

SECTION TWO

SECTION TWO-
SUPPLEMENT 2-A

**United States Environmental Protection Agency
Region 4- POLLUTION REPORT No. 2
OPA 90 Removal Project Plan – Funding Request**

Date: February 5th, 2014
From: Perry Gaughan, OSC
Thru: Jim McGuire, Chief
Removal Management and Oil Section
To: Miguel Bella, Regional Manager
USCG-National Pollution Fund Center
Subject: Request for \$500,000 Incremental Funding
OPA90 Removal Project Plan
Whitaker Oil Well Lease
Whitesville, Ohio County, Kentucky

DRAFT

Latitude: N 37°.6091
Longitude: W -86°.87951
Start Date: February 5, 2014
Response Authority: Clean Water Act-OPA
Incident Category: Removal Action
FPN: Exxxx [Need FPN Number]
Reimbursable Account No.: Z4xx [Need site number]
Pollution Report Number: 2
Completion Date: September 20th, 2014 (anticipated)

I. Purpose:

The purpose of this memorandum is to document the need for EPA lead response actions (pursuant to the Clean Water Act, as amended by the Oil Pollution Act and the National Contingency Plan) and associated ceiling increase of \$510,000 to be undertaken ~~en-at~~ ~~the~~ necessary response measures at the Whitaker Heirs Oil Well Lease. Ongoing discharges and threats of discharges pose a substantial threat to public health or welfare of the United States (including but not limited to fish, wildlife, surface waters, Underground Sources of Drinking Water, habitats, adjoining shorelines of contiguous streams and other natural resources) and the environment. Fourteen (14) leaking oil wells have been located on the property ranging in depth of 300 to 400 feet to an oil production zone of Tar Springs formation.

Activities at this site are being undertaken pursuant to Section 311(c) Federal Water Pollution Control Act (FWPCA), as amended by the Clean Water Act Section § 311, as

amended by the Oil Pollution Act of 1990 (OPA), Public Law 101-380, and in accordance with the National Oil and Hazardous Substances Contingency Plan (NCP). The following citations are provided to substantiate the lawful basis by which this action is being undertaken:

- As defined by 33 CFR 154.1020: “A substantial threat of a discharge means any incident or condition involving a facility that may create a risk of a discharge of oil. Such incidents include, but are not limited to storage tank or piping failures, above ground or underground leaks, fires, explosions, flooding, spills contained within the facility, or other similar occurrences.”
- This site also meets the general applicability requirements of 40 CFR 112.1; “which due to its location, could reasonably be expected to discharge oil in quantities that may be harmful into or upon navigable waters of the United States or adjoining shorelines.”
- Section 300.322(b) of the NCP further specifies that “if the investigation of the On Scene Coordinator (OSC) shows that the discharge poses or may present a substantial threat to public health or welfare of the United States, the OSC shall direct all federal, state, or private actions to remove the discharge or to mitigate or prevent the threat of discharge, as appropriate.”

Each oil well in the Whitaker Heirs Oil Lease contains approximately 400 to 1,000 gallons of crude oil. These wells have been abandoned since the early 1990's. The majority of abandoned oil wells on this lease were observed to be leaking oil at land surface. Based on field observations of similar area wells, they are likely leaking oil and natural gas underground. Collectively the wells comprising this oil field pose a substantial threat of a major potential with a potential static volume of crude oil from 6,000 to 14,000 gallons. In addition, this oil well field appears to be under pressure suggesting the potential for subsurface active flowing of crude oil into adjacent aquifers with long-term environmental implications.

II. Synopsis:

EPA Region 4 has been responding to abandoned oil well facilities in Ohio County, Kentucky since 2008. Several hundred oil wells in this area have been plugged over the past six years and Region 4 is currently plugging wells in the nearby Easton Community Area. As documented in POLREP #1, All fourteen (14) orphan wells are potentially discharging oil, oily brine and natural gas into Underground Sources of Drinking Water (USDW's) which are interconnected to surface waters. There are 14 abandoned oil wells comprising the Whitaker Heirs Oil Well Lease. (See Attachment Number 1).

