ENGINEERING INVESTIGATIONS AT
INACTIVE HAZARDOUS WASTE SITES
IN THE STATE OF NEW YORK
PHASE II INVESTIGATIONS

Site # 2040

Hudson Oil Refinery NYD980534499

(Quanta Resources)
Long Island City, Queens County
NYSDEC I.D. No. 241005

Volume II - Appendices A-H

Prepared for

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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APPENDIX A

REFERENCE DOCUMENTATION

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REFERENCE 1

Groundwater and Wells

Second Edition

Fletcher G. Driscoll, Ph.D.
Principal Author and Editor

Published by Johnson Division, St. Paul, Minnesota 55112

hydraulic gradient. If the hydraulic gradient (head loss per unit length of travel) is doubled, the rate of flow in a given sand is also doubled. Conversely, doubling of the flow rate requires doubling of the hydraulic gradient. These ratios apply only to laminar flow, however. If turbulent flow is present, the flow rate does not change in direct proportion with the hydraulic gradient; doubling of the hydraulic gradient may increase the flow rate by only 1.5 times. The information in this paragraph is vital to understanding water-well hydraulics, which is presented in Chapter 9.

The slope of the water table or potentiometric surface is the hydraulic gradient under which groundwater movement takes place. The total flow through any vertical section of an aquifer can be calculated if we know the thickness of the aquifer, its width, its average hydraulic conductivity, and the hydraulic gradient. The flow, q, through each foot of aquifer width is:

$$q = KbI \tag{5.12}$$

where K is the hydraulic conductivity averaged over the height of the aquifer, b is the aquifer thickness in feet, and I is the hydraulic gradient.

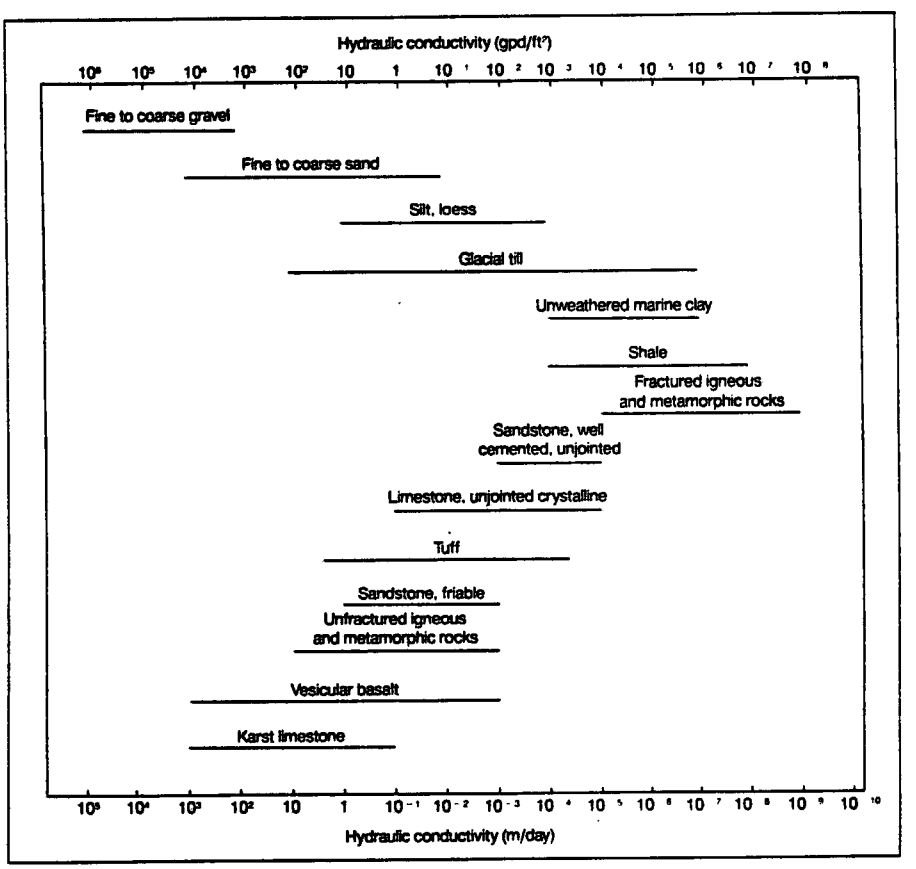

Figure 5.14. Typical K values for consolidated and unconsolidated aquifers. *(After Davis, 1969; Dunn and Leopold, 1978; Freeze and Cherry, 1979).*

REFERENCE 2

Buxton et al

RECONNAISSANCE OF THE GROUND-WATER RESOURCES OF KINGS AND QUEENS COUNTIES, NEW YORK

By Herbert T. Buxton, Julian Soren, Alex Posner, and Peter K. Shernoff

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U.S. GEOLOGICAL SURVEY

Open-File Report 81-1186

Prepared in cooperation with the

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION and

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Syosset, New York

1981

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Hydrogeology of Northwestern Nassau and Northeastern Queens Counties Long Island, New York

By WOLFGANG V. SWARZENSKI

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1657

Prepared in cooperation with the Nassau County Department of Public Works and the New York State Water Resources Commission

With special reference to water in Cretaceous and Pleistocene aquifers

Swarzenski

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STUDIES IN GEOPHYSICS

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Geophysics Research Forum
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This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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Nonpoint Contamination of Groundwater on Long Island, New York

9

GRANT E. KIMMEL
U.S. Environmental Protection Agency

INTRODUCTION

Long Island, New York, lies south of the coast of Connecticut and east of that of New Jersey along the shores of the Atlantic Ocean (Figure 9.1). It has a total area of about 1400 mi² and is 120 mi long by up to 20 mi wide. It includes the counties of Kings and Queens in New York City, which have been population centers for centuries; Nassau County, which grew in population remarkably from the 1940s to about 1970; and Suffolk County, where population growth has been rapid since the 1960s. The island developed slowly for the first three centuries after European settlement in the seventeenth century. The principal use of the land east of New York City was agricultural. Following World War II the rate of suburban development increased, and in this expansion a great deal of farm and estate land changed to housing, light industrial, and commercial development. Today about 8 million people live on Long Island; 3 million in Nassau and Suffolk Counties.

Fresh groundwater stored in unconsolidated sand aquifers underlies virtually the entire island. Kings and part of Queens Counties are supplied with water by sources outside the island, but the remainder of the island relies on this groundwater reservoir. Although an abundant supply of groundwater made development possible anywhere on the island, the effect of discharges in and on the ground has affected the water quality.

This chapter describes the regional contamination of the groundwater supply resulting from the use of the land by all forms of man's activity. Nonpoint contamination is nearly island wide because urbanization and agriculture have both contributed to the problem.

GEOHYDROLOGY

Exploration of the island's water resources began early in this century by Veatch *et al.* (1906) and Fuller (1914), who described the basic geology and hydrology of the island, and from that time the sources and general movement of the water were known. Most recently the geohydrology of the island was described by McClymonds and Franke (1972). The island consists of a series of beds of sand, silt, and clay dipping somewhat less than 1° toward the south and into the continental shelf. These deposits are underlain by crystalline bedrock of very low permeability. Over most of the island these unconsolidated deposits contain freshwater down to the bedrock. The top of this groundwater reservoir is overlain by glacially related deposits that are mostly of high permeability.

Overall the unconsolidated sediments can be separated into four aquifers and two confining beds (Figure 9.2). The Lloyd aquifer overlies bedrock that is the bottom of the groundwater reservoir. The Lloyd ranges in thickness from about 100 ft in the north to about 400 ft along the southern edge of the island where it is about 1800 ft below the surface. The Lloyd aquifer is overlain by a confining layer of about 300 ft of silty and solid clay and sand, called the Raritan clay.

The Lloyd aquifer is not extensively used areally but is important for some south-shore communities as it is their only source of freshwater and, being at the bottom of the system, is least altered by contaminants from above. Freshwater is found in the Lloyd throughout the main part of the island; however, freshwater encounters saltwater near the periphery of the island or offshore. The freshwater-saltwater interface

REFERENCE 5

7520
Reference 5 apparent product thickness see pp 19-20 highlighted

GROUND-WATER POLLUTION FROM GASOLINE

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This case study offers an indepth look at a New Jersey gasoline spill from its discovery to recovery. It also describes the process of monitoring well design and installation.

By William H. Kramer

Ground-water contamination from chemical spills and leaks from below-ground tanks has become a serious environmental problem in New Jersey and in other parts of the United States. In New Jersey, for example, more than 1,400 such incidents were reported in fiscal 1978. The amount of material spilled in this period is estimated at 1.5 million gallons (5.7 million liters). More than 75 percent of this total, or 1.1 million gallons (4.2 million liters), involved petroleum compounds. The number of incidents reported continues to rise and is currently approaching 2,000 per year in New Jersey alone. The response to spills by the New Jersey Department of Environmental Protection (NJDEP) involves a closely coordinated effort between a spill specialist and the hydrogeologist. It is the responsibility of the state hydrogeologist to determine if ground-water contamination has occurred or may occur as a result of a particular spill. If it has, he will supervise the design and implementation of a ground-water monitoring and recovery program (Althoff and Reuter, 1980).

In December 1979, a loss of approximately 1,200 gallons (4,542 liters) of gasoline occurred at a service station in Cresskill, New Jersey. The loss was reported to NJDEP by a representative of the major oil company involved. The loss occurred over a period of two to three days and was discovered during a routine inventory check. Four 4,000 gallon (15,140 liter) steel tanks were suspected since each was 17 years old. Two of the four tanks were found to have leaks due to corrosion and were taken out of service. Eventually, all four tanks were removed and replaced with Fiberglas tanks. The day after the spill was reported, a hydrogeologist from the NJDEP Bureau of Ground Water Management inspected the site. The function of the hydrogeologist is to assess the danger to public health and safety posed by the spill, to design a ground-water monitoring program to delineate the extent of gasoline contamination, and to recommend a recovery program if needed. The hydrogeologist was met on site by a representative of the oil company that would be responsible for bearing the cost of investigation and cleanup. In this case, the major oil company supplying gasoline to the station also owned the tanks and was therefore responsible for the investigation and cleanup. In cases where the station proprietor owns the tanks, the proprietor must bear the burden of cleanup. If the spiller cannot shoulder the cost of the necessary monitoring and recovery program, the state must often assume the cost.

Preliminary Evaluation

Background information regarding the spill was obtained, and a sketch of the site (Figure 1) was prepared, showing the locations of buried storage tanks and piping systems; nearby public and private wells; surface water bodies; all surface structures; overhead power transmission lines; storm and sanitary sewer lines; and the location and depth of all buried utilities. Buried telephone cables are especially susceptible to damage from petroleum vapors. When the water table is near the surface, nearby buried cable vaults must be checked since vapors or free product often collects in them. The location of all overhead power lines is important in planning the location of monitoring wells, as a safe distance must be maintained between the overhead lines and the drill-rig boom.

The spill site was in a suburban area and had many buried utilities beneath and near the site. A check of geologic maps showed the area to be underlain by 30 to 50 feet (9 to 15 meters) of glacial till. A home was located 30 feet (9 meters) from the leaking tanks. Because of the shallow water table (6 to 12 feet deep), it was possible that gasoline vapors or free product could seep into the basement. Moreover, a sanitary sewer line was located just above the water table. It was feared that fumes or product might enter the sewer line and thereby cause gasoline fumes to migrate into other homes via plumbing systems. The pattern of homes affected in this manner is usually erratic, and evacuation is often necessary.

Gasoline can also migrate along the outside of sewers or other utilities since the trenches in which the pipes are installed are often backfilled with material having greater permeability than the surrounding soil. Since glacial till was the predominant surficial material at the site, this possibility was a real one. Local utilities were contacted to

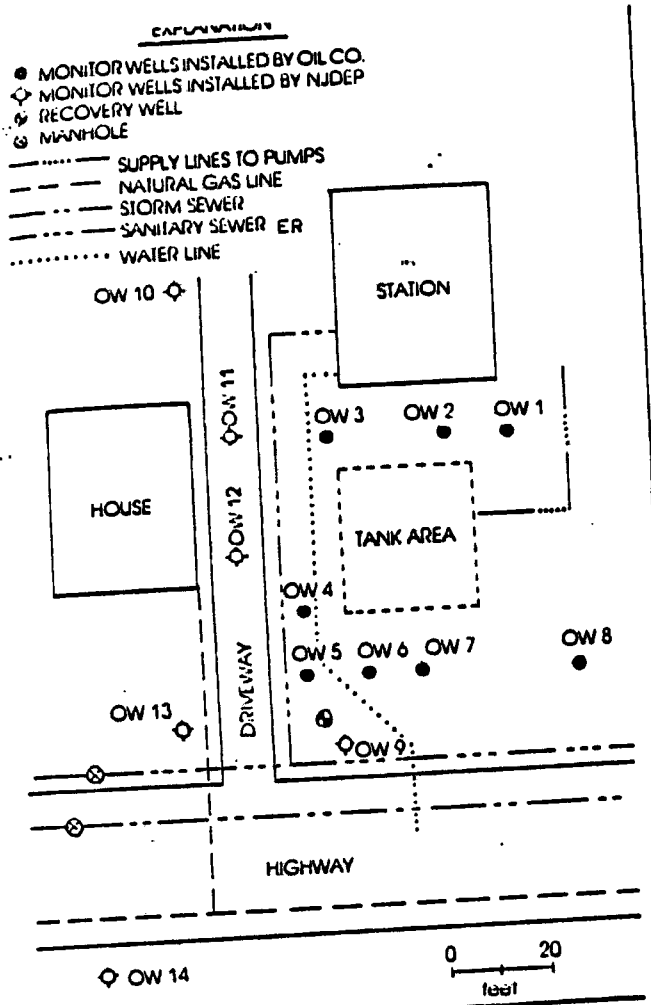

Figure 1. Site plan - Cresskill Spill.

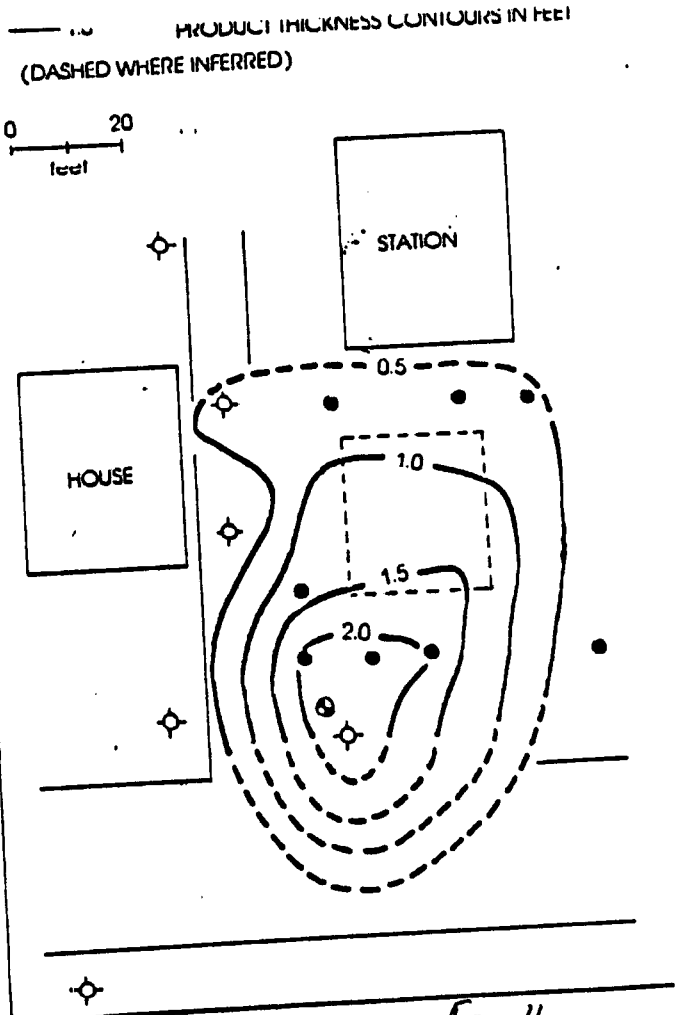

Figure 2. Monitoring well design. Fig 4

mark the location of all buried lines (telephone, electric, natural gas, sewer and water). This is critical in urban areas to avoid possible injury to personnel during drilling. Local health officials were also notified of the spill.

The area is serviced by a public water system, and there were no public or private wells near the station. Therefore, contamination of water supplies was not a concern. As a general policy in New Jersey, removal of petroleum products from the subsurface has been restricted to recovery of the free products floating on top of the water table, unless a water supply is threatened. When public or private wells are threatened, a petroleum product spill is even more problematic. Crude oil and its derivatives contain a host of hydrocarbon compounds (including benzene, toluene and xylene) that are soluble in water. De Pastrovich and others (1979) report solubilities of up to 300 mg/l for some gasolines. Depending on the length of time the gasoline has been in contact with the water table, a fraction of the organic compounds in the gasoline will dissolve into the ground water and begin to move with the regional ground-water flow paths. If a water supply is threatened, the ground water itself must be removed and treated or an alternate water supply must be secured.

Delineation of the Gasoline Plume

The oil company installed eight monitoring wells in the tank area prior to the arrival of the state geologist. All but one of the monitoring wells encountered between 0.80 and 2.75 feet (.24 to .84 meters) of free gasoline [redacted]

[redacted]

Six additional monitoring wells were recommended in order to establish the full extent of the gasoline plume on the water table. The locations for the six new wells were determined during the drilling operation. For example, if the first well encountered gasoline, the second well was moved further downgradient from the source. In this way, the approximate areal extent of the plume was delineated. The design of the monitoring wells is shown in Figure 2. The wells consisted of 3-inch diameter (76.2mm) PVC casing with a 6-foot (1.8 meter) PVC screen set 3 feet (.91 meter) above and 3 feet (.91 meter) below the water table. It is imperative that the screen be installed across the water table surface since the free gasoline floats on the water table. The screen should be long enough to allow for both seasonal water table fluctuations and

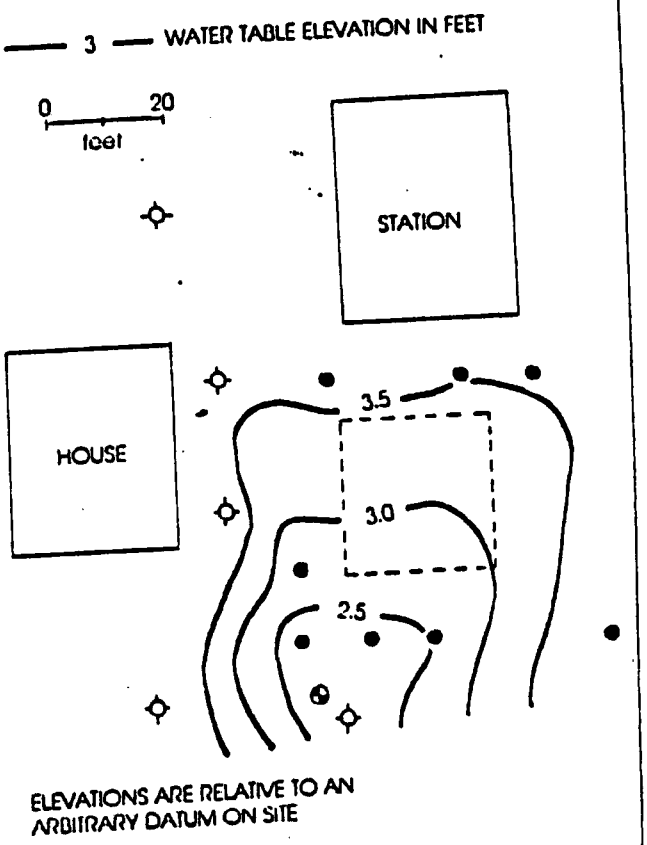

Figure 3. Map of water-table contours on December 31, 1979, before installation of recovery well.

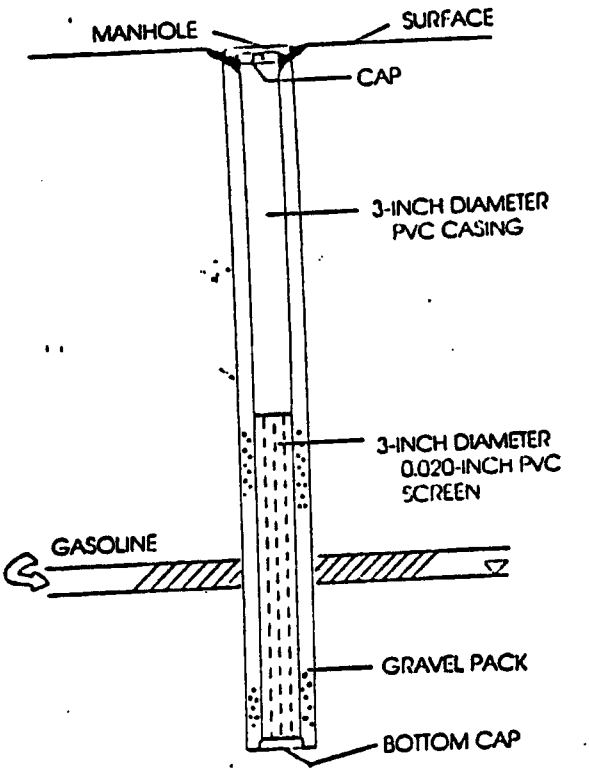

Fig 2

~~Figure 4.~~ Contour map of gasoline thickness in the monitoring wells on December 31, 1979, showing approximate dimensions of the plume.

for the effects of drawdown during gasoline recovery. A gravel pack should be installed if needed and top and bottom well caps should be provided. Well casings are often recessed just below the surface and a manhole is fitted around the top to prevent vehicular damage or vandalism. The type of drilling rig used is dependent on local geology and access to the site. In this case, an office check of maps of bedrock geology and glacial geology indicated the presence of a thick (30 to 50 feet) cover of glacial till over bedrock. Since the water table was between 6 and 12 feet (1.8 to 3.7 meters) deep, rock drilling was not required. However, boulders are common in the local glacial till. Use of the hollow-stem auger technique was recommended for drilling at this site. This technique has the advantage of being relatively quick and inexpensive, and the drilling rig used is usually small and maneuverable. If obstructions (e.g. boulders) are encountered during drilling, the rig can easily be moved to a new location with a minimal loss of time. Moreover, holes are easily logged as the auger brings the cuttings to the surface. One well was continued to a depth of 25 feet using continuous split-spoon sampling. This well (OW 9) was installed downgradient of the source. The geologic log of this boring helped to indicate whether a recovery well was feasible and, if so, what the design should be. The installation of the six additional monitoring wells was supervised by the state hydrogeologist and geologic logs of the wells were prepared as each was drilled. After installation, elevations on the top of all casings were surveyed [redacted] section of the spill site.

