



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 W JACKSON BLVD.
CHICAGO, IL 60604

I. HEADING

DATE: 11 May 2012

FROM: Michael Beslow, On-Scene Coordinator
U.S. EPA, Region 5

TO: Chief Don Laisure, U.S.C.G.
National Pollution Funds Center

SUBJECT: Oil Pollution Act 1990 Removal Project Plan
Cline Avenue Ditch Oil Sheen Site (E11513), Gary, Indiana

II. BACKGROUND

FPN:	E11513
EPA Site ID:	Z5KF
Response Authority:	OPA
State Notification:	Yes
Date OSLTF Opened:	3/21/2011
Mobilization Date:	3/21/2011
Current Project Ceiling:	\$225,000
Demobilization Date:	TBD
Completion Date:	TBD
Incident Category:	Activities at this site are conducted pursuant to Section 311(c) of the Clean Water Act, 33 U.S.C. § 1321(c), in accordance with the National Contingency Plan (NCP), codified at 40 C.F.R. Part 300.

III. SITE INFORMATION AND CONDITIONS

A. Site Description and Physical Location

The Site is located near the intersection of Gary Avenue and Cline Avenue in Gary, Lake County, Indiana. The meridian coordinates for the Site are latitude 41° 37' 13.32" North and longitude -87° 25' 52.87" West. The Site consists of a drainage ditch that flows south toward the Grand Calumet River and property contaminated from a former tank bottoms disposal pit. Attachment 1 shows a map of the Site. The Site is located in an industrial area and is bordered by an electrical substation and vacant lots to the north, a rail line and the Gary/Chicago Airport to the east, Gary Avenue to the south, and Cline Avenue and a CITGO tank farm to the west.

A large portion of the Site is contaminated from operations conducted by Cities Service Oil Company (Cities Service) in the 1960's and 70's. Material from Cities Service's refinery facility located to the west of Cline Avenue was disposed of on-site with no apparent containment system. Oily sludge, sludge of unknown origin, and tars, were reportedly dumped and spread across the area. The contents of a tar pit that contained oily wastes and tank bottom sludge from the refinery were mixed with soil and deposited in piles across the area. This area of the Site is referred to as the former tank bottoms pit disposal area.

The property is currently owned by a trust. The Gary Chicago International Airport Authority plans to acquire a portion of the contaminated property for an ongoing runway expansion project.

B. Description of Threat

On January 10, 2011, the National Response Center (NRC) (Report No. 964208) received a call that oil sheen was observed in the Cline Avenue roadside ditch (ditch) north of the intersection of Cline Avenue and Gary Avenue in Gary, Lake County, Indiana. British Petroleum (BP) investigated whether one of its pipelines underlying the Site was leaking. As a precaution, BP's consultants, Heritage Environmental, placed absorbent boom in the ditch to remove the sheen and prevent contaminants from migrating to the nearby Grand Calumet River. BP collected samples from the spent absorbent boom and analyzed them for disposal parameters. Analytical results from a water sample collected by BP indicated that the sheen was not consistent with crude oil and contained a mixture of components suspected to be a distillate and lube oil. In February 2011, BP presented a package to the United States Environmental Protection Agency (EPA) outlining the current and historic use of the nearby pipeline and surrounding property. The information that BP provided to EPA showed that in 1977, the previous owner drained and purged the pipeline and pressurized it with nitrogen. BP purchased the pipeline in

1984 and never placed it in service. In 2007, BP conducted an in-line inspection without introducing any hydrocarbons.

Oil is continuously releasing to a ditch on the property at multiple points from the eastern wall and possibly from the sediment, along Cline Avenue in Gary, Indiana. A sheen is visible for approximately 500 ft, at which point it enters an underground culvert (see Attachment 2 photos) that discharges into the Grand Calumet River. The sheen is visible in the Grand Calumet River at the culvert outfall which is approximately one half mile downstream from the point of entry into the ditch. The Grand Calumet flows into Lake Michigan approximately five miles from the ditch outfall discharge point.