These fourteen identified wells pose the following threats to the environment in the following ways:

- Uncontrolled discharges via oil impacted ground water and surface flows of oil to surface waters and surrounding soils;
- Actual or potential exposure to oil by nearby animals and/or the food chain;
- Actual or potential impact of sensitive ecosystems and/or protected and endangered species;
- Significant levels of oil in soils, groundwater, and sediment waters that may migrate and/or threaten surface waters;
- Sheen or discoloration of the surface waters (i.e. unnamed tributaries and the South Fork of Panther Creek) and/or adjoining shorelines;
- Accumulation of emulsion on the adjoining shorelines;
- Weather conditions that may cause the oil to migrate and/or to be released; and
- Threat of fire and/or explosion from the uncontrolled discharge of methane to Underground Sources of Drinking Water (USDWs) and the atmosphere.

Numerous unnamed tributaries serve as pathways for oil migration to the South Fork of Panther Creek. Panther Creek is a tributary to the Green River, which is over three hundred miles in length in Kentucky. The Green River, which empties into the Ohio River, serves as an important transportation artery for the coal industry. The Ohio River flows generally in the westerly direction where it flows into the Mississippi River. The wooded land parcel in which the Whitaker Lease occupies is located approximately five miles south of Whitesville, Kentucky. This parcel is rural and hilly with numerous tributaries to the South Fork of Panther Creek.

Numerous wells have been dismantled by EPA, through the removal of production casing and tubing, over the past six or more years in Ohio and Hancock County. The majority of the casing and/or tubing strings that have been pulled from these wells exhibit large corrosion holes, numerous pinhole leaks, extensive tears in the casing, and the parting or separation of individual joints of casing and/or tubing. All of these features confirm the continuous losses of oil and gases to the environment. There is a direct connection (nexus) of oil leaking underground via oil wells which has been observed for the past several years.

III. Site Information and Conditions:

A. Site Description and Physical Location

Orphan Wells to be Plugged: The fourteen (14) identified oil wells which comprise the Whitaker Heirs Oil Field are listed in Attachment 1. All of these wells were drilled in the 1940s through 1960's and continuously produced crude oil until the early 1990's. All of the wells are abandoned and some of the wells have been uncontrollably discharging to land surface.

The Whitaker Heirs Oil Wells is a continuation of EPA's responses relating to uncontrolled discharges of crude oil and oily brine emanating from orphaned oil and injection wells in the vicinity of Ohio and Hancock County, Kentucky. The reader is referred to EPA-Region 4's Oil Removal Project Plan (ORPP) for the Easton Community

Area A dated February 26, 2009, ORRP for Area B dated February 5, 2010, ORPP for Area C dated April 21, 2010, and ORPP Area D dated July 12, 2010 for a more detailed discussion of background information and as a reference to ongoing abandoned well plugging in Hancock County. The associated Pollution Reports also provide pertinent and relevant documentation relating to associated threats and ongoing discharges to the South Fork of Panther Creek and associated tributaries. Since 2008, EPA Region 4, its contractor, and the U.S. Coast Guard-Gulf Strike Team have documented these field conditions with digital photographs.

B. Associated Threats to Public Health and the Environment:

This abandoned oil production facility encompasses the headwaters of the South Fork of Panther Creek and/or the Green River. The numerous unnamed tributaries of and wetlands with contiguous drainage to the South Fork of Panther Creek and/or the Green River could be inundated with crude oil from any single source discharge point, causing adverse environmental effects such as:

- harm to wildlife through contact and ingestion,
- acute and chronic toxic effects on aquatic plants and fauna,
- asphyxiation of fish and benthic fauna,
- fish kills due to increased biological oxygen demand, and
- loss of wildlife habitat.