Gasoline Recovery

Recovery of gasoline at this site was attempted because the volume of product lost was significant; approximately 1.5 feet (.46 meters) of gasoline was present in monitoring well 11, eight feet away from a house; and the plume had migrated beyond the station property and was approaching a sanitary sewer line. Gasoline vapors were never detected in the sewer system or the basement of the home.

The two recovery options considered were a trench system and a single large-diameter recovery well. The trench recovery option was discarded because many buried utilities were present in the area; there was a chance of trench collapse without expensive shoring; the dimensions of the plume would have required several trenches to entrap all the gasoline; and the plume had already advanced to a point beneath a county highway.

It was therefore decided to install a recovery well adjacent to monitor-

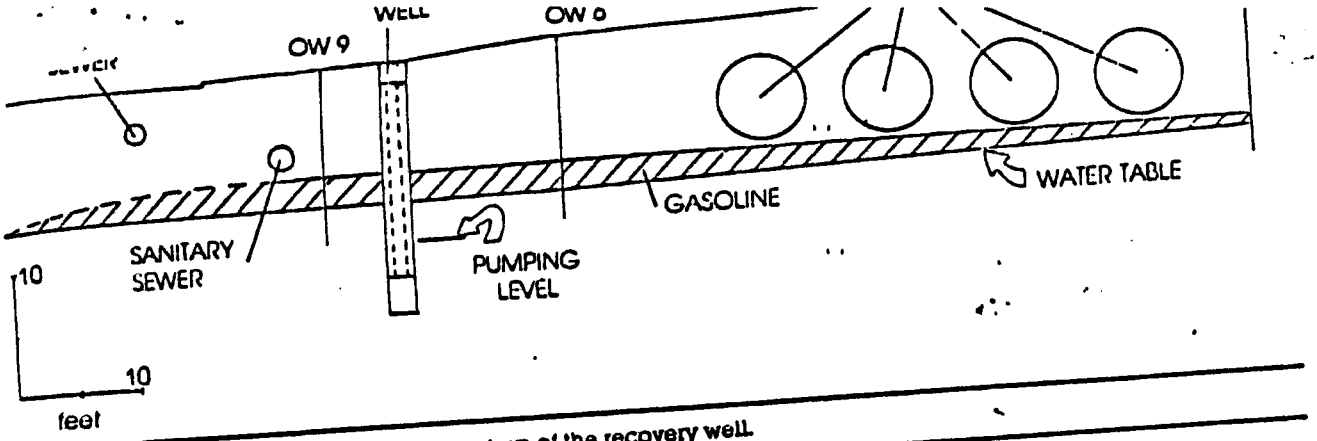

Figure 5. Cross section of the site prior to start up of the recovery well.

ing well 9, on the downgradient edge of the plume. The recovery well designed by the state hydrogeologist (Figure 6) involved the use of a double-pump system. A submersible dewatering pump was placed on the bottom of the well in a blank section of casing; this provided a reservoir above the pump intake which reduced the chance of turbulent flow and mixing of gasoline and water by the pump. The dewatering pump created a cone of depression, which was designed to extend to the limits of the gasoline plume. Once the pump was in operation, the extent of the pumping influence was checked by comparing static water levels in all monitoring wells with levels measured at selected intervals after pumping began. The pumping level in the recovery well was maintained at 11 to 15 feet (3.35 and 4.6 meters) below the surface so that the gasoline would be induced to flow through the more permeable sand existing in that interval (Figure 6).

The system was designed so that the gasoline would flow into the well 10 feet (3.0 meters) above the pump intake. The gasoline-free discharge from the dewatering pump was directed to a nearby storm sewer after passing through a filter containing granular activated carbon. The filter was installed as a precaution in case gasoline or gasoline derivatives did enter the dewatering pump.

The free product that collected in the recovery well was to be removed by an oil/water separator and pump system sold under the trade name Scavenger. The Scavenger consists of a floating separator collection unit set in the well, which retrieves light oil products, such as gasoline, from the water surface. It features a filter cartridge which repels water but allows oil to pass through to a collection bowl, where it is then pumped to a recovery tank (Oil

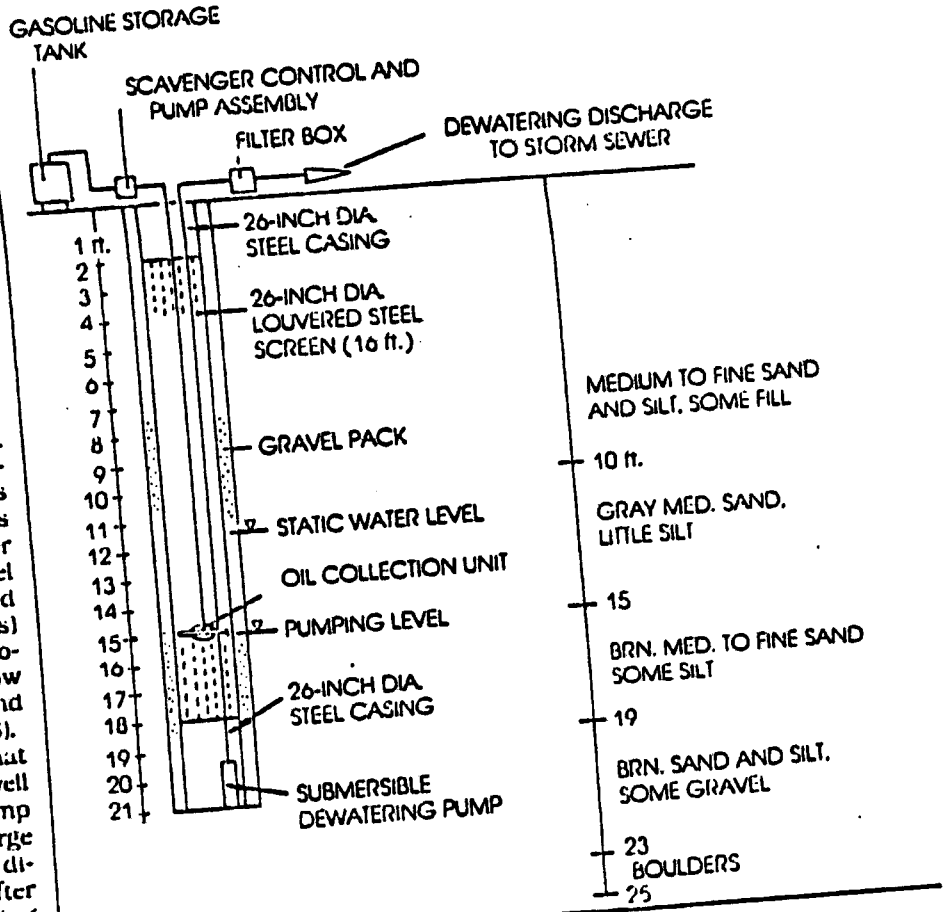

Figure 6. Recovery wll design and geologic log at OW 9.

Recovery Systems Inc., 1980).

The Scavenger system requires a 24-inch (610mm) diameter recovery well. A bucket auger drilling rig provided a 36-inch (914mm) diameter hole which was then fitted with a 26-inch (660mm) diameter louvered steel screen and casing, and gravel packed. Mud was not used as a drilling fluid as it tends to clog the formation, inhibiting gasoline recovery. A biodegradable drilling fluid was used.

The recovery well was installed 10 days after the loss had been reported. Boulders were encountered at 21 feet (6.4 meters), preventing the well from reaching the design depth of 25 feet (7.6 meters). The water column above the submersible dewatering pump was reduced to 6 feet (1.8 meters) instead of the 10 feet (3.0 meters) originally recommended. After installation, the well was developed by overpumping. Four feet of drawdown was obtained in the recovery well by throttling the dewatering pump. The pumping

level was at 15 feet (4.6 meters) with a 2 gpm (1.26×10^{-4} m^3/sec) discharge. One foot (.30 meters) of drawdown was obtained in well number OW 6 one day after pumping began. All other monitoring wells showed a drop of 0.5 feet (.15 meters) but it was unclear if this was due solely to the effects of dewatering or to other factors. Two weeks after pumping began, drawdown in OW 5 and OW 6 was 1.95 feet (.59 meters). However, gasoline was not entering the recovery well. Figure 3 shows that a natural water-table gradient already exists toward the recovery well even without pumping. This may be due to the depression of the water table by the weight of the overlying gasoline (see Figure 4).

The absence of product in the recovery well may have been due to two factors: 1) insufficient or improper development, and 2) the discontinuous nature of the sand layer logged in the recovery well. High velocity jetting with water was considered as a development tool, but the design of the louvered screen openings would not allow the jet stream to be easily directed out into the formation. A possible solution would have been to install a continuous slot screen at the gasoline-water interface.

Although a medium sand was logged from 11 to 15 feet (3.4 to 4.6 meters) at OW 9, this sand zone was absent in the other monitoring wells. These wells showed red sand and silt (35 to 50 percent silt) to 15 feet (4.6 meters) below the surface. The heterogeneity and high silt content of the glacial till was also thought to be a contributing factor in preventing the gasoline to flow to the recovery well. A recovery well of similar design in a medium- to fine-grained sand with less than 5 percent silt content has been operating in the New Jersey coastal plain for more than one year and is pumping 200 gallons (757 liters) of gasoline per day.

In an effort to mobilize the gasoline and induce it to move to the recovery well, the area around the well was excavated to the water table and up to the well screen, then backfilled with 1-inch (25mm) diameter gravel. This effort proved successful. Gasoline began to enter the recovery well, and over the next four months, 900 gallons (3,406 liters) were removed from the formation.

Conclusions

When compared with other ground-water pollution cases in New Jersey, the Cresskill spill was a minor incident. Nonetheless, the cost of monitoring and recovery approached $30,000. Actual recovery totaled about 75 percent of the original loss or 900 gallons (3,406 liters). Although the gasoline threat to the sewer system and nearby home was eliminated, approximately 300 gallons (1,135 liters) remain in the ground. Clearly, if public or private wells had been in use nearby, the unrecovered product would have been a problem.

With the number of reported spills in New Jersey approaching 2,000 per year, manpower and funding is simply not available to achieve a complete ground-water cleanup in each case. Out of necessity, therefore, each spill incident is prioritized according to the threat to public health and safety that it poses. The state hydrogeologist must determine the actual and potential damage each spill represents. He must know the costs involved in a recovery attempt, keeping in mind that results often fall short of expectations.

The recovery of 75 percent of the lost product in the Cresskill case was about average for unconsolidated formations in New Jersey. The optimum cleanup of spilled gasoline in the state has been obtained in the sands of the State's Coastal Plain and in well sorted sands and gravels of glacio-fluvial origin in northern New Jersey. Delineation and recovery in bedrock areas of the state has been comparatively unsuccessful.

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Biographical Sketch

William H. Kramer obtained his BA in earth sciences from Fairleigh Dickinson University in 1976. He has done graduate work in hydrology at the University of Nevada-Reno and is presently completing his MA in geology at the State University of New York at Binghamton. He was previously employed as a hydrogeologist with the New Jersey Department of Environmental Protection's Bureau of Ground Water Management; Handex Corp., a specialty drilling company in Morganville, New Jersey; and the Passaic River Coalition, a watershed association based in Basking Ridge, New Jersey.

REFERENCE 6

Reference 6 apparent product thickness see p 43 highlighted

ALTERNATIVES IN DECONTAMINATION FOR HYDROCARBON-CONTAMINATED AQUIFERS

Two productions and recovery are offered from spill detection through assessment and abatement.

by Paul M. Yaniga

The degradation of ground water by hydrocarbons and other pollutants is a problem of national dimensions. Literally hundreds of thousands to millions of gallons of potential ground-water contaminants (mostly petroleum compounds) are reported to be lost from below-ground storage tanks and pipelines on an annual basis.

Recent years have seen this problem intensify with the increased use of industrial fuels and chemicals and awareness of accidental spillage. The increasing dependence of municipalities, industry and private households on ground-water supplies provides a stark counterpoint to the increasing frequency with which these supplies are degraded by hydrocarbon contamination.

In some cases of hydrocarbon leakage, the degradation of ground water is overshadowed by the potential for explosions and fires, caused by the vapors that often accompany the leakage of volatile hydrocarbons. Sewers, buildings, pipeline foundations and subsurface utility conduits have been damaged or destroyed by the inadvertent ignition of hydrocarbon vapors leaked from storage tanks and pipelines.

Contamination Characteristics

The problems commonly associated with hydrocarbon loss include odors in basements, taste or odors in wells, infiltration into storm and sanitary sewers and seepage into utility lines. During any leak or loss of hydrocarbons, the dominating, controlling force is gravity, which causes the product to move downward until it meets some restrictive horizon. In many cases gravity induces the product to move downward from the surface until it reaches (and thus contaminates) the ground-water system (Figure 1). In areas of low permeability, the movement of hydrocarbon is often restricted to the zones of increased permeability that have been created by excavation and backfill. This phenomenon accounts for the fact that in bulk storage facilities, the highest concentrations of spilled hydrocarbons often occur in tank pits and service line trenches.

In areas of high permeability, however, some hydrocarbon is adsorbed on soil and earth materials, although most will infiltrate through soil and rock materials until it intercepts the water table. The quantity that reaches the water table is dependent both on the quantity of loss and on the porportion of silt and clay in the soil profile (i.e. the greater the loss and the coarser the earth materials, the larger the amount of free product that will reach the ground water). The product that reaches the ground water generally manifests itself in two ways:

- As free product in the saturated zone at the top of the water table, and (Figure 1)
- As dissolved or emulsified product in the aquifer.

With the passage of time, the immiscible hydrocarbon product on top of the water table will move laterally, in the direction of the ground-water flow or gradient. Interception of the water table by natural or man-made discharge points (springs, wells, etc.) will bring the hydrocarbon-contaminated water to the surface, where it may exhibit objectionable taste and odor, as well as other associated geochemical changes such as excessive concentrations of iron and manganese precipitates at water taps. Interception of the water table by subsurface features, such as building foundations, pipelines, subways, tunnels and sewers, allows the free product to collect in potential explosive amounts in the subsurface.

Problem Assessment/ Resolution

The successful abatement of any ground-water problem is always a function of how comprehensively it has been assessed and correspondingly how well it is understood.

There exists no standard method for the recovery of free product or the abatement of dissolved and emulsified hydrocarbons in ground water. The resolution of each recovery/abatement problem depends primarily on its unique aspects: the amount and type of contaminant involved, the hydrogeology of the affected area, the proximity of sensitive resources that could be damaged by contamination (such as domestic wells and protected surface waters), the potential for ignitions, explosions or asphyxiating concentrations of hydrocarbon vapors and background water quality.

The major, initial task in each recovery/abatement problem thus

remains constant: the nature and magnitude of the contamination must be assessed so that an appropriate program can be developed. To aid our clients in understanding the emphasis we place on problem assessment, GTI hydrogeologists have developed a 14 point checklist of work items that are integral to designing a successful hydrocarbon recovery/pollution abatement system.

This program includes a review of background logistical data on the hydrocarbon loss, an examination of impacted cultural features, the consideration of potential impacts on other cultural features, and in-depth evaluations of soils, hydrologic, geologic and hydrogeologic conditions that affect the loss, movement and abatement of any groundwater problem.

Recovery and Abatement Alternatives

Once the source of fugitive, subsurface hydrocarbons has been pinpointed, the flow should be stopped, if possible. This means that the leaks should be plugged so that no additional product enters the subsurface. This is not critical to initiating a product recovery operation, but it does help to reduce the long-term cost of the program.

Free Product Recovery

In approaching free product contaminations of ground water, a two-pump recovery system to capture free product from the top of the water table (Figure 2) is applicable and successful. The principle of its success is that one pump creates a cone of depression in the piezometric surface, which causes the free product to flow toward the intake of the other pump. A case history on a gasoline loss in Genesee County, Michigan, describes this application.

This Scavenger(®) methodology has been applied by GTI to numerous free product situations worldwide and has been found to be superior to systems that rely on infiltration trenches, skimming pumps and oil/water separation on the surface. Trench-based systems are often plagued with product emulsification problems and are subject to other difficulties.

Dissolved Product Abatement

For the treatment of dissolved hydrocarbons, the design of site-specific systems that utilize either

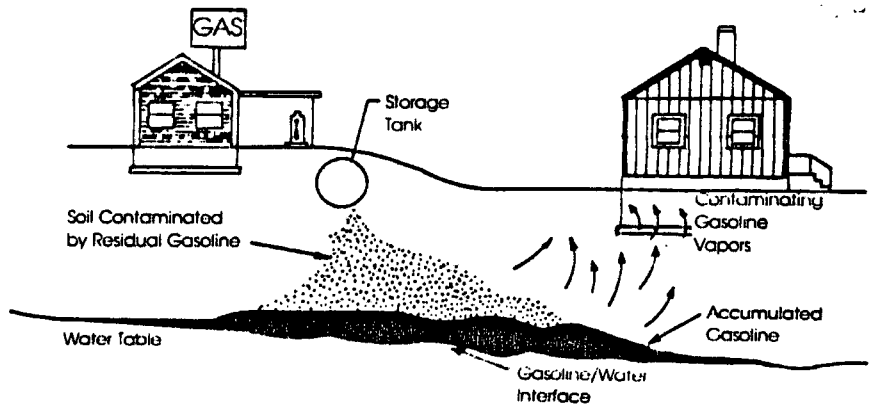
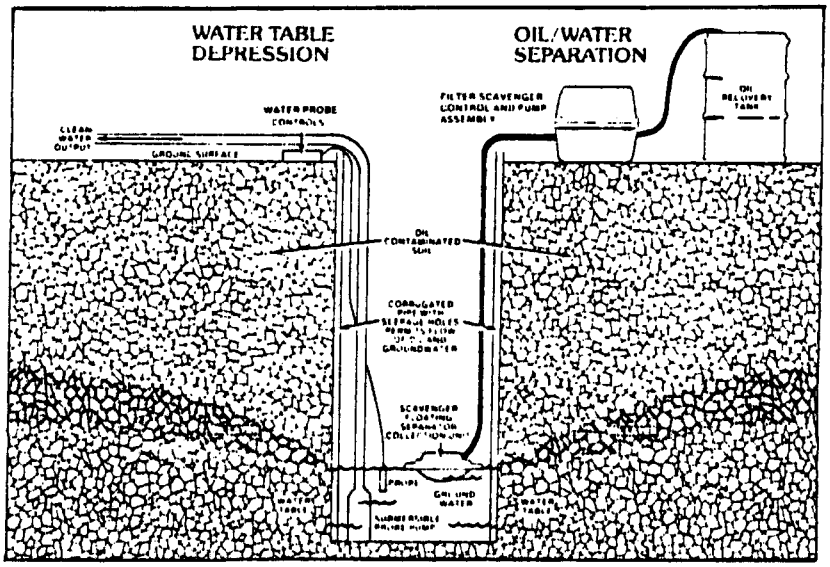
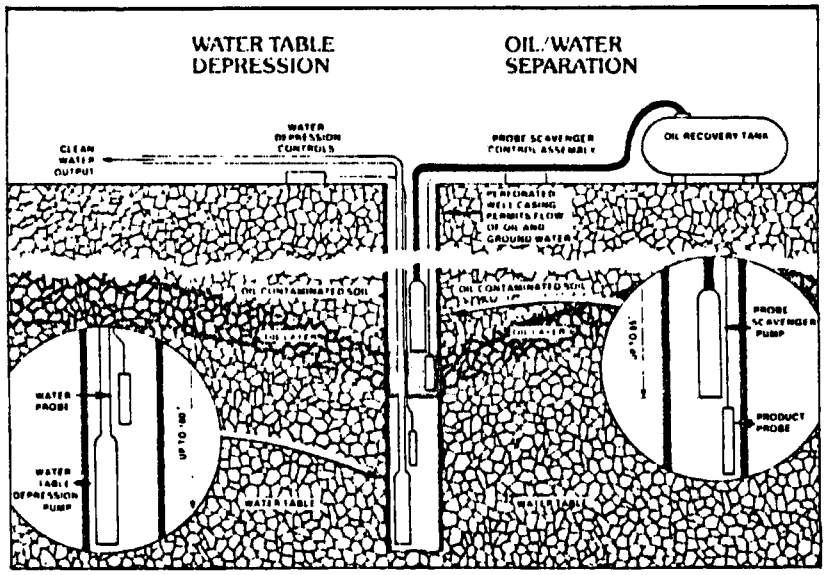


Figure 1. Overall view showing leakage and contamination



Recovery from ground water spill using Filter-Scavenger and Water Table Depression Probe-Pump.



Recovery from ground water spill using Probe-Scavenger and Water Table Depression Probe-Pump.

