UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: JAN 8 2009

SUBJECT: Request for Authorization to Conduct a CERCLA Non-Time-Critical Removal Action at the Diamond Alkali Site, Newark, Essex County, New Jersey

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TO: Alan J. Steinberg
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THRU: Walter E. Mugdan, Director
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I. PURPOSE

The purpose of this Action Memorandum is to request authorization to conduct a non-time-critical removal action at the Diamond Alkali Site (Site), located in the City of Newark, Essex County, New Jersey. See Figure 1-1 and Figure 1-2 in Appendix A.

The goal of this removal action is to remove a portion of the sediments with the highest concentrations of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) in the Passaic River adjacent to the Diamond Alkali facility (located at 80 and 120 Lister Avenue, Newark), which if released, could adversely impact nearby human populations, animals, and the food chain.

Since the most highly contaminated sediments are found between two feet and twelve feet below sediment surface and are not currently bio-available, a planning period of at least six months exists before site activities need to be initiated. Accordingly, this response is being conducted as a non-time-critical removal action. On November 18, 2008, an Engineering Evaluation/Cost Analysis (EE/CA) was submitted by Tierra Solutions, Inc. (Tierra), in support of a non-time-critical removal action at the Site.

The EE/CA and a Proposed Plan for this removal action were made available for public comment from November 19 through December 19, 2008. On December 2, 2008, the U.S. Environmental

Protection Agency (EPA) conducted a public meeting in the City of Newark to discuss the proposed removal action and to receive public comments on the EE/CA and the Proposed Plan.

Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as documented in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300.

The New Jersey Department of Environmental Protection (NJDEP) was consulted on the Proposed Plan and agrees with the selected removal action for this Site.

II. SITE CONDITIONS AND BACKGROUND

This Action Memorandum documents the proposed non-time-critical removal action for the Site. The Comprehensive Environmental Response, Compensation and Liability Information System ID number for the Site is NJD980528996.

A. Site Description

1. Removal Site Evaluation

The Diamond Alkali Superfund Site includes the Diamond Alkali facility located at 80 and 120 Lister Avenue in Newark, New Jersey, the Lower Passaic River Study Area (LPRSA), and the Newark Bay Study Area. The LPRSA is the 17-mile, tidal portion of the Passaic River, from the Dundee Dam near Garfield, New Jersey to Newark Bay, located in Essex, Hudson, Bergen and Passaic Counties, New Jersey. The LPRSA is considered a facility as defined by Section 101(9) of CERCLA, 42 U.S.C. Section 9601(9). Past industrial operations at the Diamond Alkali facility have resulted in the release of CERCLA hazardous substances into the Lower Passaic River and Newark Bay.

On June 23, 2008, EPA Region 2, Occidental Chemical Corporation (OCC) and Tierra entered into an Administrative Order on Consent (AOC) for the conduct of a source control removal action to remove 200,000 cubic yards of contaminated sediment from the Harrison Reach of the Lower Passaic River, immediately adjacent to the 80/120 Lister Avenue site. The primary objective of this action is to remove a significant portion of the most concentrated inventory of dioxin contaminated sediments, thereby removing source material that poses a potential risk to human health and the environment.

The removal will take place in two discrete phases. Phase I, the subject of this Action Memorandum, will remove approximately 40,000 cubic yards of the most highly contaminated sediment with subsequent treatment and off-site disposal. The work area dimensions for Phase I were determined by EPA and NJDEP based on a three-dimensional geophysical analysis of

sediment coring data in the Harrison Reach and are designed to maximize the removal of sediments containing the highest concentrations of dioxins.

In accordance with the AOC, Phase II, which will be conducted under a separate timeline and under a separate EE/CA and Action Memorandum, will remove an additional 160,000 cubic yards of sediment for disposal in a Confined Disposal Facility (CDF).

The Phase I and Phase II work areas are contiguous and are located within the LPRSA. It was decided to perform the work in two separate phases to expedite the removal and off-site disposal of the most contaminated sediments.

2. Physical location

The Phase I work area is located in the Harrison Reach of the Passaic River adjacent to the Diamond Alkali facility. It is bounded to the north by the navigation channel of the River and to the south by portions of the Sherwin-Williams property and the Diamond Alkali property. The shoreline along the Phase I work area consists of a bulkhead along the Sherwin-Williams property and a concrete floodwall that runs along the river frontage of the Diamond Alkali property.

The area surrounding the Phase I work area consists predominately of industrial facilities involved either currently or historically in various manufacturing activities, including but not limited to, paint and chemical manufacturing. A commuter rail corridor and rail yard is located along the opposite shore of the Passaic River, north of the work area. To support and protect these facilities, many portions of the River have been filled and the banks either bulkheaded or armored.

Current riverfront property owners on the south bank of the River in the vicinity of the Phase I work area, from west to east, include: FRA JA RI Company, 99 Chapel Street LLC, Sherwin-Williams, Singer Realty, Benjamin Moore, Fairmont Chemical, and Blanchard Street Urban Renewal Association. Residences are located within one-quarter of a mile from the Phase I work area.

Commercial shipping traffic in the Passaic River is tracked by the U.S. Army Corps of Engineers (ACE). In 2006, there were a total of 1,726 vessel trips on the Passaic River. The majority of the vessels were shallow draft (less than 14 feet). Current commercial shipping traffic is expected to be similar to that of 2006. Recreational traffic is not tracked to the same extent as commercial traffic; therefore data are not readily available. However, given the small number of public boat launch locations and marinas in the vicinity of the Phase I work area, coupled with the fishing advisories currently in place for the LPRSA, recreational traffic, even if present, is expected to be minimal and unlikely to impact the Phase I work.

3. Site characteristics

Between March 1951 and August 1969, the Diamond Alkali Company operated a facility located at 80/120 Lister Avenue (Diamond Alkali facility) and manufactured agricultural chemicals including dichlorodiphenyltrichloroethane (DDT), 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and 2,4,5-trichlorophenol (2,4,5-TCP). 2,3,7,8-TCDD is a by-product of the production of 2,4,5-T. Poor housekeeping practices during this time resulted in the release of DDT, 2,4-D, 2,4,5-T, 2,4,5-TCP and 2,3,7,8-TCDD to the Site soils and to the Passaic River. Production activities at the Diamond Alkali facility ceased in August 1969.

Contamination at the Diamond Alkali facility has been contained since 2004 when construction of an interim remedy was completed. This remedy included construction of a slurry trench cutoff wall, an engineered cap, a ground water pump and treat system and a floodwall along the Passaic River. On-going operation and maintenance monitoring and a remedy review conducted by EPA in July 2006, indicate that the remedy is functioning as intended to contain contamination at the Site. The interim remedy did not address contamination in the adjacent portion of the River.

The Phase I work area is located within the riparian lands of the Passaic River. The Phase I work area contains shallow sub-tidal and intertidal mudflats with little or no associated vegetation. The majority of the shoreline is dominated by bulkheads, riprap, buildings, parking lots, roads, and other structures.

Generally, the Phase I Work Area sediment is fine-grained, cohesive material classified as silt and clay. The average flow of the Passaic River near the Phase I work area is approximately 1,450 cubic feet per second.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

The sediments of the lower Passaic River contain concentrations of numerous hazardous substances, including, but not limited to, cadmium, copper, lead, mercury, nickel, zinc, polycyclic aromatic hydrocarbons (PAHs), bis (2-ethylhexyl) phthalate, polychlorinated biphenyls (PCBs), DDT, 2,3,7,8- TCDD, 2,4-D, 2,4,5-T, and 2,4,5-TCP. Sediment coring data from the Lower Passaic River have shown the Harrison Reach to contain the most concentrated inventory of dioxin-contaminated sediments. The maximum detected concentration of 5,300 parts per billion (ppb) of TCDD in the Harrison Reach is located within the Phase I work area at River Mile 3.4. The coring data also show that the stretch of sediments to the east and west of River Mile 3.4 have concentrations over 100 ppb. Much of this area falls within the Phase II removal work area.

The Site data used to help define the dimensions of the Phase I work area consisted of seven surface grab samples and 90 cores collected by Tierra in 1995 and ten additional cores collected by Malcolm Pirnie in 2006. The horizontal and vertical dimensions (750 ft. L x 135 ft. W x 12 ft. D) of the Phase I work area were determined by EPA and NJDEP by analyzing the historical bathymetry and the Tierra and Malcolm Pirnie data sets using a geostatistical analysis program named "Mining Visualization System 3D." The details of this analysis are available in the Administrative Record for the removal action.

In general, chemical data from the investigation of the Phase I work area indicate that the highest contaminant levels of dioxins, metals, and other constituents were found deeper than two ft. below sediment surface with concentrations tending to decrease to relatively low levels by twelve ft. deep in the sediment profile. Although these high levels of dioxin are not currently within the biologically active zone, there is a potential for these highly toxic sediments to become exposed should an extreme storm event erode away the overlying sediments. EPA and NJDEP believe these sediments pose a serious threat, because their dioxin concentrations are well over three orders of magnitude greater than the average surface sediment dioxin concentrations in the rest of the River (0.8 ppb), and their highly toxic concentrations would pose significant risk to human health or the environment should exposure occur.

The contaminants discussed above are designated as CERCLA hazardous substances under 40 CFR § 302.4. The above data are only a summary of the more pertinent analytical information. It is not meant to be inclusive of all of the analytes or compounds detected. The remainder of the analytical data is available in the Administrative Record for the Site.

5. NPL status

The Diamond Alkali Site was placed on the NPL in 1984.

6. Maps, pictures, and other graphic representation

Maps depicting the site location (Figure 1-1) and Phase I and Phase II work areas (Figure 1-2) are included in Appendix A.

B. <u>Other Actions to Date</u>

1. Previous actions

Removal activities at the Diamond Alkali facility were initiated by EPA and NJDEP in 1983 and completed by Diamond Shamrock Chemicals Company in 1984 through 1986 pursuant to Administrative Consent Orders (ACOs) with NJDEP.

After the Site was placed on the NPL, a Remedial Investigation/Feasibility Study (RI/FS) was conducted at the Diamond Alkali facility, which included the sampling and assessment of sediment contamination within the adjacent Passaic River. Pursuant to a 1990 Consent Decree, OCC implemented a 1987 Record of Decision for an interim remedy at the Diamond Alkali facility, which included a cap and a wall around the property, and a pump and treat system to contain contaminated ground water. Sampling of sediments in the Passaic River revealed many hazardous substances including, but not limited to dioxins (including 2,3,7,8-TCDD), furans, DDT, PCBs, PAHs, mercury, cadmium, copper, lead, nickel, and zinc.

In 1994, OCC signed an AOC with EPA to investigate a six-mile stretch of the Passaic River centered on the Diamond Alkali facility. A significant portion of the RI was completed by OCC. The RI showed that evaluation of a larger area was necessary because sediments contaminated with hazardous substances and other potential sources of hazardous substances are present along at least the entire 17-mile tidal stretch of the Passaic River and were further dispersed by the tidal nature of the Lower Passaic River. As a result, in January 2001, EPA directed OCC to suspend work under the AOC.

2. Current actions

EPA and a partnership of federal and State of New Jersey agencies undertook a joint CERCLA-Water Resources Development Act (WRDA) study of the 17-mile tidal stretch of the Passaic River (the LPRSA). During the course of the 17-mile study, the sediments of the lower eight miles of the Passaic River were found to be a major source of on-going contamination to the tidal river and Newark Bay. Therefore, EPA, NJDEP, and the other partner agencies are developing a Focused Feasibility Study (FFS) to evaluate taking an early action to address that major source of on-going contamination.

C. State and Local Authorities' Roles

State and local authorities' roles are described in the previous section.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The presence of hazardous substances, pollutants, and contaminants at the Site presents an unacceptable potential risk to public health, welfare, or the environment. EPA has identified conditions in the sediments immediately adjacent to the Diamond Alkali facility that correspond to factors identified in Section 300.415(b)(2) of the NCP, which indicate that a removal action is necessary. Site conditions that correspond to factors that provide a basis for a removal action under Section 300.415 (b)(2) of the NCP include:

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

EPA has classified 2,3,7,8-TCDD as a probable human carcinogen (Group B2). 2,3,7,8-TCDD can cause deleterious effects to humans through inhalation, absorption, ingestion and direct contact. TCDD can cause irritation to the eyes, allergic dermatitis, chloracne, porphyria, gastrointestinal disturbance, liver and kidney damage, and hemorrhage.

High concentrations of 2,3,7,8-TCDD and other hazardous substances are present in the sediments of the Passaic River in front of the Diamond Alkali facility that could adversely impact nearby human populations, animals or the food chain if released. Sediment in the Phase I work area contains 2,3,7,8-TCDD in concentrations up to 5,300 ppb, well over three orders of magnitude greater than the average surface sediment dioxin concentrations in the rest of the River (0.8 ppb). Exposure to these highly toxic concentrations would pose significant risk to human health or the environment should exposure occur.

The sediments of the lower Passaic River also contain concentrations of numerous other hazardous substances, including, but not limited to, cadmium, copper, lead, mercury, nickel, zinc, PAHs, bis(2-ethylhexyl) phthalate, PCBs, DDT, polychlorinated dibenzodioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), 2,4-D, 2,4,5-T, and 2,4,5-TCP.

Potential human exposures to chemical contaminants include receptors such as anglers and crabbers potentially catching and consuming fish/shellfish (e.g., crabs) from this area as well as boaters and workers in the area. These exposures are primarily through ingestion of contaminated fish or shellfish from the River, dermal contact and/or incidental ingestion of sediment and/or water. Inhalation of volatile or semi-volatile organic compounds from sediment or water is another potential exposure pathway, but not as significant as the ingestion and direct contact pathways. These contaminants have been associated with a variety of adverse health effects including a significantly increased risk of cancer. Based on the results of monitoring and research undertaken since the mid-1970s, the State of New Jersey has taken a number of steps, in the form of consumption advisories, closures, and sales bans, of fish and crabs to limit the exposure of the fish- and crab-eating public to toxic contaminants in the lower Passaic River, Newark Bay, Hackensack River, Arthur Kill and Kill Van Kull. Recent studies by NJDEP have determined that, despite warnings currently in place, anglers and crabbers do consume their catch. The initial measures prohibited the sale, and advised against the consumption, of several species of fish and eel and were based on the presence of PCB contamination in the seafood. The discovery of widespread dioxin contamination in the Newark Bay Complex led the State of New Jersey to issue a number of Administrative Orders in 1983 and 1984 which prohibited the sale or consumption of all fish, shellfish and crustaceans from the LPRSA. These State fish advisories and prohibitions are still in effect.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Sampling results from the six mile RI/FS, as well as other earlier sampling events taken across from and immediately downstream of the Diamond Alkali facility portion of the Site show concentrations of 2,3,7,8-TCDD that significantly exceed the levels that can produce toxic effects to biota. Recent studies have shown that 2,3,7,8-TCDD bio-accumulates in fish, to levels rendering the fish unfit for human consumption, from sediment with much lower levels of 2,3,7,8-TCDD than found in these sediments.

