5090
Ser 1832.2/L7042
25 Nov 1996

Mr. Cyrus Shabahari
California Department of Toxic Substances Control
Site Mitigation Branch
700 Heinz Avenue, Building F
Berkeley, CA 94710

Dear Mr. Shabahari,

The purpose of this letter is to confirm our phone conversation with you on November 19, 1996, during which we discussed the IR-50 Storm Drain System Removal Action at the Hunters Point Shipyard (HPS) in San Francisco, California. This removal action is designed to eliminate the potential for migration of contaminated sediments into the San Francisco Bay via the HPS storm drain system by cleaning sediments from the storm drain system and disposing of the sediments off site.

As part of the sediment removal process, storm drain lines will be sprayed with a high-pressure jet washer, while the downstream manhole is plugged to contain wash water and sediments. The resulting sediment slurry will be collected in specially adapted roll-off containers equipped with filters and decanting equipment. The decanted water will be used whenever possible for additional line cleaning. Spent wash water will be characterized before discharge to the local publicly owned treatment works. All sediments will be characterized as hazardous or nonhazardous, and the results of the characterization will dictate the subsequent management practices for sediments in each container.

As we discussed during our phone conversation, we have included with this letter (enclosure (1)) eight pages from the Storm Drain System Removal Action Work Plan, which was prepared by IT Corporation for the Navy. These pages will provide some details of how the on-site filtration system is being used for phase separation. We have also included a list of references (enclosure (2)) to the filtering system and the phase separation process, which are in the Action Memorandum and in the Engineering Evaluation/Cost Analysis for the IR-50 Storm Drain System Removal Action at the Hunters Point Shipyard.

If you have any questions regarding this letter, please contact either myself at (415) 244-2655, or Mr. William Radzevich at (415) 244-2555.

Sincerely yours,

RICHARD E. POWELL
Lead Remedial Program Manager for HPS/TI
By direction of
the Commander

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Enclosures:
(1) Eight pages from the Storm Drain System Removal Action Work Plan
(2) List of References from Action Memorandum and Engineering Evaluation/Cost Analysis for the IR-50 Storm Drain System Removal Action at HPS

Copies to:
U.S. Environmental Protection Agency (Attn: Shery Lauth)
Regional Water Quality Control Board (Attn: Mr. Richard C. Hiett)
PRC Environmental Management (Attn: Mr. James Sickles)

Blind copies to:
62.3, 62C, CSO-HPS(ES), 1832, 1832.2, 09CMN
Information Repository (3 Copies)
Chron, Green
Activity File: HPA (File: L67042WR) ab

WORK PLAN
STORM DRAIN REMOVAL ACTION (IR-50)
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

Contract No. N62474-93-D-2151
Delivery Order No. 0061

Submitted to:

Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive, Building B-103
San Bruno, California 94066-2402

Submitted by:

IT Corporation
4585 Pacheco Boulevard
Martinez, California 94553

Revision 0

September, 1996

Issued to: William Radzevich Date: 9/18/96

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Enclosure (1)

1.0 Introduction

This work plan has been prepared to conduct the removal action of solids from storm drains at Site IR-50, Hunters Point Shipyard (HPS), San Francisco, California. Refer to Figure 1, Vicinity Map for site location. This work plan is based on the "Hunters Point Shipyard, San Francisco, California, Implementation Work Plan, Storm Drain System Removal Action," PRC Environmental Management, Inc., May 14, 1996.

Site IR-50 is the HPS storm sewer system. The system consists of approximately 107,000 lineal feet of storm drain line varying in size from 2 inches to 52 inches in diameter with an estimated 624 catch basins and 321 manholes. The system is comprised of five parcels (A, B, C, D, E) which contain ten drainage basins (I through X). The lines are constructed of varying materials ranging from unknown to vitrified clay pipe (VCP), corrugated metal pipe (CMP), steel pipe, and ductile iron pipe (DIP). The system discharges to the San Francisco Bay through 33 known outfalls, ranging from 6 inches to 52 inches in diameter. The configuration of the storm drain system is given in Figure 2. Recent samples of the solids and debris in the storm sewer system indicate the presence of elevated concentrations of petroleum hydrocarbons, metals, and solvents.

