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### **Comments regarding Lower Passaic River – Phase 1 Removal Action Engineering Evaluation/Cost Analysis by Tierra Solutions, Inc.<sup>1</sup>**

**Prepared by**

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#### ***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%.<sup>2</sup> 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.<sup>3</sup>

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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<sup>1</sup> 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.

<sup>2</sup> 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 ...

<sup>3</sup> 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.”<sup>4</sup> 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.<sup>5</sup>

***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.<sup>6</sup> 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.<sup>7</sup> 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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<sup>4</sup> 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.

<sup>5</sup> *Op. cit.* #1. Table 7-1, and Executive Summary, pages 4-5.

<sup>6</sup> *Op. cit.* #1. Executive Summary, page 6.

<sup>7</sup> 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:<sup>8</sup>

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

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<sup>8</sup> 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.<sup>9</sup>

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.”<sup>10</sup> 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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<sup>9</sup> *Ibid.* Page iii.

<sup>10</sup> *Ibid.* Page ii.