The Phase I work area is located in the Hudson Raritan Estuary. Ecological receptors in the Phase I work area include a range of invertebrate and vertebrate organisms that inhabit or utilize the River either year round or on a migratory basis. These primarily include benthic

invertebrates, shellfish (primarily blue crabs), fish, birds (both shorebirds and passerines) and mammals. Exposures for all of these groups can include both direct contact with sediment and water, as well as indirect uptake of bioaccumulative chemical constituents through food web (i.e., feeding) interactions. The potential release of these high levels of 2,3,7,8-TCDD and other contaminants found at depth would have long-lasting adverse impacts on the estuary.

(iii) High levels of hazardous substances at or near the surface that may migrate; and

As previously stated, the sediments of the lower Passaic River contain concentrations of numerous hazardous substances, including, but not limited to, cadmium, copper, lead, mercury, nickel, zinc, PAHs, bis(2-ethylhexyl) phthalate, PCBs, DDT, PCDDs, PCDFs, 2,3,7,8-TCDD, 2,4-D, 2,4,5-T, and 2,4,5-TCP.

Although the LPRSA ends at the mouth of Passaic River, because of the tidal nature of the Passaic River, there is documented evidence that the areal extent of contamination extends beyond that boundary. In 1994, OCC entered into an AOC with EPA to investigate a six-mile portion of the Passaic River centered on the Diamond Alkali facility. The investigation showed that evaluation of a larger area was necessary because sediments contaminated with hazardous substances and other potential sources of hazardous substances are present along at least the entire 17-mile tidal stretch of the Passaic River and were further dispersed by the tidal nature of the Lower Passaic River. Due to the tidal action of the River in the area of concern, there has been significant contaminant migration and continues to be a large potential for contaminant migration.

(iv) Weather conditions that may cause hazardous substances, or pollutants, or contaminants to migrate or be released.

The most highly concentrated TCDD contaminated sediments are several feet below the surface. Without a removal action to remove the highly contaminated sediments in front of the Diamond Alkali facility, an extreme weather event might erode and suspend the sediments contaminated with toxic concentrations of TCDD and other contaminants and facilitate their migration throughout the Lower Passaic River and Newark Bay, impacting human health and the environment.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

A non-time critical removal action is proposed to mitigate, minimize, or eliminate the potential threats to human health, welfare, or the environment from high concentrations of 2,3,7,8-TCDD and other hazardous substances found in sediments of the Passaic River adjacent to the Diamond Alkali facility. The proposed removal action is considered non-time critical because, although there is a potential threat to public health, welfare, or the environment, there is sufficient planning time available before the removal action must be initiated.

The following removal action objectives (RAOs) were established for the site:

- Remove a portion of the most concentrated inventory of dioxin (2,3,7,8 - TCDD), and other hazardous substances, to minimize the possibility of migration of contaminants due to extreme weather events.
- Prevent, to the maximum extent practicable, the migration of resuspended sediment during removal operations through appropriate engineering controls, monitoring, etc.
- Prevent, to the maximum extent practicable, the potential for spillage or leakage of sediment and contaminants during transport to the disposal facility.
- Restore habitat. (Restoration of the Phase I Work Area will be coordinated with the activities of the bordering Phase II work and may not occur until Phase II is completed.)

On June 23, 2008 EPA entered into an AOC with OCC and Tierra for the removal and off-site disposal of approximately 40,000 cubic yards of contaminated sediment from within a predetermined area called the Phase I work area. As previously discussed, the dimensions of the Phase I work area and the amount of contaminated sediment to be removed were determined by EPA and NJDEP. It was also determined that the removal of contaminated sediments would be conducted from within a sheet-pile enclosure to mitigate the potential for sediment resuspension and contaminant release during dredging.

Sheet Pile Enclosure

The conceptual design anticipates that the sheet piles for this enclosure will be driven into a deep silty clay layer with low permeability. A sealant will be applied to the joints to reduce the interlock permeability. These measures will contain resuspended sediment within the Phase I work area, preventing the dispersion to the maximum extent practicable. The depth of the sheet

piles and the sealant will limit hydraulic connectivity between the Phase I work area, the Passaic River, and Diamond Alkali facility.

Due to concerns about air quality impacts and potential risks to foraging birds from exposed sediments and groundwater infiltration leading to destabilization of the sheet-pile enclosure, it was decided to remove sediment "in the wet." This means that the river water level will be maintained within the sheet-pile enclosure during dredging operations in order to ensure the integrity of the wall and surrounding structures including the Diamond Alkali facility flood wall.

Sediment and Debris Handling

Mechanical dredging will be used to remove the sediment from the Phase I work area. Mechanical dredging uses the mechanical action of a bucket or scoop to excavate the sediment at near in-situ density. As it is expected that a variety of large and small-sized debris will be encountered during the removal action, a debris survey will be conducted to identify debris that are expected to be present in the Phase I work area. The mechanical dredge, operated from a barge, will excavate sediment using an environmental bucket and place dredged material on another barge. The barge will then navigate to the upland processing site and be unloaded using excavators. The mechanically dredged material will be passed through a Grizzly screen to remove debris and then slurried by adding water. Another possible approach would be to place the sediment directly into a hopper on a barge. The hopper would serve the same function as the Grizzly screen to remove debris. This aspect of dredged material handling will be decided in the design phase. After the sediment has passed through the hopper, it would be slurried on the barge and pumped to the upland processing site for sediment processing. The sediment slurry will then pass through a hydrocyclone to separate out the sand fraction of the material. Following the hydrocyclone step, the resulting fine-grained sediment slurry will be mechanically dewatered using a filter press, belt press, or equivalent, and the resulting dewatered sediment will be stockpiled and covered pending characterization for off-site disposal.

Over-sized debris, such as cars, logs or other large objects, will be removed mechanically and handled separately from the sediment. Once removed and stockpiled, over-sized debris will be pressure washed. The rinse water will be collected for subsequent treatment, and the sediment will be collected for processing.

Support facilities necessary for sediment and debris processing, storage and handling will be located in an upland area in the vicinity of the Phase I work area. The location of the sediment processing facility will be selected during the design phase of the work.

Water Treatment and Discharge

Treatment of collected water from removal and processing operations will be required prior to discharge to the Passaic River. Water that will be treated includes decontamination water and that which is generated during sediment and debris processing. River water within the sheet-pile enclosure may also require treatment prior to removal of the structure. It is anticipated that a dedicated water treatment plant, which includes physical and chemical processes, such as flocculation, clarification, multimedia filtration, and granular activated carbon adsorption, will be constructed. Similar water treatment plants have been successfully used at other sites containing similar contaminants.

Off-Site Transport of Sediment

Transport technologies screened in the EE/CA include transport by rail, barge and truck. Of the three, EPA strongly prefers either rail or barge or a combination of both. Transport by truck is the least preferable mode because the large number of trucks required may produce a potential risk and a nuisance to the surrounding community (i.e., diesel fumes, noise, potential accidents). Therefore, properties that provide access to barge and rail transport are currently being evaluated as upland sediment processing locations. The final transport approach cannot be determined until the selection of the off-site treatment and disposal facilities, because the two are closely linked.

Regardless of the method of transport, sediment will be transported in sealed intermodal containers. This will allow movement of the sealed container from one transport technology to another, if needed, without direct contact with the sediment. The use of sealed intermodal containers will also minimize the potential for the release of sediment during transport. Whether debris, as distinct from sediment, is transported in a sealed intermodal container will depend on the nature and size of the debris.

Off-Site Treatment and Disposal

Off-site treatment and disposal of the removed sediment is required as per the AOC. Based on existing analytical data, a portion of the sediment has the potential to be classified as a characteristic hazardous waste due to the presence of hazardous constituents above the toxicity regulatory levels. The mean concentration of dioxin, based on the historical sediment sampling results from within the Phase I work area, is 244 ppb. Because this value is greater than the universal treatment standard (UTS) of 1 ppb, it was assumed that some of the sediment will require treatment (most likely incineration but the possible use of oxidizers and polymers will be considered as well) prior to disposal. Other than the sediment that contains characteristic

hazardous waste or contains dioxin levels above 1 ppb, it is likely that the remainder of the sediment will not require treatment prior to land disposal in a regulated facility. During design, the percentage of sediment requiring treatment will be refined further.

Backfilling

Following sediment removal, the Phase I work area will be restored by backfilling to at or near pre-removal surface elevations. Backfill materials and placement methods will be determined during design. Restoration of the Phase I work area will also need to consider the schedule and activities of the Phase II work. Backfill materials will meet appropriate criteria for an estuarine environment.

Monitoring

Water quality monitoring and air monitoring will begin prior to the start of work to establish baseline conditions against which to compare conditions observed during and after construction. The monitoring results will be used to assess impacts to the workers' well-being and that of the surrounding community and environment. It is anticipated that monitoring will be conducted throughout the duration of the Phase I work, including health and safety monitoring, water quality and water treatment discharge monitoring and air monitoring. To share these data with the community in a timely manner, monitoring results will be posted on a publicly accessible web site, and by other means as appropriate.

Health and Safety

A site health and safety plan will be developed for on-site work. A separate health and safety plan for the community will be developed as described in the Community Involvement section below.

Community Involvement

A number of decisions that have the potential to impact the community will be made in the design phase of the Phase I work. The Community Involvement Plan (CIP) for the removal project will guide the community outreach and input process throughout both phases of the removal. Tierra will work together with EPA, NJDEP, and community members to ensure that quality of life issues such as noise, odor, road traffic, navigational traffic, water quality, air quality, and light are accounted for during design. A Community Health and Safety Plan (CHASP) will be developed as part of the project design. It will address community health and safety issues that will need to be considered in the removal project implementation. The CHASP

will, at a minimum, provide for the use of “clean diesel” technology for the heavy equipment that will be used for on-site dredging and materials handling. Clean diesel technology includes the use of air pollution control devices to minimize emissions of fine particulate matter, and the use of ultra-low sulfur diesel fuel to protect such equipment and further reduce particulate emissions. Use of clean diesel technology, to the maximum extent practicable, will dramatically reduce particulate emissions associated with this work, and will help protect the local community from risks associated with such emissions. The CHASP will also consider other practicable ways in which to reduce the environmental “footprint” of the response work (including the direct and indirect emission of greenhouse gases).

2. Contribution to remedial performance

The Diamond Alkali Site was place on the NPL in 1984. As described previously, a FFS for an early action on the sediments of the lower eight miles of the River and a RI/FS for the 17-mile tidal portion of the River are underway to address the remediation of the overall LPRSA. The selected removal action will assist in any long-term remediation of sediment contamination in the River by removing the most highly contaminated sediments. This removal action will help protect public health, welfare, and the environment until a permanent remedy can be effected.

The proposed removal action at the Site is consistent with the requirement of Section 104(a)(2) of CERCLA, 42 U.S.C. §104(a) (2) which states that "any removal action undertaken ...should, to the extent ...practicable, contribute to the efficient performance of any long term remedial action with respect to the release or threatened release concerned." Since any remedial action undertaken at the Site would benefit from the work items in this removal action, the cleanup effort is consistent with any future remedial work.

3. Description of alternative technologies

Not applicable.

4. Engineering Evaluation/Cost Analysis (EE/CA)

Because of the availability of a planning and design period of at least six months prior to the commencement of removal action activities at the Site, an EE/CA was prepared to analyze various removal alternatives. The EE/CA was prepared in conformance with the guidelines in Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA.

(EPA/450-R-93-057, August 1993). The EE/CA Approval Memorandum is included as Appendix B. The EE/CA is included in the Administrative Record for the Site.

The EE/CA and the Proposed Plan for the Phase I Removal Action, which identified EPA and NJDEP's preferred response action, were made available to the public on November 19, 2008. A notice of the availability for these documents was published in *The Star-Ledger* on November 20, 2008. On December 2, 2008, a public meeting was held at the Hawkins Street School in Newark, New Jersey to present the findings of the EE/CA, discuss the preferred alternative, and answer questions about the response actions under consideration. Public comments were accepted at this meeting and in writing through December 19, 2008. Public comments have been addressed in the Responsiveness Summary attached to this Action Memorandum as Appendix C.

5. Applicable or relevant and appropriate requirements (ARARs)

Applicable or Relevant and Appropriate Requirements (ARARs) that are within the scope of this removal action will be complied with to the extent practicable, considering the exigencies of the situation. Potential federal and state ARARs for this removal action are listed below and are described in detail in the Phase I EE/CA. Additional ARARs may be identified as details of the project are developed.

Federal

- Section 112 of the Clean Air Act (CAA)
- Section 304 of the Clean Water Act (CWA)
- Section 10 of the Rivers and Harbors Appropriations Act
- Section 7 of the Endangered Species Act
- The Fish and Wildlife Coordination Act
- Section 307 of the Federal Coastal Zone Management Act
- The Magnuson-Stevens Fishery Conservation and Management Act, as amended and reauthorized by the Sustainable Fisheries Act
- Hazardous Materials Transportation Act
- RCRA (Subtitle D) Nonhazardous Solid Waste Program and Regulations
- RCRA (Subtitle C) Hazardous Waste Program and Regulation
- Sections 401 and 404 of the Federal CWA – Water Quality Certification and Dredge and Fill Requirements
- Land Disposal Restrictions (40 CFR 268)

State

- New Jersey Surface Water Quality Standards developed pursuant to the CWA, New Jersey Water Pollution Control Act and New Jersey Water Quality Planning Act

- New Jersey Soil Erosion and Sediment Control Act
- Tidelands Act (Riparian Lands Leases, Grants and Conveyances)
- Waterfront Development Law
- Flood Hazard Area Control Act
- Wetlands Act of 1970
- New Jersey Solid Waste Management Act
- New Jersey Water Pollution Control Act – NJPDES Rules
- New Jersey Technical Requirements for Site Remediation

6. Project schedule

Field activities under this removal action are anticipated to begin in the fall of 2010 and be completed in approximately nine months.

