34.1661148

Longitude: -97.3642687

Photographer: Jeanne Eckhart

Description: This photo showed a downstream view of the tributary over ¼ mile downstream from the pond shown in Photo No. 22. A TDS reading of 6,247 mg/L was taken at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 59

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4861.JPG

Orientation: SW

Date of Photo: 04/13/2023

Time of Photo: 1:26 PM

Latitude: 34.1676744

Longitude: -97.3621293

Photographer: Jeanne Eckhart

Description: This photo showed an upstream view of the tributary approximately ½ mile downstream from the pond shown in Photo No. 22. I observed bank features in the tributary at this location. This is referred to by the state representatives on site as the "beaver slide" location in this tributary. I observed minnows and perch at this location in the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 60

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4862.JPG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 1:26 PM

Latitude: 34.1676744

Longitude: -97.3621293

Photographer: Jeanne Eckhart

Description: This photo showed a downstream view of the tributary approximately ½ mile downstream from the pond shown in Photo No. 22. I observed bed features, bank features, and riparian vegetation in the tributary at this location. This is referred to by the state representatives on site as the "beaver slide" location in this tributary. I observed minnows and perch at this location in the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 61

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4863.JPG

Orientation: N

Date of Photo: 04/13/2023

Time of Photo: 1:27 PM

Latitude: 34.1676744

Longitude: -97.3621293

Photographer: Jeanne Eckhart

Description: This photo showed a downstream view of the tributary approximately ½ mile downstream from the pond shown in Photo No. 22. A TDS reading 6,250 mg/L was taken at this location. This is referred to by the state representatives on site as the "beaver slide" location in this tributary. I observed minnows and perch at this location in the tributary.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 62

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: DSCN4868.JPG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 1:50 PM

Latitude: 34.1682509

Longitude: -97.3598759

Photographer: Jeanne Eckhart

Description: This photo shows an abandoned well found near the tributary we were surveying during the inspection. The well appeared to be open to atmosphere.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 63

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2315.JPEG

Orientation: NW

Date of Photo: 04/13/2023

Time of Photo: 1:58 PM

Latitude: 34.1689305

Longitude: -97.3594692

Photographer: Jeanne Eckhart

Description: This photo shows an upstream view of Walnut Creek during the inspection, downstream from the confluence of the tributary observed in Photo Nos. 22 – 61 of this Appendix. Walnut Creek had ordinary high water mark, bed features, bank features, and riparian vegetation at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 64

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2314.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 1:58 PM

Latitude: 34.1689305

Longitude: -97.3594692

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of Walnut Creek during the inspection, downstream from the confluence of the tributary observed in Photo Nos. 22 – 61 of this Appendix. Walnut Creek had ordinary high water mark, bed features, bank features, and riparian vegetation at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 65

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2316.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 1:58 PM

Latitude: 34.1689305

Longitude: -97.3594692

Photographer: Jeanne Eckhart

Description: This photo shows a view of Walnut Creek from one side to the other bank side during the inspection, downstream from the confluence of the tributary observed in Photo Nos. 22 – 61 of this Appendix. Walnut Creek had ordinary high water mark, bed features, bank features, and riparian vegetation at this location. The water in this location was discolored in comparison to the rest of the creek and looked darker and black.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 66

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2317.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 1:59 PM

Latitude: 34.1689305

Longitude: -97.3594692

Photographer: Jeanne Eckhart

Description: This photo shows a view of Walnut Creek during the inspection, downstream from the confluence of the tributary observed in Photo Nos. 22 – 61 of this Appendix. An elevated TDS reading of 11,431 mg/L was taken at this location during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 67

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2325.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:15 PM

Latitude: 34.168417

Longitude: -97.358375

Photographer: Jeanne Eckhart

Description: This photo shows an upstream view of a second tributary that we surveyed during the inspection. Walnut Creek during the inspection, downstream from the confluence of the first tributary observed throughout the inspection and Walnut Creek. Bed tributary features, bank features, and riparian vegetation were observed at this location. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 68

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2325.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:15 PM

Latitude: 34.168417

Longitude: -97.358375

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of a second tributary that we surveyed near its confluence with Walnut Creek during the inspection, downstream from the confluence of the first tributary observed throughout the inspection and Walnut Creek. Bed tributary features, bank features, and riparian vegetation were observed at this location. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). The confluence of the second tributary and Walnut Creek were observed here.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 69

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2323.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:14 PM

Latitude: 34.168417

Longitude: -97.358375

Photographer: Jeanne Eckhart

Description: This photo shows a tributary of Walnut Creek during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). An elevated TDS reading of 27,863 mg/L was taken at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 70

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2331.JPEG

Orientation: S

Date of Photo: 04/13/2023

Time of Photo: 2:27 PM

Latitude: 34.167758

Longitude: -97.358778

Photographer: Jeanne Eckhart

Description: This photo shows an upstream view of a second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). Tributary features including bed, bank, and some flow were observed during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 71

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2329.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:26 PM

Latitude: 34.167758

Longitude: -97.358778

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of a second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). Tributary features including bed, bank, and some flow were observed during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 72

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2332.JPEG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 2:27 PM

Latitude: 34.167758

Longitude: -97.358778

Photographer: Jeanne Eckhart

Description: This photo shows a second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). An elevated TDS reading of 27,661 mg/L was taken at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 73

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2341.JPEG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 2:42 PM

Latitude: 34.1667351

Longitude: -97.3592879

Photographer: Jeanne Eckhart

Description: This photo shows an upstream view of the second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). The tributary at this location had some bed and bank features that we observed. Additionally, more prolific surface erosion and potential contamination was apparent in this area. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 74

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2340.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:38 PM

Latitude: 34.1667351

Longitude: -97.3592879

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of the second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). The tributary at this location had some bed and bank features that we observed. Additionally, more prolific surface erosion and potential contamination was apparent in this area. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 75

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2343.JPEG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 2:43 PM

Latitude: 34.1667351

Longitude: -97.3592879

Photographer: Jeanne Eckhart

Description: This photo shows a second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). The tributary at this location had some bed and bank features that we observed. Additionally, more prolific surface erosion and potential contamination was apparent in this area. Approximately 3 acres of degraded surface was observed in this area. An elevated TDS reading of 38,122 mg/L was taken here. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 76

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2345.JPEG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 2:48 PM

Latitude: 34.1667351

Longitude: -97.3592879

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of the second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). The tributary at this location had some bed and bank features that we observed. Additionally, more prolific surface erosion and potential contamination was apparent in this area. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 77

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2347.JPEG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 2:50 PM

Latitude: 34.1667351

Longitude: -97.3592879

Photographer: Jeanne Eckhart

Description: This photo shows an downstream view of the second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). The tributary at this location had some bed and bank features that we observed. Additionally, more prolific surface erosion and potential contamination was apparent in this area. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 78

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2346.JPEG

Orientation: E

Date of Photo: 04/13/2023

Time of Photo: 2:49 PM

Latitude: 34.1667351

Longitude: -97.3592879

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of the second tributary that we surveyed during the inspection. This location is downstream from the 3 acre area of concern (GPS: 34.165328, -97.360706). An elevated TDS reading of 51,161 mg/L was taken. Additionally, more prolific surface erosion and potential contamination was apparent in this area. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 79

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2355.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 3:02 PM

Latitude: 34.165794

Longitude: -97.359419

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of the second tributary that we surveyed during the inspection. This location was in the 3 acre area of concern (GPS: 34.165328, -97.360706). Additionally, more prolific surface erosion and potential contamination was apparent in this area as observed in this photo. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. Patches of grass were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 80