Given the Site's remote location, Kentucky's inability to monitor the uncontrolled discharges, and the Commonwealth's lack of funding to plug these 14 wells, the Whitaker Heirs Oil Well Lease merits permanent plugging and abandonment by EPA. As these wells are permanently closed, the reservoir pressures will ultimately shift to nearby (yet to be plugged) wells. In order to prevent the uncontrolled flows of oil and oily brine from improperly plugged or open wells, EPA will likely be required to drill out and permanently plug most or all of the orphan wells which have been drilled in the flood plain of the South Fork of Panther Creek and/or its associated tributaries.

IV. Current Activities:

A. Enforcement Related Activities:

EPA-Region 4 will issue a ~~Work Assignment to Toeroek, Incorporated for the~~ conduct an initial ~~purposes of performing a deed and title search for the~~ deed and title search for the ~~forementioned wells. If a Potentially Responsible Party (PRP) can be identified, EPA will execute a Letter of Federal Interest and/or Letter of Federal Assumption pursuant to Sections 308 and 311 of the Clean Water Act.~~

The general scope of work of the Deed and Title Search includes information and documents covering the period 10 years prior to the drilling of the well or construction of any other facility up until the present. ~~The report~~ To the extent available through review of county records, the search will include ~~contains the~~ following information: the names and last known addresses of entities/individuals

that have owned a surface, mineral, or leasehold interest in the subject well; an organized discussion of the information gathered including conclusions on PRPs; a title analysis summary supporting the conclusions; reasonably ascertainable contact information for the site owner(s); status of the entities researched (deceased, estate disposition, etc.); bankruptcy issues, id appropriate; legal status of any corporations; partner name and contact for partnerships; legal description of the site; copies of appropriate documentation (deeds, leases, etc.); incorporation documentation as appropriate; property tax information; available regulatory documents; any other appropriate ownership documents (real property, capitol investment, etc.); ownership history table by parcel (title abstract); plat and other subject site maps showing location information; and a site map of the subject property showing notable site features.

B. Proposed Removal Actions:

The Planned removal actions for the near term are to secure the necessary equipment, services, manpower, and supplies to successfully permanently plug and abandon these wells in accordance with the established industry standards. Actions will include, but are not limited to: removing all tubing, rods, and miscellaneous equipment from the hole to allow for the washing down or reaming out of the wells; conducting down hole geophysical logging (i.e. Gamma-VDL) to qualify the integrity of the cement behind the production casing and/or the geologic tops; setting down-hole cast iron bridge plugs at appropriate depths to prevent the migration of oil reservoir fluids into or between the various geologic horizons; cleaning out the wells of all oil reservoir related fluids in anticipation of the commencement of plugging activities; shooting or perforating casing and/or tubular goods to allow for the circulation of cement in the annular space between the pipe and/or tubing and the bore holes; setting competent cement plugs at pre-determined intervals from the oil production interval and through identified drinking water aquifers; and restoring the sites (through grading and reseeding) upon the completion of all plugging activities. The reader may wish to refer to previous Oil Removal Project Plans for Easton Areas A through G to obtain the specific procedures and protocols in drilling out, washing down and plugging orphaned oil wells.

V. ESTIMATED PROJECT COST INFORMATION

A. NPFC Incremental Funding	Existing	Revised
1. Extramural Costs		
ERRS (WRS Compass)	-	\$4010,000
2. Intramural Costs		
EPA	\$50,000	\$100,000
3. Indirect Costs	\$25,000	\$ 25,000

4. Contingency Costs	-	\$25,000
5. Total	\$505,000	\$560,000
5.6.		

In order to properly plug the 14 abandoned wells and remove any tank batteries on Site, EPA is currently estimating that \$ 560,000 will be required.

- B. Anticipated Project Completion Date: The current estimate for completing the 14 wells is approximately two months. However, weather and or access conditions could affect this estimate.
- C. Exit Strategy: Once the 14 wells are plugged, it is anticipated that all associated discharges will cease.

VI. PHOTODOCUMENTATION



Feb 5th, 2014 - Whitaker Oil Well No. 2 – actively leaking crude oil to land surface and nearby tributary of South Fork of Panther Creek.