B. Estimated Costs

The total estimated cost for the Phase I removal action is $44,700,000. In accordance with the EPA cost-estimating guidance, the costs are intended to be estimates within a -30 to +50 percent range. It is estimated that EPA oversight costs for both Phase I and Phase II removal actions will be approximately $5 million.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Should the response action be delayed or not taken, high levels of 2,3,7,8-TCDD and other contaminants present in sediments of the Passaic River in front of the Diamond Alkali facility could be released during an extreme weather event and migrate throughout the Lower Passaic River and Newark Bay further endangering public health and the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

In June 2008, OCC and Tierra entered into an AOC under which they agreed to perform the Phase I EE/CA and the Phase I work described in this Action Memorandum. These parties are obliged, under the June 2008 AOC, to begin the work outlined in the Action Memorandum after

its issuance and pay EPA all Future Response Costs not inconsistent with the NCP. In order to guarantee performance of the work, the parties have established a trust account to the benefit of the EPA. Should the parties default on the work, EPA will have immediate access to the monies in this account.

IX. RECOMMENDATION

Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal action.

This decision document, which selects the Phase I non-time-critical removal action for the Diamond Alkali Site, in Newark, Essex County New Jersey was developed in accordance with CERCLA, and is not inconsistent with the NCP. The decision documented in this Action Memorandum is based on the Administrative Record for the Site.

The NJDEP was consulted on the Proposed Plan and agrees with the selected removal action for the Site.

Please indicate your approval of the proposed response action by signing below.

Approve: Alan J. Steinberg **Date:** 1-9-09
Alan J. Steinberg
Regional Administrator

Disapprove: _____ **Date:** _____
Alan J. Steinberg
Regional Administrator

cc: (after approval is obtained)
W. Mugdan, ERRD
J. LaPadula, ERRD-DD
J. Rotola, ERRD-RAB
E. Wilson, ERRD-RAB
B. Grealish, ERRD-RAB
R. Basso, ERRD
E. Butler, ERRD
D. Karlen, ORC-NJCSFB
D. Kluesner, PAD
R. Manna, OPM-FMB
T. Riverso, OPM-GCMB
T. Grier, 5202G
P. McKechnie, OIG
I. Kropp, NJDEP
T. Cozzi, NJDEP
J. Macgregor, NJDEP
A. Raddant, USDOI
R. Mehran, NOAA
C. Kelly, RST

APPENDIX A

Figures

(available upon request)

APPENDIX B

EE/CA Approval Memorandum

(available upon request)

APPENDIX C

Responsiveness Summary

RESPONSIVENESS SUMMARY
Diamond Alkali Superfund Site – Lower Passaic River Phase I Removal Action

INTRODUCTION

This Responsiveness Summary provides a summary of public comments and concerns received during the public comment period related to the Diamond Alkali Superfund Site – Lower Passaic River Phase I Removal Action and the responses of the U.S. Environmental Protection Agency (EPA). All comments summarized in this document have been considered in EPA's final decision in the selection of a removal action to address the contamination at the site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The November 2008 Proposed Plan document identified the removal action preferred by EPA, with which NJDEP is in agreement. The Phase I Engineering Evaluation/Cost Analysis (EE/CA) and the Proposed Plan were included in the Administrative Record file which has been made available to the public at information repositories located in the Region 2 Edison, New Jersey office and at the Newark Public Library, New Jersey Reference Section, 5 Washington Street, Newark, New Jersey. The notice of availability for these documents was published in *The Star-Ledger* on November 20, 2008. A public comment period was held from November 19, 2008 to December 19, 2008. On December 2, 2008, EPA held a public meeting at the Hawkins Street Elementary School, 8 Hawkins Street, Newark, New Jersey, to present the findings of the EE/CA, discuss the preferred alternative, and answer questions from the public about the site and the removal actions under consideration. Approximately thirty people attended the public meeting, including neighboring residents, representatives of local community and environmental groups, a local elected official, and representatives of state and federal government officials.

OVERVIEW

Overall, the public supports EPA's selected non-time-critical removal action[1], which consists of the removal and off-site disposal of approximately 40,000 cubic yards of contaminated sediment from the Harrison Reach of the Lower Passaic River. The removal will be accomplished by a mechanical dredge, operating within a sheet-pile enclosure, followed by mechanical dewatering of the dredged material and off-site disposal. Responses to the comments received at the public meeting and in writing during the public comment period are summarized below. Attached to this Responsiveness Summary are the following Appendices:

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[1] The selected removal action is considered non-time-critical because, although there is a threat to public health, welfare, or the environment, there is sufficient planning time available before the removal action is to be initiated.

Appendix C-1 -	Proposed Plan Document (November 2008)
Appendix C-2 -	Public Notice published in *The Star-Ledger* on November 20, 2008
Appendix C-3 -	Letters and E-mails Submitted During the Public Comment Period
Appendix C-4 -	December 2, 2008 Public Meeting Transcript

SUMMARY OF COMMENTS AND RESPONSES

Comments were received at the public meeting and submitted to EPA in writing in the form of e-mails and letters. Written comments were received from:

- Passaic River Coalition via a December 16, 2008 e-mail and letter

- Clean Ocean Action, Hackensack Riverkeeper, Ironbound Community Corporation, NY/NJ Baykeeper and Natural Resources Defense Council via a December 19, 2008 e-mail and letter

A summary of the comments provided at the December 2, 2008 public meeting and contained in the e-mails and letters that were received during the public comment period, as well as EPA's responses to them, are provided below:

Comment #1: Several commenters expressed concern about the potential impacts of the sheet-pile enclosure on the surrounding river (*i.e.*, faster river flows, more flooding, additional erosion/exposure of contaminated sediments).

Response #1: A hydrodynamic model will be developed during the design phase to examine the following: river conditions with and without the sheet-pile enclosure given a variety of factors such as tidal fluctuations and weather conditions, erosion potential due to the sheet-pile enclosure, measures that could be taken to minimize erosion, effects of the sheet-pile enclosure on water levels, and the loads on the sheet-pile enclosure caused by river flows. If the model determines that any of those issues are a concern, modifications to the design of the enclosure would be implemented, such as placing rocks or a synthetic covering over areas that could erode or orienting the enclosure so that it would decrease the potential for erosion.

Comment #2: A commenter requested that the Removal Action Objectives (as stated in the EE/CA), which include the phrase "to the extent practicable," be changed to either eliminate that phrase or replace it with "to the maximum extent practicable."

Response #2: EPA also recognized this issue when the Proposed Plan was being drafted, and the above change, namely the addition of the word "maximum," was incorporated in the two Removal Action Objectives, where it was applicable.

Comment #3: A commenter asked for the navigation channel to be dredged in addition to the 40,000 cubic yards of sediment which was proposed to be dredged as part of this removal action.

Response #3: The focus of this action as described in the Settlement Agreement is the removal and off-site disposal of 40,000 cubic yards of contaminated sediments between the Diamond Alkali site floodwall and the navigation channel on the south bank of the Passaic River. EPA and NJDEP selected this area as the Phase I work area and determined its dimensions (750 ft L X 135 ft W X 12 ft D), based on data gathered from the Lower Passaic River to date. These sediments were determined to contain the most concentrated inventory of dioxin and to meet a number of the specific factors for the performance of a non-time critical removal action. Dredging of the navigation channel is part of a much larger project which is being addressed in the Focused Feasibility Study for the lower eight miles of the Lower Passaic River. The Focused Feasibility Study is expected to be completed in the summer of 2009.

Comment #4: A few commenters asked for the location of the upland sediment processing site and its proximity and potential impacts on nearby residents.

Response #4: The location of the uplands sediment processing site is still being considered, but as EPA stated at the public meeting on December 2nd, the preference is to find a location near the Phase I work area with rail access. At the point when a decision can be made on the final location of the upland sediment processing site, EPA will consult with the community to solicit feedback on the location and to identify any potential impacts that could be associated with that particular location. The methods of transport from the selected site to the disposal location are of particular importance to the community. Although the preference is to use rail transport, some

limited amount of trucking may be necessary. In order to minimize impacts, EPA will solicit ideas from the community on how best to direct any trucking transport from the upland location to the disposal site should trucking be necessary.

Comment #5: Several commenters asked whether monitoring would be performed on the chosen upland sediment processing site before and after the Phase I work to determine whether there were any impacts. The commenters further requested that the upland processing site be remediated and returned to beneficial use.

Response #5: Monitoring of the upland sediment processing site will be performed before, during and after the Phase I removal work to ensure that there are no impacts to the site from the sediment processing operations. The details of this monitoring will be determined during the design phase and shared with the community. Although EPA in general would support the idea of beneficial reuse of the site, the ultimate disposition of the sediment processing site is the decision of the property owner in consultation with the local government. It should be noted that several of the properties located adjacent to the Diamond Alkali facility are in the process of being studied and remediated under the NJDEP's Brownfields Program.

Comment #6: A commenter requested that EPA conduct additional research on alternative methods to process and dispose of the sediment such as sediment washing with beneficial reuse; and that further research should be done regarding the benefits and costs (both environmental and economic) of off-site treatment and disposal versus use of a nearby sediment processing/treatment facility with beneficial reuse.

Response #6: Research on innovative ways to process and dispose of the Lower Passaic River's contaminated sediments through sediment washing and geothermal destruction has been an ongoing effort, which EPA supports. However, to expeditiously remove this limited volume of highly contaminated sediments from the environment, EPA, in consultation with NJDEP, determined that these sediments should be treated and disposed of at an appropriate off-site location so that they are permanently removed from the river system and so that the work can be accomplished within the thirty-month time period specified in the Settlement Agreement.

Comment #7: A commenter requested that a sediment processing/treatment facility should be sited and built in the vicinity of the Lower Passaic River to handle all of the dredged sediments from throughout the NY/NJ Harbor for this project, any future cleanup work, and any navigational dredging. The commenter further noted that the near shore Confined Disposal Facility (CDF) proposed for the Phase II work as part of the Settlement Agreement should be rejected and prohibited.

Response #7: EPA believes this comment is more appropriate for a much larger scale sediment remediation project and is beyond the scope of this particular project. The Settlement Agreement for this project requires the removal and off-site disposal of a relatively small volume of highly contaminated sediments in an expedited time frame. Work of this magnitude would greatly delay that expedited time frame; however, EPA is in discussions with all of the federal and state agencies involved in the NY/NJ Harbor. Furthermore, since the CDF is not a proposed alternative for the Phase I work, this comment cannot be addressed at this time. However, it is a

feature of the Phase II work, and accordingly, this comment will be evaluated and addressed during the Phase II public process.

Comment #8: A commenter noted that in areas where there is existing submerged aquatic vegetation, restoration of that habitat should be required.

Response #8: As indicated in both the Settlement Agreement and the Proposed Plan, restoration of the habitat in the Phase I work area is a requirement of the Phase I Removal Action. The timing and details for the appropriate restoration work will be determined during the design phase in conjunction with the Federal and State Natural Resource Trustees.

Comment #9: A commenter requested that priority be given to hiring Newark residents and that a commitment be made to actively recruit local personnel to work on the clean-up crews, where possible.

Response #9: EPA cannot require private parties to hire locally; however, EPA encourages Tierra Solutions to hire locally to the maximum extent practicable. EPA also will work closely with Tierra Solutions and representatives of the local community to identify appropriate methods and possible resources to facilitate hiring locally. During the Phase I design process, EPA will seek assistance from the community on identifying local resources, support services and local businesses that are potentially interested and available to Tierra Solutions.

Comment #10: A commenter noted that a water treatment system built for the Phase I work should also be designed to treat water from sediment dredged elsewhere in the NY/NJ Harbor, and that the stakeholders should meet to decide what the discharge standards should be for the treated water.

Response #10: EPA believes this comment is more appropriate for much larger scale sediment dredging projects and is beyond the scope of this particular project. The Phase I water treatment facility will be designed to treat and achieve the applicable State and federal discharge standards for the particular contaminants and levels of contaminants that will be expected to be encountered based upon data that will be collected during the design phase. A meeting was held on December 23rd with the water program personnel of the NJDEP to initiate discussions on the work required to establish the appropriate discharge standards.

Comment #11: Several commenters asked how to be involved in the preparation of the Community Health and Safety Plan (CHASP). A commenter further suggested that the approach taken by General Electric Company (GE) in its Remedial Action Community Health and Safety Plan for the Hudson River PCBs Superfund Site should be incorporated in this CHASP. This approach includes the following, as outlined in the GE document:

- First, identify and evaluate potential hazards and community impacts which, absent preventive measures, could realistically occur during work activities.
- Second, evaluate “preventive measures” that could be put in place before the project begins and during activities to reduce the potential for hazards and impacts to occur. This

evaluation included the use of modeling to predict some possible impacts (e.g., noise and air emissions).

- Third, develop response actions and procedures that could be taken in the event hazards or community impacts occur.
- Finally, identify some "mitigation" or additional preventive measures that could be implemented in the event an accident, injury or severe impact occurs. If an incident does occur, evaluate its cause to develop specific mitigation measures to prevent a recurrence.

The Community's primary concerns relate to health and safety of residents and of workers involved in the remediation. Within this context, a number of specific items are of importance:

- Project Schedule and Hours
  1. How many days a week are involved?
  2. What are the hours of operation?
- Quality of Life Standards during the remediation, including actions if standards are exceeded in the following areas:
  1. Air Quality (including dust)
  2. Odors
  3. Noise
  4. Lighting
- Assessment and Management of Potential Hazards Related to:
  1. Dredging and other in-River activities
  2. Potential Hazards related to the Operation of the Dewatering Plant
- Project Health and Safety for Personnel
- Reporting and Response, Emergency Response. There needs to be a clear chain of command for timely information on potential problems associated with spills and releases.
- Actions to Address Resuspension Performance Standards and Other In-Water Quality Requirements. The question of resuspension is of particular concern to the Community. As mentioned above, any language in the Proposed Plan or EE/CA that limits the EPA's ability to require the best possible methods for reducing spillage and resuspension should be replaced.
- Meaningful opportunity for review and comment of the complete CHASP should be given to the community prior to acceptance by the EPA.

Response #11: EPA specifically included requirements for a CHASP in the Proposed Plan because of the success with the use of this type of plan for the Hudson River PCBs Superfund Site. EPA anticipates following that model in the development of this CHASP with modifications where appropriate to meet the particular needs of the communities living near the Phase I work area. All of the bullets in the comment above will be addressed in consultation with the community during the design phase. As proposed during the public meeting on December 2nd, EPA intends to convene regular meetings to bring together the government agencies involved in this project, the community and Tierra Solutions to obtain feedback on the issues outlined above and reach resolutions.

Comment #12: Several commenters asked whether the dredging of sediment or the placement of the sheet pile enclosure in close proximity to the adjacent floodwall and bulkhead could impact the integrity of those structures.