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2356.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 3:02 PM

Latitude: 34.165794

Longitude: -97.359419

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of the second tributary that we surveyed during the inspection. This location was in the 3 acre area of concern (GPS: 34.165328, -97.360706). Additionally, more prolific surface erosion and potential contamination was apparent in this area as observed in this photo. Approximately 3 acres of degraded surface was observed in this area. Soil discoloration, including black soil along the entire tributary were observed. Patches of grass and cattails were observed. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 81

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2353.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:59 PM

Latitude: 34.165794

Longitude: -97.359419

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of the second tributary that we surveyed during the inspection. This location was in the 3 acre area of concern (GPS: 34.165328, -97.360706). Additionally, more prolific surface erosion and potential contamination was apparent in this area as observed in this photo. This part of the area was marshy and had cattails. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 82

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2353.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 2:59 PM

Latitude: 34.165794

Longitude: -97.359419

Photographer: Jeanne Eckhart

Description: This photo shows a TDS reading of 7,116 mg/L on the eastern part of the eroded area in Photo Nos. 79-81. This part of the area was marshy and had cattails. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 83

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2365.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 3:08 PM

Latitude: 34.166097

Longitude: -97.360092

Photographer: Jeanne Eckhart

Description: This photo shows a view looking towards the southeast of the western edge of the approximately 3 acres of contaminated area. Prolific surface erosion and potential contamination was apparent in this area as observed in this photo. This was in an area with both potentially active and historical contamination without proper remediation from historical brine (produced water) and oil field fluids.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 84

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2396.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 4:40 PM

Latitude: 34.160936

Longitude: -97.334881

Photographer: Jeanne Eckhart

Description: This photo shows an upstream view of Walnut Creek. This location is downstream from the Bayou Unit and documented TDS readings along Walnut Creek. Bed, bank, and riparian vegetation were observed in this location of the creek. We were standing on a large bridge along Texaco Road over the creek at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 85

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2396.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 4:40 PM

Latitude: 34.160936

Longitude: -97.334881

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of Walnut Creek. This location is downstream from the Bayou Unit and documented TDS readings along Walnut Creek. Bed, bank, and riparian vegetation were observed in this location of the creek. We were standing on a large bridge along Texaco Road over the creek at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 86

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2396.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 4:40 PM

Latitude: 34.160936

Longitude: -97.334881

Photographer: Jeanne Eckhart

Description: This photo shows a TDS reading of 2,674 mg/L in Walnut Creek at this location. This location is downstream from the Bayou Unit and documented TDS readings along Walnut Creek. Bed, bank, and riparian vegetation were observed in this location of the creek. We were standing on a large bridge along Texaco Road over the creek at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 87

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2393.JPEG

Orientation: NE

Date of Photo: 04/13/2023

Time of Photo: 4:13 PM

Latitude: 34.173383

Longitude: -97.372372

Photographer: Jeanne Eckhart

Description: This photo shows an upstream view of Walnut Creek at this location, which is background of Walnut Creek. This location is upstream from the Bayou Unit and documented TDS readings along Walnut Creek. Bed, bank, and riparian vegetation were observed in this location of the creek. We were under a large bridge along Hwy. 70 at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 88

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2392.JPEG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 4:13 PM

Latitude: 34.173383

Longitude: -97.372372

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of Walnut Creek at this location, which is background of Walnut Creek. This location is upstream from the Bayou Unit and documented TDS readings along Walnut Creek. Bed, bank, and riparian vegetation were observed in this location of the creek. We were under a large bridge along Hwy. 70 at this location.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 89

Location: 34.166000, -97.360000		
City: Lone Grove	County/Parish: Carter	State: Oklahoma



Photo File Name: IMG_2391.JPEG

Orientation: SE

Date of Photo: 04/13/2023

Time of Photo: 4:13 PM

Latitude: 34.173383

Longitude: -97.372372

Photographer: Jeanne Eckhart

Description: This photo shows a downstream view of Walnut Creek at this location, which is background of Walnut Creek. This location is upstream from the Bayou Unit and documented TDS readings along Walnut Creek. A TDS reading was of 1,713 mg/L. We were under a large bridge along Hwy. 70 at this location.

Appendix B

Wells in Area of Concern

Table 1. All Identified Oil and Gas Related Wells within 1/2 mile of the Area of Concern