Figure 2. Schematic diagram of water-table depression pump and oil recovery equipment implementation

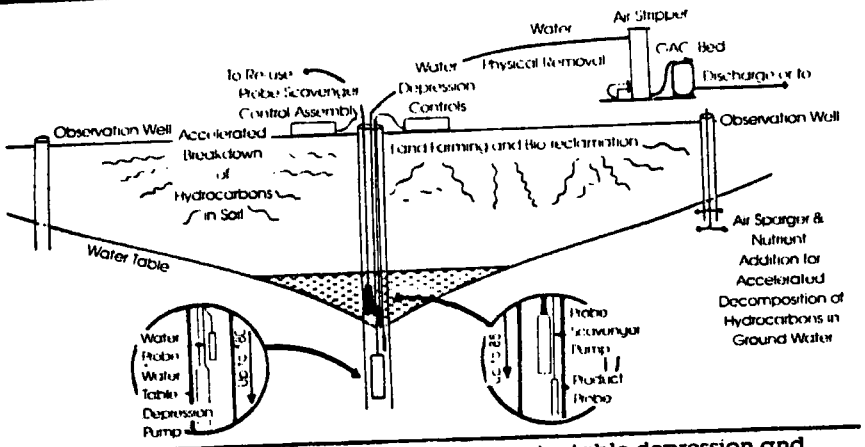


Figure 3. Schematic cross section illustrating water-table depression and hydrocarbon retrieval

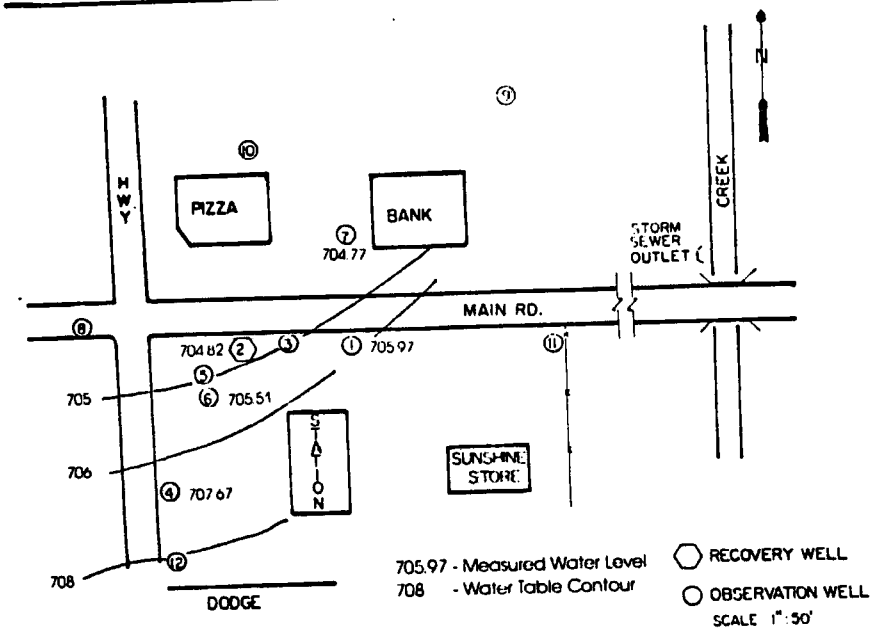


Figure 4. Original water-table gradient map

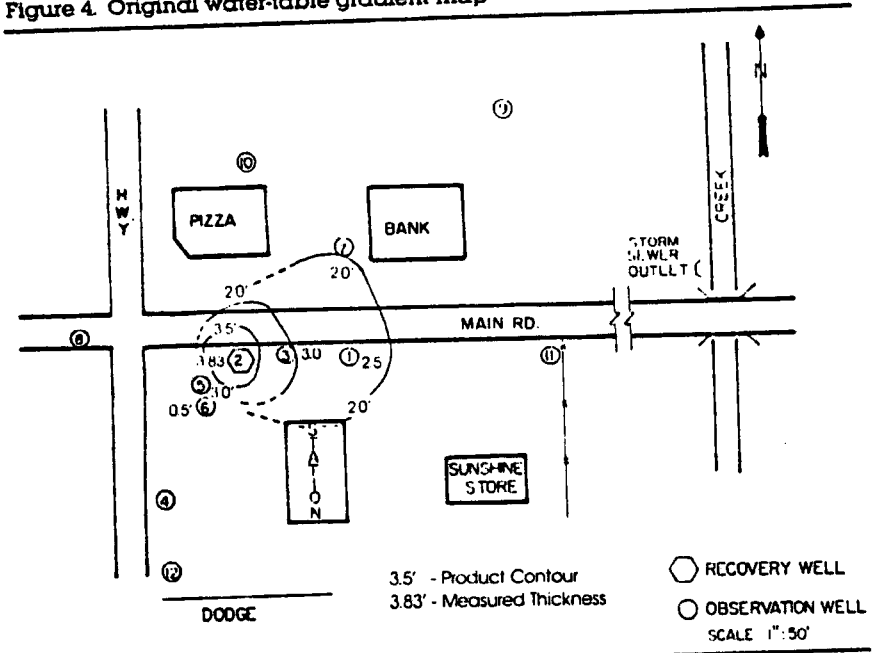


Figure 5. Product thickness map

aeration or filtration as the principal means of product removal is often effective. Construction of air-stripping units and activated charcoal filters are normally performed for such specific applications (Figure 3). The design and installation of these systems can be expensive, but in many cases aeration or filtration is the most cost-effective method to volatilize or capture dissolved product.

To renovate dissolved hydrocarbons contaminating drinking water aquifers, a method utilizing bacteria that have an affinity for certain naturally occurring hydrocarbon has been shown to be successful. (Figures 3, 4, 5) The bacterial species have been tentatively identified (Figure 6) as belonging to the genera arthobacter and pseudomonas. In utilizing these bacterial species to accellerate the renovation of dissolved hydrocarbons in ground water and hasten reduction of adsorbed hydrocarbons from soil and rock materials, the addition of controlled quantities and rates of oxygen and nutrients is often necessary to culture proper hydrocarbon decomposition.

The following case history from Montgomery County, Pennsylvania, highlights some aspects of a combined air stripping/bioreclamation abatement for dissolved gasoline-type hydrocarbons.

Case History—Free Product Loss and Recovery, Genesee County, Michigan, Gasoline Contamination of Ground Water

Preliminary Definition

In the spring of 1980, gasoline odors were reported in the basement of a bank building in Genesee Co., Michigan (Figure 4). As part of a normal program of investigation, the state regulatory agency requested an adjacent service station to check its inventory records and tanks for losses. No losses were documented but the odors persisted and no other source in the area could be documented. At the direction of the state agency, an observation well was constructed on the station property which encountered free product "gasoline" atop the water table.

As the oil company's previous experience in dealing with hydrocarbon contamination of ground water was somewhat limited, initial attempts at recovery consisted of the use of a vacuum truck to skim the product off the water surface in

the well. The results of the operation were an abundance of water contaminated with small amounts of product, a persistence of gasoline odors in the bank and continued fears of explosion.

Definition of Areal Extent of the Plume of Contamination

Using six existing wells installed by the oil company subsequent to initial retrieval attempts and six additional observation wells, GTI (Groundwater Technology Inc.) developed a program of elevation control, product thickness measurement and depth to water measurement to define:

- Direction of ground-water flow (Figure 4)
- Areal extent of product plume (Figure 5)
- Necessary ground-water controls and manipulation to control further migration of the product and recover the lost gasoline.

To comprehensively define the extent of the problem, it was necessary to develop clean (product-free) wells (Nos. 4, 8, 9, 10, 11 and 12) beyond product-contaminated wells. In the Genesee County case, six wells showed product at thicknesses ranging from 0.5 to 3.8 feet (Figure 5). Determination of apparent production thickness was made using both a "surface sampler" and "oil/water interface probe," specialized hydrocarbon identification equipment manufactured by Oil Recovery Systems Inc. The "surface sampler" facilitates obtaining a cut of the liquid surface via a bottom opening ball valve. The oil/water sensing probe incorporates the use of a float switch and conductivity switch on a calibrated tape to discriminate between gasoline and water. Both methods are accurate and markedly quicker than the traditional gas and water paste method.

[redacted]

Retrieval of Product

As significant accumulations of product existed and an adjacent building (bank) had been affected (odors of gasoline), a process to initiate product retrieval was implemented.

At the outset of retrieval operations, the site exhibited a static product/water level of 15 to 20 feet below grade. By conducting an aquifer pump test at 15 gpm and preparing a distance vs drawdown curve, it was determined that a radius of influence of approximately 200 feet could be developed while maintaining approximately 10 feet of drawdown at the designated recovery well (Figure 6). This radius of influence was sufficient to control

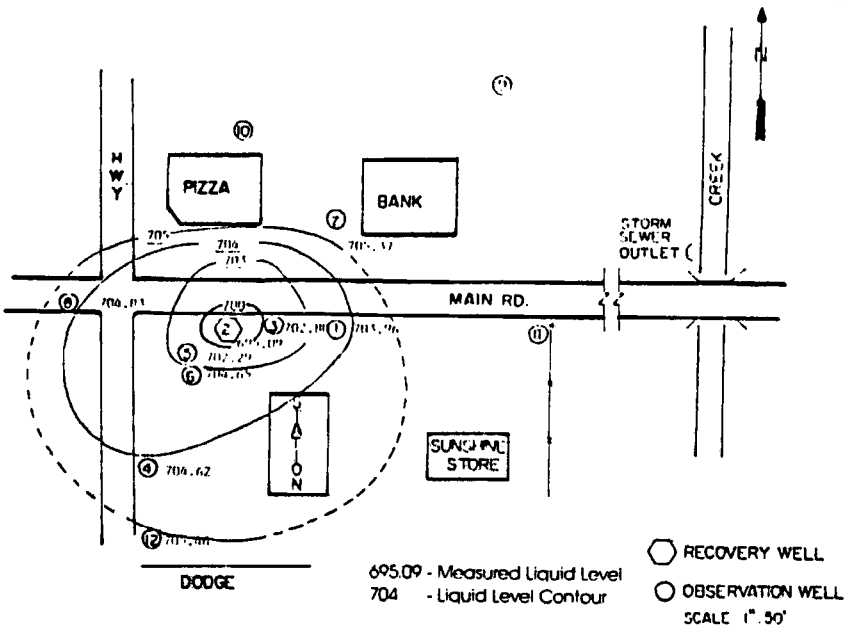


Figure 6. Liquid level during retrieval

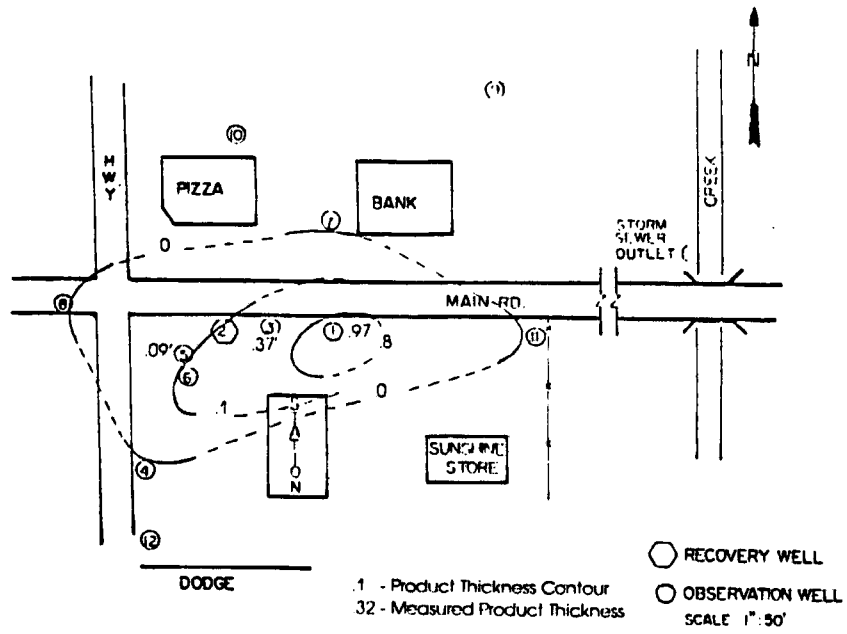


Figure 7. Product thickness map during retrieval

ground water and product movement within the contaminated area.

Water table control and product retrieval were achieved via the creation of a cone of depression using an explosion proof, 3/4 hp "water table depression" pump. A water-level control/product-sensing probe maintained drawdown at a designated level. The product (gasoline) flowed to the cone of depression (Figure 2) and was collected by a "probe scavenger" product retrieval pump that relied on an oil/water sensing probe to discriminate between water and product. Both pieces of equipment were designed and manufactured by Oil Recovery Systems Inc.

Active retrieval operations by GTI were initiated in January 1981. Removal of product from observation well #7 adjacent to the bank was completed by March 1981. Similarly, odor levels were greatly reduced within the structure itself.

By April 1982, product thicknesses in the area had been reduced to less than 1 foot over a small area (Figure 7) and greater than 7,000 gallons of gasoline has been retrieved. Since February 1981, no product has been observed at observation well #7 near the bank and odors within the facility have continually been recorded as below notable levels.

Gasoline Recovery Summary

The scope of this particular problem was not of great magnitude in terms of its areal extent of contamination or the volume of product lost or retrieved. This solution, does however, represent a safe and environmentally sound means to deal successfully with a common hydrocarbon contamination problem that directly impacts the general public.

GTI has successfully applied this same technology and equipment configuration to much larger free product retrievals involving product thicknesses of greater than 10 feet. Typical examples include:

Location	Average Volume Recovered In Ongoing Recoveries	Type Product
Oakland, CA	500-1,000 gal/wk	Mixed Fuels
South Korea	1,000-1,500 gal/wk	Jet Fuel/AvGas
East Coast, NC	1,000-1,500 gal/day	Jet Fuel
North Coast, Venezuela	28,000 gal/day	Gasoline

Case History— Montgomery Co., Pennsylvania, Dissolved Gasoline-Type Hydrocarbons Contamination of Ground Water

Dissolved Hydrocarbon Contaminations

Dissolved product (solubilized hydrocarbons) plumes in ground water are commonly associated with free product losses. In many cases, dissolved product plumes exist where no free product is observed. Dissolved hydrocarbon plumes can be related to a fuel loss such as gasoline or industrial chemicals such as trichloroethylene. Often dissolved product plumes are of equal or greater concern and impact than accumulations of free product on ground water. This has been observed in many situations where free product exists on the ground water over one or two properties, but dissolved hydrocarbons impact 10 to 50 properties. The impact of a dissolved hydrocarbon loss often imparts undesirable taste and odors to ground-water supplies rendering them nonusable. One such case history is that of a small gasoline loss at a service station in Montgomery Co., Pennsylvania.

Background

The area of product loss is the central portion of Montgomery County which is underlain by red shales and sandstones near the contact between the Stockton and Brunswick Lithofacies (Triassic Age).

Ground water is encountered at the site approximately 20 feet below grade in the fractured shale and sandstone. The area secures its water needs from domestic water wells penetrating 60 to 80 feet deep.

In 1980 several residents living adjacent to the gasoline service station noted unusual tastes and odors in their wells. Subsequently the State Regulatory Agency was contacted and the taste and odors identified as being attributable to dissolved gasoline-type hydrocarbons.

In 1981 Groundwater Technology Inc. was contracted to define the source and magnitude of the contamination and provide a workable program for its abatement. By conducting a program of technical data evaluation observation well installation, water-level measurement and detailed sampling and analysis for gasoline hydrocarbons, the problem was defined and an abatement program developed.

Definition of Dissolved Hydrocarbon Plume—Results of Ground-Water Monitoring and Assessment

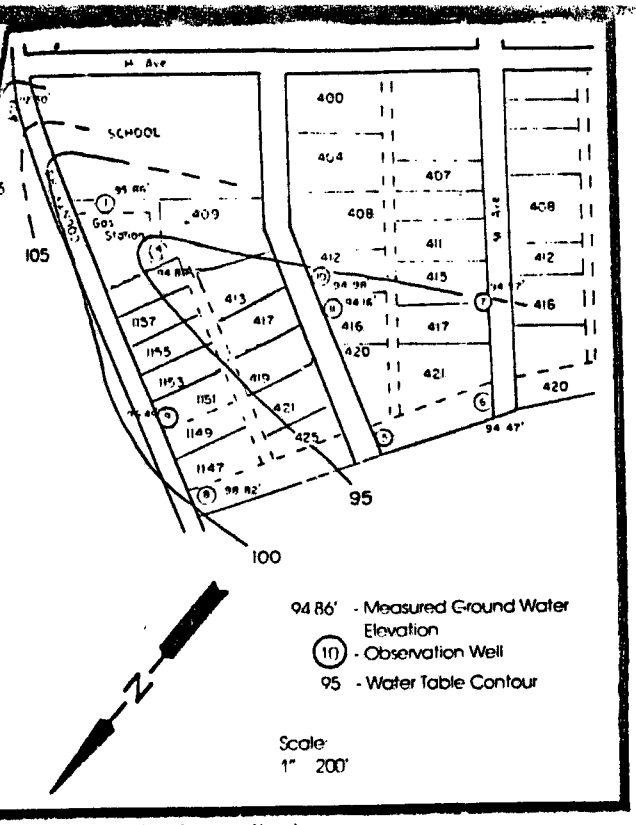
By following a program of ground-water evaluation, the direction of ground-water flow was determined (Figure 8) as being northeast to southwest. Ground-water movement was shown to be from the area of the service station towards the impacted residents. Ground-water movement through the area showed evidence of influence by geologic structure. Isopach maps of the dissolved product plume indicated (Figure 9) certain control on its spread by strike and dip of the geologic units. Subsequent pump tests further confirmed this observation (Strike N-30o-40o E—Dip 12o Verticle).

All 10 residences were confirmed by sampling and analysis techniques to be impacted (Figure 9). Concentrations of observed dissolved gasoline concentrations ranged from less than detection on the periphery of the contamination to greater than 15 mg/l near the center of the plume (Figure 9). Dissolved oxygen levels within the impacted area were observed to be reduced and naturally occurring hydrocarbons utilizing bacteria were limited in numbers.

Based upon the results of the study, the service station (Figures 8 and 9) to the northeast of the impacted area was determined to be the source of the problem. Subsequent excavation of the tanks revealed a 4,000 gallon no-lead tank to have several small pit holes (oxidation). The excavated soil was also contaminated with gasoline.

Dissolved Gasoline Abatement

As 10 domestic wells were contaminated with dissolved gasoline components and additional downgradient wells were also susceptible to contamination, several alternative long range solutions were evaluated.



gure 8. Water-table gradient map

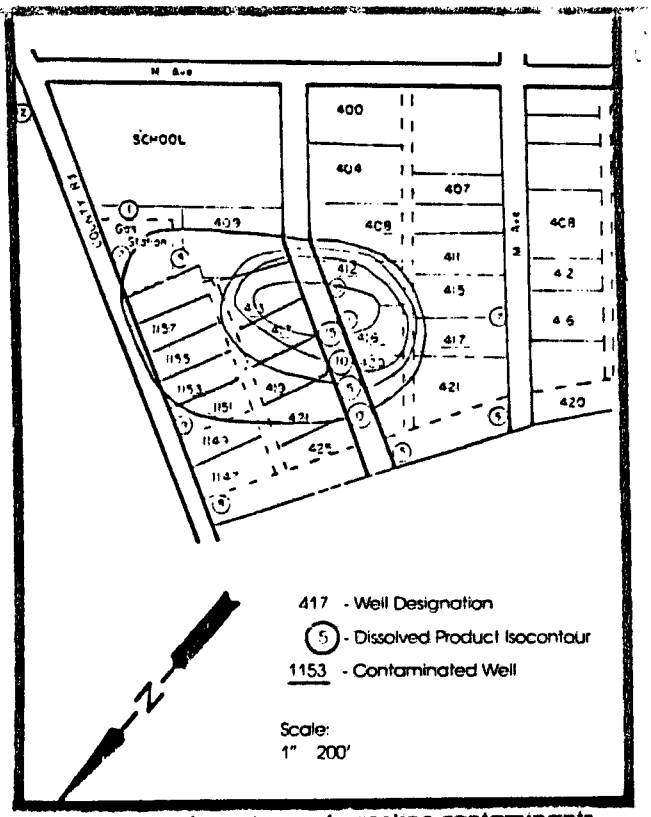


Figure 9. Isopach contours of gasoline contaminants (ppm) in domestic wells

ese alternatives included: deepen- g wells to case off the zone of ntamination, provide public water develop an abatement program r removal of dissolved hydro- rbons.

Geologic conditions indicated mmunication between the af- cted and lower water-bearing rizons such that reconstruction the wells could not assure casing t of the contamination. In ad- tion, this alternative could not ovide for restriction of further ntaminant movement. Public ter supplies were not immediately ailable nor would their use facili- e containment or restriction of rther contamination movement. program of dissolved product con- rment and treatment was, there- re, selected as the most compre- nsive alternative.

The abatement program was de- loped on the basis of collected drogeological and geochemical ta. Additionally, certain lab bio- ltural studies and bench scale ot tests for air stripping were nducted. The resulting program, w operational, incorporates the e of the following (Figures 10 d 11):

- Centralized pumping well to ntain contaminant movement and duce flow to the recovery location
- Piping system to convey the contaminated water to an air stripping tower
- Air stripping tower for removal of volatile organics and oxygenation of the contaminated ground water
- Infiltration gallery for recirculation of the treated ground water to facilitate flushing and leaching of gasoline adsorbed to soil particles back to the recovery well
- Air compressors, air delivery lines and air spargers to reoxygenate ground water for accelerated growth of aerobic hydrocarbons utilizing bacteria
- Mineral salts tracer for determination of rate of movement
- Nutrients for stimulation of growth of hydrocarbon utilizing bacteria
- Air sparging and nutrient addition wells to facilitate conveyance of necessary oxygen and nutrients into the ground-water system
- Regular program of monitoring hydrogeologic, geochemical and microbiological conditions to determine success and prognosis of the aquifer cleanup.

The mechanical components employed in the treatment program included:

- A 2-hp explosion-proof submersible water table depression pump equipped with a water level control sensing probe and pitless adapter
- Air stripping tower 24 inches in diameter by 12 feet tall equipped with a 3-hp blower
- Two 3-hp air compressors capable of delivering 20 cfm each
- Six 4-inch x 12-feet long Carborundum air diffusers
- 250 feet of 2-inch ABS pipe for water delivery to and from the air stripping tower
- 1,200 feet of 1/2-inch flexible air pressure line
- A 20- x 30-10 feet deep infiltration gallery backfilled with crushed stone ballast.

Initiation of Dissolved Hydrocarbon Abatement

In implementing the abatement program, it was determined that significant quantities of contaminated soil (silty clay) existed in the former tank area. As this represented a potential long-term continuing source of gasoline contamination to ground water via leaching, it was removed for disposal to a secure landfill. The resulting excavation was subsequently converted to an infiltration gallery for the air stripper treated water.