Response #12: Maintaining the stability of the existing floodwall in front of the Diamond Alkali facility and the bulkhead in front of the Sherwin Williams facility during sediment removal activities is a critical aspect of the overall design. The floodwall was designed and built to support not only the soil, groundwater, and the remedy that was built on the site, but also the possible removal of up to 5 feet of sediment along the floodwall. In addition, a sheet-pile enclosure will be designed and installed to structurally reinforce the current floodwall and bulkhead. Some of the components that will be considered for use during design include: installing the enclosure as close as practical to the current structures, performing a structural inspection, modeling of the slope stability to confirm that the sheet-pile wall is installed deeply enough (it will be deeper than the floodwall) to satisfy the safety factors, and establishing contingency plans.

Comment #13: Several commenters asked where the final off-site disposal site will be located, whether the community there will have the opportunity to comment on this action, and how the dredged materials will be transported to the final disposal site.

Response #13: The final disposal site and the method(s) of transport to that site will be selected during the design phase. EPA will share information and reach out to community representatives on both the location of that site and the method(s) of transport. EPA is only considering permitted disposal sites, which have gone through a public comment process. The available methods of transport will largely be determined by the selection of the upland sediment processing site. For further information on the community's role in the transport decision please see Response #4.

Comment #14: Several commenters asked whether the possibility of either burying these contaminated sediments under the cap on the adjacent Diamond Alkali site or digging up those materials for disposal along with these sediments had been evaluated.

Response #14: Neither of these options was evaluated as part of this project since the Settlement Agreement specified the removal and off-site disposal of the contaminated sediments. EPA and NJDEP determined that this relatively small volume of highly contaminated material should be treated and disposed at an approved off-site location on an expedited schedule. Placing this material under the current cap on the Diamond Alkali facility or digging up the materials from under the cap for disposal off-site will increase risks by opening the currently protective cap and will delay the schedule since a number of additional issues will need to be resolved regarding the additional volume of materials, the additional equipment and processes needed, and the compatibility of the different materials. It should be noted that although a protective remedy is in-place at the Diamond Alkali facility, a remedy evaluation is required to be conducted every two years to continue to assure the protectiveness of that remedy and to evaluate innovative remedial alternatives that could be more protective of human health and the environment. The first two-year review has been initiated by EPA.

Comment #15: A commenter asked if the public will have access to the data collected during this action while the work is on-going and if that information will be available in the Newark Public Library.

Response #15: EPA intends to post Phase I work data summaries on the Diamond Alkali Web site at www.epa.gov/region02/superfund/npl/diamondalkali**.** EPA will also include the data with the Diamond Alkali - Lower Passaic River - Phase I Removal Action files being maintained in the Newark Public Library, New Jersey Reference Section.

Comment #16: A commenter asked whether all other in-river activities will need to be suspended while this work is occurring. The commenter further noted during the annual boat race a participant almost always falls in the river and questioned whether the cleanup work would make the river levels increase and thereby add more of a threat to people boating or participating in river bank cleanups.

Response #16: EPA will evaluate the hydrodynamic modeling results and the data collected as part of the design phase with Tierra Solutions and the government agencies involved in this project to determine whether there could be any impacts to in-river activities. The annual boat race mentioned in the comment occurs in the late spring. Phase I work is estimated to be completed earlier in the spring of 2011. Therefore, EPA anticipates that these activities will not conflict. At this point, EPA does not expect there to be significant impacts from the Phase I removal work on ongoing in-river activities, however, this will be fully evaluated in the near future.

Appendix C-1

November 2008 Proposed Plan Document

Superfund Program
Proposed Plan

U.S. Environmental Protection Agency, Region II

Lower Passaic River – Phase I Removal Action

November 2008

PURPOSE OF THIS DOCUMENT

This document describes the response actions considered for the Lower Passaic River - Phase I Removal Action and identifies the preferred response action with the rationale for this preference.

The document was developed by the U.S. Environmental Protection Agency (EPA), in consultation with the New Jersey Department of Environmental Protection (NJDEP). EPA is issuing this document as part of its public participation responsibilities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The response actions summarized here are described in more detail in the Engineering Evaluation/Cost Analysis (EE/CA) report. EPA and NJDEP encourage the public to review the EE/CA to gain a more comprehensive understanding of the site and the proposed response action.

EPA's preferred response action, which is formally referred to as a non-time critical removal action (NTCRA), consists of the removal and off-site disposal of approximately 40,000 cubic yards (cy) of contaminated sediment from the Harrison Reach of the Lower Passaic River. The removal will be accomplished by a mechanical dredge, operating within a sheet-pile enclosure, followed by mechanical dewatering of the dredged material and off-site disposal.

The response action described in this document is the *preferred* response action for the site. Changes to the preferred response action or a change from the preferred response action to another response action may be made if public comments or additional data indicate that such a change will result in a more appropriate response action. The final decision regarding the selected response action will be made after EPA has taken into consideration all public comments. EPA is soliciting public comment on all of the components of the response actions considered in the detailed analysis of the EE/CA because EPA and NJDEP may select a response action other than the preferred response action.

MARK YOUR CALENDAR:

PUBLIC COMMENT PERIOD:
November 19 – December 19, 2008
U.S. EPA will accept written comments on the Proposed Plan and Phase I EE/CA during the public comment period.

PUBLIC MEETING:
December 2, 7:00pm
U.S. EPA will hold a public meeting to explain the Proposed Plan and all of the alternatives presented in the Phase I EE/CA. Oral and written comments will also be accepted at the meeting. The meeting will be held at the Hawkins Street Elementary School, 8 Hawkins Street, Newark, New Jersey.

For more information, see the Administrative Record at the following locations:
U.S. EPA Region 2 Superfund Records Center
Building 205
2890 Woodbridge Avenue
Edison, NJ 08837-3679
Hours: Mon – Fri: 9AM – 5PM
Phone: (732) 906-6980

Newark Public Library
NJ Reference Section
5 Washington Street
Newark, NJ 07101
Hours: Mon, Fri, Sat: 9AM – 5:30PM
Tues, Wed, Thurs: 9AM – 8:30PM
Phone: (201) 733-7775

This document is being provided as a supplement to the EE/CA to inform the public of EPA's and NJDEP's preferred response action and to solicit public comments pertaining to all the response actions evaluated, as well as the preferred response action.

COMMUNITY ROLE IN SELECTION PROCESS

EPA relies on public input to ensure that the concerns of the community are considered in selecting an effective response action for each Superfund site. To this end, the EE/CA and this document have been made available to the public for a public comment period which begins on November 19, 2008 and concludes on December 19, 2008.

A public meeting will be held during the public comment period at the Hawkins Street Elementary School on December 2 at 7:00 P.M. to present the conclusions of the EE/CA, to further elaborate on the reasons for recommending the preferred response action, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented as part of the decision document (called an Action Memorandum) which will formalize the selection of the response action.

Written comments on this document should be addressed to:

Elizabeth Butler
Remedial Project Manager
Passaic River Team
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Telephone: (212) 637- 4396
email: butler.elizabeth@epa.gov
Fax: (212) 637-4439

SITE BACKGROUND

On June 23, 2008, EPA Region 2, Occidental Chemical Corporation (OCC) and Tierra Solutions Inc. (Tierra) entered into an Administrative Order on Consent (AOC) for the conduct of a source control removal action of 200,000 cubic yards (cy) of contaminated sediment from the Harrison Reach of the Lower Passaic River. The primary objective of this action is to remove a significant portion of the most concentrated inventory of dioxin-contaminated sediments, thereby removing source material that poses a potential risk to human health and the environment. In accordance with the AOC, the work is being performed as a NTCRA requiring the preparation of an EE/CA. The objective of the EE/CA is to evaluate different alternatives for conducting the action based on three criteria, namely, effectiveness, implementability and cost.

The removal will take place in two discrete phases. Phase I, the subject of this Proposed Plan, will remove approximately 40,000 cy of the most highly contaminated sediment with subsequent treatment and off-site disposal. The work area dimensions for Phase I were predetermined in the AOC by EPA and NJDEP based on a three-dimensional geophysical analysis of sediment coring data in the Harrison Reach designed to maximize removal of sediments containing the highest concentrations of dioxins.

In accordance with the AOC, Phase II, which will be conducted under a separate timeline, will remove an additional 160,000 cy of sediment for disposal in a Confined Disposal Facility (CDF). Phase II will be the subject of a separate EE/CA at a later date.

The Phase I and II work areas are contiguous and are located within the Lower Passaic River Study Area (LPRSA), which is approximately 17 miles long and extends from the Dundee Dam near Garfield, New Jersey to Newark Bay. It was decided to perform the work in two separate phases so that the most contaminated sediments could be removed and disposed of off-site expeditiously. The Phase I work area is located in the Harrison

Reach, at approximately River Mile 3.4, of the Passaic River adjacent to the Diamond Alkali Superfund site. Historical discharges from the Diamond Alkali Site are considered the primary source of dioxin to the Lower Passaic River. From 1951 to 1969, the Diamond Alkali Company operated a facility at 80 Lister Avenue in Newark, New Jersey that manufactured, among other chemicals, herbicides and pesticides from which dioxin (2,3,7,8- tetrachloro-dibenzo-*p*-dioxin (TCDD)) is a by-product. After hazardous substances were detected at the facility, EPA placed the Diamond Alkali Site on the National Priorities List in 1984.

The Diamond Alkali site has been contained since 2004 through the construction of a slurry trench cutoff wall, an engineered cap, a ground water pump and treat system, and a floodwall along the Passaic River. On-going operation and maintenance monitoring and a remedy review conducted by EPA in July 2006, indicate that the remedy is functioning as intended to contain the site.

The Phase I work area is bounded to the north by the navigation channel and to the south by the Diamond Alkali site floodwall and a bulkhead in front of a portion of the adjacent Sherwin-Williams property. Generally, the Phase I Work Area sediment is fine-grained, cohesive material classified as silt and clay. The average flow of the Passaic River near the Phase I Work Area is approximately 1,450 cubic feet per second.

The removal of contaminated sediments will take place entirely within a sealed sheet pile containment structure designed to prevent the release of contaminated sediment into the Lower Passaic River. The Phase I Work is not anticipated to significantly impact the ongoing LPRSA and Newark Bay Remedial Investigation/Feasibility Study (RI/FS) Programs. Furthermore, since all work will take place within the containment structure, which is located outside the navigation channel, impact to commerce on the river is expected to be minimal.

SITE HISTORY

After the Diamond Alkali Superfund Site was placed on the National Priorities List, an RI/FS was conducted at the Diamond Alkali plant, which included the sampling and assessment of sediment contamination within the adjacent Passaic River. Pursuant to a 1990 Consent Decree, OCC implemented a 1987 Record of Decision for an interim remedy at the plant, which included a cap and wall around the property, and a pump and treat system to contain contaminated ground water. Sampling of sediments in the Passaic River revealed many hazardous substances including, but not limited to dioxins and furans (including 2,3,7,8-TCDD), dichlorodiphenyl-trichloroethane (DDT), polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), mercury, cadmium, copper, lead, nickel, and zinc.

In 1994, OCC signed an AOC with EPA to investigate a six-mile stretch of the Passaic River centered on the Diamond Alkali plant. A significant portion of the RI was completed by OCC. It showed that evaluation of a larger area was necessary because sediments contaminated with hazardous substances and other potential sources of hazardous substances are present along at least the entire 17-mile tidal stretch of the Passaic River and were further dispersed by the tidal nature of the Lower Passaic River. As a result, in January 2001, EPA directed OCC to suspend work under the AOC.

EPA and a partnership of federal and State of NJ agencies undertook a joint CERCLA-Water Resources Development Act (WRDA) study of the 17-mile tidal stretch of the Passaic River (the LPRSA). That work is on-going. During the course of the 17-mile study, the sediments of the lower eight miles of the Passaic River were found to be a major source of on-going contamination to the tidal river and Newark Bay. Therefore, EPA, NJDEP and the other partner agencies are developing a Focused Feasibility Study (FFS) to

evaluate taking an early action to address that major source of on-going contamination.

The sampling performed as part of these several investigations in the river sediment adjacent to the site provides the information necessary to support the current action.

SUMMARY OF SITE INVESTIGATIONS AND EXTENT OF CONTAMINATION

Sediment coring data from the Lower Passaic River has shown the Harrison Reach to contain the most concentrated inventory of dioxin-contaminated sediments. The maximum detected concentration of 5,300 parts per billion (ppb) of dioxin (2,3,7,8-TCDD) in the Harrison Reach is located within the Phase I work area at River Mile 3.4. The coring data also show that the stretch of sediments to the east and west of River Mile 3.4 have concentrations over 100 ppb. Much of this area falls within the Phase II removal work area.

In general, chemical data from the Phase I Work Area indicate that the highest contaminant levels of dioxins, metals, and other constituents were found deeper than 2 ft below sediment surface with concentrations tending to decrease to relatively low levels by 12 ft deep in the sediment profile. Samples collected closer to shore also tend to exhibit more elevated concentrations as compared to those collected farther from shore.

The Phase I work area lies mainly in a mud flat between the Diamond Alkali site floodwall and the navigation channel on the south bank of the Passaic River. Although these high levels of dioxin are not currently within the biologically active zone, there is the potential for these highly toxic sediments to become exposed should an extreme storm event erode away the overlying sediments. EPA and NJDEP believe these sediments pose a serious threat, because their dioxin concentrations are well over three orders of magnitude greater than the average surface sediment dioxin concentrations in the rest of the river (0.8 ppb), and their highly toxic concentrations would pose significant risk to human health or the environment should exposure occur.

The site data used to help define the dimensions of the Phase I work area consisted of seven surface grab samples and 90 cores collected by Tierra in 1995 and ten additional cores collected by Malcolm Pirnie in 2006. The horizontal and vertical dimensions (750 ft L X 135 ft W X 12 ft D) of the Phase I work area were determined by EPA and NJDEP by analyzing the historical bathymetry and the Tierra and Malcolm Pirnie data sets using a geostatistical analysis program named "Mining Visualization System 3D." The details of this analysis are available in the administrative record for the removal action.

Based on information available, EPA has determined that the sediments do not contain a listed hazardous waste. However, the existing data suggest that some of the dredged material will have the potential to be designated as a characteristic hazardous waste. This means that the dredged material will have to be disposed of off-site either by incineration or in a RCRA Subtitle C landfill.

Based upon observations from a number of geophysical surveys conducted in the vicinity of the Phase I work area, it is assumed that a variety of debris will be encountered during sediment removal operations and will need to be removed, as a separate operation before dredging.