API	OPERATOR	WELL ID	WELL ID	WELL STATUS	WELL TYPE	SECTION	TOWNSHIP	RANGE	QTR4	QTR3	QTR2	QTR1	LATITUDE	LONGITUDE	OKLAHOMA CORPORATION COMMISSION WELL INFORMATION LINK
3501911867	AETERNUM ENERGY LLC	C F SULLIVAN	#2	AC	OIL	36	04S	02W	C	SE	SW	NE	-97.35774	34.16648	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41266
3501906968	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#6	TA	OIL	36	04S	02W	SW4	SW4	SW4	NE4	-97.35999	34.16631	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37624
3501906969	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#7	TA	OIL	36	04S	02W	SW4	SW4	SW4	NE4	-97.36002	34.16636	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37625
3501906971	ARDMORE PRODUCTION & EXPLORATION CO	WESTHEIMER C	#3	AC	OIL	36	04S	02W	SE4	NE4	NW4	NE4	-97.36209	34.170239	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37627
3501906976	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#5	AC	OIL	36	04S	02W	SE4	SE4	NW4	NE4	-97.36208	34.16631	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37632
3501907009	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#9	AC	OIL	36	04S	02W	NE4	SE4	NW4	NE4	-97.36211	34.16822	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37670
3501907083	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#4	AC	OIL	36	04S	02W	SE4	SE4	NW4	NE4	-97.36197	34.16642	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37757
3501914137	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#2	AC	OIL	36	04S	02W	SE	SE	NW	NE4	-97.36208	34.16643	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=42859
3501923155	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#11	TA	OIL	36	04S	02W	NE	SW	SE	NW4	-97.36098	34.16681	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=45889
3501906978	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#8	AC	2RIn	36	04S	02W	C	NE	SE	NW	-97.36205	34.16824	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37635
3501921574	ARDMORE PRODUCTION & EXPLORATION CO	RAMSEY	#10	AC	2RIn	36	04S	02W	C	NE	SW	NE	-97.357549	34.168035	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=44397
3501906985	CITATION OIL & GAS CORP	BAYOU UNIT (M.D. SMITH 7)	#14	TM	OIL	36	04S	02W	SE4	SW4	NW4	NE4	-97.36664	34.16639	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37644
3501906987	CITATION OIL & GAS CORP	BAYOU UNIT (M.D. SMITH 8)	#12	AC	OIL	36	04S	02W	SW4	SW4	NW4	NE4	-97.36863	34.166611	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37647
3501906991	CITATION OIL & GAS CORP	BAYOU UNIT (SMITH 9)	#11	AC	OIL	36	04S	02W	SW4	SW4	NW4	NE4	-97.36863	34.166611	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37650
3501906992	CITATION OIL & GAS CORP	BAYOU UNIT (LS MCGEE#1)	#79	TA	OIL	36	04S	02W	SE4	NE4	SE4	NE4	-97.35336	34.16282	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37651
3501906994	CITATION OIL & GAS CORP	BAYOU UNIT (MCGEE 3)	#16	AC	OIL	36	04S	02W	NW4	NE4	SE4	NE4	-97.35559	34.164759	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37653
3501906998	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN E6)	#71	AC	OIL	36	04S	02W	NW4	NE4	SE4	NE4	-97.35995	34.16349	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37657
3501907000	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 4A)	#73	AC	OIL	36	04S	02W	SW4	NW4	SE4	NE4	-97.3599	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=431736
3501907001	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 4B)	#74	AC	OIL	36	04S	02W	SW4	NW4	SE4	NE4	-97.3599	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37660
3501907004	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 9)	#20	TA	OIL	36	04S	02W	C	N2	NW	SE	-97.35867	34.16243	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37664
3501907006	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 5A)	#18	AC	OIL	36	04S	02W	SW4	NE4	NW4	SE4	-97.35785	34.16392	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37667
3501907013	CITATION OIL & GAS CORP	BAYOU UNIT (HARGROVE 3A)	#84	TA	OIL	36	04S	02W	SE	NW	SE	SE	-97.35555	34.16037	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37675
3501907014	CITATION OIL & GAS CORP	BAYOU UNIT (HARGROVE 1A)	#121	AC	OIL	36	04S	02W	SW	SW	SE	SE	-97.3599	34.159358	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37677
3501907020	CITATION OIL & GAS CORP	BAYOU UNIT (GOODING 3)	#88	AC	OIL	36	04S	02W	NE4	SW4	SE4	NE4	-97.35789	34.16092	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37683
3501907022	CITATION OIL & GAS CORP	BAYOU UT. (HARGROVE 2A2)	#127	AC	OIL	36	04S	02W	SE4	SW4	SE4	NE4	-97.35772	34.159358	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37685
3501907024	CITATION OIL & GAS CORP	BAYOU UNIT (GOODING 2B)	#90	AC	OIL	36	04S	02W	NW4	SW4	SE4	NE4	-97.3599	34.161172	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37688
3501907025	CITATION OIL & GAS CORP	BAYOU UNIT (GOODING 2C)	#93	AC	OIL	36	04S	02W	NW4	SW4	SE4	NE4	-97.3599	34.161172	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37689
3501907027	CITATION OIL & GAS CORP	BAYOU UNIT	#24	AC	OIL	36	04S	02W	NW	NE	NE	SW	-97.36224	34.16441	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37692
3501907030	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A6)	#27	TA	OIL	36	04S	02W	NW4	NE4	SW4	NE4	-97.36427	34.164798	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37696
3501907031	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A 10)	#69	TA	OIL	36	04S	02W	SE4	NE4	SW4	NE4	-97.36209	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37698
3501907032	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A5)	#63	AC	OIL	36	04S	02W	SW4	NE4	SW4	NE4	-97.36427	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37700
3501907034	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A14)	#28	AC	OIL	36	04S	02W	NW4	NE4	SW4	NE4	-97.36427	34.164798	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37702
3501907040	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A18)	#65	AC	OIL	36	04S	02W	SW4	NE4	SW4	NE4	-97.36427	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37709
3501907044	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 3)	#35	AC	OIL	36	04S	02W	NW4	NW4	SW4	NE4	-97.36918	34.165251	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37713
3501907045	CITATION OIL & GAS CORP	BAYOU UNIT (JC SULLIVAN 4)	#36	AC	OIL	36	04S	02W	NW4	NW4	SW4	NE4	-97.36863	34.164798	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37714
3501907047	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A12)	#32	AC	OIL	36	04S	02W	NE4	NW4	SW4	NE4	-97.36645	34.164798	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37716
3501907048	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN A13)	#33	AC	OIL	36	04S	02W	NE4	NW4	SW4	NE4	-97.36645	34.164798	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37717
3501907049	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 5)	#60	TA	OIL	36	04S	02W	SE4	NW4	SW4	NE4	-97.36645	34.162984	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37718
3501907058	CITATION OIL & GAS CORP	BAYOU UNIT (CASSIDY 1A)	#96	AC	OIL	36	04S	02W	N2	NE	SE	SW	-97.36209	34.161171	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37730
3501907060	CITATION OIL & GAS CORP	BAYOU UNIT (J.R. DEXTER 2)	#119	AC	OIL	36	04S	02W	SE4	SE4	SW4	NE4	-97.36209	34.159358	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37732
3501907063	CITATION OIL & GAS CORP	BAYOU UNIT (J.C. SULLIVAN A3)	#99	AC	OIL	36	04S	02W	NW4	SE4	SW4	NE4	-97.36427	34.161171	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37736
3501907072	CITATION OIL & GAS CORP	BAYOU UNIT (CLARK 4)	#103	AC	OIL	36	04S	02W	NE4	SW4	SW4	NE4	-97.36645	34.161171	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37746
3501911873	CITATION OIL & GAS CORP	BAYOU UNIT (CF SULLIVAN 1)	#23	AC	OIL	36	04S	02W	C	NE	NE	SW	-97.36208	34.16459	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41272
3501921333	CITATION OIL & GAS CORP	BAYOU UNIT	#207	AC	OIL	36	04S	02W	CNE4	SW4	SW4	NE4	-97.36754	34.163891	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=44156
3501924925	CITATION OIL & GAS CORP	BAYOU UNIT	#334	AC	OIL	36	04S	02W	S2	S2	N2	SW4	-97.36536	34.162531	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48174
3501924926	CITATION OIL & GAS CORP	BAYOU UNIT	#308	AC	OIL	36	04S	02W	NW4	NW4	NW4	SW4	-97.36918	34.165251	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48175
3501924934	CITATION OIL & GAS CORP	BAYOU UNIT	#309	AC	OIL	36	04S	02W	NE4	NE4	NW4	SW4	-97.36556	34.16523	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=38093C
3501924935	CITATION OIL & GAS CORP	BAYOU UNIT	#336	AC	OIL	36	04S	02W	SW4	SW4	NW4	SE4	-97.36045	34.162532	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48190
3501924990	CITATION OIL & GAS CORP	BAYOU UNIT	#338	AC	OIL	36	04S	02W	CNE4	SW4	SW4	NE4	-97.35663	34.162078	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48270
3501924992	CITATION OIL & GAS CORP	BAYOU UNIT	#343	AC	OIL	36	04S	02W	NW4	SE4	SW4	SE4	-97.35827	34.159812	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48272
3501924994	CITATION OIL & GAS CORP	BAYOU UNIT	#345	AC	OIL	36	04S	02W	S2	N2	SE4	SW4	-97.36318	34.160718	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48274
3501925015	CITATION OIL & GAS CORP	BAYOU UNIT	#319	AC	OIL	36	04S	02W	CNE4	SW4	SW4	NE4	-97.36313	34.16381	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48306
3501925016	CITATION OIL & GAS CORP	BAYOU UNIT	#320	AC	OIL	36	04S	02W	CNE4	SW4	SW4	NE4	-97.36527	34.16388	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48307
3501925024	CITATION OIL & GAS CORP	BAYOU UNIT	#333	AC	OIL	36	04S	02W	S2	S2	NW4	SW4	-97.36734	34.16198	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48319
3501925033	CITATION OIL & GAS CORP	BAYOU UNIT	#398	AC	OIL	36	04S	02W	SW4	NW4	SE4	SW4	-97.364902	34.16035	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48329
3501925047	CITATION OIL & GAS CORP	BAYOU UNIT	#317	AC	OIL	36	04S	02W	CNE4	SW4	SW4	NE4	-97.35882	34.16371	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48349
3501925096	CITATION OIL & GAS CORP	BAYOU UNIT	#311	AC	OIL	36	04S	02W	NW	NW	NW	SE	-97.36093	34.1651	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48415
3501925097	CITATION OIL & GAS CORP	BAYOU UNIT	#312	AC	OIL	36	04S	02W	NE4	NW4	NW4	SE4	-97.35933	34.16528	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48417
3501925098	CITATION OIL & GAS CORP	BAYOU UNIT	#310	AC	OIL	36	04S	02W	N2	N2	NE	SW	-97.36317	34.16531	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=415703

