United States Environmental Protection Agency
Region IV
POLLUTION REPORT

Date: Tuesday, October 6, 2015
From: Perry Gaughan, OSC

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

Subject: OPA 90 Work Plan - Continued Assessment Efforts
Boyd's Creek III Oil Site
Oil Well Road, Glasgow, KY
Latitude: 36.9428600
Longitude: -85.9426100

POLREP No.:	40	**Site #:**	Z426
Reporting Period:		**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 oil wells and cleaning up oil spills in and around Boyd's Creek south of Glasgow, Kentucky since 1983. Approximately fifteen leaking, abandoned oil wells in the general area have been located and plugged by EPA, with the majority of the plugging taking place between 1991 and 1993. The leaking wells have been the result of historically poor drilling and plugging techniques combined with the particular hydrogeologic conditions in the area.

The Boyd's Creek III Site consists of a karst spring that discharges oil and high-sulfur water. An oil containment and collection system has been in operation at the Site since the mid-1990s. To date, approximatley 45,000 gallons of crude oil have been collected. This oil would have otherwise have discharged directly to navigable waters of the United States.

The present oil discharge appears to be the result of one, or several improperly abandoned oil wells. Records indicate that a well or wells were possibly located at the site of the present discharge. One well located within fifteen feet of the existing discharge has been plugged. 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. Currently, the oil collection system is being maintained through an Interagency Agreement with the Tennessee Valley Authority in which monthly site visits are conducted to insure operation.

Current Activities
Over the past year, the National Pollution Fund Center and US Coast Guard Case Officers have encouraged EPA Region 4 to conduct additional efforts at closing this Site since it has been an ongoing response since the early 1990's. To assist in this effort, the OSC tasked EPA ERT to conduct a geophysics survey to further assess the area upgradient of the current oil collection system. Similar efforts performed by OSCs Webster and Eger during the 1990s and 2003 proved successful in finding abandoned wells and has decreased the flow of oil contaminated groundwater to the collection system.

During June 2014, EPA ERT's Greg Powell and technical contractors from SERAS conducted a geophysical survey upgradient of the oil water collection system. 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 should be further investigated. (See Figure 8 of Figures Attachment in Document Section) In a follow up email, Greg Powell recommended that anomaly one be evaluated using a Geoprobe or hollow stem auger rig to evaluate the presence or absence of brine and crude oil. Anomaly two will be evaluated with an excavator. Bedrock is shallow in this area and ERT recommends cutting a south to north trench along the high conductivity trend. This should be the first exploration area due to the ease of evaluating the presence of abandoned wells.

Planned Removal Actions

During discussions with the property owner, permission was granted to conduct test trenching excavations for the shallow anomaly on the plateau area above the collection system. 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

The OSC plans test trenching activities during October/November 2015.

Key Issues

Funding Requirements: Additional funding of $100,000 is required to conduct the above assessment activities for the two anomalies.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$60,000.00	$0.00	$60,000.00	100.00%
TAT/START	$20,000.00	$0.00	$20,000.00	100.00%
REAC	$20,000.00	$0.00	$20,000.00	100.00%
Intramural Costs				
Total Site Costs	$100,000.00	$0.00	$100,000.00	100.00%

* 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 #40 Last Updated 10/8/2015