SUMMARY OF SITE RISKS

Human Health and Ecological Risk

A quantitative baseline human health and ecological risk assessment for chemical constituents in sediment and the food web (e.g., fish, crabs, other organisms in the river) of the LPRSA, including the Phase I Work Area, is being performed as part of the ongoing 17 mile Remedial Investigation/Feasibility Study (RI/FS). The Phase I Work, including the post-removal conditions, will be considered and evaluated under the

RI/FS program. The EE/CA contains a streamlined risk evaluation, consistent with guidance on removal actions, that identifies and summarizes the human health and ecological exposures to the contaminants within the Phase I work area and discusses the potential reduction of exposures to these contaminants as a result of the Phase I Removal Action.

Summary of Potential Exposures

The available data demonstrate that the sediments within the Phase I Work Area, both at the surface and especially at depth, are contaminated with a variety of chemical constituents including dioxins, metals and other constituents that could pose a potential risk in the event that these materials are mobilized and become available within the river. As shown in a Conceptual Site Model of the EE/CA, the sediment in the Phase I Work Area, both at the surface and at depth, is contaminated with a variety of chemical constituents, many of which are present at levels that: would present unacceptable risks to both human and ecological (wildlife) receptors, are transferred into the food web, and may be transported to other areas of the river.

The actual exposure risks and transport dynamics cannot be quantified in this evaluation, but the exposure potential for both humans and ecological receptors can be qualitatively characterized. The following sections qualitatively describe human health and ecological risks.

Human Health: Potential human exposures to chemical contaminants include receptors such as anglers (i.e., people who fish) and crabbers potentially catching and consuming fish/shellfish (e.g., crabs) from this area as well as boaters and workers in the area. These exposures are primarily through ingestion of contaminated fish or shellfish from the river, dermal contact and/or incidental ingestion of sediment and/or water. Inhalation of volatile or semivolatile organic compounds from sediment or water is another potential exposure pathway, but not as significant as the ingestion and direct contact pathways. These contaminants have been associated with a variety of adverse health effects including a risk of cancer.

The State of New Jersey, recognizing the widespread chemical contamination of fish and shellfish in the lower Passaic River from dioxin, PCBs and mercury, has prohibited the sale or consumption of all fish and shellfish from this area since the 1980s.

Ecological Assessment: Ecological receptors in the Phase I Work Area include a range of invertebrate and vertebrate organisms that inhabit or utilize the river either year round or on a migratory basis. These primarily include benthic invertebrates, shellfish (primarily blue crabs), fish, birds (both shorebirds and passerines) and mammals. Exposures for all of these groups can include both direct contact with sediment and water, as well as indirect uptake of bioaccumulative chemical constituents through food web (i.e., feeding) interactions.

Risks: The current risks in the Lower Passaic River are associated with an average concentration of 800 part per trillion (0.8 parts per billion) of dioxin (2,3,7,8 –TCDD) in the surface sediment. The maximum concentration found at depth is in the thousands of parts per billion range which is orders of magnitude greater than the current surface concentration. The actual exposure risks and transport dynamics were not quantified in this evaluation. However, the possibility exists that the material at depth may become available in the estuary. The potential release of these high levels of dioxin found at depth from the Phase I work area would have long-lasting adverse impacts on the estuary.

Conclusions: The results of the qualitative risk evaluation indicate that there would be a significant risk to human health and the environment from exposure to sediment within the Phase I work area if these sediments were released into the water column. The release of these highly contaminated sediments could adversely impact ecological receptors, such as invertebrates, fish, birds and mammals that use the

river. In addition to adverse impacts to the environment, the contaminants in the sediment could be taken up through the food web where people may consume contaminated fish and crabs. Therefore, conditions at the site meet the criteria for a removal action under CERCLA, as documented in Section 300.415(b)(2)(i) of the NCP, namely, the actual or potential exposure of nearby people to hazardous substances.

REMOVAL ACTION OBJECTIVES

The sediment cleanup goals for the Phase I removal action are tied to the goal of source removal. As there are no sediment cleanup levels to meet, there will be no post excavation sampling upon completion of the work. The objective is to remove source material at depth and thereby eliminate the risk related to the potential resuspension of these sediments into the water column where they may become part of the food web in the future.

The following removal action objectives (RAOs) were established for the site:

- Remove a portion of the most concentrated inventory of dioxin (2,3,7,8 - TCDD), and other hazardous substances, to minimize the possibility of migration of contaminants due to extreme weather events.

- Prevent, to the maximum extent practicable, the migration of resuspended sediment during removal operations through appropriate engineering controls, monitoring, etc.

- Prevent, to the maximum extent practicable, the potential for spillage or leakage of sediment and contaminants during transport to the disposal facility.

- Restore habitat. (Restoration of the Phase I Work Area will be coordinated with the activities of the bordering Phase II work and may not occur until Phase II is completed.)

EPA has determined that a NTCRA is warranted to minimize, or eliminate these potential threats to human health, welfare, or the environment. The proposed response action is considered non-time critical because, although there is a threat to public health, welfare, or the environment, there is sufficient planning time available before the removal action must be initiated.

REQUIREMENTS OF THE AOC

The June 23, 2008 AOC requires the removal and off-site disposal of approximately 40,000 cy of contaminated sediment from within a predetermined area called the Phase I work area. As previously discussed in the Site Background section, the dimensions of the Phase I work area and the amount of contaminated sediment to be removed were determined by EPA and NJDEP. It was also determined, and made a requirement of the AOC, that Tierra conduct the removal of contaminated sediments from within a sheet-pile enclosure to mitigate the potential for sediment resuspension and contaminant release during dredging. Consequently, the response actions developed during the EE/CA process were designed to reflect these baseline requirements of the AOC. Therefore, the EE/CA did not evaluate other alternatives such as capping or in-situ stabilization because they would not meet the requirements of the AOC as described above.

RESPONSE ACTION COMMON ELEMENTS

As per the AOC, the Phase I EE/CA focuses solely on development of alternatives for sediment removal, processing and disposal activities. All of the Phase I work alternatives assumed that upland activities, including staging, sediment and debris processing, and water treatment will occur at a property in close vicinity to the work area.

The four alternatives, while differing in technology and methodology to achieve the baseline

requirements of the AOC, share a number of common components which are described below.

Sheet-Pile Enclosure

As directed by the AOC, all four Phase I Work Alternatives involve the removal of 40,000 cy of sediment from within a sealed sheet pile enclosure. Accordingly, all alternatives involve the construction of a sheet pile enclosure that will be designed to minimize, to the maximum extent practicable, the migration of resuspended contaminated sediment from the Phase I work area.

The conceptual design anticipates that the sheet piles for this enclosure will be driven into a deep silty clay layer with low permeability. A sealant will be applied to the joints to reduce the interlock permeability. These measures will contain resuspended sediment within the Phase I Work Area, preventing the dispersion to the maximum extent practicable. The depth of the sheet piles and the sealant will limit hydraulic connectivity between the Phase I Work Area, the Passaic River, and Diamond Alkali site floodwall.

Due to concerns about air quality impacts and potential risks to foraging birds from exposed sediments and groundwater infiltration leading to destabilization of the sheet-pile enclosure, it was decided to remove sediment "in the wet." This means that the river water level will be maintained within the sheet-pile enclosure during dredging operations in order to ensure the integrity of the wall and surrounding structures including the Diamond Alkali site flood wall.

Debris Handling/Solids Separation

As it is expected that a variety of large and small-sized debris will be encountered during the removal action, a debris survey will be conducted to identify debris that are expected to be present in the Phase I Work Area. A Grizzly screen or equivalent device will be needed to remove large solids, including smaller debris, that may damage the dewatering equipment and minimize functionality. Solids separation, to protect the sediment processing equipment, may also include the removal of sand-sized solids via hydrocyclone.

Once removed and stockpiled, over-sized debris will be pressure washed. Over-sized debris, such as cars, logs or other large objects, will be removed mechanically and handled separately from the sediment. The rinse water will be collected for subsequent treatment, and the sediment will be collected for processing.

Water Treatment and Discharge

Treatment of collected water from removal and processing operations will be required prior to discharge to the Passaic River. Water that will be treated includes decontamination water and that which is generated during sediment and debris processing. River-water within the sheet-pile enclosure may also require treatment prior to removal of the structure. It is anticipated that a dedicated water treatment plant, which includes physical and chemical processes, such as flocculation, clarification, multimedia filtration, and granular-activated carbon adsorption will be constructed on an adjacent property. Similar water treatment plants have been successfully used at other sites containing similar contaminants.

Off-site Transport of Sediment

Transportation and off-site disposal is another common component of all four alternatives. Transport technologies screened in the EE/CA include transport by rail, barge and truck. Of the three, EPA strongly prefers either rail or barge or a combination of both. Transport by truck is the least preferable mode because the large number of trucks required may produce a potential risk and a nuisance to the surrounding community (i.e., diesel fumes, noise, potential accidents). Therefore, properties that provide access to barge and rail transport are

currently being evaluated as upland sediment processing locations.

The final transport approach cannot be determined until the selection of the off-site treatment and disposal facilities, because the two are closely linked. For the purposes of the Phase I EE/CA, rail or barge transport of sediment from the upland processing site to the receiving facility was assumed as the method of transport, with some trucking from the rail/barge depot to the receiving facility included in the evaluation.

Regardless of the method of transport, sediment will be transported in sealed intermodal containers. This will allow movement of the sealed container from one transport technology to another, if needed, without direct contact with the sediment. The use of sealed intermodal containers will also minimize the potential for the release of sediment during transport. Whether debris, as distinct from sediment, is transported in a sealed intermodal container will depend on the nature and size of the debris.

Off-Site Treatment and Disposal

Off-site treatment and disposal of the removed sediment is required per the AOC. Based on existing analytical data, a portion of the sediment has the potential to be classified as a characteristic hazardous waste due to the presence of hazardous constituents above the toxicity regulatory levels. The mean concentration of dioxin, based on the historical sediment sampling results from within the Phase I work area, is 244 ppb. Because this value is greater than the universal treatment standard (UTS) of 1 ppb, it was assumed for the purposes of the Phase I EE/CA that some of the sediment will require treatment (most likely incineration but the possible use of oxidizers and polymers will be considered as well) prior to disposal. Other than the sediment that contains characteristic hazardous waste or contains dioxin levels above 1 ppb, it is likely that the remainder of the sediment will not require treatment prior to land disposal. During design, the percentage of sediment requiring treatment will be refined further.

Backfilling

Following sediment removal, the Phase I Work Area will be restored by backfilling to at or near pre-removal surface elevations. Backfill materials and placement methods will be determined during design. Restoration of the Phase I Work Area will also need to consider the schedule and activities of the Phase II Work. Backfill materials will meet appropriate criteria for an estuarine environment.

Monitoring

Water quality monitoring and air monitoring will begin prior to the start of work to establish baseline conditions against which to compare during and after construction. The monitoring results will be used to assess impacts to the workers' well being and that of the surrounding community and environment. It is anticipated that monitoring will be conducted throughout the duration of the Phase I Work, including health and safety monitoring, water quality and water treatment discharge monitoring and air monitoring. To share these data with the community in a timely manner, monitoring results will be posted on a publicly accessible web site, and other means as appropriate.

Health and Safety

A health and safety plan will be developed for on-site workers. A separate health and safety plan for the community will be developed as described in the Community Involvement section below.

Community Involvement

A number of decisions that have the potential to impact the community will be made in the design phase of the Phase I Work. EPA has developed a draft Community Involvement Plan (CIP) for the removal project to guide the community outreach

and input process throughout both phases of the removal. The CIP will be finalized concurrent with issuance of the Action Memorandum and will reflect community input received during the public comment period on the Phase I EE/CA and this Proposed Plan. Tierra will work together with EPA, NJDEP, and community members to ensure that quality of life issues such as noise, odor, road traffic, navigational traffic, water quality, air quality, and light are accounted for during design. A Community Health and Safety Plan (CHASP) will be developed as part of the project design. It will address community health and safety issues that will need to be considered in the removal project implementation.

The CHASP will, at a minimum, provide for the use of "clean diesel" technology for the heavy equipment that will be used for on-site dredging and materials handling. Clean diesel technology includes the use of air pollution control devices to minimize emissions of fine particulate matter, and the use of ultra-low sulfur diesel fuel to protect such equipment and further reduce particulate emissions. Use of clean diesel technology, to the maximum extent practicable, will dramatically reduce particulate emissions associated with this work, and will help protect the local community from risks associated with such emissions.

The CHASP will also consider other practicable ways in which to reduce the environmental "footprint" of the response work (including the direct and indirect emission of greenhouse gases).

SUMMARY OF RESPONSE ACTIONS

The following alternatives were developed in accordance with EPA's guidance on conducting Non- Time-Critical Removal Actions Under CERCLA (USEPA, August 1993) and the AOC:

Alternative A: Hydraulic removal with geotextile tube processing

Alternative B: Hydraulic removal with mechanical processing

Alternative C: Mechanical removal with mechanical processing

Alternative D: High-solids pump removal with mechanical processing.

Alternative A: Hydraulic Removal with Geotextile Tube Processing

In addition to the common elements described above, Alternative A will employ hydraulic dredging to remove the sediment from within the Phase I work area. Hydraulic dredging removes sediment from the work area with suction and the force of a rotating cutter head or horizontal auger to loosen the sediment. The sediment would then be pumped as a slurry through a pipeline to the upland processing site, where it will be put on a Grizzly screen and moved through the screen by shaking and water jets. This step will separate out the small debris. The sediment will then be put in a hydro-cyclone to separate the coarser sediment (sand) from the finer sediment, since the larger solids may damage the dewatering equipment and prevent it from functioning properly.
The geotextile tubes will be staged on top of a liner, such as a geomembrane, with perimeter berms so that the decant water from the geotextile tubes will be contained and ultimately collected in a sump. Geotextile tubes are made of high strength, permeable materials which retain the sediment while allowing the water to drain out. Water treatment will be conducted throughout the duration of the geotextile tube dewatering as the decant water is generated. Once the dewatering in the geotextile tube is completed, the geotextile tubes will be opened and sampled to determine the appropriate disposal method. Other in-water activities, such as backfilling and sheet pile removal, will be conducted

in parallel with geotextile tube dewatering once sediment removal is complete.