3501925103	CITATION OIL & GAS CORP	BAYOU UNIT	#316	AC	OIL	36	04S	02W		CN2	SE4	-97.35647	34.16361	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=48426	
3501925135	CITATION OIL & GAS CORP	BAYOU UNIT	#313	AC	OIL	36	04S	02W			CE2	-97.35662	34.16552	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=382313	
3501925136	CITATION OIL & GAS CORP	BAYOU UNIT	#342	AC	OIL	36	04S	02W	N2	S2	S2	SE	-97.35661	34.15991	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=382531
3501906997	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 5)	#17	PA	OIL	36	04S	02W	SW4	NE4	NW4	SE4	-97.35777	34.16419	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37656
3501907002	CITATION OIL & GAS CORP	BAYOU UT. (SULLIVAN 8)	#75	PA	OIL	36	04S	02W		S2	NW4	SE4	-97.35881	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37661
3501907003	CITATION OIL & GAS CORP	C.F. SULLIVAN (BAYOU UT 19)	#7	PA	OIL	36	04S	02W	C	E2	W2	E2	-97.3577225	34.1652519	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37663
3501907005	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 3A)	#77	PA	OIL	36	04S	02W		CSE	NW	SE	-97.35782	34.16274	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37665
3501906993	CITATION OIL & GAS CORP	BAYOU UNIT	#78	TA	TM	36	04S	02W		SW4	NE4	SE4	-97.35554	34.16278	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37652
3501907055	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 13)	#58	TA	TM	36	04S	02W	NE	SW	NW	SW	-97.3682521	34.162818	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37726
3501906977	CITATION OIL & GAS CORP	BAYOU UNIT (RAMSEY 3)	#15	AC	2Rln	36	04S	02W		SW	SE	NW	-97.364008	34.166317	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37633
3501906982	CITATION OIL & GAS CORP	BAYOU UNIT (M.D. SMITH 4)	#13	AC	2Rln	36	04S	02W		SE	SW	NW	-97.36643	34.1662	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37640
3501906999	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN #1A)	#22	AC	2Rln	36	04S	02W	S2	NW	NW	SE	-97.36015	34.1643	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37658
3501907029	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN "A"2)	#26	AC	2Rln	36	04S	02W		NW	NE	SW	-97.364007	34.16449	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37694
3501907039	CITATION OIL & GAS CORP	BAYOU UNIT (J. C. SULLIVAN "A" 9)	#31	AC	2Rln	36	04S	02W		NE	NW	SW	-97.36629	34.16471	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37707
3501907043	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 2)	#59	AC	2Rln	36	04S	02W		SE	NW	SW	-97.36645	34.162984	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37712
3501907051	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 7)	#55	AC	2Rln	36	04S	02W		SW	NW	SW	-97.368368	34.16267	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37720
3501907053	CITATION OIL & GAS CORP	BAYOU UNIT (SULLIVAN 10)	#61	AC	2Rln	36	04S	02W		SE	NW	SW	-97.366047	34.16255	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37723
3501907064	CITATION OIL & GAS CORP	BAYOU UNIT (J. C. SULLIVAN"A"7)	#100	AC	2Rln	36	04S	02W	SW	NW	SE	SW	-97.364096	34.160728	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37737
3501922258	CITATION OIL & GAS CORP	BAYOU UNIT	#208	AC	2Rln	36	04S	02W	SE	SW	SW	NW	-97.367323	34.165663	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=45067
3501924936	CITATION OIL & GAS CORP	BAYOU UNIT	#353	AC	2Rln	36	04S	02W	SE	SW	SW	SE	-97.35936	34.158905	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=44769C
3501924955	CITATION OIL & GAS CORP	BAYOU UNIT	#351	AC	2Rln	36	04S	02W	SW	SE	SE	SW	-97.36263	34.158904	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=447691
3501924978	CITATION OIL & GAS CORP	BAYOU UNIT	#335	AC	2Rln	36	04S	02W	SW	SE	NE	SW	-97.36263	34.162531	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=447692
3501924989	CITATION OIL & GAS CORP	BAYOU UNIT	#337	AC	2Rln	36	04S	02W	N2	N2	SW	SE	-97.359	34.16230556	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=447693
3501924993	CITATION OIL & GAS CORP	BAYOU UNIT	#344	AC	2Rln	36	04S	02W		C	S2	S2	-97.36099	34.160265	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=447694
3501925025	CITATION OIL & GAS CORP	BAYOU UNIT	#318	AC	2Rln	36	04S	02W		C	N2	S2	-97.36105	34.16371	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=447695
3501907017	CONOCO INC	BAYOU UNIT	#125	PA	OIL	36	04S	02W	SE4	SW4	SE4	SE4	-97.3577225	34.1593581	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37680
3501907019	CONOCO INC	BAYOU UNIT (GOODING 2A)	#91	PA	OIL	36	04S	02W		NW4	SW4	SE4	-97.359904	34.1611715	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37682
3501907026	CONOCO INC	BAYOU UNIT (N GOODING 3B)	#89	PA	TM	36	04S	02W		NE	SW	SE	-97.3577225	34.1611716	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37691
3501907028	CONOCO INC	BAYOU UNIT	#25	PA	OIL	36	04S	02W		NE4	NE4	SW4	-97.3620855	34.1647983	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37693
3501907033	CONOCO INC	BAYOU UNIT (SULLIVAN A8)	#68	PA	OIL	36	04S	02W		SE4	NE4	SW4	-97.3620855	34.1629848	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37701
3501907035	CONOCO INC	BAYOU UNIT (SULLIVAN A4)	#67	PA	OIL	36	04S	02W		SE4	NE4	SW4	-97.3620855	34.1629848	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37703
3501907042	CONOCO INC	BAYOU UNIT	#30	PA	OIL	36	04S	02W		NE4	NW4	SW4	-97.3664484	34.1647979	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37711
3501907046	CONOCO INC	BAYOU UNIT	#37	PA	OIL	36	04S	02W		NW4	NW4	SW4	-97.3686299	34.1647976	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37715
3501907052	CONOCO INC	BAYOU UNIT (SULLIVAN #9)	#57	PA	OIL	36	04S	02W		SW4	NW4	SW4	-97.3686299	34.1629841	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37722
3501907059	CONOCO INC	BAYOU UNIT (J.R. DEXTER 1)	#118	PA	OIL	36	04S	02W		SE4	SE4	SW4	-97.3620855	34.1593579	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37731
3501907065	CONOCO INC	BAYOU UNIT (W.J. CASSIDY 1-C)	#98	PA	OIL	36	04S	02W		NE4	SE4	SW4	-97.3620855	34.1611713	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37738
3501907066	CONOCO INC	BAYOU UNIT (DEXTER 5)	#120	PA	OIL	36	04S	02W		SE4	SE4	SW4	-97.3620855	34.1593579	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37739
3501907069	CONOCO INC	BAYOU UNIT (CLARK-MCALESTER 2)	#115	PA	OIL	36	04S	02W	SW	SW	SE	SW	-97.3642669	34.1593577	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37743
3501907071	CONOCO INC	BAYOU UNIT	#116	PA	TM	36	04S	02W		SW4	SE4	SW4	-97.3642669	34.1593577	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37745
3501907075	CONOCO INC	BAYOU UNIT (A.B. CLARK 4A)	#105	PA	OIL	36	04S	02W		NE4	SW4	SW4	-97.3664484	34.1611709	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37749
3501900661	GREAT SOUTHERN ENTERPRISES INC	BAYOU UNIT (GOODING 1)	#86	PA	NT	36	04S	02W		NE	SW	SE	-97.3577225	34.1611716	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=31836
3501907016	JONES OIL COMPANY	BAYOU UNIT (GOODING 2)	#92	PA	OIL	36	04S	02W		NW	SW	SE	-97.359904	34.1611715	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37679
3501907021	JONES OIL COMPANY	BAYOU UNIT (GOODING 3A)	#87	PA	OIL	36	04S	02W	SW	NE	SW	SE	-97.3577225	34.1611716	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37684
3501907008	OTC/OCC NOT ASSIGNED	GOODING-HARGROVE	#3A-2	AC	DRY	36	04S	02W		NW	SE	SE	-97.355541	34.1611717	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37669
3501906981	OTC/OCC NOT ASSIGNED	MD SMITH	#3	AC	OIL	36	04S	02W		SW4	SW4	NW4	-97.36845	34.16625	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37639
3501906983	OTC/OCC NOT ASSIGNED	M D SMITH	#5	AC	OIL	36	04S	02W	W2	SW	SW	NW	-97.36862	34.16634	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37642
3501906984	OTC/OCC NOT ASSIGNED	M D SMITH	#6	AC	OIL	36	04S	02W	W2	SE	SW	NW	-97.36655	34.16635	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37643
3501911874	OTC/OCC NOT ASSIGNED	SMITH M D	#2	AC	OIL	36	04S	02W		SW4	SW4	NW4	-97.36861	34.16642	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=455145
3501906980	OTC/OCC NOT ASSIGNED	M B SMITH	#1	AC	NT	36	04S	02W		SW4	SW4	NW4	-97.36863	34.166611	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37638
3501900650	OTC/OCC NOT ASSIGNED	RAMSEY	#1	PA	OIL	36	04S	02W		SW4	SW4	NE4	-97.359904	34.1666119	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=31825
3501900713	OTC/OCC NOT ASSIGNED	FRAZIER OR WALL	#1	PA		36	04S	02W		NW4	SE4	SW4	-97.3642669	34.1611711	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=31889
3501906966	OTC/OCC NOT ASSIGNED	GUSSIE MCGEE	#4	PA	DRY	36	04S	02W	C	SW	SE	NE	-97.355541	34.1666121	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37621
3501906995	OTC/OCC NOT ASSIGNED	BAYOU UNIT (SULLIVAN 3)	#76	PA	SWD	36	04S	02W		SE	NW	SE	-97.3577225	34.1629851	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37654
3501906996	OTC/OCC NOT ASSIGNED	BAYOU UNIT (SULLIVAN 4)	#72	PA	OIL	36	04S	02W		SW	NW	SE	-97.359904	34.162985	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37655
3501907015	OTC/OCC NOT ASSIGNED	BAYOU UNIT (HARGROVE 1-A-1)	#122	PA	OIL	36	04S	02W		SW	SW	SE	-97.359904	34.159358	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37678
3501907018	OTC/OCC NOT ASSIGNED	BAYOU UNIT (HARGROVE 1-A-2)	#123	PA	OIL	36	04S	02W	NE	SW	SW	SE	-97.359904	34.159358	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37681
3501907023	OTC/OCC NOT ASSIGNED	BAYOU UNIT (G. HARGROVE 2-A-1)	#126	PA	OIL	36	04S	02W	C	SE	SW	SE	-97.3577225	34.1593581	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37687
3501907036	OTC/OCC NOT ASSIGNED	BAYOUT UNIT (SULLIVAN A11)	#70	PA	2Rln	36	04S	02W	W2	SE	NE	SW	-97.3620855	34.1629848	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37704
3501907037	OTC/OCC NOT ASSIGNED	SULLIVAN "A"	#20	PA	DRY	36	04S	02W	NE	NW	NE	SW	-97.3637216	34.1652515	http://wellbrowse

