Preassessment Screen and Determination for the Sinclair Refinery Superfund Site in Allegany County, New York

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PREASSESSMENT SCREEN
for the
SINCLAIR REFINERY SUPERFUND SITE IN ALLEGANY COUNTY,NEW YORK

I. INTRODUCTION, AUTHORITIES, AND DELEGATIONS

This determination concerns potential claims for damages pertaining to injured natural resources of the Genesee River, and adjacent ecosystems, at and from the Sinclair Refinery Superfund Site , in Wellsville, Allegany County, New York ("Site"), authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C § 9601 et seq., as amended; the Oil Pollution Act of 1990 (OPA), 33 U.S.C. §2701 et seq.; and the Clean Water Act (CWA), 33 U.S.C. §1251 et seq. The U.S. Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC), [collectively the "Trustees"] have determined, based on a review of relevant information gathered as of this date, that it is appropriate to undertake a Natural Resource Damage Assessment (NRDA) in regard to the Site.

This determination was prepared by the Trustees for natural resources, under the authority of Section 107(f) of CERCLA, as amended, 42 U.S.C. §9607(f), the National Contingency Plan, Title 40 Code of Federal Regulations (CFR), Part 300, the DOI Natural Resource Damage Assessment Regulations, Title 43 CFR Part 11, Section 1006 of OPA, 33 U.S.C. §2706, and other applicable Federal regulations and directives which serve to designate Federal, Tribal, and State natural resource Trustees and which authorize the recovery of natural resource damages.

The first step in developing a natural resource damage claim is preparation of a Preassessment Screen. The purpose of a Preassessment Screen is to provide a review of readily available information on hazardous substance release and potential impacts of those releases on natural resources under the trusteeship of Federal, Tribal, and State authorities. The review should ensure there is a reasonable probability of making a successful claim against the responsible parties for releasing hazardous substances into the environment.

II. PREASSESSMENT SCREEN CRITERIA

Title 43 CFR Part l l.23(e) notes the five criteria that must be met before proceeding with a NRDA. The criteria are as follows:

- A discharge of oil or a release of a hazardous substance has occurred.
- Natural resources for which the Trustees may assert trusteeship under CERCLA, OPA, or CWA have been, or are likely to have been, adversely affected by the discharge or release.
- The quantity and concentration of the discharged oil or released hazardous substance is sufficient to potentially cause injury, as that term is used in this part, to those

natural resources. Data sufficient to pursue an assessment are readily available or likely to be obtained at reasonable cost.

- Response actions if any, carried out or planned, do not or will not sufficiently remedy the injury to natural resources without further action.

Ill . INFORMATION ON THE SINCLAIR REFINERY AND DISCHARGE OR RELEASE

A. Genesee River

The Genesee Riveris an important ecological resource for the State of New York, as well as being a primary drinking water source for communities. The Genesee River originates in the Allegheny Plateau of Northern Pennsylvania and flows north through nine New York counties for about 140 miles before emptying into Lake Ontario at Rochester, New York. The Genesee River section of interest is near the Pennsylvania border, located in Wellsville, Allegany County, New York. The segment of the Genesee River alongside the Site is classified by the NYSDEC as Class A(T) fresh water, a NYSDEC classification that indicates the best use of this segment of the River is as a drinking water source and that the waters should be suitable for fish survival. The Genesee River supports primarily a warmwater fish population and seasonally it also supports salmonids (brown trout *(Salmo trutta),* rainbow trout *(Oncorhynchus mykiss),* and brook trout *(Salvelinus fontinalis)).* Possible or confirmed breeding birds include waterfowl, owls, hawks. shorebirds, piscivorous birds. song birds, and various woodpeckers and woodland birds.

B. Sinclair Refinery

The Site was added to the National Priority List in 1983. The Site covers approximately 100 acres adjacent to the west bank of the Genesee River, one-quarter mile south of downtown Wellsville, Allegany County. New York. The refinery was built in the late 1800' s and operated by the Wellsville Refining Company until 1919 when the Sinclair Refining Company (now Atlantic Richfield Company (ARCO)) purchased the property. Sinclair operated the refinery until 1958 when a fire ended operations (USEPA 1985). After closure of the refinery, a majority of the property was transferred to the Village of Wellsville, which subsequently conveyed land parcels to various entities, including the State University of New York and several companies now occupyingthe site.