Alternative A will take approximately 27 weeks to complete removal and backfilling. This does not account for subsequent activities (e.g., time to dewater sediment in geotextile tubes, sheet pile removal, remaining off-site transport and disposal, and demobilization). The total estimated cost for Alternative A is $53,900,000. Appendix A of the Phase I EE/CA provides a breakdown of the costs, as well as a summary of the assumptions made to develop the costs. In accordance with the EPA cost-estimating guidance, the costs are intended to be estimates within a -30 to +50 percent range.

Alternative B: Hydraulic Removal with Mechanical Processing

Alternative B is similar to Alternative A in that it uses hydraulic dredging to remove the sediment from the Phase I Work Area. The major difference is that the sediment slurry will be mechanically dewatered by squeezing or pressing water from the sediment using a filter press, belt press, or equivalent. The resulting dewatered sediment will be stockpiled and covered on the upland processing site pending characterization and off-site disposal.

Alternative B will take approximately 27 weeks to complete removal and backfilling. This does not account for subsequent activities (e.g., sheet pile removal, remaining off-site transport and disposal, and demobilization). The total estimated cost for Alternative B is $49,100,000. In accordance with the EPA cost-estimating guidance, the costs are intended to be estimates within a -30 to +50 percent range.

Alternative C: Mechanical Removal with Mechanical Processing

In addition to the common elements described earlier, Alternative C will employ mechanical dredging to remove the sediment from the Phase I Work Area. Mechanical dredging uses the mechanical action of a bucket or scoop to excavate the sediment at near in-situ density. The mechanical dredge, operated from a barge, would excavate sediment using an environmental bucket and place dredged material on another barge within the sheet pile enclosure. The barge would then navigate to the upland processing site within the sheet pile enclosure and be unloaded using excavators. The mechanically dredged material will be passed through a Grizzly screen to remove debris and then slurried by adding water. Another possible approach would be to place the sediment directly into a hopper on a barge. The hopper would serve the same function as the Grizzly screen to remove debris. After the sediment has passed through the hopper, it would be slurried on the barge and pumped to the upland processing site for sediment processing. The sediment slurry will then pass through a hydrocyclone to separate out the sand fraction of the material. Following the hydrocyclone step, the resulting fine-grained sediment slurry will be mechanically dewatered using a filter press, belt press, or equivalent, and the resulting dewatered sediment will be stockpiled and covered on the upland processing site pending characterization for off-site disposal.

Alternative C will take approximately 29 weeks to complete removal and backfilling. This does not account for subsequent activities (e.g., sheet pile removal, remaining off-site transport and disposal, and demobilization). The total estimated cost for Alternative C is $44,700,000. In accordance with the EPA cost-estimating guidance, the costs are intended to be estimates within a -30 to +50 percent range.

Alternative D: High Solids Pump Removal with Mechanical Processing

In addition to the common elements described earlier, Alternative D will utilize a high solids pump to remove the sediment from the Phase I Work Area. High solids pumping consists of a submersible pump (Toyo or Eddy pump) attached to a flexible pipe and suspended from a barge-mounted crane, excavator arm or ladder. The continuous suction pumping will remove the sediment and nearby water as a slurry. The sediment slurry will then be transported through a pipeline to the upland processing site. After the Grizzly screen and hydrocyclone steps, the resulting fine-grained sediment slurry will be mechanically dewatered using a filter press, belt press, or equivalent, and the resulting dewatered sediment will be stockpiled and covered on the upland processing site pending characterization for off-site disposal.

Alternative D will take approximately 27 weeks to complete removal and backfilling. This does not account for subsequent activities (e.g., sheet pile removal, remaining off-site transport and disposal, and demobilization). The total estimated cost for Alternative D is $45,100,000. In accordance with the EPA cost-estimating guidance, the costs are intended to be estimates within a -30 to +50 percent range.

EVALUATION OF RESPONSE ACTIONS

To select a response action for a site, EPA conducts a detailed analysis of the viable response actions. The detailed analysis consists of an assessment of the individual response actions against each of three evaluation criteria (effectiveness, implementability, and cost) and a comparative analysis focusing upon the relative performance of each response action against those criteria.

Effectiveness

This criterion refers to a response action's ability to meet the RAOs. The overall assessment of effectiveness is based on a composite of factors, including overall protection of human health and the environment and compliance with Applicable and/or Relevant and Appropriate Requirements (ARARs).

Overall Protection of Human Health and the Environment assesses whether the response actions are protective of human health and the environment including the community and workers during implementation. The evaluation will focus on how each response action achieves adequate protection and describe how the response action will reduce, control, or eliminate risks at the site through the use of treatment, engineering, or institutional controls.

Compliance with ARARs addresses whether or not a response action would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes. Other federal or state advisories, criteria, or guidance are To Be Considered (TBC) criteria. TBCs are not required by the NCP, but may be useful in determining what is protective of a site or how to carry out certain actions or requirements.

Implementability

Under this criterion, the ease of implementing the response actions will be assessed by considering the following factors: technical feasibility, including technical difficulties and unknowns associated with the construction and operation of a technology, the reliability of the technology, ease of undertaking additional response actions, the ability to monitor the effectiveness of the response action, and the extent to which the removal action contributes to the efficient performance of any long-term remedial action; administrative feasibility, including activities needed to coordinate with other offices and agencies, the ability to obtain necessary approvals and permits from other agencies (for off-site actions) and the ability to meet the time frame laid out in the AOC; availability of services and materials, including the availability of adequate on or off-site treatment, storage capacity, and disposal capacity and services; and the availability

of necessary equipment and specialists, and provisions to ensure any necessary additional resources; and the availability of prospective technologies for full-scale application. This criterion will also assess state and community acceptance, as described below.

State Acceptance indicates whether, based on its review of the EE/CA and this document, the State agrees with, opposes, or has no comment on the preferred response action at the present time.

Community Acceptance, which will be assessed in the Action Memorandum, refers to the public's general response to the response actions described in the EE/CA and this document through comments received during the public comment period and those provided at the public meeting.

Cost

The costs that will be assessed include the capital costs, including both indirect and direct costs.

COMPARATIVE ANALYSIS OF RESPONSE ACTIONS

A comparative analysis of the response actions based upon the evaluation criteria noted above follows:

Effectiveness

Overall Protection of Human Health and the Environment

It is expected that all four EE/CA removal alternatives could meet the RAOs and the threshold criteria for protection of human health and the environment through the removal of highly contaminated sediment from the Passaic River within a sealed sheet pile enclosure designed to prevent the migration of resuspended sediment into the surrounding environment.

Protectiveness

Alternatives A and B are both considered to have the greatest overall protectiveness, because they both employ hydraulic dredging, which removes the sediment within the water column and transfers it via pipeline to the processing equipment, thereby significantly reducing exposure of the material to on-site workers and the community. Alternative C is considered somewhat less protective because mechanical dredging will remove the sediment out of the water column and place it into a barge to await upland processing. Comparatively, this process results in greater potential exposure to on-site workers and the community than the hydraulic alternatives. However, engineering controls, such as plastic sheeting and berms, and best management practices, such as requiring the excavator operator to limit the unloading rate of the barges, will be applied to mitigate the impacts of spilled material.

Alternative D is considered the least protective because of the potential for the high solids pump to clog with debris and vegetation, requiring the workers to clear the pump inlet manually and, in turn, increasing their exposure risk. All of the alternatives have similar potential for worker exposure risk in the sediment and debris processing and transport operations.

Ability to Achieve RAOs

Alternatives A, B, C and D are equally competent in their ability to achieve a high level of compliance with the RAOs.

Compliance with ARARs

It is expected that all four EE/CA removal alternatives can be designed and implemented to meet ARARs and the need for waivers is not expected at this time. Furthermore, the non-common elements among the alternatives, such as utilizing mechanical dredging as opposed to hydraulic dredging or mechanical dewatering as opposed to geotextile tube processing do not have any bearing on the ARARs.

No federal, State or local permits are required for CERCLA response actions that are conducted on-site, although such response action will comply with substantive federal or State requirements. Any activities within the Phase I work area or sediment processing or transfer facilities would be considered "on-site" for the purposes of CERCLA Section 121(e)(1), 42 U.S.C. § 9621(e)(1) and the NCP.

Implementability

Technical Feasibility

All alternatives require the use of sheet piles for containment of the Phase I Work Area. This technology is commonly used in relatively small volume sediment removal projects that are close to the shoreline and has been proven effective in preventing the dispersion of resuspended sediment during dredging. The containment also allows sediment to be removed at a consistent production rate, without requiring operational controls or other engineering controls to mitigate resuspended sediment from migrating away from the Phase I Work Area. The sheet pile enclosure also provides excavation support and shoreline structural stability during the removal and maintains a consistent water depth through the duration of the removal by mitigating the impacts of the tidal cycles within the Phase I Work Area. However, the potential for sediment scour outside of the sheet pile enclosure exists and has been initially assessed in the Phase I EE/CA for purposes of estimating costs (i.e., scour mitigation/protection). This issue will be further evaluated during design.

Alternative C is expected to have the highest degree of technical feasibility of the four alternatives. Alternative C is ranked highest due to the ability of mechanical dredges to accommodate a wide range of debris encountered during dredging, while the same debris might shut down a smaller hydraulic dredge. Although a debris survey won't be performed until the design phase, the historic industrial usage of this area and historical experience of dredgers in the general area, have shown that both metallic (such as cables and chains) and organic (such as timber and wood pilings) debris can be anticipated to be encountered in the Phase I Work Area. The presence and nature of debris is often the determining factor in the selection of dredging equipment. Alternative C also has the ability to remove sediment close to shoreline structures. In addition, Alternative C employs mechanical processing which is very effective in dewatering silty, cohesive sediment. However, removing the sediment using mechanical dredging techniques may require two additional handling steps when applied in conjunction with mechanical dewatering, as compared to hydraulic or high solids pump dredging. In addition, the hydrocyclone used to remove the sand content of the sediment and the mechanical dewatering all require a sediment slurry with a low solids content to adequately process the material. Therefore, water will have to be added to the mechanically removed sediment to create a slurry of sufficient water content for processing.

The production rates achievable with a mechanical dredge will not diminish its ability to remove the sediment within the established schedule, despite these additional steps.

Alternatives A, B and D have the ability to transfer the sediment from the Phase I Work Area to the upland processing site seamlessly without requiring additional handling, but do not effectively manage the presence of debris. Alternative D, using high solids pumps, also has the ability to successfully remove sediment close to the containment enclosure. Alternative A is the least technically feasible alternative, due to the inability of hydraulic dredging to manage or remove debris effectively, and the potential that geotextile tubes might be less effective in dewatering silty, cohesive sediment, which may require additional drying in stockpiles. Hydraulic and high solids pump removal technologies may also have a comparatively greater degree of difficulty in removing sediment of high plasticity, as compared to mechanical technologies, which will be a factor with depth in this Phase I

Work Area where water content may decrease and bulk density may increase. Conversely, the portion of sediment that is high in liquid content and is debris free may more readily be drawn into the intake of a hydraulic dredge or high solids pump than a mechanical dredge.

Availability

Alternative A is ranked highest for availability because hydraulic dredges are widely available, and equipment and materials required for geotextile tube dewatering will be more easily procured than those for mechanical dewatering. Although geotextile tubes require a larger amount of upland space, the space is readily available at the upland site; therefore, this constraint would be diminished. Alternative C ranks medium for availability because mechanical dredges are widely available but mechanical dewatering equipment will require procuring more equipment and infrastructure than that required for geotextile tubes. Alternative B is also ranked medium because hydraulic dredges are readily available, and mechanical dewatering equipment will require procuring more equipment and infrastructure than that required for geotextile tubes. Alternative D is ranked low because high solids pumps are not as readily available as hydraulic or mechanical dredges, and mechanical dewatering equipment will not be as readily available as geotextile tubes. All of the alternatives have equal limitations with regard to the availability of laboratory turnaround time for analytical sample results and throughput rate at the available treatment and disposal facilities.

Administrative Feasibility

The alternatives have similar administrative feasibilities. They all require the construction of a sheet pile enclosure. They also all require some amount of upland space for sediment processing and material transloading which is expected to be available for all of the alternatives, so it does not impact the administrative feasibility of any alternative specifically. However, the relative footprints required for each alternative differ and are noted in the Phase I EE/CA to indicate the relative impacts on the upland site. All of the alternatives will require that the material be transported off site through or near adjoining properties. Permitting (or meeting the substantive requirements of permitting) will be similar for all of the alternatives, because they all consist of removing a predetermined volume of material. Stormwater management may be a consideration for Alternative A, because geotextile tubes rely on a large amount of exposed surface for dewatering, but the stormwater could be managed appropriately for any of the alternatives. Wastewater discharge issues will be the same for all alternatives because the water treatment process will produce the same quality of water for all alternatives. The only difference will be in the quantity of water discharged: Alternatives A and B will discharge the greatest amount of water, followed by Alternative D, then Alternative C. However, discharge quantities will not impact the process.

State Acceptance

The State of New Jersey provided input on the EE/CA during its preparation and agrees with the preferred response action.

Community Acceptance

Community acceptance of the preferred response action will be assessed in the Action Memorandum following review of the public comments received on the EE/CA and this document in writing and at the public meeting.

Cost

Alternative C is the lowest cost alternative, followed by Alternative D, Alternative B, and finally Alternative A.

A - $53,900,000

B - $49,100,000

C - $44,700,000

D - $45,100,000

PREFERRED RESPONSE ACTION

The recommended alternative is Alternative C: Mechanical Removal with Mechanical Dewatering. Alternative C will remove 40,000 cubic yards of sediment within a sheet pile enclosure. The conceptual design anticipates that the sheet piles for this enclosure will be driven into a deep silty clay layer with low permeability. A sealant will be applied to the joints to reduce the interlock permeability.

These measures will contain resuspended sediment within the Phase I Work Area, preventing its dispersion to the maximum extent practicable. The depth of the sheet piles and the sealant will limit hydraulic connectivity between the Phase I Work Area, the Passaic River, and the Diamond Alkali site. The sheet pile enclosure will protect the existing Diamond Alkali site floodwall and adjacent bulkheads from construction damage and maintain the stability of those structures, while providing excavation support.

The sediment and debris will be removed using a mechanical dredge or a long-reach excavator. The removed sediment will be placed on barges within the sheet pile enclosure. The dredges, barges, and other equipment associated with the Phase I Work will be contained within the enclosure. Ambient river water or recycled treated water from the water treatment plant will be pumped into the enclosure as needed to maintain appropriate water depth within the Phase I Work Area during removal.