3501907054	OTC/OCC NOT ASSIGNED	J C SULLIVAN	#11	PA	OIL	36	04S	02W	E2	SE	NW	SW	-97.3664484	34.1629844	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37725
3501907056	OTC/OCC NOT ASSIGNED	BAYOU UNIT (SULLIVAN 12)	#38	PA	OIL	36	04S	02W		NW4	NW4	SW4	-97.3686299	34.1647976	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37728
3501907057	OTC/OCC NOT ASSIGNED	BAYOU UNIT (W.J. CASSIDY 1)	#95	PA	2RIn	36	04S	02W	C	NE	SE	SW	-97.3620855	34.1611713	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37729
3501907062	OTC/OCC NOT ASSIGNED	CASSIDY (BAYOU UNIT 97)	#1-B	PA	OIL	36	04S	02W		NE	SE	SW	-97.3620855	34.1611713	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37735
3501907068	OTC/OCC NOT ASSIGNED	BAYOU UNIT (SULLIVAN A16)	#102	PA	OIL	36	04S	02W	W2	NW	SE	SW	-97.3642669	34.1611711	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37742
3501907070	OTC/OCC NOT ASSIGNED	BAYOU UNIT (CLARK-MCALESTER 4)	#117	PA	2RIn	36	04S	02W	SE	SW	SE	SW	-97.3642669	34.1593577	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37744
3501907073	OTC/OCC NOT ASSIGNED	BAYOU UNIT (CLARK 4B)	#97	PA	OIL	36	04S	02W	NE	NE	SW	SW	-97.365903	34.1616243	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37747
3501907078	OTC/OCC NOT ASSIGNED	BAYOU UNIT (A.B. CLARK 4-C)	#106	PA	OIL	36	04S	02W	SE	NE	SW	SW	-97.3664484	34.1611709	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37752
3501911866	OTC/OCC NOT ASSIGNED	RAMSEY JESSIE M	#1	PA	OIL	36	04S	02W	NW	NW	SE	NW	-97.3648123	34.1688784	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=455148
3501920766	OTC/OCC NOT ASSIGNED	DENNY-SMITH UNIT	#1	PA	DRY	36	04S	02W		C	SW	NW	-97.3675392	34.1675179	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=43603
3501906979	RAMSEY GEORGE H ESTATE	RAMSEY	#1	AC	OIL	36	04S	02W		NW4	SE4	NW4	-97.36427	34.168425	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37637
3501907061	SIMMONS L B ENERGY INC	BAYOU (CLARK-MCALESTER 1)	#114	PA	TM	36	04S	02W		SW4	SE4	SW4	-97.3642669	34.1593577	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37734
3501907067	SIMMONS L B ENERGY INC	BAYOU (SULLIVAN A15)	#101	PA	OIL	36	04S	02W		NW4	SE4	SW4	-97.3642669	34.1611711	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37740
3501906973	SULLIVAN JESSE G	RAMSEY	#1	PA	OIL	36	04S	02W	C	SW	SE	NW	-97.3642669	34.1666116	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37629
3501907082	SULLIVAN JESSE G	RAMSEY	#2	PA	OIL	36	04S	02W	SW	SW	SE	NW	-97.3642669	34.1666116	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37756
3501911875	TEXACO EXPLORATION & PROD INC	A.E. DENNY "B"	#2	PA	OIL	36	04S	02W	SE	SE	NW	NW	-97.3659031	34.169785	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41273
3501900655	TRIPLEDEE OPERATING COMPANY LLC	WESTHEIMER C	#1	PA	OIL	36	04S	02W	SW	SW	NE	NW	-97.36427	34.170239	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=31830
3501906967	TRIPLEDEE OPERATING COMPANY LLC	RAMSEY	#3	PA	TM	36	04S	02W	C	NW	SW	NE	-97.35946	34.16811	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37622
3501925346	WILLIAMS JACK W	CONWAY	#1	PA	DRY	36	04S	02W	C	NW	NW	NE	-97.36011111	34.17186111	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=455783
3501911865	WILLIFORD ENERGY COMPANY	M.D. SMITH	#1	PA	OIL	36	04S	02W	NE	SE	SW	NW	-97.365903	34.1670648	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41265
3501900667	WILLIFORD PETROLEUM LLC	A E DENNY "B"	#4	AC	OIL	36	04S	02W	NE	NE	SW	NW	-97.36645	34.168425	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=31842
3501906988	WILLIFORD PETROLEUM LLC	A.E. DENNY "B"	#14	TA	OIL	36	04S	02W		NW4	SW4	NW4	-97.36848	34.16825	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37648
3501906989	WILLIFORD PETROLEUM LLC	A.E. DENNY "B"	#15	AC	OIL	36	04S	02W	W2	NE	SW	NW	-97.36645	34.168425	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37649
3501911878	WILLIFORD PETROLEUM LLC	DENNEY "B"	#6	AC	OIL	36	04S	02W				NW4	-97.3653577	34.1693317	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41275
3501911883	WILLIFORD PETROLEUM LLC	DENNY A.E. "B"	#13	AC	OIL	36	04S	02W	C	NE	SW	NW	-97.36645	34.168425	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41278
3501907575	WILLIFORD PETROLEUM LLC	DENNY A.E. "B"	#18	PA	OIL	36	04S	02W	C	SE	NW	NW	-97.36645	34.170238	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=38155
3501906986	WILLIFORD PETROLEUM LLC	A. E. DENNY "B"	#12	AC	2RIn	36	04S	02W		NW	SW	NW	-97.36857	34.16843	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=37645
3501911884	WILLIFORD PETROLEUM LLC	A E DENNY B	#16	AC	2RIn	36	04S	02W	C	NW	SW	NW	-97.3686042	34.1683301	http://wellbrowse.occ.ok.gov/Webforms/WellInformation.aspx?ID=41279