C. Previous Site Actions

On March 21, 2011, EPA On-Scene Coordinator (OSC) Michael Beslow and the Emergency and Rapid Response Services (ERRS) contractor, Environmental Restoration, LLC (ER), mobilized to the Site to place boom in locations where sheen was observed in the ditch. Four areas were observed with oil sheen, with the furthest upstream location at approximately 41°37'13.76" north latitude and 87°25'52.84" west longitude, and the furthest downstream location observed at two outfalls that discharge from the ditch into the Grand Calumet River.

On April 1, 2011, EPA, ERRS, and Superfund Technical Assessment and Response Team (START) contractor, Weston, mobilized to the Site to conduct sampling activities. A total of seven sheen samples (SHN01 through SHN07) and 3 soil samples (SOIL02, SOIL05, and SOIL06) were collected in and along the ditch (see attachment 3). The sheen and soil samples were submitted to the U.S. Coast Guard (USCG) Marine Safety Laboratory (MSL) for fingerprinting (forensic oil) analysis (see attachment 4a and 4b). In addition, the soil samples were submitted to STAT Analysis Corporation (STAT) for analyses of total petroleum hydrocarbons (TPH) as gasoline range organic (GRO), diesel range organic (DRO), and extended range organic (ERO).

Per the Oil Sample Analysis Report, the sheen samples SHN01, SHN02, SHN05, SHN06 and soil samples SOIL02, SOIL05, SOIL06 were representative of spilled oil. The analyses indicated that these samples contained an intermediate to heavy mixture of petroleum hydrocarbons. These samples were all related to each other through a common source of petroleum oil; however, each sample had a unique PAH fingerprint which indicated they were not all from the same exclusive chemical source. Sheen samples SHN03, SHN04, and SHN07 did not contain a quantity of petroleum oil sufficient for comparison purposes. The analytical results from STAT were as follows:

- TPH GRO results ranged from 0.72 to 110 milligrams per kilogram (mg/kg)
- TPH DRO results ranged from 42,000 to 80,000 mg/kg
- TPH ERO results ranged from 38,000 to 100,000 mg/kg

In May 2011, EPA conducted a ground-penetration radar (GPR) survey to determine whether abandoned underground pipelines existed at the Site. No anomalies indicative of abandoned pipelines were found.

On May 23 and 24, 2011, EPA personnel operated a Geoprobe direct-push machine to advance 10 soil borings up to 10 feet below ground surface (bgs) in the area of the former tank bottoms disposal pit. All of the actual soil boring locations were recorded with a GPS unit in the field. Nineteen (19) soil samples were collected based upon physical observations and field instrument screenings made by the field geologist. The soil samples were submitted for fingerprinting (forensic oil), TPH GRO, TPH DRO, and TPH ERO analyses.

The similarities observed between all the samples indicate that they are related to each other through a common source of petroleum oil. However, significant non-weathering differences observed between the polycyclic aromatic hydrocarbons (PAH) indicate that more than one petroleum hydrocarbon mixture is present in the environment.

On August 26, 2011, EPA and START mobilized to the Site to collect oil samples from test pits that were being excavated on the future Gary/Chicago Airport Authority expansion property. START collected oil samples from two of the test pit locations annotated on Attachment 2. The oil samples were submitted to the USCG MSL for fingerprint (forensic oil) analysis (see attachment 3). The fingerprint analysis confirmed that a relationship exists between the oil in the test pits on the property that the Airport Authority is acquiring and the samples previously collected in April and May 2011.

On September 27, 28, and 29, 2011, EPA and START mobilized to the site to install 12 piezometer wells next to the ditch (see attachment 5). These wells were installed adjacent to the ditch to determine oil location and thickness. The wells were surveyed and groundwater levels measured to determine the flow direction to the ditch. Using an Oil/Water Interface Probe, START has measured the depth of water and the depth of oil at each piezometer well finding oil layers greater than four feet thick (see attachment 6).

IV. RESPONSE INFORMATION

A. Current Situation

EPA is maintaining boom to contain the oil discharge to the ditch. A plume of oil, of an unknown size, continues to exist below the ground surface at the Site. The oil is discharging to a ditch, which flows approximately one half mile south and discharges to the Grand Calumet River. The Grand Calumet River flows for approximately 5 miles, before flowing into Lake Michigan.