The impacted area was residential and highly trafficked, therefore, all electrical leads, water lines and air transmission lines were trenched and backfilled. This provided for

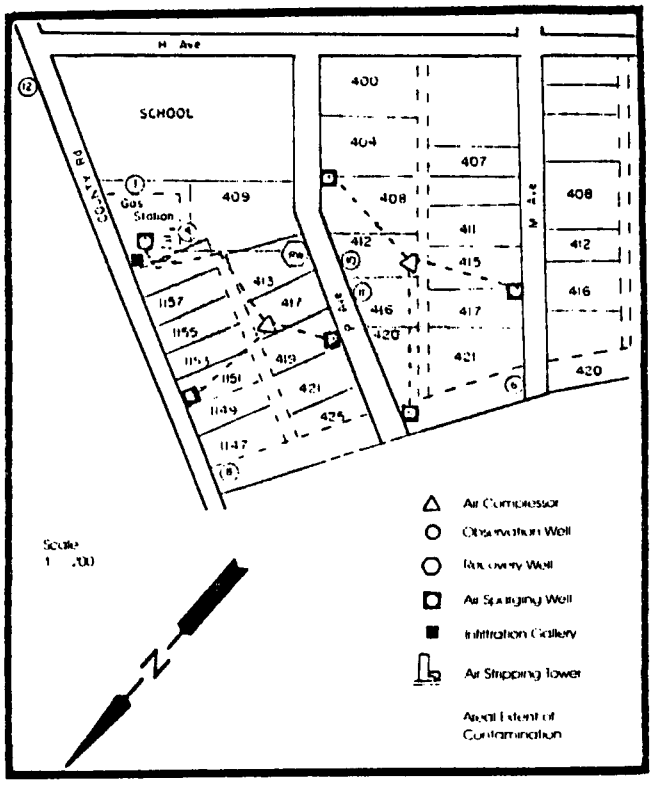


Figure 10. Schematic of recovery system for dissolved gasoline plume

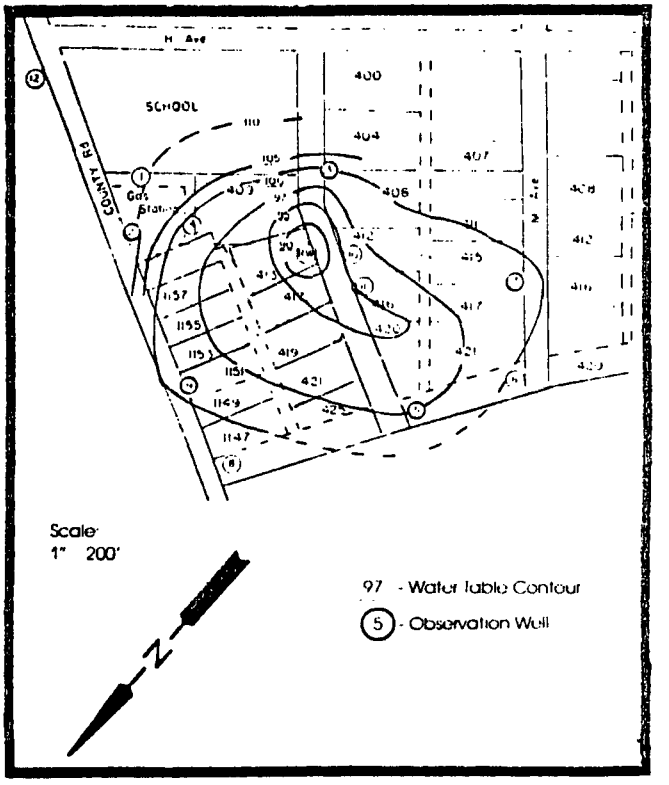


Figure 12. Water-table gradient map after initiation of pumping

both security of those facilities and overall aesthetic acceptance of the system. To accommodate both noise reduction and security, the air compressors were housed within metal sheds and the air stripping tower contained within a stockade-fenced area.

Prior to initiation of the abatement program, a pump test was conducted to determine the optimum pumping rate and amount of drawdown required to control ground-water movement within the impacted area. Time-drawdown and distance-drawdown analyses were used to select a safe pumping rate of 22 gpm that would produce 10 feet of drawdown in the recovery well. This was sufficient to control ground-water movement in the impacted area. (Note: It was imperative that a maximum radius of influence be developed while limiting drawdown so as not to dewater adjacent domestic wells). Under the pump-test condition, it was determined that the radius of influence could be propagated 300 to 350 feet along strike and down dip without adverse impact on domestic wells. Pumping effects up dip could only be documented approximately 100 to 150 feet. This was sufficiently far to contain the dissolved product plume (Figure 9) and cause it to move toward the pumping well.

Results of Abatement Program

In initiating the abatement program for the dissolved plume, component parts were brought on-line in stages. This enabled comprehensive shakedown testing of each component and assessment of its effectiveness to perform its appointed task.

The initial components put on-line in the Montgomery County spill were the water table/dissolved product control pump, the air stripping tower and the infiltration gallery.

The water table reacted as predicted from the results of the previous aquifer test (Figure 12). Influence was greatest down dip and along strike. It was less up dip but still sufficient to contain and reverse direction of dissolved product movement. This asymmetrical configuration for pumping influence is typical for this aquifer.

Air Stripping Tower

Based upon laboratory bench-scale testing, an estimated 85 percent to 90 percent removal efficiency was projected. This was projected on the basis of anticipated flow rates and concentrations of dissolved gasoline. Figure 13 shows the

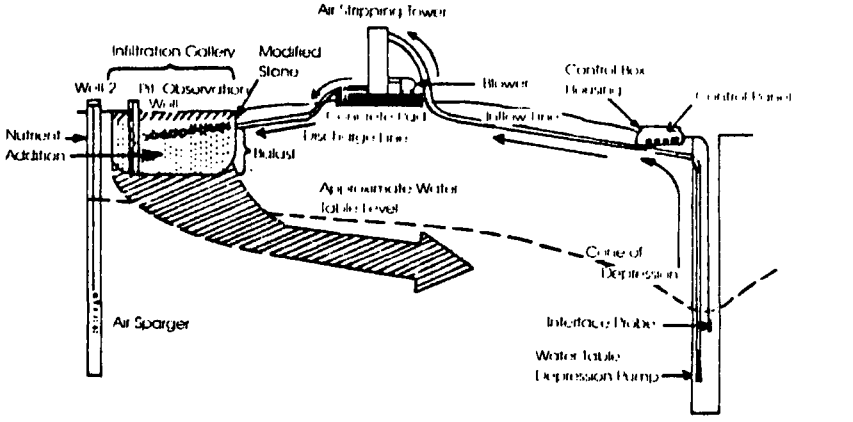


Figure 11. Schematic cross section of recovery operation

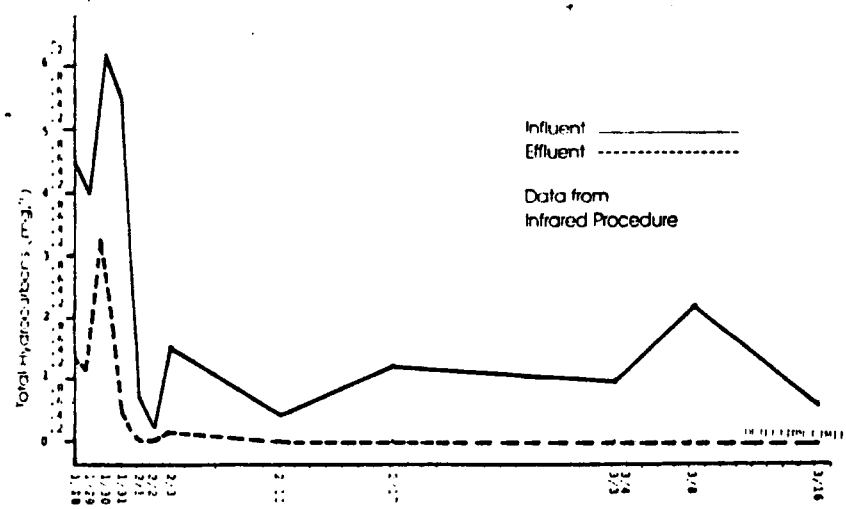


Figure 13. Change in total hydrocarbon concentrations due to air stripping initiation

influent and effluent concentrations for dissolved gasoline-type hydrocarbons through the air stripper from January through April of 1982. Initial concentrations of dissolved hydrocarbons in influent samples were in the 4 to 6 mg/l range. Initial removal efficiencies were variable, ranging from approximately 50 percent to 85 percent. It should be noted that these results were obtained during the period of shakedown testing when air-to-water ratios were being varied. Subsequent to the shakedown testing period and stabilization of flow rates, efficiencies have increased to near or at 100 percent removal. This is to say that no detectable gasoline hydrocarbons are reported in the air stripper discharge by infrared analysis procedure (0.1 ppm detection limit) (Figure 13).

Infiltration Gallery

To facilitate accelerated cleanup of the aquifer, recirculation of the treated water through the contaminated tank pit area (infiltration gallery) was necessary (Figure 11). Recirculation allowed for the physical desorption of hydrocarbons bound to the silty soil and shaly materials. The water was also aerated by the stripping process, providing necessary oxygen for accelerated biologic decomposition of residual gasoline hydrocarbons. The recirculation also facilitated accelerated rate of turnover and movement of the contaminants to the recovery well. The dislodged or solubilized gasoline was thus drawn back to the recovery well to restart the cycle.

In constructing the infiltration gallery, the single most critical factor was the amount and rate of water it could accept. The silty nature of the soil and its shaly parent material were limiting factors to receiving water. Detailed consideration was given to site testing and evaluations to determine size and configuration. Based upon results, it was determined necessary to rip into the top of partially weathered bedrock to accommodate the estimated 30,000 to 35,000 gallons per day of treated water.

To accommodate monitoring of the infiltration rate and liquid levels within the infiltration gallery in addition to allowing water quality sampling, a vertical slotted riser pipe was installed.

Monitoring of liquid levels at the riser pipe indicates that the gallery is capable of accepting the current 32,000 gpd treated water flow. Sampling and monitoring for nutrients and tracers added to the gallery indicated water movement from the gallery to flow initially down dip and then along strike back to the recovery well.

Air Sparging and Nutrient Addition (Biostimulation)

The air sparging system, consisting of two 3-hp air compressors delivering approximately 5 cfm to each of six Carborundum air diffusers, was put into operation in March 1982. The diffusers were set at 50 to 55 feet below grade adjacent to the water entry point noted during the construction of the wells. This setting allowed the diffusers to be covered by 20 to 30 feet of standing water to accommodate maximum oxygen exchange into the ground-water system. To assess effectiveness of the oxygen exchange program, levels of dissolved oxygen (D.O.) were measured in the observation wells. Observed levels of dissolved oxygen, prior to sparging, in wells affected by dissolved gasoline contamination were dominantly less than 1 mg/l. Several wells indicated values of 0 mg/l dissolved oxygen. Dissolved oxygen levels in the area of a hydrocarbon spill commonly reflect this pattern of reduced D.O. levels. This is attributed to utilization of the ground-water supply of oxygen by aerobic hydrocarbon-utilizing bacteria as they decompose the organics. Background levels for D.O. in ground water unaffected by contamination are often as high as 7 to 9 mg/l.

During the period of air sparging system operation, dissolved oxygen levels have indicated ever-rising levels. Dissolved oxygen levels in nonsparged observation wells, as of April 1982 evidence D.O. levels of 2.5 to 4 mg/l within the area of the dissolved gasoline plume. Dissolved oxygen levels at the sparging wells were near saturation levels at 9 and 10 mg/l. Dissolved oxygen levels were observed to quickly rise to a higher level on the periphery of the plume of contamination. Initial levels of 1 mg/l and less were observed to rise to 3 to 5 mg/l. D.O. levels within the core area of the plume did evidence a definite increase from initially observed values. These were raised from less than 1 mg/l to levels of 2.5 to 3 mg/l in approximately six weeks of air sparging.

Nutrient Addition

In March of 1982, the final phase of the bioreclamation process was initiated with the addition of nutrients to the ground-water system.

Previously conducted chemical analyses and lab studies had determined that the ground water within the contaminated plume was oxygen and nutrient deficient. This was defined in terms of the contaminated water's ability to stimulate growth of hydrocarbons utilizing bacteria. On the basis of these findings, a nutrient broth was prescribed that included a blend of ammonium chloride, sodium phosphates and various mineral salt tracers.

The mineral salts and phosphates added to the ground-water system were also used as tracers to track the spread and movement of the nutrients through the aquifer system.

Initial monitoring of the tracers indicated slow ground-water movement from the infiltration pit to the

recovery well. A monitoring program for phosphate indicated the recirculated water to be migrating down dip of the geologic unit prior to movement along strike back to the recovery well. Despite that finding, rates of turnover for nutrient diffusion were still slower than desired. In response to the slower nutrient diffusion rates, a modified nutrient addition program using additional existing observation wells was incorporated into the abatement progress. Results of this modification are not available at the time of writing.

Cumulative Results of the Aquifer Restoration Program

In enacting the multifaceted aquifer restoration program, various technologies and disciplines were incorporated. The workable abatement program developed is one of the most technologically advanced solutions to be applied to this type of problem.

Results of the program at the time of writing are best attested to by the functional nature of all components of the system and the reduction of total gasoline-type hydrocarbons. Figure 13 shows the air stripping efficiencies and effectiveness. Figures 14 and 15 show the changes in dissolved hydrocarbon contamination over time in the central, most concentrated area of the dissolved plume. The results as of March 1982 show a 50 to 70 percent reduction in total, dissolved gasoline hydrocarbons at a point where the total abatement system had only recently become fully operational.

The prognosis for abatement of the problem appears good. Slower than desired nutrient diffusion rates may protract the total length of time to abate the problem by a few months.

Summary

The application of the applied ground-water manipulation, air stripping and biostimulation program in Montgomery County, Pennsylvania, has proven to be applicable and viable for the renovation of aquifers contaminated with dissolved gasoline hydrocarbons.

The application of this type of system for abatement of dissolved hydrocarbon contaminations has also proven to be cost-effective. This is especially true when compared to other alternatives involving extended pipeline transport of potable

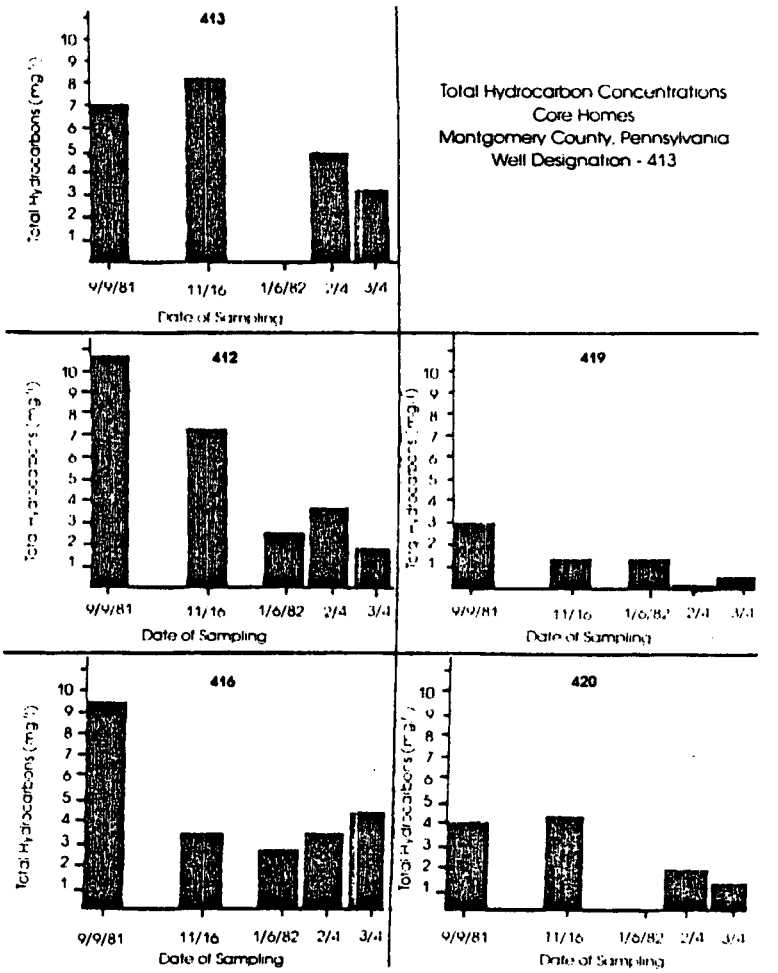


Figure 14. Total hydrocarbon concentrations of core homes

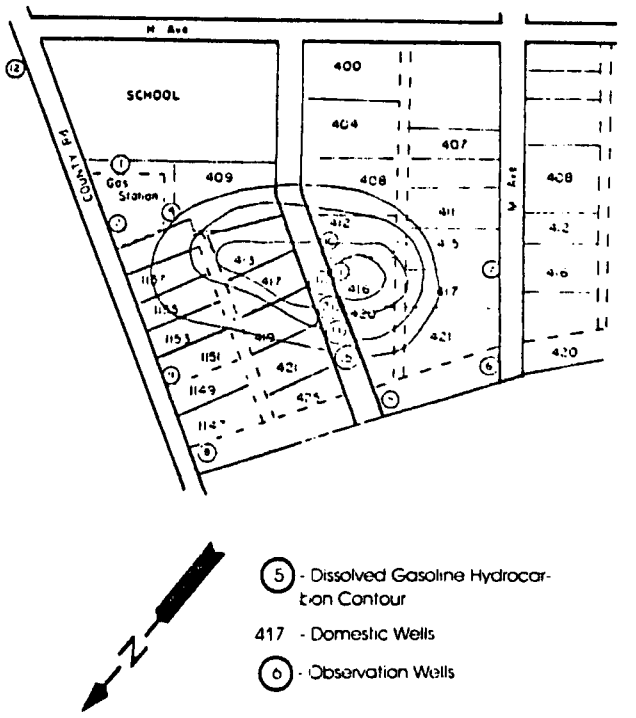


Figure 15. Isopach contour of total hydrocarbons, (mg/l), of domestic wells

water or construction of alternative water supply sources.

The application of the technique described in this case history appears most suited to achieve optimum results when applied to aquifers of moderate-to-good primary or secondary permeability.

Notes

- Sizing of the air stripping tower, i.e. height, diameter, retention time and size of blower were determined by a joint field testing/lab bench study program. Air stripping bench tests were conducted and the air stripping tower built by Oil Recovery Systems Inc.
- Biostimulation feasibility was determined by combined field and laboratory experiments. Contaminated water samples were collected in the field and dissolved oxygen levels ascertained. Laboratory analysis and plate cultures were performed using the contaminated water to determine existing activity of hydrocarbon-utilizing bacteria. A determination of existing and needed nutrient levels to stimulate hydrocarbon reduction was also performed. The bio-culture studies and recommendations for nutrient addition levels were performed by Suntech Inc.

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Biographical Sketch

Paul Yaniga is a graduate of Lehigh University with an M.S. in geological sciences. He is currently senior hydrogeologist and general manager of Groundwater Technology Inc., a company specializing in definition and abatement of ground-water contamination with emphasis on hydrocarbons. Yaniga has nine years experience in the ground-water field dealing with solid waste, hazardous waste, water supply development and hydrocarbon retrievals. His work experience includes four years as regional hydrogeologist for the Pennsylvania Department of Environmental Resources, where he was responsible for all aspects of ground-water quality in a heavily industrialized area. His work has also included several overseas ground-water projects. He has been a speaker at conferences, conducted short courses, prepared ground-water training films and acted as instructor for state and federal regulatory agencies, as well as the public in the states of Maine, Pennsylvania, Wisconsin, Ohio and Missouri. He is a certified professional geologist and a member of the National Water Well Association.

REFERENCE 7

Reference 7 water table depression see highlights this page

UNDERGROUND OIL RECOVERY

Discusses various product recovery alternatives including their relative advantages and disadvantages.

by Steven B. Blake and
Richard W. Lewis

Product Migration

Once hydrocarbons are lost through leaks or spills to the ground, their behavior and ultimate fate become dependent on the local hydrogeologic conditions. Petroleum products tend to follow the most permeable zones, such as artificial fills, pipeline trenches, foundation fills, etc. These backfilled excavations are commonly filled with more permeable material than the native soils, thus they offer a low-resistance migration route. A spill which might otherwise have contaminated a relatively localized area can spread laterally through these zones of artificially high permeability and make identification of the source difficult.

In general, the spilled product will migrate downward through the unsaturated zone with some lateral spreading. The rate of this downward migration will be dependent on the physical properties of the soil, the type of product and the volume of product spilled. The greater the permeability and volume of the spill and the lower the viscosity of the product, the more rapid the migration of the spill. The downward migration of the product will eventually be stopped either by retention in the soils, an impermeable barrier or the water table.

If the migrating product encounters a large enough volume of soil, all of the product may become pellicular and effectively immobilized before it reaches the water table. The immediate hazard of ground-water contamination in this instance is reduced; however, subsequent recharge from precipitation will transport mobile components of the hydrocarbon to the aquifer. The volume of product retained by the soil will be dependent upon the soil characteristics (i.e. porosity and pore size distribution) and the type of petroleum. Some general guidelines for the estimation of residual saturation have been presented by the API (American Petroleum Institute 1972). Based upon a "typical" soil with a porosity of 30 percent, the API gives residual saturation values of 0.10 for light oil and gasoline, 0.15 for diesel and light fuel oil, and 0.20 for lube and heavy fuel oils. These residual saturation values are given as a percentage of the total porosity of the soil.

If the hydrocarbon encounters an impermeable barrier, it may spread along this layer and gradually be retained by the soil until it reaches an immobile state. However, if the leak continues or if the volume of product is large enough, it will accumulate on this layer and flow down dip until it reaches an outcrop and forms a surface seep or encounters the water table.

[redacted]

[redacted] Accordingly, the API [redacted] displace much of the capillary water and migrates around the water filled pores. When it encounters water, which it cannot bypass, the weight of the oil begins to depress the water table. The water in the capillary zone tends to inhibit the oil's movement, thus the oil spreads over and through the capillary zone. With [redacted] and addition of new [redacted] spread to a [redacted] The [redacted] showing [redacted] critical thickness is only a fraction of the thickness of the [redacted] zone, with the oil forming a [redacted] shaped layer over the water table. However, field observations indicate that the behavior of the migrating product is sometimes quite different from that described in the report. If a large volume of [redacted] is spilled or if the downward migration of the oil is quite rapid [redacted] localized, the oil will depress the water table and a lens of oil will be formed. The oil will then flow with the water and move downgradient [redacted] and have a very limited [redacted]

Spill Evaluation

The procedure used in evaluating a spill will vary depending on

site specific conditions. Thus, a methodology used in one location may not apply to a different hydrogeologic environment. Variables such as the mobility of the product, the location of the spill relative to man-made structures and the potential hazard imposed by the spill will all play a role in selecting the procedure to be followed.

In general the first step to be taken is to locate and remove the source of the hydrocarbon contamination. Normally the source of the product is located near the area where the product has been detected on the water table. Since ground-water movement is generally quite slow (on the order of a few inches to a few feet per day), it takes several years for the product to travel a significant distance. However, in some instances the contamination may not be detected for years and the product can migrate hundreds of feet from its origin, making the location of the source extremely difficult.