Products manufactured of Pennsylvania '·sweet" (low sulfur content) crude oil at the Sinclair Refinery included lubricating oils and grease, fuel oil , naptha, gasoline, lighter fluid, and paraffin (USEPA 1985). While the Sinclair Refinery was in operation, the southernmost portion of the property was used as a landfill. The landfill, located along the Genesee River, was used to dispose of approximately 230,000 cubic yards (yd^3)of wastes during its 60 years of use (USEPA 1985). An extensive fill mound in the central portion of the landfill was composed of soil-like material and unidentifiable debris. The center of this mound was hollowed out to form a lagoon, used to contain dark liquids. A channel to the east allowed lagoon overflow to be diverted to the Genesee River (USEPA 1985).

The Genesee River began eroding a portion of the landfill, including drums, as a result of lateral movement of the riverbed and heavy rains in October 1981 (USEPA 1985).

In addition, significant volumes of oil, from the Sinclair Refinery, have been discharged either directly into the Genesee River or into the groundwater aquifer, leading to discharges into the Genesee River. Supplemental investigations conducted between 2001 and 2003 of the Genesee River and the Sinclair Refinery main drainage swale wetland established that discrete areas of petroleum light non-aqueous phase liquid (LNAPL) were located in the river bank and riverbed as well as along the embankment of the main drainage swale wetland (USEPA 2009). Sediment and soils underlying the Genesee River have also been impacted by semi-volatile organic contaminants (SVOCs) over an area similar to that directly impacted by petroleum LNAPL (USEPA 2009).

The Site remedial actions consisted of landfill remediation, Genesee River rechannelization, in order to protect the landfill from erosion and flooding, remediation of the Genesee River and main drainage swale wetland sediment and surface soil, and Site groundwater remediation (USEPA 2012). The landfill remediation and the Genesee River rechannelization were completed in 1994, the soils and sediment work was completed in June 2012, and the groundwater extraction and treatment remedy is ongoing (USEPA 2012).

C. Damages Excluded from Liability under CERCLA or CWA

The DOI regulations in 43 CFR Part 11.24 provide that the Trustees must determine whether the damages being considered are barred by specific defenses or exclusions from liability under CERCLA or CWA. Based on their review of readily available information, the Trustees have made such determinations and believe that such defenses or exclusions from liability are not dispositive, and are without merit, at least in relation to a significant number of the sites responsible for hazardous waste releases. These required determinations are as follows:

The Trustees must determine whether the damages: (i) resulting from the discharge or release were specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental impact statement or other comparable environmental analysis, that the decision to grant the pem1it or license authorizes such commitment of natural resources, and that the facility or project was otherwise operating within the terms of its permit or license, so long as, in the case of damages to an Indian Tribe occurring pursuant to a Federal permit or license, the issuance of that permit or license was not inconsistent with the fiduciary duty of the United States with respect to such Indian Tribe; or (ii) and the release of a hazardous substance from which the damages have resulted have not occurred wholly before the enactment of CERCLA; or (iii) resulted from the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. section 135-135k; or (iv) resulted from any other Federally permitted release, as defined in section 10l (10) of CERCLA; or (v) resulted from a release or threatened release of recycled oil from a service station dealer described in section 107(a)(3) or (4) of CERCLA if such recycled oil is not mixed with any other hazardous substance and is stored, treated, transported or otherwise managed in compliance with regulations or standards promulgated pursuant to section 3014 of the Solid Waste Disposal Act and other applicable authorities.

The Trustees must also determine whether the discharge meets one or more of the exclusions provided in section 311 (a)(2) or (b)(3) of the CWA.