Attachment 1

WHITAKER HEIRS WELL LIST

ITEM No.	FARM	WELL NUMBER	PERMIT #'s	LATITUDE	LONGITUDE
1	Whitaker Heirs	2	N19891	N 37.60961	W -86.87951
2	Whitaker Heirs	23	10323	N 37.61024	W -86.87960
3	Whitaker Heirs	10RE	7681	N 37.61081	W -86.87801
4	Whitaker Heirs	18-W	7233	N 37.61166	W -86.87712
5	Whitaker Heirs	1	N19893	N 37.61175	W -86.87931
6	Whitaker Heirs	19-W	7234	N 37.61306	W -86.87729
7	Whitaker Heirs	3	N19892	N 37.61555	W -86.87646
8	Whitaker Heirs	22	10101	N 37.61501	W -86.87877
9	Whitaker Heirs	7RE	7680	N 37.61372	W -86.87853
10	Whitaker Heirs	21	8464	N 37.61268	W -86.88126
11	Whitaker Heirs	4	N19895	N 37.61244	W -86.88065
12	Whitaker Heirs	5	N19894	N 37.61108	W -86.88056
13	Whitaker Heirs	9	N19897	N 37.61064	W -86.88154
14	Whitaker Heirs	8	N19896	N 37.60960	W -86.88231

SECTION TWO-
SUPPLEMENT 2-B

II-E COST PROPOSAL
WELL PLUGGING/ABANDONMENT

Item	Quantity Available	Unit	Unit Price	Owned or Rented	Comments/Description	
						Hour
Site Supervisor		Hour				
Site Supervisor-Mileage		Mile				
Per Diem		Day				
Single-pole Rig-SGL Drum w/Crew		Hour				
Single-pole Rig-DBL Drum w/Crew		Hour				
Standby for Pole Rig, excluding crew		Day				
Single Derrick Rig-DBL Drum w/Crew		Hour				
Double Derrick Rig-DBL Drum w/Crew		Hour				
Standby for Derrick Rig, excluding crew		Day				
Power Swivel w/pump and fuel		Day				
Operator for Power Swivel		Hour				
Standby for Power Swivel, excluding operator		Day				
Additional Crew/Laborers Per Person		Hour				
Pick-Up Truck		Day				
Mileage		Mile				
Mud Pump, without swivel		Day				
Auxiliary Mud Pump		Day				
Power Tubing Tongs, 2 7/8" or less		Day				
Drilling Bit Rental-4 3/4"		Day				
Drilling Bit Rental-6 1/4"		Day				
Drilling Bit Rental-7 7/8"		Day				
Drilling Bit Rental-8 3/4"		Day				
Drilling Bit Rental-10 5/8"		Day				
Drilling Bit Rental-11 3/4"		Day				
Drilling Bit Rental-12 1/4"		Day				
Drilling Bit Rental-14 3/4"		Day				
Drilling Bit Rental-17 1/2"		Day				

II-E (continued)

Item	Quantity Available	Unit	Unit Price	Owned or Rented	Comments/Description
Stripper Heads w/Rubbers		Day			
100 Bbl Mud Tank		Day			
Rental of 2 7/8" Tubing		Day			
4 3/4" OD x 43.6ppf Drill Collars		Day			
6 1/4" Bladed, Flat Bottom Junk Mill		Day			
100 Bbl Tank		Day			
Cleanout of 100 Bbl Tank		Each			
Magcogel or Equivalent		Sack			
Mylogel or Equivalent		Sack			
Geogel or Equivalent		Sack			
Kwik Seal or Equivalent		Sack			
Dick's Mud Seal or Equivalent		Sack			
Spersene or Equivalent		Sack			
Cell-O-Seal or Equivalent		Sack			
Soda Ash or Equivalent		Sack			
Mobil Arc Welder w/Operator		Hour			
Cement Pump Truck		Hour			
Cement Pump Truck, Mileage		Mile			
Standard Cement		Cu Ft			
Standard Cement		Sack			
Cement Bulk Truck w/Operator		Hour			
Cement Handling Charge		Cu Ft			
Cement Transportation Charge		Mile			
Calcium Chloride (100lb Sack)		Sack			
Cellophane Flake Lost Circulation Mat'l, 25lb		Sack			
Dispersant		Lb			
Mechanical/Electrical Plugs, 4 1/2"		Each			
Mechanical/Electrical Plugs, 5 1/2"		Each			
Mechanical/Electrical Plugs, 7"		Each			