A physical survey of the area should be made to identify facilities which could be contributing to the problem. Utilities and petroleum companies should be contacted as to the location of any underground lines, storage tanks or surface impoundments. These facilities should then be plotted on topographic maps. Although this initial field survey may not locate the source exactly, it should provide the location of several suspected sources which can be evaluated more closely. In addition, the locations of any existing wells penetrating the contaminated aquifer should be located. These wells can be used to determine the ground-water gradient in the area and to provide information on pumping wells which might influence the migration of the product.

The next step in the evaluation should be the installation of monitoring wells to provide information on: 1) the areal extent and thickness of the product, 2) the type of product spilled, 3) ground-water quality, 4) the local ground-water gradient and 5) the general hydrogeology of the site.

Monitoring Well Design

Placement of the screened portion of the well is critical when monitoring for the presence of hydrocarbons. The wells should be installed such that the screened portion extends several feet beneath the ground-water table and is still open to the water surface so that product is free to migrate into the well. The screens should be long enough to compensate for seasonal fluctuations in water-table levels, and should be constructed of materials which are resistant to hydrocarbons. The size of the monitoring wells will be dependent on their expected current and future use. If the wells are to be installed only for contaminant sampling, determination of fluid levels, and collection of formation samples during drilling; 2-inch diameter wells are sufficient. However, if the wells are to be used for future recovery of the product, they must be large enough to house pumping equipment.

Well Placement

Monitoring wells should be installed initially at the location where the contamination is first detected and then upgradient in an attempt to delineate the source of the contamination. In addition, monitoring wells should be placed on the periphery of the spill to monitor any further migration of the product. All monitoring wells should be surveyed in and a bench mark established so that fluid-surface elevations can be determined and ground-water gradients established.

Sampling and Product Detection

When large amounts of oil are present on the water table, their thicknesses can be determined by using a steel tape with water- and oil-finding pastes or with electronic resistivity probes. Both the level of the fluid surface and the oil-water interface should be recorded so that the shape of the hydrocarbon pool and potential migration routes can be evaluated. If large accumulations of product are not present on the surface, the presence of product in the ground water can normally be detected in the field by smell. Most refined petroleum products have a characteristic odor. An experienced person can even tell with some accuracy the type of product by its smell.

Samples should be taken to determine both the nature of the hydrocarbon and its concentration in the water. The solubility of the hydrocarbon in water will be dependent on the product type; however gasoline has a solubility of between 20 and 80 mg/L (McKee et al. 1972). Samples to determine the concentration of dissolved hydrocarbons should be taken in glass containers. The sample bottle should be only partially filled to avoid the loss of any floating oil and to permit the entire sample to be extracted if necessary. For extraction-type analysis, samples should be at least one liter or larger. If the sample cannot be analyzed the day it is taken, it should be preserved to prevent biological degradation of the product. This can be accomplished by acidifying the sample to a pH of two or less with either hydrochloric or sulfuric acid (API 1972).

Determining the nature of the hydrocarbon is also very important when trying to trace the source of the contamination. Methods are available for determining hydrocarbon type from dissolved, vapor or recovered samples. However, when the results of these or other tests are interpreted, the possible effects of weathering of the product must be considered. For instance: 1) certain components of gasoline may volitalize, 2) some of the components (particularly aromatics) will dissolve in water, 3) straight chain paraffins are susceptible to decomposition by bacteria, and 4) olefins may be oxidized in the presence of sunlight (API 1972). Thus, the interpretation and identification of the hydrocarbons should be done by personnel experienced in these procedures. Although the weathering of the product can make identification difficult, it can also provide information on the length of time the product has been in the ground and the direction of migration. Since certain components of the hydrocarbon will be preferentially retained on the soils and others will be dissolved in the ground water, these losses can be identified as the product moves downgradient, giving an indication as to the proximity of the sample to the contaminant source.

Recovery Alternatives

Due to the many and varied conditions which can affect the migration and recovery of a product spill, recovery systems must be tailored to each specific site. The hydrogeologic conditions, the extent and volume of the spill, the type of product, the potential and/or immediate hazard imposed by the spill and the available equipment will all play a part in the selection of an appropriate recovery system. A discussion of some of the available recovery alternatives and their

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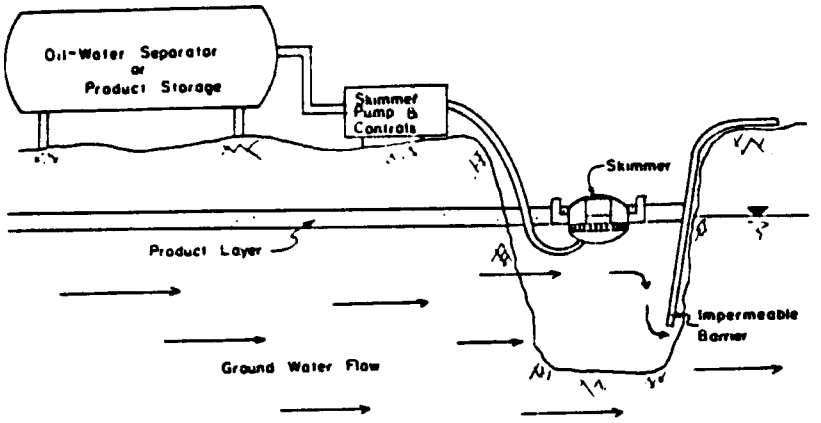

Figure 1. Open interceptor trench utilizing a Skimmer Pump

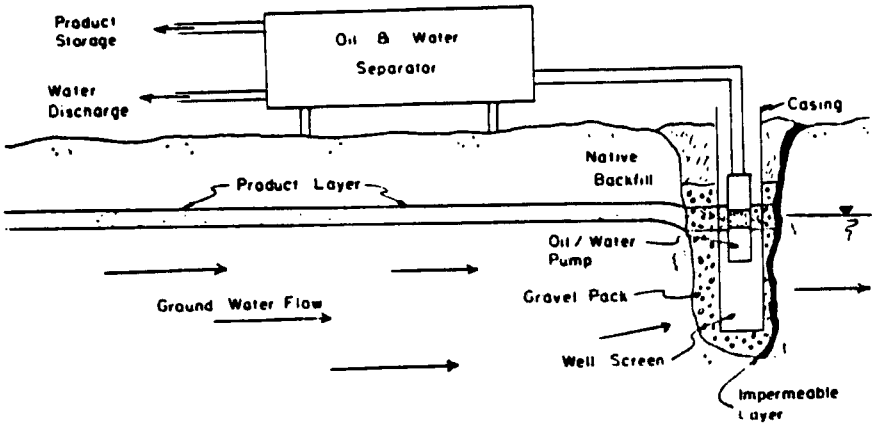

Figure 2. Interceptor trench utilizing a recovery well and single-pump unit

advantages and disadvantages follows.

Interceptor Trenches

Small spills encountering a shallow ground-water table or a barrier to vertical migration can be contained and recovered with a trench or drain system designed to intercept the product. The materials and equipment necessary to install the system are generally locally available, the system is not complicated and it can be installed relatively quickly. There are several factors to evaluate when considering an interceptor system: 1) the trench must bisect the entire width of the spill in order to contain it so the spill must be of relatively limited extent; 2) due to soil instability, the volume of material which must be removed, and the excavation equipment available, the depth of the trench systems is normally limited to 6 to 8 feet; 3) skimming or pumping equipment must operate continuously or the product will accumulate and migrate around the ends of the trench.

Once the trench has been excavated, an impermeable barrier should be installed on the downgradient side of the trench to stop the migration of the floating product but allow the water to pass underneath. The trench can then be left open and skimmer systems employed to remove the floating product (Figure 1). Alternately, the trench can be backfilled with very porous material and a French drain or large-diameter well installed (Figure 2). The use of a skimmer system has the advantage of producing very limited amounts of water for disposal. However, the rate of recovery is slow since the system relies mainly on the natural gradient to transport the oil to the trench. The pumped trenches are more effective and provide for more rapid recovery, because a gradient is created toward the trench. However, much larger volumes of water which may contain unacceptable concentrations of dissolved hydrocarbons must be disposed.

Recovery Wells

Recovery wells are by far the most popular means of product recovery from water-table aquifers. If designed properly, they will provide for an efficient and normally faster recovery of spilled product than a trench system. By creating a cone of depression in the water table, a gradient is established toward the well and product within this cone is directed to the well and can be removed.

Well Design and Operation

Design and operation of the recovery well or well system is critical to the rate of recovery and the total volume of product removed. The well should be designed to maximize efficiency while avoiding the pumping of sand. Field experience has shown that the rate of product recovery is directly related to the efficiency of the pumping well. Standard water well design procedures should be implemented for the sizing of the screen and gravel pack with only slight modifications. The screen length will normally be longer in a product recovery well to allow for the entry of floating hydrocarbons. If the screened zone is placed too deep and drawdown is not sufficient to depress the water surface to the screened zone, free floating hydrocarbons may not enter the well, or product withdrawal from the well will be delayed until enough oil accumulates outside the well to depress the oil-water interface to the level of the screened zone.

Another aspect of recovery well design which must be considered is the type and size of screen to be installed. Continuous-slot wire-wrap screen is recommended so that the percentage of open area can be maximized. Field experience has shown that hydrocarbons provide a good medium for bacterial growth and that bacterial growth and clogging of screens is accelerated in hydrocarbon recovery wells. The more open area you can provide initially, the longer the well can be in operation before maintenance is required to clean and redevelop the well to restore its efficiency. The size of the casing and screen required for the pumping well will be dependent upon the pumping equipment which is to be installed. Field experience indicates that for most single pump systems the smallest reasonable diameter for the screen and

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asing is 6 inches, while the smallest workable diameter for a two-pump system is 10 inches.

Operation of the well is also extremely important to the final results of the recovery effort. The cone of depression should be adjusted such that it is just large enough to contain and recover the spilled product. Pumping water at an accelerated rate in hopes of steepening the gradient to the pumping well and increasing the rate of recovery is not necessarily a good procedure. Although this may increase the rate of recovery for some period, it will also result in decreasing the total amount of product which can be recovered. Excessive drawdown will result in the oil having to migrate through a larger thickness of sands. As the product migrates through the dewatered sand, portions of it will become pellicular and will not be recoverable. Even if the pumping rate is decreased and the water level is allowed to rise, studies have shown that this pellicular hydrocarbon will not be removed by this water flushing (McKee et al. 1972 and Raymond et al. 1976). The amount of hydrocarbon retained in the aquifer matrix will depend on the type of product and the aquifer properties. Studies done by McKee et al. (1972) with unconsolidated sands having a porosity of 23 percent had a gasoline retention of 7.7 percent of the pore volume or 1.77 percent of the bulk volume. Similar studies done by Engineering Enterprises Inc. on products of lower API gravities (i.e. gravities between 34 and 42) show that specific retention for heavier products can range between 10 percent and 16 percent of the bulk volume. Thus, the loss due to retention in the aquifer as the product migrates to the recovery well can be significant.

Pumping Arrangements

Various pumping arrangements can be employed for the recovery of hydrocarbons in water-table aquifers. The selection of a pumping system will be dependent upon the hydrogeologic conditions, the equipment available, the volume and extent of the spill and the design of existing wells which might be employed in the recovery operation. Some of the options available include: 1) single-pump systems utilizing one recovery well; 2) single-pump systems utilizing multiple wells; 3) two-pump systems utilizing two recovery wells; and 4) two-pump systems utilizing one recovery well.

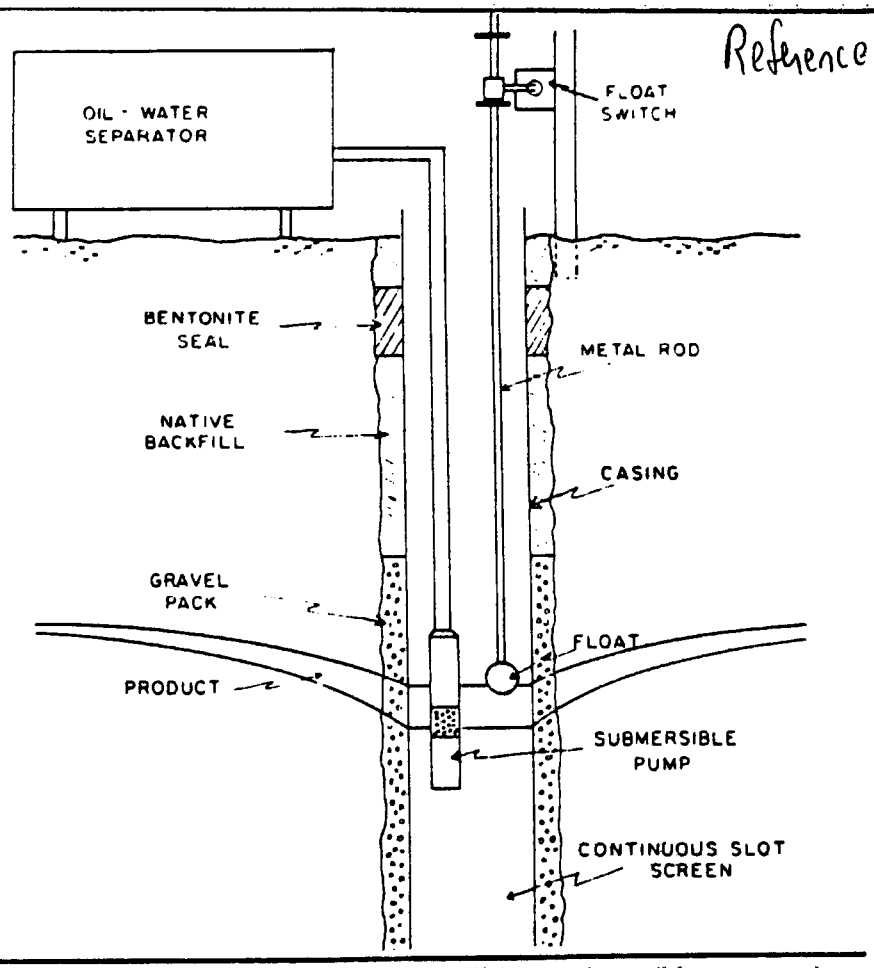

Figure 3. Schematic of one-pump system utilizing a submersible pump and float controls

Single-pump systems using one well have several advantages over other systems (Figure 3). They are normally cheaper to construct than multiple pump systems because only one pump is required and complicated electronic controls are not needed to regulate pumping levels. A simple mechanical float can be installed to ensure that the pumping level is maintained close to the pump intake to facilitate recovery of the hydrocarbons. Also, smaller diameter wells can be used for the recovery system. However, there are several disadvantages to single-pump systems. Separators must be installed to recover the product at the surface. They are normally not as efficient as two-pump systems because the pump must cycle. The agitation of the product during recovery may emulsify the product and make separation from the water difficult. The mixing of the product and water can result in an increase in the amount of soluble hydrocarbon components retained in the waste water. Although the one-pump system can be utilized effectively for hydrocarbon recovery, these disadvantages make them a less desirable alternative.

One-pump systems utilizing multiple well points are plagued by the same problems as the single-well arrangements. However, in tight formations of low permeability this arrangement may be the only feasible recovery alternative.

Two-pump systems using two wells are normally employed when a small-diameter well not capable of accepting two pumps is already in existence at the site of the spill. If a well already exists which is screened in the lower portion of the contaminated aquifer, another small-diameter well capable of housing a product recovery pump, screened higher in the aquifer, can be installed nearby. Water can then be withdrawn from the well screened in the lower portion of the aquifer to create the cone of depression, and the accumulating product can be skimmed from the other well (Figure 4). However, care must be taken to assure that extensive product accumulations do not occur in the water well, resulting in the discharge of product through the water pump.

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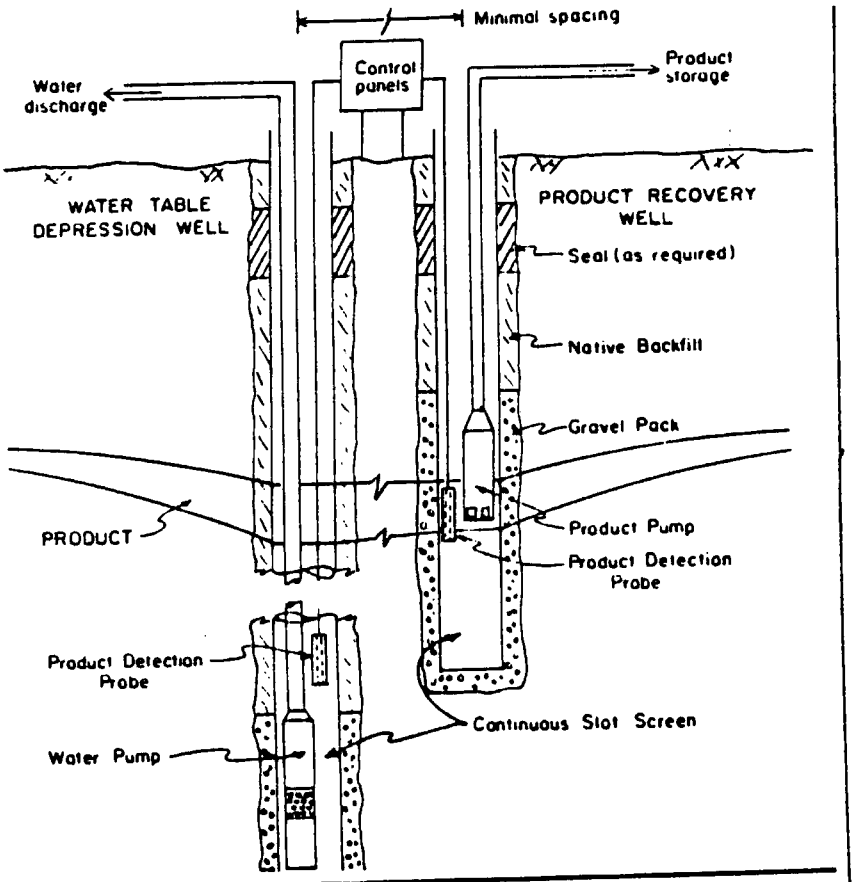

Figure 4. Schematic of two-pump system utilizing two small-diameter wells

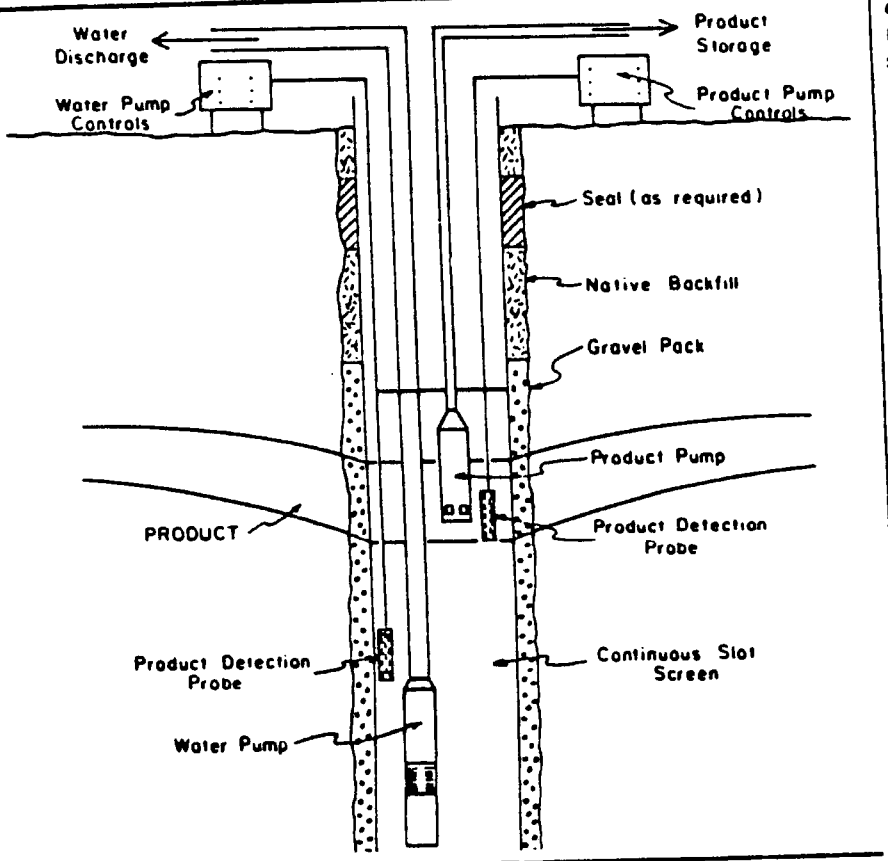

Figure 5. Schematic of two-pump system utilizing one recovery well

Electronic controls should be installed in the water well which will shut the water pump off if product accumulations become severe, or if the product pump in the recovery well fails.

Two-pump systems utilizing one well are generally the most desirable recovery arrangement. A water pump is installed with the intake near the bottom of the well and water is withdrawn at a controlled rate to create the cone of depression. A product pump suspended on a cable is placed above the water pump, and adjusted so that the intake is at or below the oil-water interface (Figure 5). Automatic controls are attached at the product pump intake to cycle the product pump as product is accumulated and removed. In addition, controls are installed on the water pump which will stop the pump if product accumulates in the well and approaches the level of the water pump intake.

There are seversl significant advantages to this type of system. The product is separated from the water in the well and surface separators are not normally necessary. In some instances the product can be recovered, reblended and sold without any additional refining. Addition of soluble hydrocarbon components to the waste water is minimized, since the water and oil are not mixed when recovered. The system is fully automated and can be operated continuously, thus maximizing the efficiency of the system and speed of recovery.

Although this recovery system is normally the most efficient and preferred alternative, there are several disadvantages which must be considered. A larger diameter casing and screen must be installed to house both pumps. The equipment required to operate a two-pump system, mainly due to the complex electronic controls, is much more expensive than that in the one pump systems. If resistivity probes are used to detect the product in the well and operate the product pump they require periodic maintenance and cleaning. Particularly when used in heavy products, the probes can become coated with hydrocarbon and will not sense the water interface. Control panels, although not overly sensitive, are subject to malfunctions. The most common problem is fuse failure, followed by failure of control switches, failure of the time delay module used to control the cycling period of the pump

and failure of the power supply module which drives the control panel and its sensors. With the exception of fuse blowouts, the control repairs are not simple to perform and require the services of an experienced electrician. This can result in significant loss of time of operation, thus it is recommended that spare controls be kept on hand. These systems cannot be left unattended for long periods of time and be expected to operate efficiently. The systems must be inspected at least weekly and preferably more often.