B. Proposed Actions

The removal action will stop oil from discharging to the roadside ditch and Grand Calumet River by installing a vinyl sheet pile wall that will physically stop product from migrating to surface waters. The wall will be made of "Shore Guard Sheet Piling, specification SG-625", and will be installed from the surface to non-permeable clay approximately 35-40 feet deep. At the end of the sheet pile wall, down gradient of the water table flow, an extraction system and oil water separator will be installed. This removal action addresses the immediate discharge to the Grand Calumet River, and the contaminated property at the Site. A conceptual design is provided in attachment 7. Once complete the engineering and design will be reviewed by EPA's Environmental Response Team (ERT) Scientific, Engineering, Response and Analytical Services (SERAS) contractor. The costs associated remain estimations until the design is complete.

C. Enforcement

On April 25, 2011, EPA issued an Information Request under Sections 308 and 311 of the CWA and 104(e) of CERCLA to Trust A878, the current owner of the Site. On June 6, 2011, EPA received a response, which included information about the history of the Trust and its operations at the Site. In December of 2011, EPA issued a General Notice Letter to Trust A878. EPA has not received a response to the General Notice Letter from the Trust. On July 18, 2011, EPA issued a General Notice Letter to the three beneficiaries of Trust A878, and also issued an Information Request to one of the beneficiaries. On August 2, 2011, EPA received responses from two of the beneficiaries, indicating they believed that the source of the discharge of oil was an underground pipeline. EPA has not received a response from the third beneficiary as to the General Notice Letter or Information Request. On July 18, 2011, EPA issued a General Notice Letter and Information Request to Citgo Petroleum Corporation (Citgo). EPA received a response from Citgo on Sept. 12, 2011, denying liability in connection with disposal activities at the Site. EPA continues to investigate parties related to the Site.

See also the Confidential Enforcement Addendum (not for public release).

D. Next Steps

The next step is the engineering and design of the wall and oil water separator system. The costs associated remain estimations until the design is complete.

V. ESTIMATED PROJECT COST INFORMATION

A. <u>Estimated Project Costs Incurred to Date:</u>		
1. Extramural Costs		
EPA Contractors		\$110,666
PRFAs		\$0
2. Intramural Costs		
EPA Personnel		\$32,450
EPA Travel		\$1,100
3. Indirect Costs		\$14,550
4. Total		\$158,766

B. <u>Additional Total Project Estimated Costs:</u>		
1. Extramural Costs		
EPA ERRS Contractors		\$4,456,600
EPA START Contractors		\$20,000
EPA SERAs Contractor		\$200,650
PRFAs		\$0
2. Intramural Costs		
EPA Personnel		\$120,000
EPA Travel		\$0,000
3. Indirect Costs		\$401,050
(8.36% of EPA costs)		
4. Total		\$5,357,066