This removal action will consist of removing solids and debris from approximately 99,000 lineal feet of line and from all manholes and catch basins in Parcels B, C, D, E. Parcel A sediments have been removed in a previous operation. Removal action activities include removal of all sediment and debris from the storm drain lines, catch basins, and manholes; pre- and post-cleaning video surveys of the lines; installation and operation of a water filtration system to remove solids from wash water; sediment sampling and disposal; and water sampling and disposal.

Solids and debris will be removed from the sewer system by high pressure water jetting in order of basin priority given in Table 1-1. The solids, debris and wastewater generated by the high pressure water jetting will be removed by the cleaning trucks from the nearest downstream manhole. The trucks will transport the waste material to a filtration system temporarily installed at a designated area of the HPS site. At the filtration area, solids and debris will be accumulated in phase separators, which are screened roll-off bins lined with a disposable filter. When full, the solids and the disposable filter will be emptied onto an onsite

stockpile. A new disposable filter will be placed in the phase separator prior to putting it back into service. Liquids will pass through sand filters and a carbon adsorber and be stored in five (5) 21,000-gallon holding tanks. To the maximum extent possible, the filtered water will be recycled for use in the line cleaning operations. When water is no longer suitable for cleaning lines, spent wastewater will be discharged to the San Francisco Publicly Owned Treatment Works (POTW). A discharge permit will be secured by IT prior to the release of any wastewater to the POTW.

All lines will be video taped before and after cleaning. Some lines may require a second cleaning and subsequent third video to document cleanup results.

TABLE 1-1
SEDIMENT REMOVAL PRIORITY

Priority	Basin	Parcel
1	IV	B
2	VI	C
3	II	B
4	III	B
5	I	D/E
6	V	C
7	X	D
8	VIII	D
9	VII	D
10	IX	C/E

2.0 Project Plans and Permits

Before mobilization and field activities begin, this Work Plan, including the Site Health and Safety Plan, Contractor's Quality Control Plan and Sampling and Analysis Plan, will be submitted for Navy comments, revised as necessary, and re-submitted to the Navy. Navy personnel will obtain approval of the plans, if needed, from the appropriate regulatory agencies.

It is expected that most of the wastewater generated will be suitable for discharge to San Francisco's POTW. However, prior to sending any wastewater to the POTW, IT will obtain a permit to do so from POTW personnel.

3.0 Meetings/Notification Prior to Mobilization

A pre-construction/mutual understanding meeting with the appropriate project participants will be held a few days prior to mobilization to the field. Typical participants in this type of meeting are the project manager, site quality control manager, site superintendent and site supervisors for major subcontractors.

4.0 Underground Utility Location

No excavation work is included within this scope of work; therefore, no efforts to locate underground utilities are included in this plan.

5.0 Mobilization

Approximately 100,000 square feet of space is needed to set up the filtration system, sediment/debris stockpile area, associated storage tanks, and project support facilities. Refer to Figure 2 for proposed location. The area chosen is remote from most activity, relatively flat and open, and paved with asphalt. The filtration system subcontractor may mobilize an office/break trailer to this location in addition to any storage facilities for small tools and equipment.

