United States Environmental Protection Agency
Region IV
POLLUTION REPORT

Date: Wednesday, August 5, 2020
From: Perry Gaughan, OSC

Subject: TVA continues O&M of Oil Collection System
Boyd's Creek III Oil Site
Oil Well Road, Glasgow, KY
Latitude: 36.9428600
Longitude: -85.9426100

POLREP No.:	45	**Site #:**	Z426
Reporting Period:	2/01/2019 thru 8/01/2020	**D.O. #:**	
Start Date:	6/1/1993	**Response Authority:**	OPA
Mob Date:	6/1/1993	**Response Type:**	Non-Time-Critical
Demob Date:		**NPL Status:**	Non NPL
Completion Date:		**Incident Category:**	Removal Action
CERCLIS ID #:		**Contract #**	
RCRIS ID #:		**Reimbursable Account #**	
FPN#	025002		

Site Description

The incident involves an ongoing discharge of crude oil into Boyd's Creek and the Barren River Lake which is a navigable waterway. This ongoing removal action was continued under an Interagency Agreement between EPA Region 4 and the Tennessee Valley Authority. Funding was obtained under the OSC's OPA authority and through support from the National Pollution Fund Center in December, 2008.

EPA Region 4 has been involved in plugging abandoned oil wells in and around Boyd's Creek south of Glasgow, Kentucky since 1983. The Boyd's Creek III Site consists of a karst spring that discharges oil and high-sulfur water to the creek on a 50 acre farm along Oil Well Road south of Glasgow. An oil containment and collection system was established in the mid 1990's and has been maintained through an Interagency Agreement with the Tennessee Valley Authority on a monthly basis.

The leaking wells have been the result of historically poor drilling and plugging techniques combined with the particular hydrogeologic conditions in the area. The present oil discharge appears to be the result of one, or several improperly abandoned oil wells. In August 2004, as a result of a geophysics survey conducted by EPA ERT, two additonal abandoned oil wells were discovered upgradient of the spring and successully plugged.

During 2014, the National Pollution Fund Center encouraged EPA Region 4 to conduct additional efforts at closing this Site since it has been an ongoing response since the 1995. To assist in this effort, the OSC tasked EPA ERT to conduct a second geophysics survey to further assess the area upgradient of the current oil collection system. In June 2014, EPA ERT's Greg Powell and technical contractors from SERAS conducted the survey. The primary objective of the survey was to map lateral variations of soil resistivity/conductivity to identify areas of low resistivity (high conductivity) that might be related to oil-associated brine emanating from improperly plugged oil wells. A second objective was to map the subsurface geology to identify natural conduits, such as fractures and dissolution features. A report summarizing these assessment findings was submitted to the OSC during the week of Jan 19th, 2015. (Documents Section - SERAS report and Figures Attachment)

Based on the findings of the geophysics study, two new anomalies were found which warranted further investigation. (See Figure 8 of Figures Attachment in Document Section) . One anomaly led to the discovery of an additional abandoned well boring along the plateau to the oil collection system and its eventual plugging with drilling mud in November 2015.

Current Activities

This report summarizes the operations and maintenance (O&M) activities Tennessee Valley Authority (TVA) performed for the US Environmental Protection Agency's (USEPA) Boyds Creek crude oil recovery project located in Glasgow, Kentucky. This report covers the 18-month monitoring period of

Feb 01, 2019 through August 01, 2020. The funding for the project is through an Interagency Agreement (IAG) DW-64-92319301-0 between TVA and EPA.

TVA performed basic O&M activities at the Boyds Creek facility during periodic site visits conducted throughout the 18-month period. Site operating conditions were normal with no significant system malfunctions during this monitoring period. Approximately 3,000 gallons of oil were collected during the monitoring period, with the largest amount being collected during January/February 2020. 1500 gallons of crude oil was taken off site by a local oil vendor in September 2019 and another 1500 gallons in March 2020.

Next Steps

The OSC plans to coordinate future assessment activities with EPA ERT's Greg Powell and Dave Micunas. Based on observations of significant sulfur deposits near the last well discovery, the OSC has discussed a hydrogen sulfide/ organic-sulfur volatile compound assessment of the area in the hope of identifying additional well borings.

response.epa.gov/BoydsCreek