

Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	February 20, 2020	
Media Program:	Water (CWA)	
Regulatory Program(s)	NPDES – Brine	
Company Name:	Perdure Petroleum, LLC	
Facility Name:	NBU 16 South Satellite	
Facility Physical Location:	36.826056N, -96.734118W	
(city, state, zip code)	Shidler, Oklahoma 74652	
Mailing address:	12012 Wickchester Lane	
(city, state, zip code)	Houston, Texas 77079	
County/Parish:	Osage County	
Facility Phone Number	918-793-2881	
Facility Contact:	Carl Thunem	HSE Director
	cthunem@perdurepetro.com	
FRS Number:	N/A	
Identification/Permit Number:	OKU000881	
Media Identifier Number:	N/A	
NAICS:	211111	
SIC:	1311	
Personnel participating in inspection:		
Kent W. Sanborn	EPA Region 6 / 6ECDWE	Environmental Engineer
EPA Lead Inspector Signature/Date		
	Kent W. Sanborn	Date
Supervisor Signature/Date		27 MAR 2020
	Guy Tidmore	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspector Kent W. Sanborn arrived at the Perdure Petroleum, LLC NBU 16 Satellite Lease located west of Shidler, Oklahoma at about 3:00 pm on February 20, 2020 for an inspection. The inspection was initiated by a call received from the operator of a discharge. There were several company representatives at the site during the inspection. The discharge had reached the tributary of Beaver Creek located west of the area, which flows to Kaw Lake. Cleanup activity was underway with several trucks hauling water out of the tributary during the inspection. The inspection was conducted under the authority of Section 308 of the CWA. The scope of the inspection was to determine if the facility was in compliance with The Clean Water Act, including Section 301, and to identify and document discharges of produced wastewater (brine) to waters of the United States.

FACILITY DESCRIPTION

The discharge originated from an injection line near the tank battery known as NBU 16 Satellite.

Section II - OBSERVATIONS

I initially arrived at the Perdure Petroleum NBU 16 Satellite Lease at about 3 pm February 20, 2020. Photo 1 identified the lease as the NBU 16 Satellite Lease. The leak site shown in Photo 2 had been excavated and repaired. Photo 3 showed the direction the discharge followed to the tributary of Beaver Creek which flows to Kaw Lake. The discharge entered the tributary of Beaver Creek at the point shown in Photo 4. A boom to collect residual oil was present in the tributary. Photo 5 showed a view of the discharge point from the tributary entry point. The creek flowed northwest toward Beaver Creek and then towards Kaw Lake (Photo 6). With a calibrated YSI Pro 30 Conductivity Meter, the total dissolved solids (TDS) measurement at the point of entry to the tributary was 6,765 milligrams per liter (mg/L) (Photo 7). The tributary was tested farther downstream (Photo 8). The water was rust colored here with an oil sheen. An oil boom was also present. The TDS here was 17,185 mg/L (Photo 9). The tributary was being pumped out to a series of frac tanks (Photo 10). The tributary shown in Photo 11 near the pump had a TDS of 6,373 mg/L (Photo 12). A dam was constructed in the tributary as shown in Photo 13. TDS near the dam location was 1,239 mg/L (Photo 14). I observed some seepage past the dam was occurring and most of the brine, however, was contained by the dam. I took more downstream measurements northwest of the dam. Photo 15 showed the location of the sample point I took just northwest of the dam. TDS was 1,050 mg/L at this location (Photo 16). Photo 17 was another sample point farther downstream. TDS was 854 mg/L (Photo 18). The last measurement in the tributary was taken downstream at the point farthest from the discharge entry point to the tributary (Photo 19). I took a TDS measurement at that location that was 754 mg/L (Photo 20). A representative background sample of the tributary was measured in a small creek located at the point shown in Photo 21. The background tributary measured 542 mg/L (Photo 22). Photo 23 shows the series of frac tanks being used to store the contaminated creek water until it can be hauled away.