In addition, extreme care must be exercised during the initial start up and adjustment of the two-pump system. The water pumping rate and product pump location in the well must be adjusted so that the oil-water interface is maintained at a constant level in the well. Thus, the well must be gauged routinely for several days following start up to assure that pumping levels are stabilized. The stabilization of pumping levels in low-yield wells can be extremely difficult and well shutdown due to over pumping is a common problem. Thus, the installation, start up and operation of two pump recovery wells should be left to personnel experienced in this method of oil recovery and all of its pitfalls.

Recovery Equipment

Extreme care must be taken in the selection of equipment to be used in the recovery of spilled hydrocarbons. The safety of the equipment is the overriding factor to be considered when selecting oil recovery equipment. The use of equipment not specifically designed or modified for use in recovery of flammable petroleum products can result in hazardous situations and the endangerment of project personnel. Thus, the selection and installation of recovery equipment should be left to experienced professionals familiar with the precautions required when working with hazardous materials. The following discussion will present some of the general guidelines which should be considered when selecting pumping systems, but these criteria are not all inclusive.

Before any water pump is purchased for use in a recovery system, factors affecting this selection must be considered. The type of pump, the materials used in construction of the pump and the pump's electrical system must all be evaluated. Some of the criteria which the water pump should meet are:

- All parts coming in contact with the water should be resistant to the effects of hydrocarbons. Plastic impellers, bowls or rubber bearings which are not resistant to hydrocarbons should be avoided. These components can swell when brought into contact with oil, resulting in excessive wear or seizure of the pump. Even in pumps used only as dewatering pumps in a two-pump well, soluble hydrocarbons contained in the water can cause swelling of nonresistant parts.
- Discharge hoses from the pump, assuming the pump is a submersible pump, must also be hydrocarbon resistant, preferably oilfield discharge hose. If the correct hose is not selected, it can become brittle from contact with hydrocarbons.
- Electrical wiring to the pump must also be resistant to the effects of hydrocarbons. Teflon- or viton-coated wire is recommended. The wire should also have additional protection to assure that it is not frayed or damaged during installation or routine maintenance. Splicing of the wire between the pump and the top of the well should be avoided.
- Submersible water pumps are not manufactured to meet specifications for explosion-proofness. Thus, every precaution must be taken to assure that the water pump does not pump pure hydrocarbons during its operation. Controls to protect the pump from this possibility should be installed.

The same criteria listed for water pumps also apply to product pumps used for skimming the oil from the surface of the water. The pumping unit selected should be explosion-proof. Several manufacturers market explosion-proof product pumps and they are relatively inexpensive. Another criterion which must be considered when selecting a product pump is the viscosity of the product. Some product pumps have a limited range of viscosities which they will handle. This factor should be explored thoroughly before a selection is made.

Safety

Safety should be a primary concern during the design, installation and operation of any hydrocarbon recovery system. In working with a flammable contaminant, every precaution should be taken to minimize the chance of fire or explosion. Safety personnel familiar with work involving flammable materials should be contacted for their recommendations before work begins. In addition all personnel involved in the installation and operation of the recovery system should be briefed on the proper safety and emergency procedures.

Before any drilling begins, each site should be cleared to assure that no underground lines might be hit. Utilities which might have lines in the area should be contacted so that the lines can be accurately located. If the drilling is to be done in a highly congested area, such as a refinery, the site should be cleared with a backhoe as a final precaution before drilling. The location of old underground product lines or abandoned lines which might contain explosive vapors are usually not known even by refinery personnel.

During the drilling and development operation, some of the hydrocarbons encountered in the aquifer are forced to the surface and present a hazard. Any machinery capable of producing heat or a spark that might ignite flammable vapors should be kept upwind and as far removed from the well as possible. The drilling rig should be grounded to prevent the possibility of static electricity producing a spark. Smoking should be prohibited within the area surrounding the well, and fire extinguishers approved for use on petroleum fires should be available. Air rotary drilling of hydrocarbon recovery wells should be avoided, especially in areas of heavy accumulations; the injection of air into the hydrocarbons present can produce an extremely flammable mixture.

During the drilling and development phase of well installation, the borehole and mud pit should be tested for the presence of flammable vapors with a combustible gas indicator. If high-pressure jetting and air-lifting are being used for development, the well and air-lift discharge should be checked for vapors routinely. If flammable concentrations of hydrocarbon vapor are detected, this method of development should be abandoned immediately. Jetting with simultaneous air-lifting can produce hazardous conditions, due to the aeration of the hydrocarbons and the static charges which may build up in the air-lift system.

During the installation of the pumping system, care should be taken to avoid the production of any

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sparks which might ignite vapors in the well. The control panels and power supply to the well should all be grounded properly. In addition, lightning protection should be provided at the installation. It is recommended that all electrical equipment and enclosures meet explosion proof specificiations, i.e. NEMA 7, Division 1, Class 1, Group C and D.

Summary

The effective recovery of spilled hydrocarbons present on the ground-water table is not a simple task and requires the use of specialized procedures and equipment. There are numerous alternative recovery systems which can be employed. The selection of an alternative will be dependent upon the existing hydrogeologic conditions and the nature of the spill.

Once installed, the proper operation and maintenance of the recovery system is crucial to the success of the recovery effort. Initial start up of the systems to stabilize pumping levels should be performed by personnel experienced in the field of hydrocarbon recovery. The systems require routine inspection and adjustment to provide for an efficient recovery. When electronic pump controls are employed, the systems must have a continuous maintenance program as they are prone to malfunctions.

Safety should be the overriding concern when designing, installing and operating a hydrocarbon recovery system. All personnel involved in the installation and operation of the system should be briefed on the proper safety and emergency procedures to be followed.

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Biographical Sketches

Steven B. Blake is currently a senior hydrologist for Engineering Enterprises Inc., Norman, Oklahoma, where he is coordinator of oil recovery operations. He's also involved in monitoring and evaluation of hazardous waste sites and ground-water modeling.

Blake received his B.S. in hydrology from Colorado State University in 1978 and his M.S. in watershed hydrology from the University of Arizona in 1980. His previous work experience includes work with the USGS, evaluating the effects of strip mining on ground-water quality and work with the U.S. Forest Service, evaluating the effects of clear-cutting and slash-burning on surface-water quality.

Richard W. Lewis is currently a senior hydrogeologist for Ground Water Technology, a division of Oil Recovery Systems Inc. in its Needham, Massachusetts, office where he is project manager in charge of aquifer evaluations and aquifer restoration from petroleum spills and other industrial-related activities. He received his B.S. in both geology and biology from the State University of New York at Brockport in 1975, and his M.S. in geology from the State University of New York at Fredonia in 1977. Lewis attended post graduate courses in hazardous waste management and toxicology at Oklahoma University. From 1979 to 1980 Lewis was senior hydrogeologist at Engineering Enterprises, Norman, Oklahoma. In 1978 and part of 1979 he served as staff geologist for the Industrial Waste Division of Oklahoma's State Department of Health where he was in charge of hazardous waste site permit reviews and pollution investigations.

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Introduction to

Ground Water Hydrology

Ralph C. Heath and Frank W. Trainer

Water Well Journal Publishing Co., Worthington, Ohio

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code of federal regulations

Protection of Environment

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PART 700 TO END

Revised as of July 1, 1988

CONTAINING
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solid surfaces, a cleanup to numerical surface standards and sampling by a standard wipe test to verify that the numerical standards have been met. This definition constitutes the minimum requirements for an appropriate wipe testing protocol. A standard-size template (10 centimeters (cm) x 10 cm) will be used to delineate the area of cleanup; the wiping medium will be a gauze pad or glass wool of known size which has been saturated with hexane. It is important that the wipe be performed very quickly after the hexane is exposed to air. EPA strongly recommends that the gauze (or glass wool) be prepared with hexane in the laboratory and that the wiping medium be stored in sealed glass vials until it is used for the wipe test. Further, EPA requires the collection and testing of field blanks and replicates.

[52 FR 10705, Apr. 2, 1987; 52 FR 23397, June 19, 1987]

§ 761.125 Requirements for PCB spill cleanup.

(a) *General.* Unless expressly limited, the reporting, disposal, and precleanup sampling requirements in paragraphs (a) (1) through (3) of this section apply to all spills of PCBs at concentrations of 50 ppm or greater which are subject to decontamination requirements under TSCA, including those spills listed under § 761.120(b) which are excluded from the cleanup standards at paragraphs (b) and (c) of this section.

(1) *Reporting requirements.* The reporting in paragraphs (a)(1) (i) through (iv) of this section is required in addition to applicable reporting requirements under the Clean Water Act (CWA) or the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA). For example, under the National Contingency Plan all spills involving 10 pounds or more of PCB material must currently be reported to the National Response Center (1-800-424-8802). The requirements in paragraphs (a)(1) (i) through (iv) of this section are designed to be consistent with existing reporting requirements to the extent possible so as to minimize reporting burdens on governments as well as the regulated community.

(i) Where a spill directly contaminates surface water, sewers, or drinking water supplies, as discussed under § 761.120(d), the responsible party shall notify the appropriate EPA regional office (the Office of Pesticides and Toxic Substances Branch) and obtain guidance for appropriate cleanup measures in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

(ii) Where a spill directly contaminates grazing lands or vegetable gardens, as discussed under § 761.120(d), the responsible party shall notify the appropriate EPA regional office (the Office of Pesticides and Toxic Substances Branch) and proceed with the immediate requirements specified under paragraph (b) or (c) of this section, depending on the source of the spill, in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

(iii) Where a spill exceeds 10 pounds of PCB material (generally 1 gallon of PCB dielectric fluid) and is not addressed in paragraph (a)(1) (i) or (ii) of this section, the responsible party will notify the appropriate EPA regional office and proceed to decontaminate the spill area in accordance with this TSCA policy in the shortest possible time after discovery, but in no case later than 24 hours after discovery. For purposes of the notification requirement, the 10 pounds are measured by the weight of the PCB-containing material spilled rather than by the weight of only the PCBs spilled.

(iv) Spills of 10 pounds or less, which are not addressed in paragraph (a)(1) (i) or (ii) of this section, must be cleaned up in accordance with this policy (in order to avoid EPA enforcement liability), but notification of EPA is not required.

(2) *Disposal of cleanup debris and materials.* All concentrated soils, solvents, rags, and other materials resulting from the cleanup of PCBs under this policy shall be properly stored, labeled, and disposed of in accordance with the provisions of § 761.60.

(3) *Determination of spill boundaries in the absence of visible traces.* For spills where there are insufficient visible traces yet there is evidence of a leak or spill, the boundaries of the

spill are to be determined by using a statistically based sampling scheme.

(b) *Requirements for cleanup of low-concentration spills which involve less than 1 pound of PCBs by weight (less than 270 gallons of untested mineral oil)*—(1) *Decontamination requirements.* Spills of less than 270 gallons of untested mineral oil, low-concentration PCBs, as defined under § 761.123, which involve less than 1 pound of PCBs by weight (e.g., less than 270 gallons of untested mineral oil containing less than 500 ppm PCBs) shall be cleaned in the following manner:

(i) Solid surfaces must be double washed/rinsed (as defined under § 761.123); except that all indoor, residential surfaces other than vault areas must be cleaned to 10 micrograms per 100 square centimeters (10 $\mu g/100\ cm^2$) by standard commercial wipe tests.

(ii) All soil within the spill area (i.e., visible traces of soil and a buffer of 1 lateral foot around the visible traces) must be excavated, and the ground be restored to its original configuration by back-filling with clean soil (i.e., containing less than 1 ppm PCBs).

(iii) Requirements of paragraphs (b)(1) (i) and (ii) of this section must be completed within 48 hours after the responsible party was notified or became aware of the spill.

(2) *Effect of emergency or adverse weather.* Completion of cleanup may be delayed beyond 48 hours in case of circumstances including but not limited to, civil emergency, adverse weather conditions, lack of access to the site, and emergency operating conditions. The occurrence of a spill on a weekend or overtime costs are not acceptable reasons to delay response. Completion of cleanup may be delayed only for the duration of the adverse conditions. If the adverse weather conditions, or time lapse due to other emergency, has left insufficient visible traces, the responsible party must use a statistically based sampling scheme to determine the spill boundaries as required under paragraph (a)(3) of this section.

(3) *Records and certification.* At the completion of cleanup, the responsible party shall document the cleanup with records and certification of decontamination. The records and certification must be maintained for a period of 5 years. The records and certification shall consist of the following:

(i) Identification of the source of the spill (e.g., type of equipment).

(ii) Estimated or actual date and time of the spill occurrence.

(iii) The date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay).

(iv) A brief description of the spill location.

(v) Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces, and a brief description of the sampling methodology used to establish the spill boundaries.

(vi) A brief description of the solid surfaces cleaned and of the double wash/rinse method used.

(vii) Approximate depth of soil excavation and the amount of soil removed.

(viii) A certification statement signed by the responsible party stating that the cleanup requirements have been met and that the information contained in the record is true to the best of his/her knowledge.

(ix) While not required for compliance with this policy, the following information would be useful if maintained in the records:

(A) Additional pre- or post-cleanup sampling.

(B) The estimated cost of the cleanup by man-hours, dollars, or both.

(c) *Requirements for cleanup of high-concentration spills and low-concentration spills involving 1 pound or more PCBs by weight (270 gallons or more of untested mineral oil).* Cleanup of low-concentration spills involving 1 lb or more PCBs by weight and of all spills of materials other than low-concentration materials shall be considered complete if all of the immediate requirements, cleanup standards, sampling, and recordkeeping requirements of paragraphs (c) (1) through (5) of this section are met.

(1) *Immediate requirements.* The four actions in paragraphs (c)(1) (i) through (iv) of this section must be taken as quickly as possible and within no more than 24 hours (or within 48 hours for PCB Transformers) after

the responsible party was notified or became aware of the spill, except that actions described in paragraphs (c)(1)(ii) through (iv) of this section can be delayed beyond 24 hours if circumstances (e.g., civil emergency, hurricane, tornado, or other similar adverse weather conditions, lack of access due to physical impossibility, or emergency operating conditions) so require for the duration of the adverse conditions. The occurrence of a spill on a weekend or overtime costs are not acceptable reasons to delay response. Owners of spilled PCBs who have delayed cleanup because of these types of circumstances must keep records documenting the fact that circumstances precluded rapid response.

(i) The responsible party shall notify the EPA regional office and the NRC as required by § 761.125(a)(1) or by other applicable statutes.

(ii) The responsible party shall effectively cordon off or otherwise delineate and restrict an area encompassing any visible traces plus a 3-foot buffer and place clearly visible signs advising persons to avoid the area to minimize the spread of contamination as well as the potential for human exposure.

(iii) The responsible party shall record and document the area of visible contamination, noting the extent of the visible trace areas and the center of the visible trace area. If there are no visible traces, the responsible party shall record this fact and contact the regional office of the EPA for guidance in completing statistical sampling of the spill area to establish spill boundaries.

(iv) The responsible party shall initiate cleanup of all visible traces of the fluid on hard surfaces and initiate removal of all visible traces of the spill on soil and other media, such as gravel, sand, oyster shells, etc.

(v) If there has been a delay in reaching the site and there are insufficient visible traces of PCBs remaining at the spill site, the responsible party must estimate (based on the amount of material missing from the equipment or container) the area of the spill and immediately cordon off the area of suspect contaimination. The responsible party must then utilize a statistically based sampling scheme to identify the boundaries of the spill area as soon as practicable.

(vi) Although this policy requires certain immediate actions, as described in paragraphs (c)(1)(i) through (iv) of this section, EPA is not placing a time limit on completion of the cleanup effort since the time required for completion will vary from case to case. However, EPA expects that decontamination will be achieved promptly in all cases and will consider promptness of completion in determining whether the responsible party made good faith efforts to clean up in accordance with this policy.

(2) *Requirements for decontaminating spills in outdoor electrical substations.* Spills which occur in outdoor electrical substations, as defined under § 761.123, shall be decontaminated in accordance with paragraphs (c)(2)(i) and (ii) of this section. Conformance to the cleanup standards under paragraphs (c)(2)(i) and (ii) of this section shall be verified by post-cleanup sampling as specified under § 761.130. At such times as outdoor electrical substations are converted to another use, the spill site shall be cleaned up to the nonrestricted access requirements under paragraph (c)(4) of this section.

(i) Contaminated solid surfaces (both impervious and non-impervious) shall be cleaned to a PCB concentration of 100 micrograms (μg)/100 square centimeters (cm^2) (as measured by standard wipe tests).

(ii) At the option of the responsible party, soil contaminated by the spill will be cleaned either to 25 ppm PCBs by weight, or to 50 ppm PCBs by weight provided that a label or notice is visibly placed in the area. Upon demonstration by the responsible party that cleanup to 25 ppm or 50 ppm will jeopardize the integrity of the electrical equipment at the substation, the EPA regional office may establish an alternative cleanup method or level and place the responsible party on a reasonably timely schedule for completion of cleanup.

(3) *Requirements for decontaminating spills in other restricted access areas.* Spills which occur in restricted access locations other than outdoor electrical substations, as defined under § 761.123, shall be decontaminated in

accordance with paragraphs (c)(3) (i) through (v) of this section. Conformance to the cleanup standards in paragraphs (c)(3) (i) through (v) of this section shall be verified by post-cleanup sampling as specified under § 761.130. At such times as restricted access areas other than outdoor electrical substations are converted to another use, the spill site shall be cleaned up to the nonrestricted access area requirements of paragraph (c)(4) of this section.

(i) High-contact solid surfaces, as defined under § 761.163 shall be cleaned to 10 μg/100 cm² (as measured by standard wipe tests).

(ii) Low-contact, indoor, impervious solid surfaces will be decontaminated to 10 μg/100 cm².

(iii) At the option of the responsible party, low-contact, indoor, nonimpervious surfaces will be cleaned either to 10 μg/100 cm² or to 100 μg/100 cm² and encapsulated. The Regional Administrator, however, retains the authority to disallow the encapsulation option for a particular spill situation upon finding that the uncertainties associated with that option pose special concerns at that site. That is, the Regional Administrator would not permit encapsulation if he/she determined that if the encapsulation failed the failure would create an imminent hazard at the site.

(iv) Low-contact, outdoor surfaces (both impervious and nonimpervious) shall be cleaned to 100 μg/100 cm².

(v) Soil contaminated by the spill will be cleaned to 25 ppm PCBs by weight.

(4) *Requirements for decontaminating spills in nonrestricted access areas.* Spills which occur in nonrestricted access locations, as defined under § 761.123, shall be decontaminated in accordance with paragraphs (c)(4)(i) through (v) of this section. Conformance to the cleanup standards at paragraphs (c)(4)(i) through (v) of this section shall be verified by post-cleanup sampling as specified under § 761.130.

(i) Furnishings, toys, and other easily replaceable household items shall be disposed of in accordance with the provisions of § 761.60 and replaced by the responsible party.

(ii) Indoor solid surfaces and high-contact outdoor solid surfaces, defined as high contact residential/commercial surfaces under § 761.123, shall be cleaned to 10 μg/100 cm² (as measured by standard wipe tests).

(iii) Indoor vault areas and low-contact, outdoor, impervious solid surfaces shall be decontaminated to 10 μg/100 cm².

(iv) At the option of the responsible party, low-contact, outdoor, nonimpervious solid surfaces shall be either cleaned to 10 μg/100 cm² or cleaned to 100 μg/100 cm² and encapsulated. The Regional Administrator, however, retains the authority to disallow the encapsulation option for a particular spill situation upon finding that the uncertainties associated with that option pose special concerns at that site. That is, the Regional Administrator would not permit encapsulation if he/she determined that if the encapsulation failed the failure would create an imminent hazard at the site.

(v) Soil contaminated by the spill will be decontaminated to 10 ppm PCBs by weight provided that soil is excavated to a minimum depth of 10 inches. The excavated soil will be replaced with clean soil, i.e., containing less than 1 ppm PCBs, and the spill site will be restored (e.g., replacement of turf).

(5) *Records.* The responsible party shall document the cleanup with records of decontamination. The records must be maintained for a period of 5 years. The records and certification shall consist of the following:

(i) Identification of the source of the spill, e.g., type of equipment.

(ii) Estimated or actual date and time of the spill occurrence.

(iii) The date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay).

(iv) A brief description of the spill location and the nature of the materials contaminated. This information should include whether the spill occurred in an outdoor electrical substation, other restricted access location, or in a nonrestricted access area.

(v) Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces and a brief description of the sampling methodology used to establish the spill boundaries.

(vi) A brief description of the solid surfaces cleaned.

(vii) Approximate depth of soil excavation and the amount of soil removed.

(viii) Postcleanup verification sampling data and, if not otherwise apparent from the documentation, a brief description of the sampling methodology and analytical technique used.

(ix) While not required for compliance with this policy, information on the estimated cost of cleanup (by manhours, dollars, or both) would be useful if maintained in the records.

§ 761.130 Sampling requirements.

Postcleanup sampling is required to verify the level of cleanup under § 761.125(c) (2) through (4). The responsible party may use any statistically valid, reproducible, sampling scheme (either random samples or grid samples) provided that the requirements of paragraphs (a) and (b) of this section are satisfied.

(a) The sampling area is the greater of (1) an area equal to the area cleaned plus an additional 1-foot boundary, or (2) an area 20 percent larger than the original area of contamination.

(b) The sampling scheme must ensure 95 percent confidence against false positives.

(c) The number of samples must be sufficient to ensure that areas of contamination of a radius of 2 feet or more within the sampling area will be detected, except that the minimum number of samples is 3 and the maximum number of samples is 40.

(d) The sampling scheme must include calculation for expected variability due to analytical error.

(e) EPA recommends the use of a sampling scheme developed by the Midwest Research Institute (MRI) for use in EPA enforcement inspections: "Verification of PCB Spill Cleanup by Sampling and Analysis." Guidance for the use of this sampling scheme is available in the MRI report "Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup." Both the MRI sampling scheme and the guidance document are available from the TSCA Assistance Office, Environmental Protection Agency, Rm. E-543, 401 M St. SW., Washington, DC 20460 (202-554-1404). The major advantage of this sampling scheme is that it is designed to characterize the degree of contamination within the entire sampling area with a high degree of confidence while using fewer samples than any other grid or random sampling scheme. This sampling scheme also allows some sites to be characterized on the basis of composite samples.

(f) EPA may, at its discretion, take samples from any spill site. If EPA's sampling indicates that the remaining concentration level exceeds the required level, EPA will require further cleanup. For this purpose, the numerical level of cleanup required for spills cleaned in accordance with § 761.125(b) is deemed to be the equivalent of numerical cleanup requirements required for cleanups under § 761.125(c)(2) through (4). Using its best engineering judgment, EPA may sample a statistically valid random or grid sampling technique, or both. When using engineering judgment or random "grab" samples, EPA will take into account that there are limits on the power of a grab sample to dispute statistically based sampling of the type required of the responsible party. EPA headquarters will provide guidance to the EPA regions on the degree of certainty associated with various grab sample results.