Table 2. Curernt Identified Water Wells in or near Area of Concern

Latitude	Longitude	Well ID	Work Type	Owner Name	Q1	Q2	Q3	Section	Township	Range	Use Class	Total Depth (ft)	First Water (ft)	Approximate Yield (GPM)	Construction Date	OWRB Link
34.17	-97.35	13474	Groundwater Well	Joey Offield	NE	NW	NW	31	04S	01WI	Domestic	160	50	25	1/21/1986	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=13474
34.17	-97.33	13475	Groundwater Well	CNG Trailer House	SE	NW	NW	32	04S	01WI	Domestic	260	80	20	5/5/1989	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=13475
34.16	-97.34	13570	Groundwater Well	Edwin Tailaffero	NW	NW	NE	6	05S	01WI	Domestic	140	39	22	4/18/1987	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=13570
34.16	-97.36	104810	Groundwater Well	Noble Energy	SE	NE	SW	36	04S	02WI	Domestic	600			9/4/2006	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=104810
34.16	-97.36	116773	Groundwater Well	Noble Energy	NW	NE	NE	1	05S	02WI	Domestic	80				http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=116773
34.16	-97.36	116774	Groundwater Well	Noble Energy	SW	SE	SE	36	04S	02WI	Domestic	120				http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=116774
34.16	-97.33	123970	Groundwater Well	Dean Ellis	NW	NW	NW	5	05S	01WI	Domestic	90	70	13	5/4/2009	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=123970
34.16	-97.34	181709	Groundwater Well	Offield Bayou Ranch	SW	SW	SE	31	04S	01WI	Domestic	120	60	15	5/15/2017	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=181709
34.17	-97.33	183969	Groundwater Well	Michael Shorter	SW	SE	NW	32	04S	01WI	Domestic	185	100	25	12/4/2017	http://www.owrb.ok.gov/wd/reporting/printreport.php?siteid=183969