Section III – AREAS OF CONCERN

I observed elevated levels of TDS in the tributary of Beaver Creek due to a flow line leak near the facility tank battery. Remedial activities were underway during the inspection.

Section IV – FOLLOW UP

A follow up inspection will be conducted as needed.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 23 photos taken 2/20/2020.

Appendix 1

Photographic Log (23 photos)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 1 (DSC_0036)

Orientation: South

Date of Photo: 02/20/2020

Time of Photo: 3:49 pm

Latitude: 36.826056N

Longitude: -96.734118W

Photographer: K.W. Sanborn

Description: The discharge occurred on the southwest side of this facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 2 (DSC_0022)

Orientation: Southeast

Date of Photo: 02/20/2020

Time of Photo: 3:25 pm

Latitude: 36.826056N

Longitude: -96.734860W

Photographer: K.W. Sanborn

Description: The discharge occurred from a now repaired injection line. The line has been reburied.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 3 (DSC_0023)

Orientation: East

Date of Photo: 02/20/2020

Time of Photo: 3:25 pm

Latitude: 36.826056N

Longitude: -96.734118W

Photographer: K.W. Sanborn

Description: The brine ran west down the hill to the tributary of Beaver Creek. The tributary flowed northwest.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 4 (DSC_0024)

Orientation: South

Date of Photo: 02/20/2020

Time of Photo: 3:27 pm

Latitude: 36.826191N

Longitude: -96.734860W

Photographer: K.W. Sanborn

Description: The brine entered the tributary of Beaver Creek here. A small boom was present to catch a small amount of oil.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 5 (DSC_0025)

Orientation: East

Date of Photo: 02/20/2020

Time of Photo: 3:27 pm

Latitude: 36.826191N

Longitude: -96.734860W

Photographer: K.W. Sanborn

Description: Reverse angle photo from the tributary entry point to the discharge point at the facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 6 (DSC_0028)

Orientation: Northwest

Date of Photo: 02/20/2020

Time of Photo: 3:29 pm

Latitude: 36.826191N

Longitude: -96.734860W

Photographer: K.W. Sanborn

Description: This was the view of the tributary of Beaver Creek flowing northwest from the discharge entry point. I observed a defined channel.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 7 (DSC_0030)

Orientation: Northwest

Date of Photo: 02/20/2020

Time of Photo: 3:30 pm

Latitude: 36.826191N

Longitude: -96.734860W

Photographer: K.W. Sanborn

Description: With a calibrated YSI Pro 30 conductivity meter, total dissolved solids (TDS) of the tributary of Beaver Creek at the point of entry was 6,765 milligrams per liter (mg/l).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 8 (DSC_0031)

Orientation: East

Date of Photo: 02/20/2020

Time of Photo: 3:33 pm

Latitude: 36.8271N

Longitude: -96.7349

Photographer: K.W. Sanborn

Description: This showed a location just northwest of the brine entry point. A boom was present to catch some residual oil. I observed only a sheen was seen along with the brine.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 9 (DSC_0032)

Orientation: East

Date of Photo: 02/20/2020

Time of Photo: 3:34 pm

Latitude: 36.8271N

Longitude: -96.7349W

Photographer: K.W. Sanborn

Description: The TDS at the tributary of Beaver Creek shown in Photo 8 was 17,175 mg/L. The tributary flowed northwest during the inspection.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 10 (DSC_0007)

Orientation: Northwest

Date of Photo: 02/20/2020

Time of Photo: 2:59 pm

Latitude: 36.827687N

Longitude: -96.735710W

Photographer: K.W. Sanborn

Description: The operator was pumping out a section of the tributary downstream of the discharge point.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 11 (DSC_0011)

Orientation: Southeast

Date of Photo: 02/20/2020

Time of Photo: 3:00 pm

Latitude: 36.827687N

Longitude: -96.735710W

Photographer: K.W. Sanborn

Description: The tributary of Beaver Creek shown here was near the pumping site shown in Photo 10. The point of discharge at the facility was shown in the far background.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 12 (DSC_0016)