IV. PRELIMINARY IDENTIFICATION OF RESOURCES POTENTIALLYAT RISK

A. Potentially Affected Resources

Numerous trust resources in the Genesee River have potentially been affected by the releases of hazardous substances. The groundwater, surface water, sediment, and biological resources within the Genesee River assessment area provide habitat for fish and wildlife trust species. Species present include brown trout, rainbow trout, brook trout. walleye *(Stizostedion vitreum),* northern pike *(Esox lucius),* largemouth bass *(Micropterus safmoides),* smallmouth bass *(Micropterus dolomieu),* and panfish such as bullhead, pumpkinseed *(Lepomis gibbosus),* bluegill *(Lepomis macrochirus),* and rock bass *(Ambloplites rupestris).*

Waterfowl that breed along the Genesee River include the Canada goose *(Branta canadensis),* mallard *(Anas platyrhynchos),* black duck *(Aythya rubripes),* and wood duck *(Aix sponsa).* Shorebirds, herons. rails. and other marsh birds are found along the river in wetlands and mudflats. During migration, wooded areas along the river are heavily populated with warblers and other passerines. Other avian species found within the Genesee River include belted kingfishers *(Ceryle alcyon),* red-breasted mergansers *(Mergus serrator).* ring-necked pheasants *(Phasianus colchicus).* American crows *(Corvus brachyrhynchos),* homed grebes *(Podiceps auritus),* tree swallows *(Tachycinela bicolor).* black-capped chickadees *(Parus atricapillus),* song sparrows *(Melospiza melodia),* and warblers (http://www.allaboutbirds.org/).

A variety of mammalian species utilize the habitat along the Genesee River and its tributaries. Some of these species include state game mammal species such as white-tailed deer *(Odocoileus virginianus),* beaver *(Castor canadensis),* eastern cottontail *(Sylvilagusfloridanus),*mink *(Mustela vison),* and red fox *(Vulpes vulpes).*

B. Areas Exposed

Areas presently identified into which oil, CERCLA, and CWA hazardous substances have been released include the navigable and non-navigable portions of the Genesee River from approximately the southern edge for the Sinclair Refinery property to 1 mile downstream (Figure l). These areas include surface waters, groundwater, sediment, submerged lands, wetlands, and associated uplands of the 1 mile segment of the Genesee River.

C. Preliminary Identification of Pathways

Contamination emanating from the Site has migrated through numerous pathways to potentially adversely affect the ecological system of the Genesee River environment. The suspected primary pathways for injury to Trust resources include surface water transpo1t, groundwater discharge, overland runoff and sedimentation, and entry into the food chain by benthic invertebrates and fish.

D. Exposed Water Estimates

All of the area and volume of the 1 mile segment of the Genesee River impact area has been exposed to contaminants, as noted from remedial investigation sampling and remedial actions conducted throughout the 1 mile segment of the Genesee River. Remedial actions conducted within the I mile segment of the Genesee River included landfill remediation , Genesee River rechannelization, remediation of the Genesee River and main drainage swale wetland sediment and surface soil, and Site groundwater remediation (USEPA 2012).

E. Estimates of Concentrations

Sediment

Sediments within the assessment area are primarily contaminated with arsenic, copper, lead, petroleum LNAPL, nitrobenzene, and aniline. Prior to remediation, concentrations of the following inorganics were found in the Site' s main drainage swale wetland, adjacent to the Genesee River: 570 parts per million (ppm) dry weight (dw) arsenic (Parsons 2003), 1,020 ppm dw copper, and 1,670 ppm dw lead (USEPA 1991). The NYSDEC (2014) has issued technical guidance for screening contaminated sediment. The document provides criteria for three Classes of Sediment: Class A (low risk to aquatic life), Class B (slightly to moderately contaminated), and Class C (highly contaminated and likely pose a risk to aquatic life). The Threshold Effects Concentration (TEC), where toxicity was observed infrequently, and Probable Effects Concentration (PEC), where toxicity was observed frequently, values from MacDonald *et al.* (2000) were adopted as the Class A and Class C sediment guidance values in sediments from freshwater. The Class C sedin1ent guidance values for arsenic (33 ppm dw), copper (150 ppm dw), and lead (130 ppm dw) were all exceeded in the main drainage swale wetland sediment and likely pose a risk to aquatic life.