Appendix C

Mesonet Data near Area of Concern

MESONET CLIMATOLOGICAL DATA SUMMARY
(ARD2) Ardmore
Latitude: 34-11-33

April 2023
Nearest City: 3.5 ENE Ardmore
Longitude: 97-05-08

Time Zone: Midnight-Midnight CST
County: Carter
Elevation: 873 feet

DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN	PRESSURE (in)		WIND SPEED (mph)			SOLAR	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m2)	SOD	BARE	MAX	MIN	
1	70	49	59.3	31.0	6	0	69	24	35	0.00	29.18	30.11	N	6.9	21.6	25.48	58.5	60.5	70	53	
2	78	47	61.4	48.2	2	0	99	34	65	0.49	28.92	29.85	SSE	9.2	33.5	15.52	58.4	60.5	68	54	
3	87	57	73.4	56.7	0	7	100	19	64	0.01	28.69	29.61	SSW	10.5	24.5	25.79	61.5	63.8	70	59	
4	79	69	73.8	67.6	0	9	93	69	81	0.00	28.61	29.53	S	13.0	30.4	10.76	64.5	66.8	69	64	
5	74*	43*	55.0*	36.1*	7*	0*	93*	26*	51*	0.00*	29.05*	29.98*	NNW*	9.8*	30.5*	NA	62.7*	64.6*	71*	57*	
6	62	40	50.9	29.5	14	0	69	27	46	0.00	29.34	30.28	NE	9.1	26.5	17.93	57.9	58.3	65	52	
7	67	39	53.5	37.6	12	0	81	33	57	0.00	29.31	30.25	E	6.2	21.4	23.05	56.8	59.3	70	50	
8	72	50	60.1	39.9	4	0	81	21	51	0.00	29.22	30.15	ENE	3.9	13.5	25.73	59.9	66.2	77	58	
9	74	44	60.1	49.2	6	0	90	50	68	0.00	29.24	30.18	E	4.7	15.5	19.60	59.6	65.3	74	57	
10	74	50	61.8	52.3	3	0	100	42	74	0.00	29.30	30.24	SE	5.0	15.2	22.80	61.2	67.6	78	59	
11	75	48	62.7	49.6	4	0	100	38	66	0.00	29.28	30.22	SE	5.9	18.7	25.56	61.9	68.9	79	60	
12	76	47	63.8	49.0	3	0	96	37	61	0.00	29.10	30.04	SSE	6.5	22.7	26.15	62.1	69.3	79	60	
13	78	53	65.6	51.0	0	0	93	33	63	0.00	28.88	29.80	S	7.3	20.3	26.18	63.1	70.7	80	62	
14	78	58	68.6	57.7	0	3	86	49	69	0.00	28.76	29.69	S	11.6	30.5	20.23	63.8	70.8	77	64	
15	69	49	64.6	52.2	6	0	99	39	67	0.00	28.95	29.88	NNW	10.6	29.6	24.16	65.1	72.0	79	67	
16	69	41	55.4	34.6	10	0	82	23	50	0.00	29.27	30.20	NW	6.9	28.5	27.14	61.9	67.7	77	59	
17	79	41	62.1	40.6	5	0	94	25	51	0.00	29.07	30.01	S	7.8	26.2	26.21	61.4	67.8	77	58	
18	76	55	65.5	55.1	0	1	86	50	70	0.00	28.88	29.81	SSE	11.5	29.0	14.65	62.6	68.3	74	63	
19	83	64	72.9	62.7	0	9	86	56	71	0.00	28.83	29.76	S	14.4	34.3	19.16	65.0	71.1	78	65	
20	72	54	66.8	53.3	2	0	85	40	63	0.00	28.96	29.89	N	9.7	32.8	17.03	66.3	72.4	78	69	
21	73	48	59.7	37.1	4	0	74	22	46	0.00	29.06	30.00	NNE	5.9	22.7	24.97	64.2	69.8	80	62	
22	59	42	50.4	36.8	14	0	93	37	63	0.09	29.11	30.05	NE	8.9	27.1	11.10	61.1	64.2	68	60	
23	56	40	47.4	41.2	17	0	98	51	81	0.03	29.21	30.15	NNE	3.2	12.9	10.28	59.0	59.4	64	57	
24	65	40	54.5	41.6	13	0	100	36	66	0.00	29.14	30.08	ESE	6.4	20.4	19.25	58.6	61.0	70	54	
25	66	52	56.3	47.7	6	0	86	58	73	0.00	29.02	29.95	E	9.9	23.1	10.15	59.7	62.6	66	59	
26	61	50	54.3	52.6	9	0	100	84	94	1.69	28.97	29.90	E	10.3	29.4	8.17	58.3	59.6	63	55	
27	61	48	56.2	53.4	10	0	100	71	91	0.07	28.89	29.82	WNW	4.7	20.6	8.68	59.5	60.5	63	58	
28	65	44	53.9	49.6	11	0	100	66	87	0.01	28.93	29.86	NNW	6.7	23.4	10.29	58.4	57.8	62	53	
29	69	49	57.5	43.5	6	0	89	34	63	0.00	29.00	29.93	NNW	9.3	27.3	27.46	59.7	60.0	67	54	
30	74	48	61.2	43.1	4	0	87	29	55	0.00	28.96	29.89	NE	6.2	24.3	27.31	61.0	63.1	74	54	
	71*	49*	60.3*	46.7*	<- Monthly Averages ->						29.04* 29.97*		S	*	8.1*	34.3*	19.68*	61.1*	65.0*	72*	59*
Temperature - Highest: 87* Lowest: 39*							Degree Days - Total HDD: 179* Total CDD: 29*					Number of Days With: Tmax ≥ 90: 0* Rainfall ≥ 0.01 inch: 7* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 2* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 7* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 6*									
Rainfall: Monthly Total: 2.39* in. Greatest 24 Hr: 1.69* in.							Humidity - Highest: 100* Lowest: 19*														

MESONET CLIMATOLOGICAL DATA SUMMARY (NEWP) Newport Latitude: 34-13-41	April 2023 Nearest City: 7.0 WNW Ardmore Longitude: 97-12-05	Time Zone: Midnight-Midnight CST County: Carter Elevation: 928 feet
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DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN	PRESSURE (in)		WIND SPEED (mph)			SOLAR	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m2)	SOD	BARE	MAX	MIN
1	69	49	58.8	30.6	6	0	55	23	35	0.00	29.12	30.11	N	7.9	26.2	25.74	55.7	58.9	68	52
2	78	47	61.1	48.4	3	0	96	36	66	0.54	28.85	29.84	SE	10.5	39.8	16.13	55.8	58.3	66	52
3	87	57	73.4	54.4	0	7	98	18	60	0.01	28.62	29.61	S	11.3	28.9	25.83	57.0	62.9	70	58
4	78	69	73.6	67.1	0	9	91	70	80	0.00	28.55	29.53	S	15.9	31.8	10.73	58.8	65.9	69	63
5	74*	42*	54.0*	35.2*	7*	0*	89*	29*	51*	0.00*	29.00*	29.99*	NNW*	11.6*	28.7*	NA	58.3*	61.4*	66*	55*
6	62	42	51.4	28.4	13	0	62	24	42	0.00	29.27	30.27	NE	9.5	28.3	18.98	56.2	54.5	61	49
7	67	40	53.8	35.3	11	0	76	27	52	0.00	29.25	30.25	NE	6.8	21.7	23.59	55.5	55.5	64	48
8	73	53	61.1	38.2	2	0	71	20	45	0.00	29.16	30.15	E	4.5	14.7	25.93	56.4	61.5	71	55
9	73	45	60.5	48.6	6	0	83	50	65	0.00	29.18	30.18	E	5.5	14.1	17.55	56.7	60.4	68	53
10	75	50	61.6	51.6	3	0	98	40	72	0.00	29.24	30.24	E	5.4	16.6	21.81	57.3	62.7	71	55
11	75	50	63.0	49.7	3	0	97	39	65	0.00	29.22	30.22	SE	6.7	19.2	25.56	57.8	64.1	73	56
12	76	49	64.0	48.3	2	0	88	38	59	0.00	29.04	30.03	SSE	8.1	22.4	26.46	58.0	64.7	74	56
13	78	53	65.6	50.4	0	1	92	34	61	0.00	28.81	29.80	SSE	9.2	21.6	26.31	58.5	66.2	76	58
14	79	57	68.3	57.3	0	3	85	51	69	0.00	28.70	29.68	SSE	14.3	35.7	20.77	59.1	66.7	73	60
15	70	48	63.8	50.7	6	0	97	39	65	0.00	28.90	29.89	NNW	11.9	34.2	25.19	59.7	67.8	74	63
16	69	38	55.7	32.8	11	0	86	23	47	0.00	29.21	30.21	NW	7.8	24.3	27.35	58.1	62.7	71	54
17	79	39	62.7	40.1	6	0	91	24	48	0.00	29.01	30.00	SSE	8.9	27.3	26.33	57.6	63.7	74	54
18	74	55	64.9	54.9	1	0	87	53	70	0.00	28.82	29.81	SSE	12.9	31.3	14.30	58.4	64.5	70	59
19	83	63	72.8	62.3	0	8	87	56	70	0.00	28.76	29.75	SSE	17.4	38.6	19.92	59.7	68.1	76	62
20	73	55	66.7	51.5	1	0	83	34	60	0.00	28.90	29.89	S	11.1	36.1	16.12	60.6	68.7	73	64
21	73	48	61.1	35.5	5	0	70	21	41	0.00	29.00	30.00	NNE	6.9	19.9	25.14	59.5	65.5	75	57
22	59	44	51.3	36.3	14	0	88	39	58	0.06	29.05	30.05	NE	10.4	27.7	11.00	58.2	60.1	64	56
23	57	42	48.0	39.8	16	0	95	47	75	0.05	29.15	30.15	NE	3.9	14.0	11.09	57.3	56.1	61	53
24	65	41	54.5	41.0	12	0	95	38	64	0.00	29.08	30.07	ESE	7.0	19.3	19.49	57.1	58.3	66	52
25	67	52	56.2	47.4	6	0	84	55	73	0.00	28.95	29.94	E	10.3	25.9	9.71	57.5	59.7	63	57
26	60	49	54.0	51.4	10	0	97	82	91	1.40	28.91	29.90	E	10.6	29.0	7.21	56.8	57.4	60	54
27	61	50	56.4	52.5	9	0	98	69	87	0.08	28.84	29.82	NW	5.8	21.2	9.50	57.1	59.1	62	57
28	63	43	53.5	48.8	12	0	98	66	85	0.05	28.87	29.86	NNW	8.6	28.7	9.62	56.8	56.6	60	52
29	69	48	57.8	42.5	7	0	88	32	60	0.00	28.94	29.93	NNW	11.5	32.9	27.76	56.9	58.3	65	53
30	73	48	61.0	42.9	4	0	84	31	55	0.00	28.90	29.89	NNE	7.4	21.2	27.37	57.4	60.5	69	53
	71*	49*	60.3*	45.8*	<- Monthly Averages ->						28.98*	29.97*	SSE*	9.3*	39.8*	19.74*	57.7*	61.7*	68*	56*