The phase separators, sand filters, carbon adsorber, water storage tanks and all ancillary equipment will be positioned within a secondary containment area, shown in Figure 3, "Equipment Layout." The secondary containment area will be constructed of seamless 30 mil, high density polyethylene (HDPE). The HDPE will extend over the top of surrounding straw bales, which will constitute the containment berm. In the stockpile area, the 30-mil HDPE liner will be placed over an 8-ounce geotextile and 10-mil reinforced liner. The HDPE will be securely anchored with straw bales on the outside of the containment berm. Prior to laying down the HDPE, the entire area underneath will be swept clean, by hand or mechanical methods, to aid in preventing puncturing of the HDPE liner. Walkovers will be provided, on at least two sides, to allow personnel to cross over this berm in a safe manner. Eye wash

station(s), first aid kit(s) and fire extinguisher(s) will be provided at appropriate locations within the secondary containment area. An equipment decontamination zone, storage facilities for decontamination rinsate and temporary containers for used personal protective equipment will be in this area. In the event of rain or if other free liquids are present in the secondary containment area, the subcontractor will be responsible for supplying a small portable pump which will be used to transfer such liquids into one of the phase separators.

6.0 On-Site Transport of Solids and Liquids

The on-site transportation of waste material generated by the line cleaning operations will be performed by the same trucks which perform the cleaning. These trucks have two tanks, one tank for storing waste material and another tank for storing water to be used for cleaning. After the cleaning truck discharges the waste material into the phase separators at the filtration area, cleaning water from the storage tanks will be loaded into the other tank on the truck. A water truck will shuttle back and forth between the filtration area and the locations where line cleaning is taking place to provide additional water, as needed by the cleaning trucks.

Operators of cleaning trucks and water trucks will be properly licensed to carry the respective loads. In advance of the trucks leaving a line cleaning location, an inspection will be performed of the vehicle to ensure all valves are closed, hoses properly stored and vacuum engines/pumps/generators are in the "Off" position. Defined traffic routes will be established on a daily or weekly basis, depending on the work locale. Traffic control personnel will be positioned around all vehicles engaged in a removal action in any areas that have the potential for foot or vehicular traffic.

7.0 Phase Separation

This is the first step in the filtration system. A "Piping and Instrument Diagram" for the entire filtration system is provided in Figure 4. It is expected the solids removed from the sewer lines will vary dramatically in density, size and shape; therefore, the objective of this step is to separate as much of the sediment and debris from the water with a minimum amount of materials handling.

While the cleaning truck is removing the waste material from the manholes, a coagulant will be mixed with the waste material to aid in the removal of a larger portion of the finer clay and silt fractions of the sediment.

The waste material will be transported to the filtration area by the cleaning trucks and gravity discharged directly into one of five phase separators which will be utilized for this project. A phase separator is essentially a thirty yard water-tight roll-off bin which has been equipped with an internal screen. A 155 mesh disposable filter cloth will be installed in the phase separators to retain all sediment and debris which are greater than 100 micron (0.1 mm) in size. Vendor information on the phase separator is provided in Appendix A. Water containing particles smaller than 100 micron in size will be forwarded to the sand filters.

A ramp which is specifically designed to allow the cleaning trucks to dump into roll-off bins will be properly positioned next to one of the phase separators. The cleaning truck containing the waste material will back up onto the ramp, the end of the tank on the cleaning truck will be opened and the tank will be hydraulically raised to a near vertical position; thus, allowing direct discharge of the waste material into the phase separator.

Multiple loads of waste material will be discharged into a given phase separator until sediments accumulated in the unit approach capacity. When this occurs, the ramp will be repositioned to allow dumping into a different phase separator. The loaded phase separator will be sampled and analyzed through a paint filter test until a passing result is obtained. It is expected the solids in the phase separator will pass the paint filter test within 24 to 48 hours after receipt of the last load of cleaning material. After passing the paint filter test, the phase separator will be transported to the on-site stockpile area where the solids and the disposable filter cloth will be discharged. At completion of the cleaning activities, the solids at the stockpile will be sampled (1 per 50 cubic yards), analyzed, and disposed at an appropriate Class I, II, or III landfill.

8.0 Sand Filtration

Liquid wastes from the phase separators will be fed into the sand filters. The primary objective of this process step is to remove particles greater than 10 micron (0.01 mm) in size. Water containing particles larger than 10 micron cannot be recycled to the line cleaning operations since it may damage the high pressure jet nozzles.