§ 761.135 Effect of compliance with this policy and enforcement.

(a) Although a spill of material containing 50 ppm or greater PCBs is considered improper PCB disposal, this policy establishes requirements that EPA considers to be adequate cleanup of the spilled PCBs. Cleanup in accordance with this policy means compliance with the procedural as well as the numerical requirements of this policy. Compliance with this policy creates a presumption against both enforcement action for penalties and the need for further cleanup under TSCA.

REFERENCE 9

THE SOIL CHEMISTRY OF HAZARDOUS MATERIALS

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natural environmental conditions.

Relatively little is known about the first two types of soil mineral fixation reactions discussed above. However, these are not considered to be extensively occurring reactions. On the other hand, the fixation of elements via incorporation into the structure of soil minerals during mineral precipitation is an extremely important reaction. This chapter will focus on the types and amounts of elements found in soil, how these elements are fixed into mineral structures, and how some remedial actions have utilized element fixation.

ELEMENT CONCENTRATIONS IN SOIL

Eleven of the elements listed in Table 3.1, along with carbon, hydrogen, and oxygen, constitute over 99 percent of the total elemental content of soil: Al, Ca, Fe, K, Mg, Mn, Na, P, S, Si, and Ti. The remaining one percent is comprised of elements known commonly as the "trace elements." The word "trace" identifies the fact that they occur in soil in minute amounts; it has no bearing or relationship to any concentration limit protecting human health or biota.

Table 3.1 lists the mean concentrations, typical ranges, and observed limits of several elements in natural soil (i.e. background concentrations). The total concentration of any element, C_{Total}, in a soil is equal to:

$$C_{Total} = C_{Fixed} + C_{Adsorbed} + C_{Water} \quad (3.1)$$

where:

C_{Fixed} = concentration of fixed element comprising part of the structure of clay and soil minerals, in mg element/kg soil.

$C_{Adsorbed}$ = concentration of element adsorbed onto the surface of soil minerals and onto organic matter exchange sites, in mg element/kg soil.

C_{Water} = concentration of element in soil water or groundwater in equilibrium with $C_{Adsorbed}$, in mg soluble element/kg soil. (See Table 3.2 for natural background levels found in groundwater).

C_{Fixed} represents the "immobile" fraction of C_{Total}. The sum of $C_{Adsorbed}$ and C_{Water} represents the potentially mobile portion of C_{Total}; these will be discussed in detail in the next chapter.

There are four important facts that should be understood concerning the data listed in Table 3.1, the parameters listed in Equation 3.1, and the interrelationships of these parameters. First, C_{Total} should not be expected to be uniform with depth. Natural processes involved in the distribution of elements in the soil profile include:

TABLE 3.1 Native Soil Concentrations of Various Elements

Element	Concentration (ppm) Typical Range	Concentration (ppm) Extreme Limits
Ag	0.1 - 5.0	0.1 - 50
Al	10,000 - 300,000	—
As	1.0 - 40	0.1 - 500
B	2.0 - 130	0.1 - 3000
Ba	100 - 3500	10 - 10,000
Be	0.1 - 40	0.1 - 100
Br	1.0 - 10	—
Ca	100 - 400,000	—
Cd	0.01 - 7.0	0.01 - 45
Ce	30 - 50	—
Cl	10 - 100	—
Co	1.0 - 40	0.01 - 500
Cr	5.0 - 3000	0.5 - 10,000
Cs	0.3 - 25	—
Cu	2.0 - 100	0.1 - 14,000
F	30 - 300	—
Fe	7,000 - 550,000	—
Ga	0.4 - 300	—
Ge	1.0 - 50	—
Hg	0.01 - 0.08	—
I	0.1 - 40	—
K	400 - 30,000	—
La	1.0 - 5000	—
Li	7.0 - 200	1.0 - 3000
Mg	600 - 6000	—
Mn	100 - 4000	1.0 - 70,000
Mo	0.2 - 5.0	0.1 - 400
Na	750 - 7500	400 - 30,000
Ni	5.0 - 1000	0.8 - 6200
P	50 - 5000	—
Pb	2.0 - 200	0.1 - 3000
Ra	10^{-15} - 10^{-13}	—
Rb	20 - 600	3.0 - 3000
S	30 - 10,000	—
Sb	0.6 - 10	—
Sc	10 - 25	—
Se	0.1 - 2.0	0.01 - 400
Si	230,000 - 350,000	—
Sn	2.0 - 200	0.1 - 700
Sr	50 - 1000	10 - 5000
Th	0.1 - 12	—
Ti	1000 - 10,000	400 - > 10,000
U	0.9 - 5.0	< 250
V	20 - 500	1.0 - 1000
Y	10 - 500	—
Zn	10 - 300	3.0 - 10,000
Zr	60 - 2000	10 - 8000

[a] Based on an Analysis of Data Presented in References 1,2,3,4,5, and 6.

TABLE 3.2 Natural Concentrations of Various Elements in Groundwater.[a]

Element	Concentration: Typical Value	Concentration: Extreme Value
	Major Elements (ppm)	
Ca	1.0 - 150[b]	95,000[c]
	< 500[d]	
Cl	1.0 - 70[b]	200,000[c]
	< 1000[d]	
F	0.1 - 5.0	70
		1600[c]
Fe	0.01 - 10	> 1000[c,e]
K	1.0 - 10	25,000[c]
Mg	1.0 - 50[b]	52,000[c]
	< 400[d]	
Na	0.5 - 120[b]	120,000[c]
	< 1000[d]	
NO_3	0.2 - 20	70
SiO_2	5.0 - 100	4,000[c]
SO_4	3.0 - 150[b]	200,000[c]
	< 2000[d]	
Sr	0.1 - 4.0	50
	Trace Elements (ppb)	
Ag	< 5.0	
Al	< 5.0 - 1000	
As	< 1.0 - 30	4,000
B	20 - 1000	5,000
Ba	10 - 500	
Br	< 100 - 2000	
Be	< 10	
Bi	< 20	
Cd	< 1.0	
Co	< 10	
Cr	< 1.0 - 5.0	
Cu	< 1.0 - 30	
Ga	< 2.0	
Ge	< 20 - 50	
Hg	< 1.0	
I	< 1.0 - 1000	48,000[c]
Li	1.0 - 150	
Mn	< 1.0 - 1000	10,000[c]
Mo	< 1.0 - 30	10,000
Ni	< 10 - 50	
PO_4	< 100 - 1000	
Pb	< 15	
Ra	< 0.1 - 4.0[f]	720[c, f]
Rb	< 1.0	
Se	< 1.0 - 10	
Sn	< 200	
Ti	< 1.0 - 150	
U	0.1 - 40	
V	< 1.0 - 10	70
Zn	< 10 - 2000	
Zr	< 25	

[a] based on an analysis of data presented in references 7,8, and 9.
[b] in relatively humid regions.
[c] in brine.
[d] in relatively dry regions.
[e] in thermal springs and mine areas.
[f] picocuries/liter (i.e. 0.037 disintegrations/sec).

REFERENCE 10

REFERENCE 11

STATE OF NEW YORK

OFFICIAL COMPILATION

OF

CODES, RULES AND REGULATIONS

HUGH L. CAREY
Governor

CHARLES E. WILLIAMS III
Acting Secretary of State

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(e) *Wastes containing polychlorinated biphenyls (PCB's).* (1) All solid wastes containing 50 parts per million (ppm) by weight (on a dry weight basis) or greater of polychlorinated biphenyls (PCB's) are listed hazardous wastes, excluding small capacitors as defined in paragraph (3) of this subdivision and PCB articles drained in accordance with subparagraphs (2)(ii) and (iii) of this subdivision. Oils in or from electrical equipment whose PCB concentration is unknown, except circuit breakers, reclosers and cable, must be assumed to contain between 50 and 500 ppm PCB and are listed hazardous waste. *PCB* and *PCB's* mean any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees. Any chemical waste and combination of waste that contain less than 50 ppm PCB's because of any dilution are listed hazardous waste unless otherwise specifically provided in paragraph (2) of this subdivision. Wastes that may contain PCB's include dielectric fluids, contaminated solvents, waste oil, heat transfer fluids, hydraulic fluids, dredge spoils, and material contaminated as a result of spills. The hazardous code for these PCB wastes shall be toxic waste (T). These wastes shall have hazardous waste numbers assigned as follows:

DEC hazardous waste number	*Waste*
B001	PCB oil (concentrated) from transformers, capacitors, etc.
B002	Petroleum oil or other liquid containing 50 ppm or greater of PCB's, but less than 500 ppm PCB's. This includes oil from electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers, and cable.
B003	Petroleum oil or other liquid containing 500 ppm or greater of PCB's.
B004	PCB articles containing 50 ppm or greater of PCB's, but less than 500 ppm PCB's, excluding small capacitors. This includes oil-filled electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers and cable.
B005	PCB articles, other than transformers, that contain 500 ppm or greater of PCB's, excluding small capacitors.
B006	PCB transformers. *PCB transformers* means any transformer that contains 500 ppm PCB or greater.
B007	Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Note: PCB's are also regulated by 40 CFR part 761. A person must comply with both this Part and 40 CFR part 761 (see section 370.1[e] of this Title).

(2) Drained PCB articles. (i) Except as provided in subparagraphs (ii) and (iii) of this paragraph, drained PCB articles are regulated as hazardous waste.

(ii) PCB articles, except capacitors, that contain between 50 and 500 ppm PCB, are no longer regulated as PCB listed hazardous waste provided that all free-flowing liquid has been drained from the article. The drained liquid is a listed hazardous waste.

(iii) (*a*) Hydraulic machines containing less than 1,000 ppm PCB are no longer regulated as PCB listed hazardous waste, provided that all free-flowing liquid has been drained from the hydraulic machine. The drained liquid is a listed hazardous waste.

(*b*) Hydraulic machines containing 1,000 ppm PCB or greater are no longer regulated as PCB listed hazardous waste, provided that all free-flowing liquid has been drained from the hydraulic machine, and the drained hydraulic machine is

flushed with a solvent in which PCB's are readily soluble. The solvent to be used for flushing must contain less than 50 ppm PCB. The drained liquid and the solvent used for flushing are listed hazardous wastes.

(3) Definitions. (i) *PCB article* means any manufactured article, other than a PCB container, that contains PCB's and whose surface(s) has been in direct contact with PCB's. *PCB article* includes capacitors, transformers, electric motors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, cable, hydraulic machines, pumps, pipes, and any other manufactured item which is formed to a specific shape or design during manufacture, has end use function(s) dependent in whole or in part upon its shape or design during end use, and has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB article.

(ii) *Small capacitor* means a capacitor which contains less than 1.36 kg (3 lb.) of dielectric fluid. The following assumptions may be used if the actual weight of the dielectric fluid is unknown. A capacitor whose total volume is less than 1,639 cubic centimeters (100 cubic inches) may be considered to contain less than 1.36 kg (3 lb.) of dielectric fluid and a capacitor whose total volume is more than 3,278 cubic centimeters (200 cubic inches) must be considered to contain more than 1.36 kg (3 lb.) of dielectric fluid. A capacitor whose volume is between 1,639 and 3,278 cubic centimeters may be considered to contain less than 1.36 kg (3 lb.) of dielectric fluid if the total weight of the capacitor is less than 4.08 kg (9 lb.).

(4) Testing procedures. The procedures in 40 CFR 761.60(g) (see section 370.1[e] of this Part) will be used to determine the concentration of PCB's, unless a petition for equivalent testing or analytical methods is submitted and approved per section 370.3 of this Title.

Historical Note

Sec. filed May 14, 1985; amds. filed: May 2, 1986; Oct. 26, 1988 eff. 60 days after filing. Amended (b)-(d).

PART 372

HAZARDOUS WASTE MANIFEST SYSTEM AND RELATED STANDARDS FOR GENERATORS, TRANSPORTERS AND FACILITIES

(Statutory authority: Environmental Conservation Law, §§ 3-0301, 19-0301, 23-2307, 27-0303, 27-0705, 27-0900, 27-0903, 27-0905, 27-0907, 27-0909, 27-0911, 27-0917, 27-0918, 70-0107)

Sec.
372.1 General
372.2 Standards applicable to generators of hazardous waste
372.3 Standards applicable to transporters
372.4 Standards applicable to owners and operators of treatment, storage or disposal facilities
372.5 International shipments and imports
372.6 Interstate shipments
372.7 Shipments by rail or water (bulk)

Historical Note

Part (§§ 372.1-372.7) filed May 14, 1985 eff. 60 days after filing.

Section 372.1 General. (a) *Purpose and scope.* The purpose of these regulations is to establish standards for generators and transporters of hazardous waste and standards for generators, transporters, and treatment, storage or disposal facilities relating to the use of the manifest system and its recordkeeping requirements. The

REFERENCE 12

New York State Department of Environmental Conservation

MEMORANDUM

received from
D. Freeman
6/1/87

Dave O'Toole, Chief, Bureau of Municipal Waste, DSHW
Al Klauss, RSHWE, Region 3
Classification of Dredged Spoils
May 9, 1986

This is to address the classification of waste material resulting from the dredging of the Hudson River, streams, lakes and ponds. These wastes may contain contaminants such as toxic metals, PCB's, hydrocarbons, and volatile organics. The material could be classified as hazardous waste, non-hazardous industrial waste, or possibly construction and demolition debris. Being that there is no departmental guidance regarding what thresholds make the material hazardous, or industrial waste, such determinations can have a significant affect on the ultimate disposal requirements and use of the dredged spoils.

In your telephone conversation of May 8, 1986, you advised Rich Gardineer that the Bureau of Municipal Waste will not be able to address this issue in the near future, and that the Regional staff should use "Best Engineering Judgement" in selecting threshold concentrations for industrial and hazardous waste, where standards are missing.

With this in mind, the RSHW program will use the following test requirements and threshold values, unless advised otherwise by the DSHW:

1. Hazardous Waste

   a. The spoils fail any of the EP Toxicity Test Criteria referenced in Part 371 (from Section 261.24).

   b. The spoils have a PCB concentration greater than or equal to 50 parts per million (dry weight).

   c. The spoils contain total concentrations of volatile organics and hydrocarbons greater than 2.5 parts per million (dry weight).

2. Industrial Waste

   a. The EP Toxicity Test Criteria in Part 371 are not exceeded but concentrations are greater than the detection limit.

   b. The concentration of PCB's in the dredge spoil is less than 50 parts per million (dry weight) but is greater than 5 parts per million (dry weight).

   c. The total concentration of volatile organics and hydrocarbon is less than 2.5 parts per million but is greater than 100 parts per billion.

3. Construction and Demolition Debris

a. The EP Toxicity Test results are below the detection limits.

b. The concentration of PCB's is less than 5 parts per million (dry weight).

c. The total concentrations of volatile organics and hydrocarbons is less than 100 parts per billion.

At Part 360 permitted, lined landfills, there is no difference between classifying the waste either as industrial or construction and demolition material. On the other hand, the waste classification becomes all the more important if such classification introduces the issue of a Part 364 Permit which in itself limits disposal options. The difference between being classified as industrial or construction and demolition can affect the use of this material for cover at landfills not in compliance with Part 360. These sites would in almost all cases not be allowed to accept industrial waste.

In closing, the Region has a number of dredging projects under review and therefore must act on this issue. Plesae advise Rich if you have any comments regarding our proposed handling of this matter.

AK:ss

cc: N. Nosenchuck
D. Mafrici/J. Moran
R. Gardineer
J. Reidy

APPENDIX B

APPENDIX B

SITE INSPECTION/AIR MONITORING DATA

DATE: 8 September 1988 FILE No. 576-002

TO: File

FROM: Kevin McGuinness

SUBJECT: Site Reconnaissance at Quanta Resources

- Arrived at the site at 1335. Delta Geophysical Services arrived at 1345 to preform magnetometer survey.
- Existing 2" diameter wells are found on-site but no positive HNU readings are noted anywhere on the site.
- At 1430 NYSDEC arrived (Nathan Nigel, Ezra Aviles) and moved GW-3 closer to lagoon to get more coverage near lagoon.
- At 1520 Nathan Nigel leaves the site after cancelling GW-4 from the work scope since it is off-site in a busy road. We are to call Mike Komoroske of NYSDEC to let him know and see if he wants to relocate GW-4.
- The manger of Nanco (next door) stated that when the onsite tanks were emptied not all the oil could be removed, therefore the tanks are still partially filled with PCB oil.
- Ezra Aviles states that there are underground tanks in the vicinity of GW-2.
- Lagoon is five foot deep.

Facility: _____
Date: 9-8-88
Calib. By: KMLE
Calib. Gas: ETS

LAWLER, MATUSKY & SKELLY ENGINEERS
H.NU METER FIELD CALIBRATION
DATA SHEET

Job No: 576-002
Site: _____
Crew: _____
Oper: _____

DATE/TIME	METER No.	BATT. CHECK	EXPECTED ZERO	EXPECTED CALIB. GAS (ppm)	OBSERVED ZERO	OBSERVED CALIB. GAS (ppm)	SPAN ADJ. (from -- -- to)	COMMENTS
9-8 1103	NYSDEC 8014139	✓	0	57	0	53	—	When zeroing - needle bouncing 5 ppm.

On-Site Health & Safety Officer and/or Crew Chief:

(Signature): _____

(Date): _____

Facility: _____
Date: 9-8-88
Calib. By: KMLE
Calib. Gas: ETS

LAWLER, MATUSKY & SKELLY ENGINEERS
H.NU METER FIELD CALIBRATION
DATA SHEET

Job No: 576-002
Site: _____
Crew: _____
Oper: _____

DATE/TIME	METER No.	BATT. CHECK	EXPECTED ZERO	EXPECTED CALIB. GAS (ppm)	OBSERVED ZERO	OBSERVED CALIB. GAS (ppm)	SPAN ADJ. (from -- -- to)	COMMENTS
9-8 1103	NYSDEC 8014139	✓	0	57	0	53	—	[illegible]

On-Site Health & Safety Officer and/or Crew Chief:

(Signature): _____

(Date): _____

Job No: 576-002
Site: Quanta
Oper: Boring / Well Instal.
Crew: SM, EMH, Soil Test.

LAWLER, MATUSKY & SKELLY ENGINEERS
DAILY HEALTH & SAFETY REPORT
DATA SHEET

1 of 2

H.Nu Meter: NYSDEC # 801439
OVA Meter: —
Explosimeter: —
Date: 11/16/88

TIME	SAMPLE LOCATION	H.NU READING	EXPLOSIMETER READING	OVA READING	COMMENTS
1110	Support Zone	.3 Units.	—	—	Adj. meter from .3 to 1.0 to see deflection.
1245	GW-1	Bkgd Ground	—	—	Before drilling.
1300	GW-1 Breathing Zone	BG	—	—	0'-4'
↓	GW-1 Cuttings	18-21	—	—	↓
1313	GW-1 Borehole	8-9	—	—	0-4'
	GW-1 Split Spoon	Top 8-10 Bottom - BG.		—	Split Spoon 4'-6'
↓	GW-1 Work Zone	BG-.3	—	—	
1320	GW-1 Work Zone	B.G	—	—	
1322	GW-1 Cuttings	4-4.5	—	—	10'-12'
1328	GW-1 Work Zone	B.G	—	—	—
1331	GW-1 Split Spoon	1.0	—	—	14'-16'
1337	GW-1 Split Spoon	B.G	—	—	16'-18'
1339	GW-1 Cuttings	B.G	—	—	16'-19'
↓	GW-1 Work Zone	B.G	—	—	Overcast 60° SE winds 82% RH
1346	GW-1 Split Spoon	15-20	—	—	19'-21'
1347	GW-1 Work Zone	B.G	—	—	
1352	GW-1 19'-21'	20-40	—	—	Head Space
1513	GW-1 Work Zone	B.G	—	—	
1516	GW-1 Split Spoon	7-10	—	—	24'-26' Petroleum Product
1518	GW-1 Work Zone	BG	—	—	

B.G = Background.

On-Site Health & Safety Officer and/or Crew Chief:

(Signature) [signature]

(Date) 11/16/88

Job No: 576-002
Site: QUANTA
Oper: Boring, Well Install.
Crew: SM, EMH, Soil Test

LAWLER, MATUSKY & SKELLY ENGINEERS
DAILY HEALTH & SAFETY REPORT
DATA SHEET

2 of 2

H.Nu Meter: NYSDEC #801439
OVA Meter: —
Explosimeter: —
Date: 11/16/88

TIME	SAMPLE LOCATION	H.NU READING	EXPLOSIMETER READING	OVA READING	COMMENTS
1520	GW-1 Split Spoon	7-10	—	—	26'-28'
1530	GW-1 Split Spoon	5-6	-	—	28-30' / Bottom .5' of Spoon.
1531	GW-1 Work Zone	BG.	-	-	60°F. wind. SSE-16mph 84% RH
1537	GW-1 Split Spoon.	1-2	-	—	30'-32'
1538	GW-1 Work Zone	B.G	-	—	
1544	GW-1 Split Spoon	15-17	-	-	32'-34' Bottom .6'
1545	GW-1 Work Zone	BG	—	—	
1551	GW-1 Work Zone.	.2	-	—	
1608	GW-1 Split Spoon	10-11	-	-	34'-36' Bottom .4'
1609	GW-1 Work Zone	BG	—	-	
1614	GW-1 Split Spoon	5-7 / 20-30	—	—	36'-38' Top half / Bottom .4'
1615	GW-1 Work Zone	.2	-	—	
1641	GW-1 Work Zone	BG	—	—	1637 - 56°F

BG = Background.
Work Zone = Breathing Zone.

On-Site Health & Safety Officer and/or Crew Chief:

(Signature) [signature]

(Date) 11/16/88

APPENDIX C

HEALTH AND SAFETY PLAN

LAWLER, MATUSKY & SKELLY ENGINEERS

SITE-SPECIFIC

HEALTH AND SAFETY PLAN FORM

Site Name: Quanta Location: 37-80 Review Ave.
Long Island City, Queens, NY

HASP Preparer: Karen A. Wright Job No: 576-002

APPROVALS
Project Manager: Edward A. Mathews

Safety Officer: Karen A. Wright

PROJECT PERSONNEL:

On-Site Coordinator:

On-Site Health and Safety Officer:

Phone: (914) 735-8300

DATE OF PLAN PREPARATION: 3 November 1988

HAZARDOUS/SUBSTANCES (known or suspected, contaminated media or in storage container, etc.):

PCBs, tetrachloroethylene, methylene chloride, 1,1,1-trichloroethane, trichloroethylene

All HNU readings during site reconnaissance were background.