Temperature - Highest: 87*	Degree Days - Total HDD: 174*	Number of Days With:
Lowest: 38*		
Rainfall: Monthly Total: 2.19* in. Greatest 24 Hr: 1.40* in.	Humidity - Highest: 98*	Tmax ≥ 90: 0*
		Tmax ≤ 32: 0*
		Tmin ≤ 32: 0*
		Tmin ≤ 0: 0*
		Rainfall ≥ 0.01 inch: 7*
		Rainfall ≥ 0.10 inch: 2*
		Avg Wind Speed ≥ 10 mph: 13*
		Max Wind Speed ≥ 30 mph: 8*

MESONET CLIMATOLOGICAL DATA SUMMARY (RING) Ringling Latitude: 34-11-37	April 2023 Nearest City: 1.0 N Ringling Longitude: 97-35-17	Time Zone: Midnight-Midnight CST County: Jefferson Elevation: 928 feet
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DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN	PRESSURE (in)		WIND SPEED (mph)			SOLAR	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m2)	SOD	BARE	MAX	MIN
1	70	47	56.9	32.9	6	0	67	22	41	0.00	29.12	30.12	N	7.7	23.8	25.81	57.3	59.7	71	50
2	80	48	61.3	49.5	1	0	97	39	67	0.26	28.84	29.83	SE	13.7	42.4	15.87	57.2	59.7	69	52
3	87	56	71.4	53.5	0	7	99	19	62	0.01	28.62	29.60	SSW	13.0	28.6	26.18	59.1	63.9	72	57
4	79	69	74.0	67.3	0	9	91	67	80	0.00	28.54	29.51	S	16.4	31.3	10.47	62.0	67.3	70	65
5	73	42	52.5	34.4	7	0	90	31	52	0.00	29.01	30.00	N	13.3	32.2	25.56	60.3	62.1	68	55
6	63	38	50.1	29.7	15	0	75	25	48	0.00	29.28	30.28	NE	11.9	28.8	20.89	56.9	56.4	65	49
7	69	38	53.2	35.6	12	0	79	25	55	0.00	29.25	30.25	ENE	9.1	25.4	25.64	56.2	58.1	70	48
8	72	50	60.0	41.7	4	0	79	31	53	0.00	29.16	30.15	ESE	5.3	13.8	25.30	58.2	65.1	77	57
9	73	46	59.9	48.7	6	0	89	52	67	0.00	29.18	30.18	E	7.3	17.0	19.81	58.4	64.1	74	55
10	74	50	62.2	52.2	3	0	98	39	73	0.00	29.24	30.23	ESE	7.7	19.3	23.28	59.6	67.0	78	57
11	75	50	62.3	50.0	3	0	96	40	67	0.00	29.21	30.21	SSE	8.9	20.5	25.98	60.3	68.4	79	59
12	76	48	62.2	48.0	3	0	88	38	62	0.00	29.04	30.03	SSE	9.9	25.6	26.69	60.2	68.0	79	58
13	78	50	64.4	51.2	1	0	93	41	65	0.00	28.81	29.79	SSE	10.7	22.5	26.48	60.7	69.1	80	59
14	78	57	68.2	58.1	0	2	89	57	71	0.00	28.68	29.67	SSE	16.2	33.6	22.65	61.7	70.2	78	62
15	71	46	62.6	49.5	6	0	97	36	65	0.00	28.91	29.90	NNW	13.0	35.2	25.13	62.3	70.2	78	65
16	70	38	54.9	33.9	11	0	88	22	50	0.00	29.22	30.21	NW	7.7	27.3	27.49	59.9	66.1	77	56
17	79	39	61.9	39.7	6	0	87	25	48	0.00	29.00	29.99	SSE	10.6	27.9	26.41	59.4	66.9	78	56
18	75	54	64.9	55.4	0	0	87	58	71	0.00	28.80	29.79	SSE	16.1	32.7	15.10	60.6	67.3	74	61
19	85	62	73.4	62.5	0	9	87	50	70	0.00	28.74	29.73	SSE	19.6	40.3	21.74	62.8	71.2	80	64
20	75	52	66.4	50.1	1	0	88	31	58	0.00	28.90	29.89	N	13.2	35.6	17.57	63.4	71.5	77	66
21	73	46	59.8	34.3	6	0	69	20	42	0.00	29.01	30.00	NNE	8.9	24.4	25.76	61.4	68.5	80	59
22	58	44	51.0	35.3	14	0	85	37	57	0.04	29.05	30.05	NNE	14.8	31.6	10.57	59.5	61.9	66	57
23	57	41	47.9	39.3	16	0	91	43	74	0.03	29.16	30.15	NNE	5.0	18.9	10.78	58.2	57.1	63	54
24	67	40	54.7	41.2	11	0	95	38	64	0.00	29.07	30.07	E	9.7	24.3	20.37	58.3	60.2	70	52
25	68	53	58.5	49.0	4	0	83	58	71	0.00	28.94	29.93	ESE	14.5	27.9	10.65	59.3	62.5	68	59
26	63	50	55.2	51.6	8	0	98	75	88	2.08	28.90	29.89	E	13.9	37.1	11.16	57.5	59.9	64	55
27	62	48	56.2	51.9	10	0	98	64	86	0.04	28.85	29.83	NW	8.2	24.4	12.03	58.9	60.6	64	57
28	63	46	53.5	48.9	11	0	97	66	85	0.10	28.88	29.87	NNW	11.4	32.1	8.06	58.2	56.5	60	53
29	70	44	57.8	42.5	8	0	92	34	60	0.00	28.96	29.95	NNW	12.1	31.8	28.66	58.7	58.3	66	51
30	74	47	60.9	43.9	5	0	89	32	57	0.00	28.90	29.89	NNE	8.6	21.3	26.94	59.5	60.6	69	52
	72	48	59.9	46.1	<- Monthly Averages ->						28.98	29.97	SSE	11.3	42.4	20.63	59.5	63.9	72	57

Temperature - Highest: 87 Lowest: 38	Degree Days - Total HDD: 181 Total CDD: 26	Number of Days With:
		Tmax ≥ 90: 0 Rainfall ≥ 0.01 inch: 7
		Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 3
Rainfall: Monthly Total: 2.56 in. Greatest 24 Hr: 2.08 in.	Humidity - Highest: 99 Lowest: 19	Tmin ≤ 32: 0 Avg Wind Speed ≥ 10 mph: 17
		Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 12