PREASSESSMENT SCREEN AND DETERMINATION

Mulberry Phosphates, Inc.

Phosphoric Acid/Gypsum Spill

December 7, 1997

Prepared by:

National Oceanic and Atmospheric Administration

U. S. Department of the Interior/U. S. Fish and Wildlife Service

Florida Department of Environmental Protection

Environmental Protection Commission of Hillsborough County

Polk County, Natural Resources Division

DETERMINATION

The above listed agencies are designated natural resource trustees under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601 et seq. and the Federal Water Pollution Control Act, 33 U.S.C. §§1251 et seq. or are otherwise responsible for managing and protecting natural resources under state or local laws or authorities. Authorized Officials of these agencies have made the following determination with respect to the subject release:

> On December 7, 1997, a breach occurred in the wall of a phosphogypsum stack located at the Mulberry Phosphates, Inc. (MPI) phosphoric acid/fertilizer production facility in Mulberry, Polk County, Florida. As a result of this breach, approximately 56 million gallons of acidic process water flowed from the top of the stack, overflowed return and collection systems associated with the stack, and flowed into and through Skinned Sapling Creek into the

Alafia River. Over the course of the next week to 10 days, the volume of released process water traversed approximately 36 miles of the river to Tampa Bay. Information collected by the U. S. Environmental Protection Agency (EPA), the Florida Department of Environmental Protection (FDEP), and the Environmental Protection Commission of Hillsborough County (HCEPC) indicates the released process water contained about 1.5 % phosphoric acid, and exhibited a pH of approximately 2 standard units. The material released contained or was comprised of one or more substances designated as hazardous under CERCLA, including phosphoric acid.

The released process water lowered the pH along 35 miles of the Alafia River to levels ranging from approximately 2.3 standard units in the upper, freshwater portion of the Alafia River to 3.0-4.0 standard units in the lower, 10 mile estuarine portion for several days. The spill-induced acidity in the river prompted the closure of parks and boat ramps in the upper part of the river and actions to warn the public against contact with the river water. The released process water caused a notable fish kill in the Alafia River, injuries to shoreline and upland vegetation in some areas, and potential injuries to other natural resources, including lost resource services, under the trusteeship of state and federal natural resource trustee agencies under CERCLA and the authority of other listed agencies. Response actions undertaken during the spill event were insufficient to remedy the natural resource injuries and losses without further action. Data or information sufficient to support an assessment of natural resource damages for the natural resource injuries which occurred exists or can be obtained at reasonable cost. The listed agencies are justified in proceeding with an assessment of natural resource damages to address the injuries to natural resources caused by this release.

General information supporting this determination is enclosed. A considerable body of information supports the summary statements provided in the enclosed documentation, including reports of the incident by EPA and FDEP, as the Federal and State On Scene Coordinators, HCEPC, NOAA, and representatives of MPI, the responsible party. This screen is intended only to determine whether there is sufficient cause to pursue a natural resource damage assessment. Omission of any information here does not preclude consideration of such information in the course of the assessment.

Based upon the facts, data, expert opinion, and analyses cited in the following sections, we, the undersigned Authorized Officials for the listed

agencies hereby determine that a natural resource damage assessment and/or restoration activities can and should be performed to address the natural resource injuries or losses which occurred as a result of this spill event.

_____ Date _____
Willie R. Taylor
Director, Office of Policy and Compliance
U.S. Department of the Interior

_____ Date 9/29/98
for David Kennedy
Director, Hazardous Materials and Response Division,
National Oceanic and Atmospheric Administration