Significant volumes of oil have been discharged either directly into the Genesee River or into the groundwater aquifer, leading to discharges into the Genesee River. Supplemental investigations conducted between 2001 and 2003 of the Genesee River and the main drainage swale wetland established that discrete areas of petroleum LNAPL were located in the river bank and riverbed as well as along the embankment of the main drainage swale wetland (USEPA 2009). In addition, sediment and soils underlying the Genesee River have also been impacted by njtrobenzene (2,900 - 16,000,000 parts per billion [ppb] dw) and aniline (790-350,000 ppb dw) over an area similar to that directly impacted by petroleum LNAPL. Oil is known to adversely affect fish by causing gill obstruction, enlarged livers, reduced growth, fin erosion, reduced reproduction , altered behavior, genetic abnormalities, cancer, and death. Oil can reduce the insulation value of feathers and fur leading to hypothermia in birds and mammals. Ingestion of oil can lead to reproductive dysfunction and mortality *(http://www.epa.gov/oeml/docs/oilleduloilspill_book/chap5.pdf).* Ecological Screening Levels (ESLs) were developed by the U.S. Environmental Protection Agency (USEPA) in Region 5 under the Resource Conservation and Recovery Act (RCRA) program as a tool used during ecological risk assessments. Sediment and soils underlying the Genesee River exceeded both the sediment and soil RCRA ESLs for nitrobenzene (145 ppb dw and 1,310 ppb dw, respectively) and aniline (0.31 ppb dw and 56.8 ppb dw, respectively).

Groundwater

Contamination is also prevalent in groundwater beneath the Sinclair Refinery. Benzene and xylene were the most commonly detected Volatile Organic Contaminants (VOCs), with maximum measured concentrations of 1.2 milligrams per liter (rng/L) for benzene and 1.5 mg/L for xylene. Elevated concentrations of metals in refinery groundwater include arsenic (0.884 mg/L), chromium (0.298 mg/L), and lead (0.249 mg/L, USEPA 1991). Drinking water standards, for groundwater, were exceeded at the site and required a pump and treat system. Groundwater concentrations of arsenic, chromium, and lead , and several VOCs, including benzene and xylene, exceeded the USEPA (2009) enforceable drinking water standards. Groundwater within the assessment area also exceeded State water quality groundwater standards (NYSDEC 2000) for arsenic, chromium, and lead, and several VOCs, including benzene and xylene.

V. PREASSESSMENTSCREEN CRITE RIA

Title 43 CFR §l l.23(e) notes the five criteria that must be met before proceeding with a NRDA. The criteria are as follows:

- A discharge of oil or a release of a hazardous substance has occurred.
- Natural resources for which the Trustees may assert trusteeship under CERCLA. OPA, CWA, or state statutory law and common law claims have been, or are likely to have been. adversely affected by the discharge or release.
- The quantity and concentration of the discharged oil or released hazardous substance is sufficient to potentially cause injury, as that term is used in this part. to those natural resources.
- Data sufficient to pursue an assessment are readily available or likely to be obtained at reasonable cost.
- Response actions, if any, carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action.

These criteria are satisfied for the discharge of oil and releases of hazardous substances covered by this Preassessment Screen, as follows:

Criteria #1: Discharges of oil and releases of hazardous substances have occurred.

There have been releases of hazardous substances from the Site, as defined by CERCLA , OPA , and the CWA. As noted above in Section IV E. hazardous substances which have been released into the environment, but are not limited to, include the following:

- Metals including: arsenic, copper, lead, and mercury;
- VOCs including: benzene, and xylene;
- SVOCs including: aniline, nitrobenzene, and Polycyclic Aromatic Hydrocarbons (PAHs); and
- Oil/Total Petroleum hydrocarbons

These are listed as hazardous substances in Federal Regulations at 40 CFR 302.4, pursuant to Section I02(a) of CERCLA, Section 2701(23) of OPA. and Section 311 of the Federal Water Pollution Control Act. These substances have been released into the geographic area of concern

from the Site, including groundwater flow and surface runoff. These contaminants have entered the water column and accumulated in the sediments of the Genesee River, adjacent to the Site, and portions of the onsite wetland ecosystems, and have likely injured Trustee resources.