Three identical two-foot diameter sand filters will operate in parallel. Each filter will contain four cubic feet of #20 sand and have a maximum operating flow rate of 30 gpm. The need to backwash the filters is indicated by monitoring the differential pressure across the inlet and outlet headers of the filters. Although the set point is adjustable, typically backwash will be automatically initiated when the differential pressure exceeds seven (7) psi. Backwashing is accomplished by routing the effluent from two of the tanks into the bottom of the third tank. The backwash water is sent back to the phase separator. To help ensure a proper backwash is performed, the instantaneous and total flow of backwash water are monitored.

Since the flow of waste material into the phase separators will be intermittent and the sand filters operate most effectively at a steady flow, a 21,000-gallon surge tank (HT-1) is provided.

At the conclusion of the project, the used sand will be removed from the filters and mixed with solids from the phase separators for classification and disposal at an off-site landfill.

9.0 Carbon Adsorption

After particulate removal by the sand filters, the water is passed through a carbon adsorber to remove trace amounts of organics which may be present in the water. The objective of the carbon adsorber is to ensure the concentration of organics does not build up to the point where the water is unacceptable for treatment at the POTW.

A single four-foot diameter carbon adsorber will be used. The tank contains 2,040 pounds of granulated activated carbon and has a maximum operating flow rate of 75 gpm. When the carbon becomes exhausted as indicated by a sudden rise in the organic content of the water going into the storage tanks, the unit will be bypassed while fresh carbon is installed. The spent carbon will be mixed with the solids from the phase separators for classification and disposal at an off-site landfill.

10.0 Filtered Water Storage

Wastewater generated from the cleaning efforts will be treated though the filtration system. Most of this water will be recycled for use in the line cleaning operations. Five (5) 21,000 gallon Baker-type tanks are included in the system to store water prior to recycling and to

provide retention capacity in the system as necessary to accommodate up to a two-week turnaround time on water samples sent to an off-site lab. Because the recycled water must be nearly particulate-free, tanks with an internal epoxy coating will be used.

Treated water going into the storage tanks will be sampled in accordance with the Sampling and Analysis Plan. While it is expected that most of the contaminants will remain with the sediment in the phase separators, there may be a gradual accumulation of contaminants in the water, particularly after it has been recycled several times. When analyses indicate the concentration of any contaminant in the treated water is greater than 50% of the concentration acceptable for treatment at the POTW, water currently in the storage tanks will be isolated. Fresh water will be used for the line cleaning operations. The water in the isolated tanks will be sent to the POTW, via Pump Station A. Monitoring the treated water quality in this manner will minimize the amount of water which must be managed off site.

Prior to sending any wastewater to the POTW, IT will obtain permitting and documentation to do so from the POTW. The wastewater will then be trucked from the filtration area and discharged into the sump located at Pump Station A.

11.0 Initial Video Logging of Storm Sewer Lines

Each storm sewer line in Parcels B, C, D, and E will be video logged prior to commencing any cleaning activities on that specific line. The initial logging will provide information on the current physical condition of the line, a record of the amount of solids accumulated in the line prior to cleaning, and identify any connecting lines which may have not been previously identified.

All video logging will be recorded on VHS type cassettes and turned in daily to IT's site superintendent. Additionally, each tape will be reviewed while it is being taped. Each cassette will be clearly and legibly marked to indicate the exact locations of the lines presented on the cassette. The distance from the point where the filming is initiated will be continuously indicated on the video tape. A table which indicates the locations of problem areas in the lines will be provided with each tape.

REFERENCES

Action Memorandum

1. page 7, last paragraph, third sentence
2. page 8, first paragraph, first sentence

Engineering Evaluation/Cost Analysis

1. page ES-3, first paragraph, second and third sentences
2. page 36, third paragraph, first sentence
3. page 39, last paragraph, third sentence
4. page 40, first, second and third paragraphs
5. Appendix C, page C-5, Comment No. 2 and Response