Spillage from the barges will be minimized by using barges with a closed rail edge and by preventing barge overflow. The sediment and debris will be unloaded and transferred to the upland processing site using excavators located on the shore. An approach to limit spillage during the second handling step from the barges to the upland processing site would be to place the sediment directly into a hopper on a barge. The hopper would serve the same function as the Grizzly screen to remove debris. After the sediment has passed through the hopper, it would be slurried on the barge and pumped to the upland processing site for sediment processing. Following processing, the stockpiled sediment and debris will be covered with plastic sheeting or a similar cover to prevent rewetting of the processed sediment. Appropriate materials handling and housekeeping practices will be implemented throughout the sediment processing and transloading operations to prevent spillage and/or the erosion and dispersion of the removed sediment by stormwater to the extent practicable. Such practices will include covering exposed portions of the sediment processing and constructing appropriate runoff controls. Sealed intermodal containers will be inspected for leaks or spillage prior to being transported off site for disposal.

Construction monitoring will be conducted before, during, and after the project. Details of this work will be defined during design, but will include periodic sampling/observations of in-river water quality, ambient air, water treatment discharge, sheet pile deflection and bathymetry. In addition to routine environmental monitoring, appropriate measures to control worker health and safety will also be taken.

Alterative C will take approximately 29 weeks to complete removal and backfilling. This does not account for subsequent activities (e.g., sheet pile removal, remaining off-site transport and disposal due to disposal facility capacity constraints, and demobilization).

Alternative C is recommended because it ranks higher overall in effectiveness and implementability than the other Phase I Work Alternatives evaluated. Conducting the removal within an enclosure will prevent, to the extent practicable, the dispersion of resuspended sediment. Dewatering the sediment and the use of sealed intermodal containers for transport to the treatment/disposal facility will prevent, to the extent practicable, the spillage, leakage, and the risk of the material being handled in an uncontrolled manner. Backfilling the Phase I Work Area will partially restore the habitat and allow for future habitat restoration. Alternative C process options consist of proven technologies that are available, though there are constraints on the availability of off-site treatment and disposal facilities.

Mechanical removal is well-suited to handle the presence of debris within the Phase I Work Area. Due to the deep removal depth required and the likely presence of metallic debris, debris surveys conducted during design are not likely to identify all of the debris present in the Phase I Work Area; therefore, using a removal method that is able to adapt to unidentified debris and other obstructions is advantageous. Mechanical removal has a higher probability for successfully meeting the schedule in the AOC, given the lower risk for decreases in dredging production rates than the other removal methods. Mechanical removal methods are more effective at removing material in close proximity to the existing shoreline structures. Mechanical processing is suitable for dewatering high plasticity, fine-grained sediment like that in the Phase I Work Area. Mechanical dewatering methods will reduce the potential that additional drying of the sediment, through stockpiling, is needed to reduce moisture content. Based on the considerations provided above, Alternative C exhibits the greatest overall ability to meet the requirements of the evaluation criteria and, for that reason, is the recommended Phase I Work Alternative.

Old Bridge project earns preliminary approval from board

BY CHRISTOPHER DELA CRUZ
STAR-LEDGER STAFF

Twenty-three years after the project was proposed, a developer who wants to build homes, a hotel and office/retail space in Old Bridge received conditional approval early yesterday from the township planning board.

But there's a catch.

The township planning board rejected Edison-based developer Michael Alfieri's proposal to complete the housing portion of the project first and then move on to the hotel and office and retail space. The board gave preliminary approval for the 140-acre project provided they build the office buildings first.

Hundreds of townhouses already have been constructed as part of the project, and officials are concerned none of the commercial components have been built after more than two decades. Residents and planning board members fear that only the residential part of the project would materialize and the development would become a burden on the township.

More than two decades in the making, Alfieri's proposal, known as Metropark South, most recently has undergone nine months of lengthy hearings. The developer now will have to submit an amended general development plan that complies with the planning board's ruling. Shortly after midnight Tuesday, the board took several votes, deciding unanimously to conditionally approve single-family homes, a retail/commercial area and office space. The last vote was 8 to 1, with the lone dissenter wanting a 168-room hotel deleted from the project.

The project's residential component, Canterbury Cove, contains 83 single-family homes and a 10,000-square-foot retail/commercial area. The office development, called Esplanade, would contain 770,323 square feet of office space, as well as two parking garages and atriums. The development is located along Laurence Harbor near Exit 120 on the Garden State Parkway.

The township gave general approval to the development — which originally included a train station and more housing — in 1985 when it was owned by Old Bridge developer Ed Rondinelli. The only portion of the project that has been built is Bridgepointe, the high-end townhouses.

The zoning board rejected the Metropark project in 2006 due to environmental concerns and because the general development plan had expired. State law allows a developer 20 years in which to complete a general development plan after it has been approved.

JERRY McCREA/THE STAR-LEDGER

Aa'isha Lyle of Dover points to one of her photos on exhibit at the AAA office in Randolph.

School project makes learning a snap

Dover students show 'Street Smarts' through photos of community

BY JULIE O'CONNOR
STAR-LEDGER STAFF

Dover, through the eyes of a sixth-grader, is a place of best friends, tall basketball hoops and hilly, car-lined streets.

Those are the kinds of images 13 students from East Dover Middle School captured after they were sent out to illustrate concepts such as good citizenship as part of a six-week project called "Street Smarts."

For the instructors, the photography project was a way to teach tech-savvy tweeners after school about the not-always-glamorous topic of civics.

For the 10-, 11- and 12-year-olds who got to take their free disposable cameras home and snap photos of siblings, favorite trophies and classmates, it was simply fun.

"It really inspired me to take pictures," said Yamilex Lorenzo, 12, who was proud to have persuaded her grandmother, friends and toy poodle, Petie, to sit for portraits.

Some of her photos, along with those of her classmates, will be on display this month at the AAA New Jersey office, located along Route 10 in Randolph.

The program was conceived by a local arts consulting firm called Jumpstart and funded by AAA of New Jersey. It included lectures on issues like car safety and town cleanup by invited speakers that included Dover Mayor James Dodd, a retired police officer and a AAA spokesman.

The students who participated all attend Project Safe, an after-school program managed by Morristown Neighborhood House.

Susie Schub, who envisioned the civics and photography course, is a consultant hired by schools and social service agencies to design hands-on arts programs to teach life skills to children and families. In the past, she has used activities like African drumming, poetry and rap, ceramics or woodworking as teaching tools.

"Not all kids learn in the traditional ways," Schub said. "If we give them alternative tools, like cameras or paint or instruments, they can share all their amazing ideas in methods that suit them more readily."

After visits from the various speakers, part-time professional photographer Jim DelGiudice sent the students out to illustrate what they had talked about. "I tried to give them the skills to describe these different things in pictures," DelGiudice said.

Aa'isha Lyle, 11, said she learned sometimes she must use a flash, and shouldn't stand too close. She especially likes the picture she took of a family photograph, tucked into the edge of her mother's wooden mirror.

The course was also an opportunity for self-expression, she said.

"It's good to have pictures of yourself," Lyle explained. "As you get older, you can look back," and say, "that's what I was like when I was younger."

Julie O'Connor may be reached at joconnor@starledger.com or (973) 539-7910.

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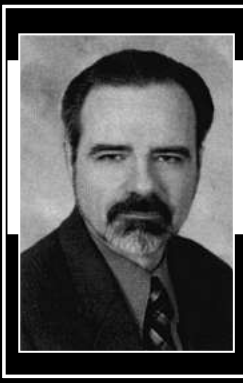

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ARRAIGNED

CONTINUED FROM PAGE 29

Newarker accused in 2006 slaying

Vazquez, the county's presiding criminal judge.

In other matters heard before Vazquez yesterday, Bilal Cooke, 20, and Radee Fedd, 25, pleaded not guilty to charges contained in a complaint accusing them of killing Jamichael Nickerson at the Stephen Crane Village in Newark on Aug. 24.

Essex County Assistant Prosecutor Romesh Sukhdeo described the incident as "a robbery gone bad." Each man is being held at the Essex County Jail in lieu of $1 million bail.

Vazquez also gave Vincent Trevino, 20, until next month to decide if he wants to go to trial or plead guilty in the fatal shooting of Nicolas Roldan outside a fried chicken shop on Bloomfield Avenue in Newark on Dec. 6, 2007.

Trevino shot Roldan after the victim and a friend got into a fistfight with two of Trevino's friends in an ongoing dispute, said Essex County Assistant Prosecutor William Neafsey. Trevino was arrested in Pennsylvania and is being held at the Essex County Jail in lieu of $750,000 bail. He was indicted in June.

Vazquez said the case is ready to go to trial but noted that Trevino has expressed a desire to leave his public defender and hire his own lawyer.

"I'm not going to wait forever until you get a private attorney," the judge warned him.

LAW & ORDER

Slay victim's mother to take stand at trial

RANDOLPH: The mother of a 16-year-old township girl who authorities say was murdered and dismembered in 2005 by a neighbor will be the first witness at Jonathan Zarate's trial, which starts Monday now that a jury has been seated.

Superior Court Judge Salem Ahto late yesterday afternoon swore in eight men and six women as jurors. They will decide whether Zarate, 21, beat, suffocated and stabbed Jennifer Parks as revenge for badmouthing his younger brother and getting him in trouble, or whether he was psychotic and cannot be held liable for the July 30, 2005, slaying.

The jury was chosen from nearly 300 Morris County residents who were screened over four days.

Before testimony begins, the prosecution and the defense will get to tell jurors what they believe the evidence will show. To prove murder, the state must persuade the jury Zarate knowingly and purposely killed the Randolph High School sophomore. Zarate intends to raise a diminished capacity defense, claiming he was delusional when he attacked Parks.

The diminished capacity defense cannot be raised to counter charges Zarate dismembered Parks' body to fit it in a trunk, and recruited his brother James and another teen to throw it off a Rutherford bridge into the Passaic River. The defense expert conceded Zarate knew what he was doing when he tried to conceal the killing nearly 24 hours afterward.

Garwood man accused of possessing cocaine

ELIZABETH: A Garwood man was charged with cocaine possession yesterday morning in Elizabeth, according to Union County Police Lt. Robert McGuire.

Richard Creter, 48, was spotted on Trotters Lane near North Avenue in Elizabeth by county police Lt. Chris Debbie, McGuire said.

Debbie noticed he was acting suspiciously and followed Creter when he got into his car and left the area. Debbie stopped the car and saw, in plain view, drug paraphernalia and a small amount of cocaine, McGuire said.

Creter was charged with possession of drug paraphernalia and cocaine. He was released from jail on his own recognizance, pending a grand jury appearance.

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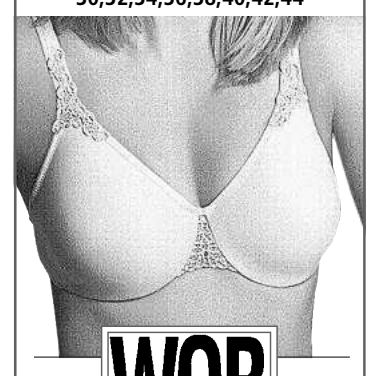

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1945743-01

EPA Invites Public to Discuss Proposal for Removal of Contaminated Sediment from the Lower Passaic River in Newark

The proposal involves mechanical dredging of 40,000 cubic yards of dioxin-contaminated sediment from the Passaic River adjacent to the Diamond Alkali Superfund site on Lister Avenue in Newark, NJ. Mechanical processing would be used to dewater sediments on land nearby. The work is estimated to cost approximately $45 million. Mechanical removal of sediment is preferred over both the hydraulic removal and high solids pump removal options because it is well-suited to handle the wide range of debris expected to be encountered within the work area, has a higher probability for successfully meeting the schedule and is more effective at removing material in close proximity to the existing shoreline structures such as floodwalls and bulkheads. Mechanical processing and dewatering of sediment is preferred over processing involving the use of geotextile tubes which might be less effective in dewatering these sediments. All four options include the use of a sealed sheet pile containment structure to minimize release of contaminants down-river. All four involve off-site treatment and disposal. All of the proposals, including EPA's preferred cleanup proposal, are described in detail in the Proposed Plan for the Lower Passaic River Phase 1 Removal Action and the Phase 1 Engineering Evaluation/Cost Analysis report.

A public meeting will be held on:

Tuesday, December 2, 2008 @ 7:00 pm
Hawkins Street Elementary School
8 Hawkins Street
Newark, New Jersey

EPA is taking written comments on the Proposal through December 19, 2008. Comments should be submitted to:

Elizabeth Butler, Project Manager
Passaic River Team
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866
Telephone: (212) 637-4396
Fax: (212) 637-4439
Email: butler.elizabeth@epa.gov

The Proposed Plan, Engineering Evaluation/Cost Analysis report, draft Community Involvement Plan and other site documents are available for review on-line at www.epa.gov/region02/superfund/npl/diamondalkali or by calling David Kluesner, EPA's community involvement coordinator, at 212-637-3653 or toll free at 800-346-5009.

BE HEARD! HELP US CLEAN THE RIVER FOR YOUR FUTURE!

BRIEFS

CONTINUED FROM PAGE 29

complaint hotline is up and running.

Landlords are required to provide their tenants with a minimal temperature of 68 degrees between 6 a.m. and 11 p.m., and 65 degrees from 11 p.m. to 5 a.m., from Oct. 1 through May 1. Tenants whose apartments are not meeting this standard can call (973) 733-6471.

The Division of Inspections and Enforcement will staff the number from 8:30 a.m. to 10 p.m., Mondays through Fridays, and from 10 a.m. to 7 p.m. on weekends. Inspectors will respond to all complaints.

Anyone with questions about the city's no-heat ordinances may contact the Non-Emergency Call Center at (973) 733-4311.

PASSAIC RIVER COALITION
94 Mount Bethel Road, Warren, NJ 07059
Phone: (908) 222-0315
Fax: (908) 222-0357
E-mail: PRCWater@aol.com
AKruger@verizon.net

Comments regarding Lower Passaic River – Phase 1 Removal Action Engineering Evaluation/Cost Analysis by Tierra Solutions, Inc.[1]

Prepared by
Anne L. Kruger, Ph.D., Technical Advisor,
Diamond Alkali Superfund Site (Lower Passaic River and Newark Bay) &
Ella F. Filippone, Executive Administrator, Passaic River Coalition
15 December 2008

Phase 1 Removal Action Proposed by Tierra Solutions, Inc.:

Since the start of the Industrial Revolution many contaminants have been deposited in the sediments of the Lower Passaic River, which persist today. The most hazardous is the dioxin, 2,3,7,8-TCDD, which was a by-product of the production of Agent Orange at the Diamond Alkali site in Newark during the Vietnam War in the 1950s and 1960s. Dioxin has gotten into the shellfish and fish, especially blue claw crabs, in the Lower Passaic River and Newark Bay, and eating these fish can be very hazardous. The risk of getting cancer from eating shellfish taken from the Newark Bay Complex can be as high as 100%.[2] The Lower Passaic River has been under a fish and shellfish "do not eat" advisory since 1983 due to PCB and dioxin contamination. Nevertheless, many people fish the river and bay for food, and almost half the anglers interviewed from the area reported eating crabs.[3]

Furthermore, most of the Lower Passaic River has not been dredged since the 1950s because of problems with disposing of the contaminated sediments. This means that many recreational, ecological, and economic benefits of the river have been lost. Also, the river has been filling up with more sediment, and flooding is worsening.