Criteria #2: Natural resources for which the Trustees may assert trusteeship under CERCLA, OPA, or CWA have been, or are likely to have been, adversely affected by the releases.

The Trustees' natural resources in the assessment area that have been, or are likely to have been, adversely affected by releases of hazardous substances include, but are not limited to, sediment, groundwater, and biological resources (43 CFR § l l.14(z)). Trust resources within the assessment area of the Site that have been potentially impacted include migratory birds, benthic invertebrates, fish, mammals, and their supporting habitats. The groundwater and sediment within the assessment area have been impacted by concentrations of metals, VOCs, SVOCs, and oil/total petroleum products. The sediments provide feeding, breeding, and nursery habitat for invertebrate and fish species. Wildlife such as waterfowl, herons, tree swallows, and mammals that feed within the assessment area may potentially have been impacted by releases of hazardous substances.

The remedy, completed in June 2012, required certain activities which themselves resulted in injuries to natural resources. The main drainage swale wetland was excavated to a depth of 1 foot and to the delineated wetland boundary, totaling approximately 3 acres. Within the Genesee River, sediment removal, with depths ranging from 4 feet to 6 inches, included sediment along the western half of the Genesee River from the lower flood control weir to a point approximately 840 feet downstream, totaling approximately 1 acre. Along the Genesee River bank, sediment removal occurred on the lower portion of the river bank from the lower flood control weir to a point approximately 520 feet downstream and approximately 20 feet up the river bank, totaling approximately 0.24 acre.

For groundwater, a groundwater collection system became operational in December 2008. In addition, institutional controls, in the form of local zoning ordinances, were required to prevent groundwater usage until such time as ambient water quality standards are met in the aquifer. The main site covers an area of approximately l 02 acres including a 90-acre former refinery and an adjacent 12 acre landfill.

Criteria #3: The quantity and concentration of the released hazardous substance is sufficient to potentially cause injury to those natural resources.

Injury is defined as a measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge or release of a hazardous substance, or exposure to a product of reactions resulting from such discharge or release.

The quantity and concentration of the released hazardous substances, noted above in Section IV E, are likely to have injured natural resources in and around the assessment area. Documented injuries to the natural resources of the assessment area include: 1) concentrations of substances in soils, sediments, and biota sufficient to have caused injury as defined in paragraphs (c), (d), (e), or (f) of

section Title 43 CFR Part 11.62 to groundwater, air, geologic, or biological resources. when exposed to surface water. suspended sediments, or bed. bank, or shoreline sediments; and, 2) concentrations of substances in excess of drinking water standards established by Federal or State laws or regulations that establish such standards for drinking water. in groundwater that was potable before the discharge or release. These injuries are discussed below in greater detail. These biological responses meet the acceptance criteria for injury in accordance with Title 43 CFR Part 11.

Concentrations of substances on bed, bank, or shoreline sediments sufficient to have caused injury as defined in paragraphs (c), (d), (e), or (f) of Title 43 CFR Part 11.62 to groundwater, air, geologic, or biological resources, when exposed to surface water, suspended sediments, or bed, bank, or shoreline sediments:

Injury to trust resources is primarily from arsenic, copper, lead, petroleum LNAPL, nitrobenzene, and aniline in the sediments of the assessment area. As noted above in Section IV E, prior to remediation, concentrations of arsenic (570 ppm dw, Parsons 2003), copper (1,020 ppm dw). and lead (1.670 ppm dw, USEPA 1991) in the Site's main drainage swale wetland, adjacent to the Genesee River, exceeded the Class C sediment guidance values for arsenic (33 ppm dw), copper (150 ppm dw). and lead (130 ppm dw) and likely pose a risk to aquatic life.