II-E (Continued)

Item	Quantity Available	Unit	Unit Price	Owned or Rented	Comments/Description
Well Casing, 8 5/8" OD 24ppf		Foot			
Pole Truck, Single Axle, w/Operator		Hour			
Pole Truck, Tandem Axle, w/Operator		Hour			
Flatbed Trailer, Single Axle		Hour			
Flatbed Trailer, Tandem Axle		Hour			
Tubing Skid		Day			
Roustabouts		Hour			
Anchors		Each			
Rig Anchors Installation		Each			
70 Bbl Water Truck w/Vacuum Pump		Day			
120-150 Bbl Water Truck w/Vacuum Pump		Day			
500 Bbl Frac Tank		Day			
Clean-out Charge for Frac Tank		Each			
Geophysical Logging:					
Mobilization Charge, Crew and Equipment		Mile			
Set-Up Charge		Each			
Set-Up Charge when Plug is set		Each			
Casing Cut (1st Two Shots)		Each			
Additional Cuts		Each			
Perforation Shots Four Shots/Foot		Each			
Top of Cement Log		Each			
Complete Cement Bond Log		Foot			
Gamma Ray/Neutron Log		Foot			
Overhead Percentage for Subcontracted Services and Materials Not Listed Above					
Or Identified On The Next Page		%			

RATE SCHEDULE

1.	<u>Pulling Units</u> (2 man crew plus pickup)	<u>55.00</u> /hr	
	minimum hours	<u>8</u> /hrs	
2.	<u>Cable Tools</u>		
	Types (includes 2 man crew & pickup)		
	<u>60 L Bucyres</u> 8 hr min	<u>90.00</u> /hr	SUB
	<u>22 Bucyres</u> 8 hr min	<u>85.00</u> /hr	
	<u>24L Bucyres</u> 8 hr min	<u>85.00</u> /hr	
	<u>Extra Labor</u>	<u>13.00</u> /hr	
3.	<u>Service & workover Rig</u> (3 man crew plus pickup)		
	Type: <u>Copper Spudder</u> 8 hr min	<u>110.00</u> /hr	
	Capabilities: 3000 ft		
	Equipment: string of tool 8" to 4"		
4.	<u>CASING Pulling</u>		
	Truck mounted rig (3 man crew & pickup) 8 hr min pkup	<u>110.00</u> /hr	
	Tubing Rental-for bottom hole plug 2 3/8	<u>1.00</u> /ft	
5.	<u>Construction Work</u>		
	Roustabout Pusher, Operator or Driver	<u>18.00</u> /hr	
	Roustabout Labor	<u>16.00</u> /hr	
	Winch Truck (t tools)	<u>45.00</u> /hr	
	Tandem winch truck plus tools 4 hr min.	<u>50.00</u> /hr	SUB
	Pickup w/tools 4 hr min.	<u>35.00</u> /hr	
	Pickup (transportation only) 50 mile radius	<u>50.00</u> /day	
	Tractor, (bushog & Operator) 5 hr min	<u>45.00</u> /hr	
	Ditcher & operator R65 ditch witch 4 hr min	<u>40.00</u> /hr	SUB
	Power Saw	<u>375.00</u> /	
	Backhoe plus operator 1.00 Per mile 5 hr min (case 580 super E extendahoe)	<u>40.00</u> /hr	SUB
	Tractor with grader blade & operator	<u>45.00</u> /hr	
	Dump Truck & Operator 1.00 per mile 5 hr min (single axle Chevy C-65)	<u>35.00</u> /hr	SUB
	Ditching	<u>.35</u> per ft	
6.	<u>Tank Trucks</u>		
	Tank truck plus operator		
	<u>35 BBL</u> capacity 1.00 per mile 4 hr min	<u>35.00</u> /hr	
	capacity	<u> </u> /hr	
7.	<u>Pressure Testing Tubing & Casing to 5000 psi</u>		
	Price per JT		Changing Collars
	1" Tubing	_____	_____
	2" Tubing	_____	_____
	2 1/2" Tubing	_____	_____
	4 1/2" Casing	_____	_____
	5 1/2" Casing	_____	_____
	Minimum Rigup	_____	_____
	Mileage	_____	_____
	Standby, racking, waiting time	_____	_____ /hr
	Each Additional Set-up	_____	_____