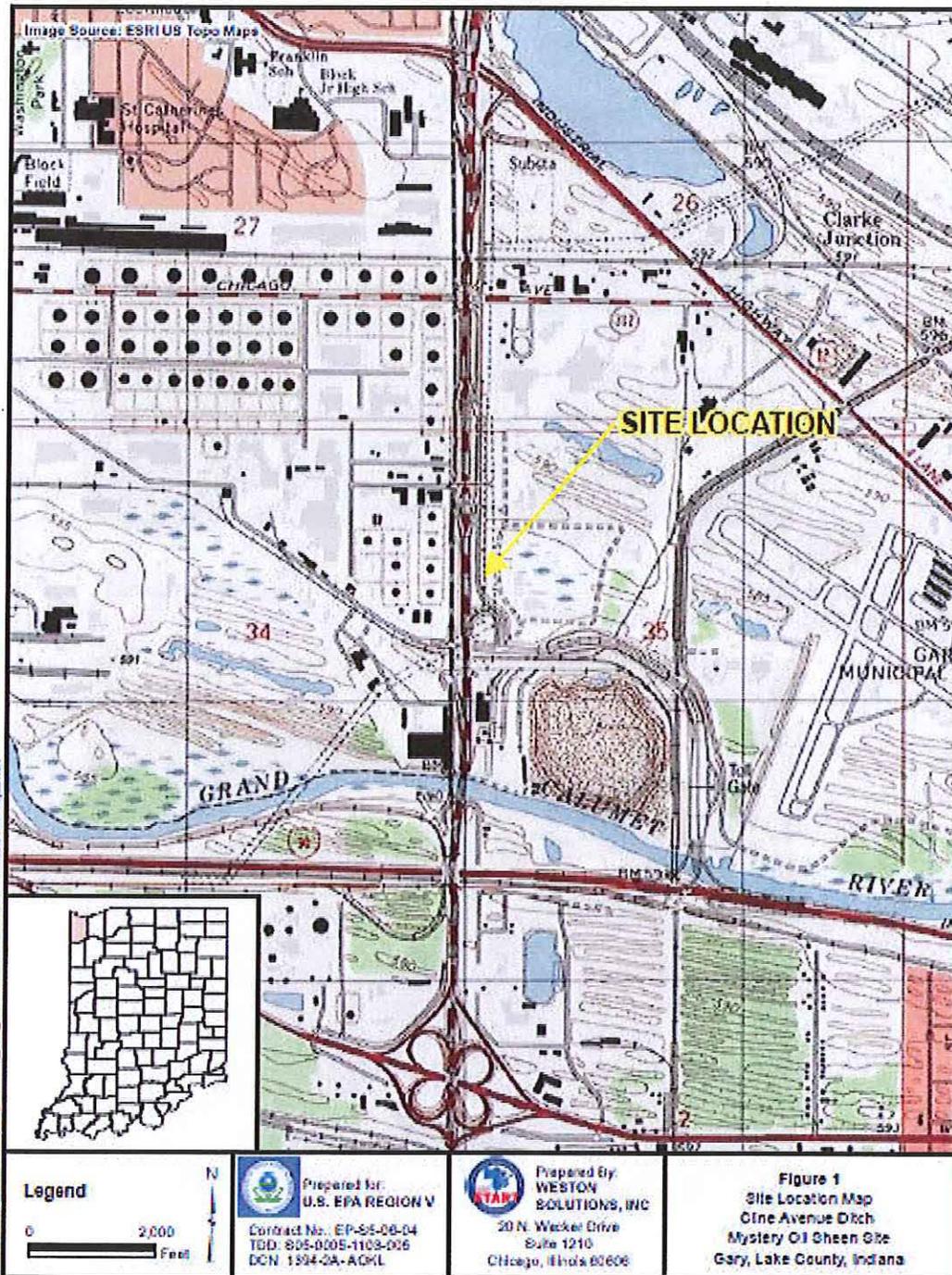
CONFIDENTIAL ENFORCEMENT ADDENDUM

ATTACHMENTS

- 1) Site Location Map
- 2) Photos
- 3) Sampling Location map
- 4) (a) and (b)USCG Sampling Results
- 5) Piezometer Location map
- 6) Well Gauging Results
- 7) Conceptual Design map
- 8) Independent Government Contractor Cost

ATTACHMENT 1

SITE LOCATION



ATTACHMENT 2

PHOTOS



Site: Cline Avenue Ditch Oil Sheen
Photograph No.: 1
Direction: Southwest
Subject: Sheen in ditch along Cline Avenue

Date: 4/1/11
Photographer: Jeff Bryniarski



Site: Cline Avenue Ditch Oil Sheen
Photograph No.: 2
Direction: Down
Subject: Sheen in ditch along Cline Avenue

Date: 4/1/11
Photographer: Jeff Bryniarski



Site: Cline Avenue Ditch Oil Sheen

Photograph No.: 3

Direction: Down

Subject: Collection of sample of stained soil next to the ditch

Date: 4/1/11

Photographer: Shauna Ross



Site: Cline Avenue Ditch Oil Sheen

Photograph No.: 4

Direction: South

Subject: Collection of surface water/sheen sample from the ditch

Date: 4/1/11

Photographer: Jeff Bryniarski

ATTACHMENT 3

SAMPLING LOCATIONS



ATTACHMENT 4a and 4b

USCG SAMPLE RESULTS

ATTACHMENT 5

PIEZOMETER LOCATIONS



ATTACHMENT 6

U.S. EPA WELL GAUGING RESULTS