_____ Date _____
Virginia B. Wetherell
Secretary, Florida Department of Environmental Protection

_____ Date _____
Roger P. Stewart
Executive Director, Environmental Protection Commission
of Hillsborough County

_____ Date _____
Jeffery F. Spence
Director of Polk County Natural Resources

PREASSESSMENT SCREEN

INFORMATION ON THE SITE AND THE RELEASE

1. Time, quantity, duration, and frequency of the release.

On December 7, 1997, between approximately 5:30 and 9:00 a.m., a breach occurred in the south perimeter wall of the south phosphogypsum stack at the Mulberry Phosphates, Inc. (MPI) phosphoric acid/fertilizer production facility in Mulberry, Polk County, Florida. As a result of this breach, approximately 56 million gallons of acidic process water and gypsum slurry escaped containment at the top of the stack, overflowed return and collection systems associated with the stack, and flowed into and through Skinned Sapling Creek into the north prong of the Alafia River. The release of process water from the facility occurred within the first day of the incident. Over the next week to 10 days, the volume of released process water traversed approximately 36 miles of the river to Tampa Bay. Information collected by EPA, FDEP, and HCEPC indicates the process water adversely affected water quality in river for 4 to 7 days.

2. The name of the hazardous substance.

Information collected by EPA, FDEP, and the HCEPC indicates the released process water contained about 1.5 % phosphoric acid, and exhibited a pH of approximately 2 standard units. The material released contained or was comprised of one or more substances designated as hazardous under CERCLA, including phosphoric acid.

3. History of the site of the release.

The site of the release includes the south phosphogypsum stack at the MPI facility, the return and collection ditches and berms associated with the stack, Skinned Sapling Creek, and the entire downstream extent of the Alafia River, including shorelines and other immediately adjacent habitats. The spill site is an active phosphoric acid/phosphate fertilizer production facility owned and operated by MPI. Skinned Sapling Creek and the north prong of the Alafia River are somewhat degraded due to past phosphate mining and chemical processing operations in the vicinity. However, prior to the spill, the north prong of the Alafia River, including associated wetland and upland habitats, supported fish and birds and provided valuable wildlife habitat. Further, the downstream portion of the north prong and the length of the main channel of the Alafia River to Tampa Bay (approximately 36 miles) is a valuable, functional ecosystem providing ecological services, both direct

and indirect, to numerous species, including diverse freshwater and estuarine fish and invertebrates, birds, manatees, otters, and marine mammals. The Alafia River provides nursery and adult habitat areas for a number of freshwater and estuarine fishery resources. The river is an important contributor to the fisheries of Tampa Bay as it contains 90% of the in-river wetlands in northern Tampa Bay, and 9% of the in-river wetlands in the entire bay. The Alafia River is part of the Tampa Bay Estuary, an estuary participating in the National Estuary Program administered by the U. S. Environmental Protection Agency. The presence and abundance of fishery species in the estuarine portion of the Alafia River has been documented since 1989. This riverine and estuarine system sustained major injuries as a result of the spill, including but not limited to a significant alteration in water quality in the system for several days, a notable fish kill and readily observable injuries to shoreline and other vegetation.

4. Relevant operations occurring at or near the site.

The spill site is in a rural area of Polk County, Florida, with a number of other phosphate mining or chemical processing plants in the vicinity. The portions of the Alafia River which were exposed to the released process water provide valuable habitat and other ecological functions, are used for recreational canoeing, boating and fishing, and, particularly in the lower reaches, provide support for some commercial fisheries. The river is also bounded by a number of farms or agricultural properties, small businesses, including several marinas, bait shops, and canoe/boat rental facilities, a few parks or other public facilities and many residential properties. Another phosphate chemical plant, the Cargill plant, is located at the mouth of the Alafia River.

5. Additional oil or hazardous substances potentially discharged or released from the site

In addition to containing about 1.5% phosphoric acid, the released process also contained other hazardous substances including sulfuric acid, and elevated levels of certain heavy metals, including but not limited to cadmium, chromium, lead, selenium, nickel, antimony and zinc.

6. Potentially responsible parties

Mulberry Phosphates, Inc. (MPI) is the owner and operator of the facility encompassing the spill site and, as such, is the party responsible for the spill event. MPI reported the release from its facility to appropriate federal and state agencies, demonstrated its responsibility for the spill through response actions and has

acknowledged its responsibility in this matter through subsequent actions. MPI's address is P.O. Drawer 797, Mulberry, FL 33860, and it's representatives in this matter include Mr. Robert C. Stewart, MPI Senior vice-president, Operations & Administration (941/425-1176), Mr. Richard Moore, Attorney at Law (Amundsen & Moore, 904/425-2444), and Mr. Ivan Nance, MPI Environmental Affairs (941/425-1176).