The highest levels of dioxin are found in the sediments immediately adjacent to the shore of the old Diamond Alkali site. Occidental Chemical Corporation and Tierra Solutions, Inc. (Tierra), which have taken responsibility for the Diamond Alkali site, have reached an agreement with EPA to remove about 200,000 cubic yards of dioxin-laden sediment from the river in the vicinity of the site. This action is long over-due. However, Tierra's proposals for disposal of the dredged sediments just prolong the problems and increase the costs of restoring the Lower Passaic River and Newark Bay.

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[1] Tierra Solutions, Inc. 2008. Phase I Engineering Evaluation/Cost Analysis, CERCLA Non-Time Critical Removal Action – Lower Passaic River Study Area, November 2008, Revision 3.

[2] New Jersey Department of Environmental Protection, Division of Science, Research and Technology. 2002. Estimate of Cancer Risk to Consumers of Crabs Caught in the … Newark Bay Complex from 2,3,7,8-TCDD …

[3] NJDEP. 2002. Estimate of Cancer Risk …

In Phase 1 Tierra proposes to remove about 40,000 cubic yards of the most highly contaminated sediments from an area of the river directly in front of the Diamond Alkali site. "Material excavated here will be taken off-site, treated and then disposed of in one of a handful of facilities permitted to accept such waste."[4] Issues that should be raised in the review process of the "General Technology Screening Groups" described in the Engineering Evaluation/Cost Analysis by Tierra Solutions, Inc. are discussed below.[5]

Containment and Shoreline Stability:

The use of a sheet pile enclosure around the sediments proposed to be removed in Phase 1 is necessary to protect the shoreline wall and prevent the migration of highly contaminated sediments into the navigation channel and elsewhere in the river. However, we suggest that the navigation channel be dredged in conjunction with the Phase 1 sediment removal, which is part of the dredging option of the Early Action project. This should decrease containment costs for this segment of the river.

Sediment Removal:

The sediment and debris will be removed using a conventional mechanical dredge or a long-reach excavator and placed on barges within the sheet pile enclosure.[6] Mechanical sediment removal is the appropriate option. Then it is proposed that the sediment be processed on the Sherwin Williams site which is just west of the Diamond Alkali site, and whose river front would be within the Phase 1 enclosed area. However, an agreement has yet to be reached regarding the use of the Sherwin Williams site. What other sites are available?

Sediment Processing:

Separation of the solids into debris, sand, and silt size particles, and dewatering the solids are critical components of the process. The techniques proposed by Tierra may be adequate but more research is needed on previous studies, especially the sediment washing pilot project conducted by Biogenesis, and other studies referenced by the Regional Sediment Management Work Group.[7] An even more critical question is where should the sediment be processed? We suggest that a sediment processing facility that would process dredged sediments from throughout the harbor and beyond has long been needed and should be located and planned now within the vicinity of the Lower Passaic River.

Water Treatment and Discharge:

The Dredged Material Management (DMM) facility will need to be able to receive material from barges. A water treatment system will be needed on the DMM site, and the treated water discharged into the water near the DMM site. A water treatment system designed for the highly contaminated sediments taken from the Phase 1 Work Area should be able to treat water dredged from elsewhere in the harbor so that it can be discharged back into harbor waters. The treated water discharged into the Lower Passaic River or elsewhere in the harbor estuary must be able to comply

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[4] U.S. Environmental Protection Agency. 2008. EPA Signs Agreement with Companies to Remove Major Source of Passaic River Contamination, The Lower Passaic River Restoration Project, Part of the Diamond Alkali Superfund Site, June 2008.

[5] *Op. cit.* #1. Table 7-1, and Executive Summary, pages 4-5.

[6] *Op. cit.* #1. Executive Summary, page 6.

[7] New York – New Jersey Harbor Estuary Program. 2008. Regional Sediment Management Plan, October 2008.

with applicable water quality standards. There should be discussion among the stakeholders to assess what these standards should be so that cleanup can proceed.

Off-site Transport of Sediment:

Tierra is proposing that the dewatered sediments be transported off-site by rail or barge to sites unknown for treatment and disposal. This would be expensive. In order to have cost efficiencies, why not plan and build treatment facilities at a nearby DMM site in the near future so that these sediments can be treated and used beneficially? In Phase 2 Tierra is proposing to dredge about 160,000 cubic yards from the river along the sites adjacent to the Diamond Alkali site, and to place these sediments in a near shore confined disposal facility (CDF). Tierra would want the water treatment plant and CDF to be as close as possible to the Diamond Alkali site in order to reduce the costs and risks of shipping the dredged materials long distances. The indications are that they are looking for a location in Newark Bay. The sediments in Newark Bay are also badly contaminated, so that dredged material from the bay cannot be dumped in the ocean. Using CDFs would "confine" the dioxin laden sediments a bit more than they are at present, but fundamentally they would just be moved to another location in the Newark Bay Complex, and left for others to clean up in the future. However, we should not wait. Building CDFs and other activities are adding solids to the water that cannot be dredged out and put back on land. This is already increasing flooding, and global warming will raise the tides even higher. The use of near shore CDFs should be rejected and prohibited now!

Off-site Treatment and Disposal:

The benefits and costs, both environmental and economic, of off-site treatment and disposal facilities should be researched, and then a DMM facility should be sited, designed, built, and operated nearby.

Backfilling:

Less backfilling would be needed if this project were done in conjunction with dredging the navigation channel.

The Future of the New York – New Jersey Harbor Estuary:

The Lower Passaic River and Newark Bay are critical parts of the New York/New Jersey Harbor Estuary, a hub of economic activity on the east coast of America. By dredging contaminated sediment from the river and harbor, and treating it on land so it can be used beneficially, we can reinvigorate both the ecologic and economic vitality of the region. Efforts have been underway for many years to plan for management of the contaminated sediments. A Regional Sediment Management (RSM) Plan, prepared under the auspices of the New York/New Jersey Harbor Estuary Program, was released in October 2008, and makes the following observations:[8]

> The RSM Plan is a long-term Plan with anticipated near-term economic returns. The Dredged Material Management Plan for the Port of New York and New Jersey (DMMP) estimates that achieving the goal of clean sediments throughout the harbor can save at least $25,000,000 per year in costs of maintaining our water transportation infrastructure. Other economic drivers for implementing the RSM Plan also include increased and improved opportunities for

[8] New York/New Jersey Harbor Estuary Program. 2008. Regional Sediment Management Plan, October 2008, page iv.

recreation, tourism, and fisheries – industries valued at over $20 billion per year that depend on a clean Harbor Estuary.

These expectations are justified by the observation that elsewhere in the United States and in Europe significant cost savings and other benefits have resulted from RSM efforts.[9]

We strongly recommend that a DMM facility be designed and sited nearby with proper safeguards as soon as possible. The availability of port, rail, and road facilities should be considered in siting the DMM facility. "Increased public and governmental understanding of the physical, biological, social, and economic linkages between all parts of the watershed and the Harbor Estuary are necessary to effectively bring such a regional plan to action."[10] We must work together to revive the economy and the ecology of the Lower Passaic River and the New York/New Jersey Harbor Estuary to healthier conditions.

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[9] *Ibid.* Page iii.

[10] *Ibid.* Page ii.

Clean Ocean Action + Hackensack Riverkeeper
Ironbound Community Corporation + NRDC + NY/NJ Baykeeper

December 19, 2008

Elizabeth Butler, Project Manager
Passaic River Team
US Environmental Protection Agency
290 Broadway, 19th Floor
New York, NY 10007-1866

Dear Ms. Butler:

Please accept the following comments on the Lower Passaic River Proposed Plan and Phase I Engineering Evaluation/Cost Analysis (EE/CA) on behalf of Clean Ocean Action, Hackensack Riverkeeper, Ironbound Community Corporation, NY/NJ Baykeeper and Natural Resources Defense Council.

We understand that the Environmental Protection Agency (EPA) is requesting comments on the four proposed options for the sediment removal and processing, but since this is the first time in recent history that the EPA is accepting formal public comment on the Lower Passaic Superfund site we felt obligated to include comments that look forward to anticipated agency actions. It is our hope that by identifying these critical areas of concern early in the process we can avoid problems later on when it is deemed too late to correct them.

Proposed Plan/Environmental Engineering/Cost Analysis (EE/CA)

Under the "Removal Action Objectives" section the use of the phrase "to the extent practicable" implies a weak standard that could be undermined by undue consideration of cost. Preventing the migration of resuspended sediment during removal operations and the potential for spillage or leakage of sediment and contaminants during transport to the disposal facility should be imperative. We suggest that the "Removal Action Objectives" be changed to eliminate the phrase "to the extent practicable" and/or replace it with the phrase "to the maximum extent possible".

The Plan and EE/CA state that the area to be dredged has "little or no" submerged aquatic vegetation (SAV). In areas where there is existing SAV, Tierra should be required to restore the habitat as part of the remediation process.

Local Hires

One concern that we wish to raise now will be a constant throughout the Passaic River clean-up. When we combine the Tierra Action, Phase 1 and 2, with Focused Feasibility Study (FFS) that includes the lower 8 miles of the River and finally the Comprehensive Study of the lower 17 miles, the question of local hiring throughout this process takes on great significance. We are probably looking at work that will continue for more than a dozen years.

In each of these three projects, work crews will be brought in to conduct the clean-up and the community, in a certain sense, will have the River returned to them. An additional way of including the community in this process is to ensure that priority be given to hiring Newark residents.

We understand the technical nature of these clean-ups and recognize that a number of skilled and experienced workers will be required. On the other hand, all projects require the support of less skilled workers who will carry out their responsibilities with commitment and competence. The community would like to see a commitment made now that each phase of this project will actively recruit local personnel, where possible.

We raise this concern at the outset because often once a process is underway without local residents in the workforce, there never seems to be a way to rectify the situation. Making a commitment to local hires upfront would thus be an expression of good will toward the community that has lived with dioxin contamination for so long. It would also provide an opportunity for early identification of the kinds of workers that might be drawn from the community.

Community Health and Safety Plan

The Remedial Action Community Health and Safety Plan prepared by General Electric Company in March of 2006, as part of the Phase I Final Design Report Hudson River PCBs Superfund Site, aims to "describe potential risks and impacts to members of the local community and to identify steps that the (company) and its contractors will take to prevent and respond to them."

This basic approach should be incorporated in the submission prepared by Tierra Solutions and reviewed by EPA and the Ironbound Community and other stakeholders. This approach includes the following, as outlined in the GE Hudson River document:

- First, identify and evaluate potential hazards and community impacts which, absent preventive measures, could realistically occur during work activities;
- Second, evaluate "preventive measures" that could be put in place before the project begins and during activities to reduce the potential for hazards and impacts to occur. This evaluation included the use of modeling to predict some possible impacts (e.g., noise and air emissions).
- Third, develop response actions and procedures that could be taken in the event hazards or community impacts occur.
- Finally, identify some "mitigation" or additional preventive measures that could be implemented in the event an accident, injury or severe impact occurs. If an incident does occur, GE will evaluate its cause to develop specific mitigation measures to prevent a recurrence.

The Community's primary concerns relate to health of safety or residents and of workers involved in the remediation. Within this context, a number of specific items are of importance:

- Project Schedule and Hours
    1. How many days a week are involved?
    2. What are the hours of operation?

- Quality of Life Standards during the remediation, including actions if standards are exceeded in the following areas:
    1. Air Quality (including dust)
    2. Odors
    3. Noise
    4. Lighting

- Assessment and Management of Potential Hazards Related to
    1. Dredging and other in-River activities
    2. Potential Hazards related to the Operation of the Dewatering Plant

- Project Health and Safety for Personnel

- Reporting and Response, Emergency Response. There needs to be a clear chain of command for timely information on potential problems associated with spills and releases

- Actions to Address Resuspension Performance Standards and Other In-Water Quality Requirements. The question of resuspension is of particular concern to the Community. As mentioned above, any language in the Plan or EE/CA that limits the EPA's ability to require the best possible methods for reducing spillage and resuspension should be replaced.

- Meaningful opportunity for review and comment of the complete CHASP should be given to the community prior to acceptance by the EPA.

Ongoing Public Participation

We intend to provide further comments separately, in the near future, on the November 2008 draft of the Community Involvement Plan (CIP) for the Passaic River Contaminated Sediment Removal Project. The most immediate priority for public participation, as noted above, is to ensure a meaningful opportunity for involvement in the development of the CHASP.

Additional Concerns

Additional concerns raised by community members during the public meeting, while not the subject of this current request for public comment, warrant mention again:

- The integrity of the current bulkhead in place at the Tierra Solutions site and the impact of placing sheet metal walls for the removal project in close proximity to the bulkhead.

- The location of the upland processing site and its proximity and impact to nearby communities.

- The final disposal site and transport of the dredged material.

- Hydrology impacts with the design and building of the sheet-pile enclosure. Suggestions were made to design the enclosure with narrowing ends, like a canoe-shape, to help mitigate against hydrology impacts.

- The final condition and remediation of the upland processing site. As you are aware, many of potential upland processing sites themselves are contaminated. It is anticipated that any closure of the upland processing site would include a complete remediation of the site.

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Thank you for this opportunity to comment on the proposed Plan and EE/CA for the Lower Passaic River – Phase I Removal. While this is a significant first step in the remediation of the River, we continue to urge the EPA to quickly move forward with the complete cleanup of both the River and Newark Bay.

Sincerely,

Carol Johnston
Ironbound Community Corporation

Lawrence Levine
NRDC

Deborah Mans
NY/NJ Baykeeper

Capt. Bill Sheehan
Hackensack Riverkeeper

Cynthia Zipf
Clean Ocean Action

cc: Regional Administrator, Alan Steinberg, USEPA, Region 2
Ray Basso, EPA, Region 2
Dave Kluesner, EPA, Region 2
Janine MacGregor, NJDEP, Site Remediation