8.	<u>Power tongs</u>			
	Trailer Mounted 1 Man & pickup		/hr	SUB
	Truck mounted 1 Man & pickup		/hr	
9.	<u>Hydraulic Jacks</u>			
	Jacks plus operator	69.00	/hr	
	(minimum time)	8	hrs	
10.	<u>Power Swivel & pump</u>			
	(Trailer mounted swivel, mud pump & fuel & min 8 hrs plus	85.00	/hr	SUB
	Service operator & pickup trucking bits)	35.00	/hr	
11.	<u>Cat, Tractor & Trucking</u>			
	D6 plus operator 8' Blade & winch 2.00 per mile			
	Track Loader 6 1/2 ' 4 in 1 bucket plus ^{5 hr min.} operator	64.00	/hr	SUB
	2.00 per mile 5 hr min.	48.00	/hr	SUB
	Tractor-Lowboy/operator 2.00 per mile 4 hr min	50.00	/hr	SUB
	Tractor-float/operator 2.00 per mile hr min	50.00	/hr	SUB
	rigup tandem winch truck/operator	55.00	/hr	SUB
	Pickup & operator (transportation only)	50.00	/day	
	Mudboat, barge, bridge		/day	
12.	<u>Welding</u>			
	Truck mounted welder/operator 4 hr min	35.00	/hr	SUB
13.	<u>Cement, Additives, Plugs</u>			
	Class "a" Portland Cement	6.00	/per sack	
	Calcium Chloride	30.00	/per 100 lb	
	Calseal	45.00	/per 80 lb	
	Pump down plugs			
	4 1/2" rubber	26.00	/each	
	5 1/2" rubber	30.00	/each	
	4 1/2" wood & rubber	16.00	/each	
	5 1/2" wood & rubber	20.00	/each	
	7" wood & rubber	30.00	/each	
	8 5/8" wood & rubber	32.00	/each	
	10 3/4" wood & rubber	50.00	/each	
14.	<u>Pump Truck (cement & water) plus operator</u>			
	1.00 per mile 4 hr min	150.00	/hr	
	Cement Bulk Truck plus operator			
	1.00 per mile 4 hrs min	35.00	/hr	
	Pump Truck			
	set-up chrg plus 1st 4hrs 1.00 per mile	400.00		
	additional hrs	100.00	/hr	
15.	<u>Packer Shoes</u>			
	4 1/2"	630.00		
	5 1/2"	721.88		
	7"	1120.00		
16.	<u>Permament bridge plugs (run on Tubing)</u>			
	4 1/2"	425.00		
	5 1/2"	450.00		
17.	<u>Third Party Charges</u>			
	Cost plus %	15%		

18. Payment Terms for Late Charges

2% / per month

19. Temporary Storage Tank

2-115 BBL tanks

180.00 /per month

1-210 BBL tank

180.00 /per month

20. Geophysical Logging --SUB

Setup Charge

345.00

Setup Charge when plug set

345.00

casing cut (1st 2 shots)

125.00

Additional cuts

62.50

Top of cement log

150.00

complete cbl log \$.20 per ft with minimum

300.00

perforate 4 holes

250.00

Plug Charges

4 1/2"

615.00

5 1/2"

695.00

7"

995.00

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