7. Damages excluded from liability

The agencies are not aware at this time of any defenses to or exclusions from liability under state and federal laws applicable to this event.

PRELIMINARY ASSESSMENT CRITERIA

1. Discharge or release of a hazardous substance occurred

On Sunday, December 7, 1997, between 5:30 and 9:00 am, a 10 to 25 foot wide section of the south perimeter wall of the south phosphogypsum stack at the MPI facility in Mulberry, Polk County, Florida failed. As a result of this failure, approximately 56 million gallons of the process water held in a pond atop the stack, consisting of inter alia, phosphoric acid, a listed hazardous substance, flowed out of the pond, down the south side of the stack, overflowed return and collection systems, and flowed into and through Skinned Sapling Creek. From the creek, the process water continued into the Alafia River for approximately 36 miles, eventually discharging into Tampa Bay. As reported by MPI, the breach in the perimeter wall was closed and the outflow of process water from the stack stopped at approximately 11:00 am that same morning.

2. Natural resources affected or likely to have been adversely affected by the release

Natural resources which were adversely affected or may have been so affected include but are not limited to the following. They are listed without regard the interests or trusteeship of the specific agencies, but all fall within the jurisdiction of one or more of those agencies.

-Marine, estuarine, freshwater, and anadromous fishes of many species, some of which are recreationally important

-Migratory birds, including bald eagles, seabirds, waterfowl, and shorebirds, residing and feeding in the affected riverine areas

-Shellfish, including mollusks as well as crustaceans such as blue crabs, shrimp, and freshwater crawfish

-Estuarine and freshwater invertebrates other than shellfish, including crayfish, bottom dwelling (benthic) fauna and zooplankton

-Surface waters, including sediments

-Land resources such as wetlands, shorelines, and soil

-Freshwater, estuarine, and terrestrial plants and algae, including phytoplankton

-Freshwater amphibians and reptiles

-Terrestrial wildlife

Services provided by these natural resources may also have been affected and include, but are not limited to the following:

-Habitat for trust species, including food, shelter, breeding and nursery areas, and other factors essential to long-term survival

-Commercial use, recreational boating and other personal use, and sport fisheries.

-Agricultural irrigation and livestock watering

3. Quantity and concentration of the hazardous substance released is sufficient to potentially cause injury

Approximately 56 million gallons of acidic process water (1.5% phosphoric acid) was released. A notable fish and shellfish kill was documented as a result of the release. Wetland plants that were exposed to the undiluted solution were either burned severely or killed. Fish were observed in distress, dying and dead as the plume of acidic process water made its way downstream. These effects of the spill were readily observable and indicate that there was enough material at a sufficient concentration to injure these and potentially injure other resources in the affected system. The acidity (very low pH) of the released process waters was sufficient alone to cause the initial acute toxicity associated with the release, however, the release also included other hazardous constituents at levels which are potentially injurious to natural resources, including cadmium, chromium, lead, selenium, nickel, antimony and zinc. Further, these other constituents may be a factor in the recovery of injured resources. The spill also disrupted or affected public uses of the river. The acidity in the river prompted the Hillsborough County Department of Parks and Recreation to restrict boat access to the river and to warn the public to avoid contact with the water. Parks and boat ramps in the upper part of the river were closed and signs were posted at access points in the estuarine part of the river warning against contact with the water for several days. Further, recreational fishing services were also likely disrupted. Numbers of recreationally important fish were killed, including snook, sheepshead, and red drum. The loss of these and other fishery resources affected recreational fishing opportunities in the Alafia River

immediately and will also do so until the fisheries in the river recover.

4. Data sufficient to pursue an assessment are readily available or likely obtainable at reasonable cost

Much of the information that would be needed to support an assessment has already been collected. In addition, there are a number of long-term biological and water quality studies and monitoring efforts which are routinely conducted by several agencies in the affected area of the river. These studies provide a source of data indicating baseline conditions associated with the river prior to the spill. For ecological injuries, other information that may need to be collected could be acquired at a reasonable cost, including information on the extent and duration of interim losses and on recovery rates of injured natural resources such as fish, benthos, and vegetation (habitats). Additional data would be needed to complete an assessment of recreational losses and might be expensive to obtain, however, the lack of such data would not preclude an evaluation of such losses sufficient to support potential restoration scaling determinations.

