

United States Environmental Protection Agency
Region IV
POLLUTION REPORT

Date: Thursday, December 1, 2016

From: Perry Gaughan, OSC

To: James Webster, USEPA R4 ERRB William D Adkins, USCG NPFC
Robert Blair, Emergency Response Branch Greg Harper, USEPA R4 ERRB
Manager

Subject: Abandoned Well Plugged
Boyd's Creek III Oil Site
Oil Well Road, Glasgow, KY
Latitude: 36.9428600
Longitude: -85.9426100

POLREP No.:	42	Site #:	Z426
Reporting Period:	11/01/2015 to 11/20/2015	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#			

Site Description

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 additional abandoned oil wells were discovered upgradient of the spring and successfully 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) .

Current Activities

During the week of November 9th, ERRS and the oil well service subcontractor began plugging operations at the recently found subsurface oil well at Boyds' Creek, south of Glasgow, KY. As of November 11th the oil well service subcontractor successfully milled to 140 feet and the well depth was reportedly 250 to 270 feet. The contractor was initially unable to circulate drilling fluids to land surface because of Karst zones, which required the continuous milling with drilling mud (betonite clay). The OSC planned to mill to 250 feet, run a geophysical well log to identify oil producing zones, then plug and cement the well.

On November 12th and 13th, ERRS and the oil well service subcontractor continued plugging operations. The contractor drilled to a depth of 190 feet with drilling mud and observed cement shavings indicating the well had been previously cemented. No oil was observed during any phase of drilling down hole indicating the well had been properly cemented. The well was logged showing the corniferous oil producing zone at 150 feet, and the OSC directed ERRS to cement the well to land surface. The OSC will continue to assess the farm with EPA ERT for additional bore holes in an effort to find the source of crude oil.

Planned Removal Actions

Once that effort is completed additional geoprobing and conductivity assessment activities for the deeper anomaly near the crest of the hillside may be indicated.

Next Steps

After successfully plugging the new anomaly in November 2015, the OSC and TVA will continue to monitor the oil collection system for any variance in the amount of crude oil collected. Additional geoprobing and conductivity assessment activities for the deeper anomaly near the crest of the hillside may be indicated for the second anomaly found by EPA ERT and its contractor. .

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	\$153,000.00	\$102,550.00	\$50,450.00	32.97%
Intramural Costs				
USEPA - InDirect	\$20,000.00	\$15,000.00	\$5,000.00	25.00%
Total Site Costs	\$173,000.00	\$117,550.00	\$55,450.00	32.05%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

response.epa.gov/BoydsCreek

POLREP #42 Last Updated 3/22/2017