Orientation: South

Date of Photo: 02/20/2020

Time of Photo: 3:00 pm

Latitude: 36.827687N

Longitude: -96.735710W

Photographer: K.W. Sanborn

Description: TDS at the tributary shown in Photo 11 was 6,373 mg/L.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 13 (DSC_0017)

Orientation: West

Date of Photo: 02/20/2020

Time of Photo: 3:12 pm

Latitude: 36.827569N

Longitude: -96.736215W

Photographer: K.W. Sanborn

Description: This was the last dam downstream of the discharge constructed by the operator.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 14 (DSC_0018)

Orientation: South

Date of Photo: 02/20/2020

Time of Photo: 3:12 pm

Latitude: 36.827569N

Longitude: -96.736215W

Photographer: K.W. Sanborn

Description: TDS near the last dam was 1,239 mg/L. A slight flow seeping past the dam was observed.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 15 (DSC_0020)

Orientation: Southeast

Date of Photo: 02/20/2020

Time of Photo: 3:16 pm

Latitude: 36.828031N

Longitude: -96.736497W

Photographer: K.W. Sanborn

Description: This was a view of the tributary of Beaver Creek downstream of the dam, which flows towards Beaver Creek and then Kaw Lake.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 16 (DSC_0021)

Orientation: South

Date of Photo: 02/20/2020

Time of Photo: 3:17 pm

Latitude: 36.828031N

Longitude: -96.736497W

Photographer: K.W. Sanborn

Description: TDS of the tributary at the point shown in Photo 15 was 1,050 mg/L.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 17 (DSC_0038)

Orientation: Northeast

Date of Photo: 02/20/2020

Time of Photo: 4:22 pm

Latitude: 36.83168N

Longitude: -96.741498W

Photographer: K.W. Sanborn

Description: The tributary shown here was northwest and downstream of the location shown in Photo 15.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 18 (DSC_0037)

Orientation: Northeast

Date of Photo: 02/20/2020

Time of Photo: 4:22 pm

Latitude: 36.83168N

Longitude: -96.741498W

Photographer: K.W. Sanborn

Description: TDS of the tributary shown in Photo 17 was 854 mg/L.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 19 (DSC_0042)

Orientation: Southeast

Date of Photo: 02/20/2020

Time of Photo: 4:33 pm

Latitude: 36.833467N

Longitude: -96.743212W

Photographer: K.W. Sanborn

Description: This was the farthest point measured downstream (northwest) of the discharge entry point.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 20 (DSC_0043)

Orientation: South

Date of Photo: 02/20/2020

Time of Photo: 4:33 pm

Latitude: 36.833467N

Longitude: -96.743212W

Photographer: K.W. Sanborn

Description: TDS of the tributary of Beaver Creek shown in Photo 19 was 754 mg/L.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 21

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 21 (DSC_0039)

Orientation: Southeast

Date of Photo: 02/20/2020

Time of Photo: 4:26 pm

Latitude: 36.8299N

Longitude: -96.7428W

Photographer: K.W. Sanborn

Description: This was another tributary in the nearby area measured for background TDS readings.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 22

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 22 (DSC_0041)

Orientation: Southeast

Date of Photo: 02/20/2020

Time of Photo: 4:27 pm

Latitude: 36.8299N

Longitude: -96.7428W

Photographer: K.W. Sanborn

Description: TDS of the tributary water considered background for the area was 542 mg/L.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 23

Perdure Petroleum NBU 16 Satellite		
City: Shidler	County: Osage	State: Oklahoma



Photo File Name: Photo 23 (DSC_0010)

Orientation: Northwest

Date of Photo: 02/20/2020

Time of Photo: 2:59 pm

Latitude: 36.827687N

Longitude: 735710W

Photographer: K.W. Sanborn

Description: Frac tanks were being used to store brine contaminated fluids until trucks could remove them from the location.