5. Response actions did not remedy natural resource injuries

The response actions carried out by MPI and coordinated with EPA, FDEP, EPC of Hillsborough County, and other agencies, were sufficient to stop the source of the release, to monitor the movement of the released process water as it moved toward and into Tampa Bay from the spill site, to document the effects on water quality, to protect the public from risks associated with uses of the river during the spill event, and to allow some actions to try and minimize potential effects of the spill. These actions could not, however, prevent natural resource injuries and losses from occurring; likewise, these actions did not operate to restore or compensate for these injuries and losses.

PRELIMINARY IDENTIFICATION OF RESOURCES POTENTIALLY AT RISK

1. Preliminary identification of pathways

The acidic process water was released into Skinned Sapling Creek and from Skinned Sapling Creek followed the drainage path downstream into the north prong of the Alafia River and then traversed approximately 36 miles of the river to Tampa Bay. In Skinned Sapling Creek, pH values were measured as low as 2.24 immediately following the spill, and remained low for several days thereafter. Monitoring data collected during the response indicates the plume of released acidic water reached US highway 301 (4.6 miles from the mouth of Tampa Bay) on December 10, 1997, and remained below 4 standard units for 2 days, below 6 standard units for 3 days. The plume continued to the mouth of the Bay, lowering pH levels in the water column for 2 to 3 days as it passed through. By December 15th, the lowest pH measured in the freshwater portion of the river was 6.2 standard units (measured at stations 9.3 to 22.2 miles upriver from the mouth of the Bay), and 6.6 standard units in the estuarine portion of the river (measured at US highway 301). DEP has indicated that pH values in some areas of the river remained below expected values for several weeks following the spill. Pathways by which the natural resources were exposed to the process water include direct contact, surface waters and ground surface runoff.

2. Exposed areas

Areas exposed include an area of upland habitat near the spill site, Skinned Sapling Creek and adjacent habitats, the north prong and main portion of the Alafia River, including its shoreline, wetlands and adjacent habitats, and the sub-part of Tampa Bay called Hillsborough Bay. The waters of the creek and river exposed were acidified to the point that it was hazardous to aquatic life. Plants, terrestrial animals, and aquatic organisms in these areas were exposed to potentially lethal acidity, with death and sublethal injuries an evident result for some resources such as fish and vegetation.

3. Exposed water estimates

The total volume of water that was exposed is the volume of water in the approximately 36 miles of the river from the spill site to its mouth at Tampa Bay. The surface waters in the length of river (approximately 36 miles) were exposed for a minimum of 3 to 5 days. The upper part of the river is a wide freshwater wetland with no identifiable channel which transitions into a narrow stream. The lower estuarine portion of the river (approximately 10 miles) is up to ¼ mile wide and 6 to 10 feet deep. Available data are insufficient to support an additional or more

reasonable estimation of the volume of these exposed waters.

4. Estimates of concentrations

The volume of released process water (1.5% phosphoric acid; pH approximately 2.0) completely filled the stream near the spill site; the concentrations of process water there were nearly 100% released water. The concentrations of released process water in the entire downstream portion of the river were high enough to cause pH levels to drop below 4.0 standard units all the way to Tampa Bay for several days. Further, this occurred despite record high rainfalls in the watershed over the week following the spill event which would have helped dilute and flush the process water into the bay.

5. Potentially affected resources

Natural resources affected or potentially affected include but are not limited to the following. They are listed without regard to the interests or trusteeship of the specific agencies, but all fall within the jurisdiction of one or more of those agencies.

-Marine, estuarine, freshwater and anadromous fishes of many species, some of which are recreationally important

-Migratory birds, including bald eagles, seabirds, waterfowl, and shorebirds, residing and feeding in the affected riverine areas

-Shellfish, including mollusks as well as crustaceans such as blue crabs, shrimp, and freshwater crawfish

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but are not limited to the following:

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-Agricultural irrigation and livestock watering