Significant volumes of oil, from the Sinclair Refinery, have been discharged either directly into the Genesee River or into the groundwater aquifer, leading to discharges into the Genesee River. Oil is known to adversely affect fish by ca using gill obstruction, enlarged livers, reduced growth, fin erosion, reduced reproduction, altered behavior, genetic abnormalities, cancer, and death. Oil can reduce the insulation value of feathers and fur leading to hypothermia in birds and mammals. Ingestion of oil can lead to reproductive dysfunction and mortality *(http://www.epa.gov/oem/docsloil/eduloilspillbook/chap5.pdj)*. In addition, sediment and soils underlying the Genesee River have also been impacted by nitrobenzene and aniline over an area similar to that directly impacted by petroleum LNAPL and exceeded the ESLs developed by the USEPA in Region 5.

Concentrations of substances in excess of drinking water standards established by Federal or ***State lows or regulations that establish such standards for drinki11g water, in grou11dwater that was potable before the discharge or release:***

Contamination is also prevalent in groundwater beneath the Sinclair Refinery. Drinking waterstandards, for groundwater, were exceeded at the site and required a pump and treat system. Groundwater concentrations of arsenic, chromium, and lead, and several VOCs including benzene and xylene exceeded the USEPA (2009) enforceable drinking water standards and are injuries pursuant to Title 43 CFR Part 11.62(c)(1)(i). Groundwater within the assessment area also exceeded State water quality groundwater standards (NYSDEC 2000) for arsenic, chromium, and lead, and several VOCs including benzene and xylene and this is an injury pursuant to Title 43 CFR Part 1l. 62(c)(l)(i).

Criteria #4: Data sufficient to pursue an assessment are readily available or likely to be obtained at reasonable cost.

Data sufficient to pursue an assessment can be obtained at a cost that is substantially less than the anticipated monetary damage amount. Remedial Investigation/Feasibility Studies were conducted for both Operable Unit 1 and 2 of the Site, and an investigation on the petroleum LNAPL in the Genesee River, adjacent to the Sinclair Refinery, has been completed.

Criteria #5: Response actions if any, carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action.

Response actions will not sufficiently remedy the injury. The response actions at the Site are directed towards control of the source and removal of contaminants. Injuries resulting from the releases of contaminants (prior to remediation), from remedial actions themselves, and residual injuries remaining after remediation is complete, will not be restored by remedial actions undertaken or anticipated . Therefore, it has been determined by the Trustees that response actions carried out or currently planned will not remedy injuries to the natural resources of the Genesee River without further action.

VI. SUMMARY

The primary causes of injury to trust resources are likely from arsenic, copper, lead, petroleum LNAPL, nitrobenzene, and aniline contamination in the sediments of the Genesee River, adjacent to the Site, and portions of the onsite wetland ecosystems, prior to remediation and from remedial activities. Impacts to groundwater may also have generated claimable damages.

VD. PREASSESSMENT SCREEN DETERMINATION

Following the review of information described in this Preassessment Screen, the Trustees have made a preliminary determination that the criteria specified in 43 CFR. Part 11 (Natural Resource Damage Assessments) have been met. The Trustees have further determined that there is a reasonable probability of making a successful claim for damages with respect to the Site's natural resources over which the Trustees have trusteeship. Therefore, the Trustees have determined that an assessment of natural resource damages at the Site and portions of the Genesee River is warranted.

Preassessment Screen and Determination
for the
Sinclair Refinery Superfund Site in Allegany County, New York

Wendi Weber
Northeast Regional Director
United States Fish and Wildlife Service
United States Department of the Interior, Authorized Official

Date: June 2 2015

Joseph J. Martens
Commissioner
New York State Department of Environmental Conservation
For the State of New York

Date: _ _ _ _ _ _ _ _ _ _

Preassessment Screen and Determination
for the
Sinclair Refinery Superfund Site in Allegany County, New York

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Wendi Weber
Northeast Regional Director
United States Fish and Wildlife
Service
United States Department of the
Interior, Authorized Official

Date: .....

Joseph J. Martens
Commissioner
New York State Department of
Environmental Conservation
For the State of New York

Date: 6/16/15.

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FIGURE

Figure 1. Sinclair Refinery Superfund Site Assessment Area