HAZARD ASSESSMENT (toxic effects, including TLVs, IDLHs, reactivity, stability, flammability, and operational hazards with sampling, decontaminating, etc):

See attached Table 1

SITE WORK ZONES: (designate exclusion zone, contamination reduction zone and support zone)

See attached Figure 1

SITE ACCESS: (describe procedures to control site access)

Log book to be kept of all personnel who enter site. Site is fenced in and locked.

MONITORING PROCEDURES (If required by the Safety Officer)

Monitoring the site for identity and concentration of contamination in all media:

Continuous monitoring with HNU. Calibate instrument and measure background at support zone near entrance gate.

Medical monitoring procedures for evidence of personnel exposure i.e. analyses specific to site not covered in general LMS physical:

N/A

Personnel monitoring procedures:

N/A

DECONTAMINATION AND DISPOSAL

Decontamination Procedures (contaminated personnel, surfaces, materials, instruments, equipment, etc.):

Drilling, augers, spoons to be steam cleaned before work begins. Split spoons to be detergent washed, potable water rinsed between uses. Split spoons to be steam cleaned or hot washed between boreholes. If chemical analysis to be done, use decon procedures described in work scope. Stainless steel spoons and trowels used to collect soil samples and bailers used to collect water samples are to be cleaned in laboratory as described in LMS SOP. If acetone is used in field, separate from other water and contain. Get water from local hydrant.

Disposal Procedures (contaminated equipment, supplies, disposables, washwater):

Drum cuttings and purge/development water if HNU reading >5 ppm. Otherwise leave on ground. Bag all disposal gear.

EMERGENCY PROCEDURES

In event of personnel exposure (skin contact, inhalation, ingestion, specific procedures for specific chemicals):

Immediately wash exposed area with clean water. Remove person to clean air if inhalation problem.

In event of personnel injury:

Use standard first aid procedures.

In event of potential or actual fire or explosion:

Evacuate to support zone and leave site. HSO to check that all personnel are accounted for before leaving site.

In event of potential or actual ionizing radiation exposure:

N/A

In event of environmental accident (spread of contamination outside sites):

Stop spread as best as possible. Call LMS.

EMERGENCY SERVICES (complete here or have separate list available on-site)

Location	Telephone
Emergency Medical Facility	
Astoria General Hospital	(718) 932-1000
25-10 30th Avenue	
Long Island City, Queens	
Ambulance Service	
	911

Location	Telephone
Fire Department	
	911 or
	(718) 847-6600
	in Queens only
Police Department	
	911
	to obtain local
	precinct
	(212) 374-5000
Poison Control Center	
	(212) 764-7667

PERSONNEL POTENTIALLY EXPOSED TO HAZARDOUS SUBSTANCES (As Applicable)

Personnel Authorized to Enter Site (specific conditions of site would preclude most LMS trained persons from entering site and would allow only certain personnel, list here)

1. N/A
2. _____
3. _____
4. _____
5. _____

ALTERNATIVE WORK PRACTICES

(Describe alternative work practices or instruments not specified in this form. Indicate work practices specified in the chapter for which proposed alternative work practices will serve as substitute.)

N/A

_____

_____

_____

TASK-SPECIFIC LEVEL OF PROTECTION (attach table including specific description of protective gear) See Table 2-1.

See attached Table 2

SITE MAP

(Attach a site map. Map should be properly scaled and keyed to local landmarks.)

See attached Figure 1

TRAINING

(Provide description of minimum training, reference OSHA Sections).

2 people - 29 CFR 1910.120 e (2)

AFFIDAVIT

All personnel who enter site must sign attached affidavit. LMS personnel must also read and comply with LMS' generic HASP.

AFFIDAVIT

I, _____, (name) of _____ (company name) have read the Health and Safety Plan (HASP) for the _____ (site description and project description). I have also read the LMS generic HASP. I agree to conduct all on-site work in conformity with the requirements of both HASPs. In addition, I acknowledge that failure to comply with the designated procedures in the Health and Safety Plans may lead to my removal from the site.

Signed _____

Date _____

TABLE 1

HAZARD ASSESSMENT

COMPOUND	TLV, ppm	STEL, ppm	IDLH, ppm	LEL, %	UEL, %	FLASH PT °F	IP EV	ODOR THES-HOLD, ppm	TIME TO BREAK THROUGH MIN
PCBs	0.5-1mg/m^3	-	Ca	-	-	349-432	-	-	-
Tetrachloroethylene	50	200	Ca	-	-	-	9.32	4.68	107
Methylene chloride	100	500	Ca	12	19	?	11.35	214	10
1,1,1-trichloroethane	350	450	1000	7	16	none	-	400	40
Trichloroethylene	50	200	Ca	11	41	none	9.47	21.4	55

TABLE 2

LEVEL OF PROTECTION

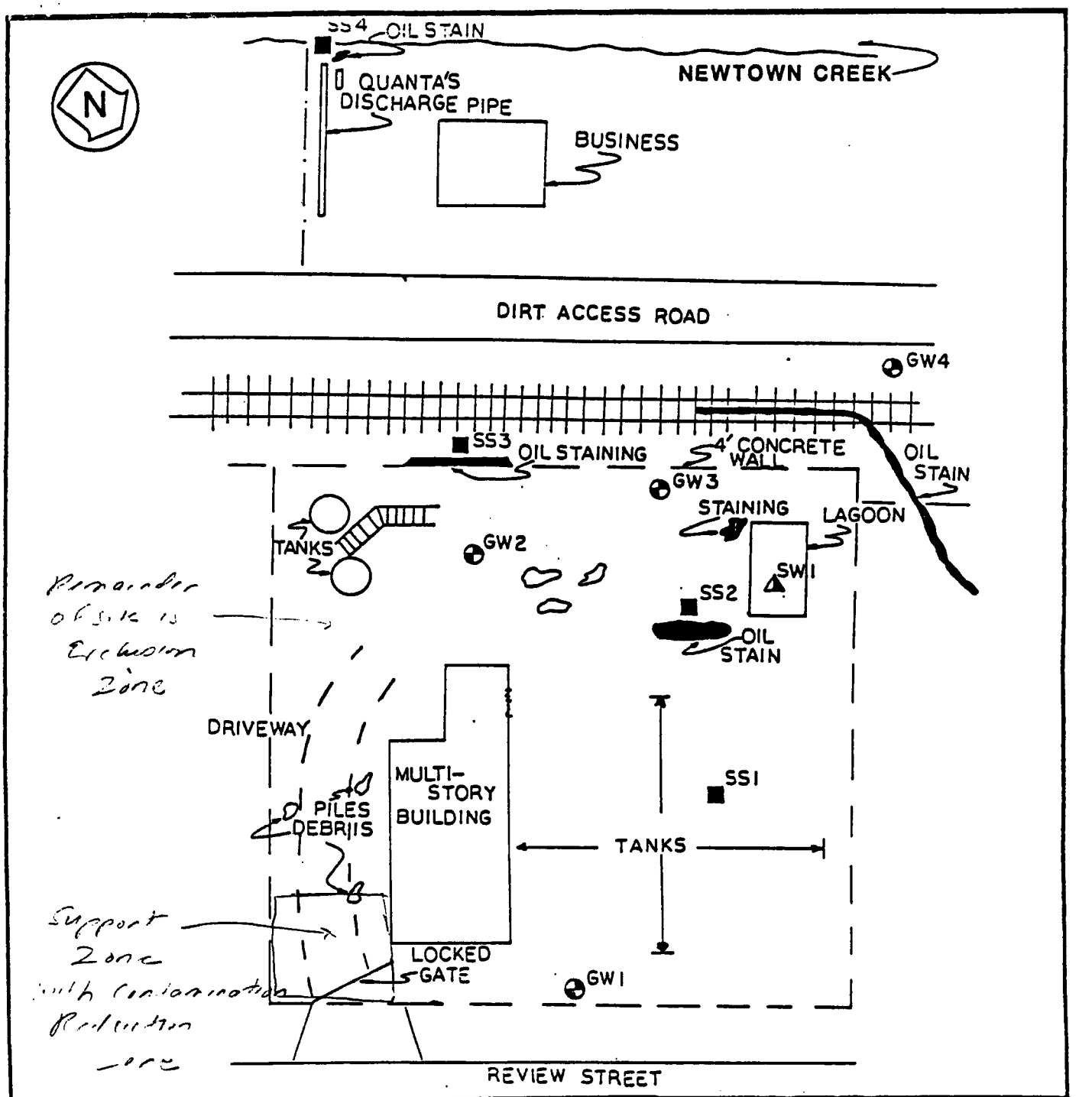
TASK	LEVEL	DESCRIPTION
Monitoring well drilling and installation	D-C	hard hat, safety glasses, safety shoes, coated tyvek (optional in case of splash), latex gloves, nitriles (in casse of splash)
Groundwater Sampling	D-C	same as above
Suface water/sediment sampling	D-C	same as above (with over-boots)
Soil sampling	D-C	same as drilling

Action Levels:

0.5-5 ppm above background on HNU go to Level C respiratory.

>5 ppm above background on HNU, backoff. May have to upgrade to Level B. Use tubes to determine cause of readings.

All readings in breathing zone.



LEGEND

- TEST BORING/MONITORING WELL LOCATION
- SURFACE WATER/SEDIMENT SAMPLE LOCATION
- SOIL SAMPLE LOCATION

NOTE: ORIGINAL SKETCH PROVIDED BY NYSDEC

Scale: NTS			QUANTA RESOURCES NYS SUPERFUND PHASE II SITE NO. 241005	PROPOSED SAMPLING LOCATION MAP
	By	Date		
Dwn.	SSN	10/86		
Ckd.				
Ap'vd.				
Rev.			Project No. 5C280502	A FIGURE 1

BRUNING 61160-1

APPENDIX D

GEOPHYSICS RESULTS

Includes

MAGNETOMETER SURVEY

QUANTA RESOURCES SITE

QUEENS COUNTY, NY

FOR

LAWLER, MATUSKY & SKELLY ENGINEERS

OCTOBER 1988

DELTA

GEOPHYSICAL SERVICES

October 10, 1988

DELTA
GEOPHYSICAL SERVICES
A GEONICS COMPANY

Mr. Edward Maikish
Lawler, Matusky & Skelly Engineers
One Blue Hill Plaza, Box 1509
Pearl River, New York 10965

REPORT: Magnetometer Survey
Quanta Resources Site #241005

Dear Mr. Maikish:

It is our pleasure to submit our final report for the magnetometer survey at the Quanta Resources Site.

INTRODUCTION

We completed a magnetometer survey at the Quanta Resources Site in Queens County, NY. The purpose of the investigation was to discover and locate any utility lines and/or buried ferrous material at the site.

The site is a defunct industrial plant. We surveyed two areas at the site. Area A is in the northwest corner of the site by the lagoon, and Area B is along the northeast side of the site by Review Avenue. Various sources of cultural interference are present at the site which affected the magnetometer data. These include fences, buildings, tanks, and metal debris at the surface.

REFERENCE GRID

We did not establish a reference grid at Area B of the Quanta Resources Site, but instead used the chain link fence as a reference. At Area A of the Quanta Resources Site, we established a field reference grid using a 300-foot measuring tape. This grid was used as a field reference for the geophysical survey, and to provide for quick and accurate location of specific ground-truthing (test pits, monitoring wells, etc.).

We established two baselines oriented approximately in an east-west direction. The 0' baseline follows along the short concrete wall. We marked each baseline at 20-foot intervals with flags, and labelled each flag with its X,Y coordinate. We conducted the magnetometer survey along survey lines perpendicular to the baselines (in an approximately north-south direction).

116 WEST MAIN ST., CLINTON, NEW JERSEY 08809, TELEPHONE 201•735•9390

We made sketch maps of both areas using our field notes taken during the magnetometer survey. Locations of various objects and buildings are shown on the maps. The outlines of buildings drawn as dashed lines indicate estimated distances. At Area A (Figure 1), the concrete observed to the north of the small building (near grid point 0',0') is a concrete slab. The miscellaneous metal debris consists of automobile gas tanks, wheels, etc.

METHODOLOGY

We used a EG&G Geometrics G-856 magnetometer to measure the total intensity of the earth's magnetic field (gammas). We collected magnetometer data at 10 foot intervals along survey lines spaced a 10 feet apart. A map plot and a list of the magnetometer data for both Areas A and B are given in the Appendices (Appendix A and Appendix B, respectively).

We recorded the magnetometer data in the instrument's internal memory, and noted pertinent field information (location of grid flags, fences, surface metal, etc.) in a field notebook.

MAGNETOMETER THEORY

The proton magnetometer utilizes the precession of spinning protons or nuclei of the hydrogen atom to measure the intensity of the earth's magnetic field. The spinning protons act as small magnetic dipoles. When an electrical current is generated by the coil the protons temporarily align themselves to the electric current. When the current is removed, the protons spin in the direction of the earth's magnetic field or are aligned to influences caused by external interferences (ferrous material, etc.). As the protons spin they generate a small electrical signal, which is measured and converted into gammas by the magnetometer.

Interpretation of magnetometer data involves recognizing and characterizing local disturbances in the earth's magnetic field arising from local changes in magnetization. Ferrous material causes such disturbances, with the anomaly usually composed of high and low magnetic values (dipole signature).

Manual and computer interpretation techniques allowed us to differentiate "noise" (observed surface metal, etc.) from unknown buried ferrous material. The dipole signatures not affected by the influence of known external interferences are indicated as anomalous zones.

INTERPRETATION

The interpretation of the magnetometer data is shown on the sketch maps (Figures 1 and 2) as anomalous zones. These anomalous zones indicate possible buried ferrous material (pipes, drums, cans, constructions debris, etc.). Due to the large amount of cultural interferences at the site, small amounts of buried ferrous material would probably not have been detected.

The staked boring/well locations shown on the map are locations of proposed borings/wells staked in the field. Based on the magnetometer data, we have revised the location of boring/well GW-3. This location is relatively clear of buried ferrous material.

CONCLUSIONS

The magnetometer survey located numerous areas with possible buried ferrous material. Numerous sources of cultural interference (fences, buildings, metal debris, etc.) are present at the site. Small amounts of buried ferrous material would probably not have been detected due to these interferences.

* * *

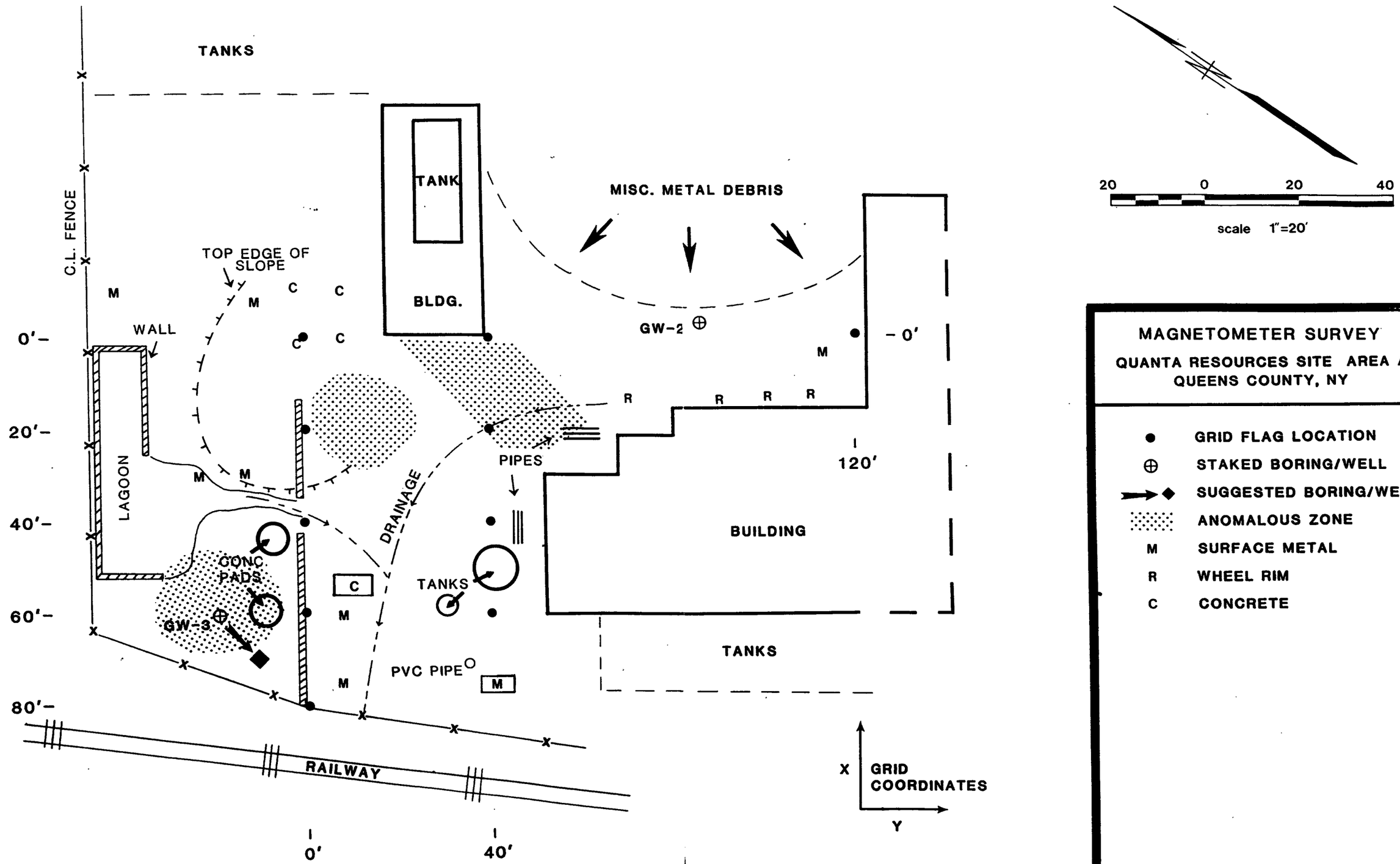
It was our pleasure to have worked with you on this project. If there should be any questions or need for clarification regarding this information, please do not hesitate to contact us.

Very truly yours:
Delta Geophysical Services

Philip H. Duoos
Geophysical Engineer

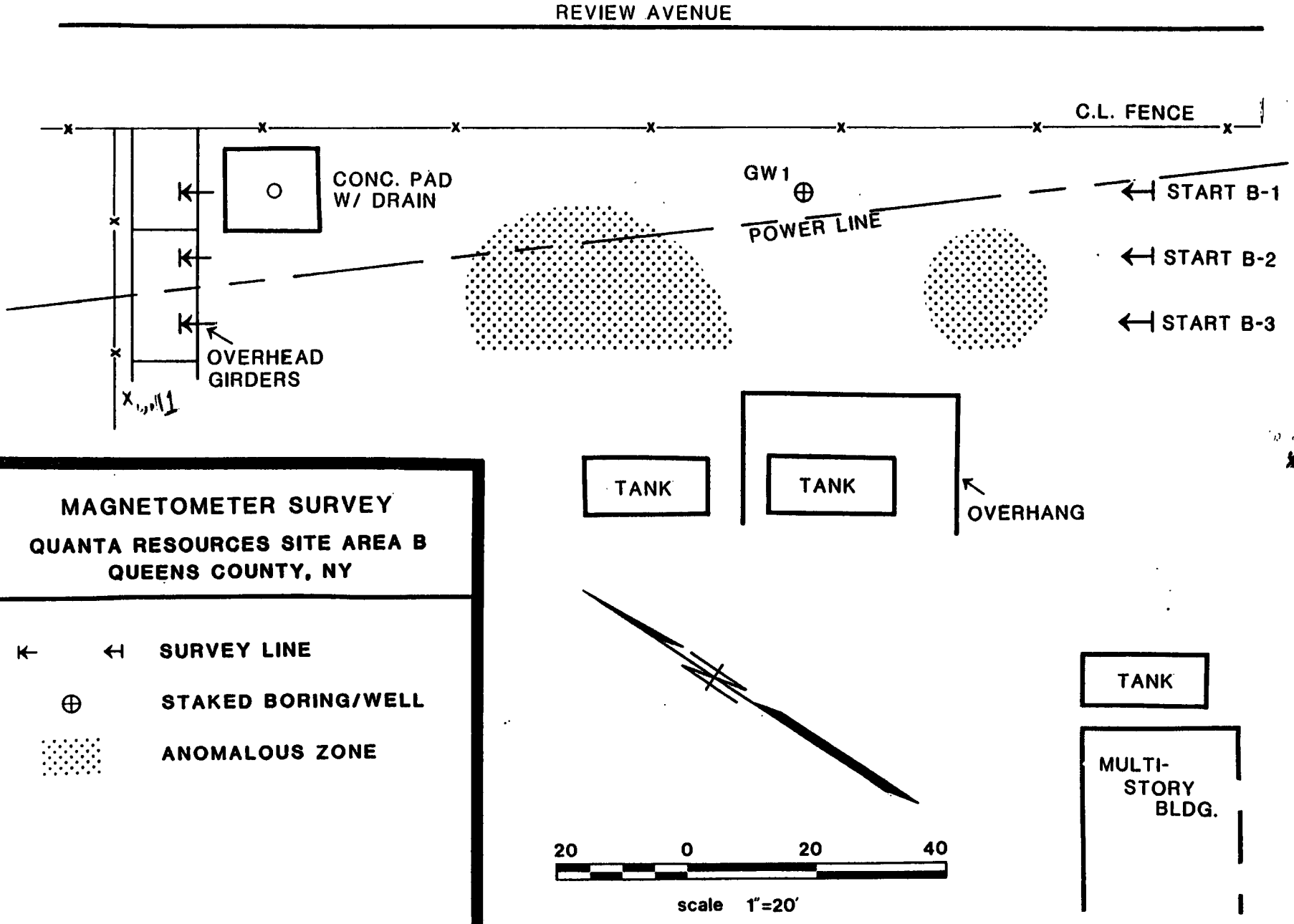
PHD:rs

cc: Mr. Dan Walsh (NYSDEC)



DELTA GEOPHYSICAL
OCTOBER 1988

FIG. 1



MAGNETOMETER SURVEY

QUANTA RESOURCES SITE AREA B
QUEENS COUNTY, NY

SURVEY LINE

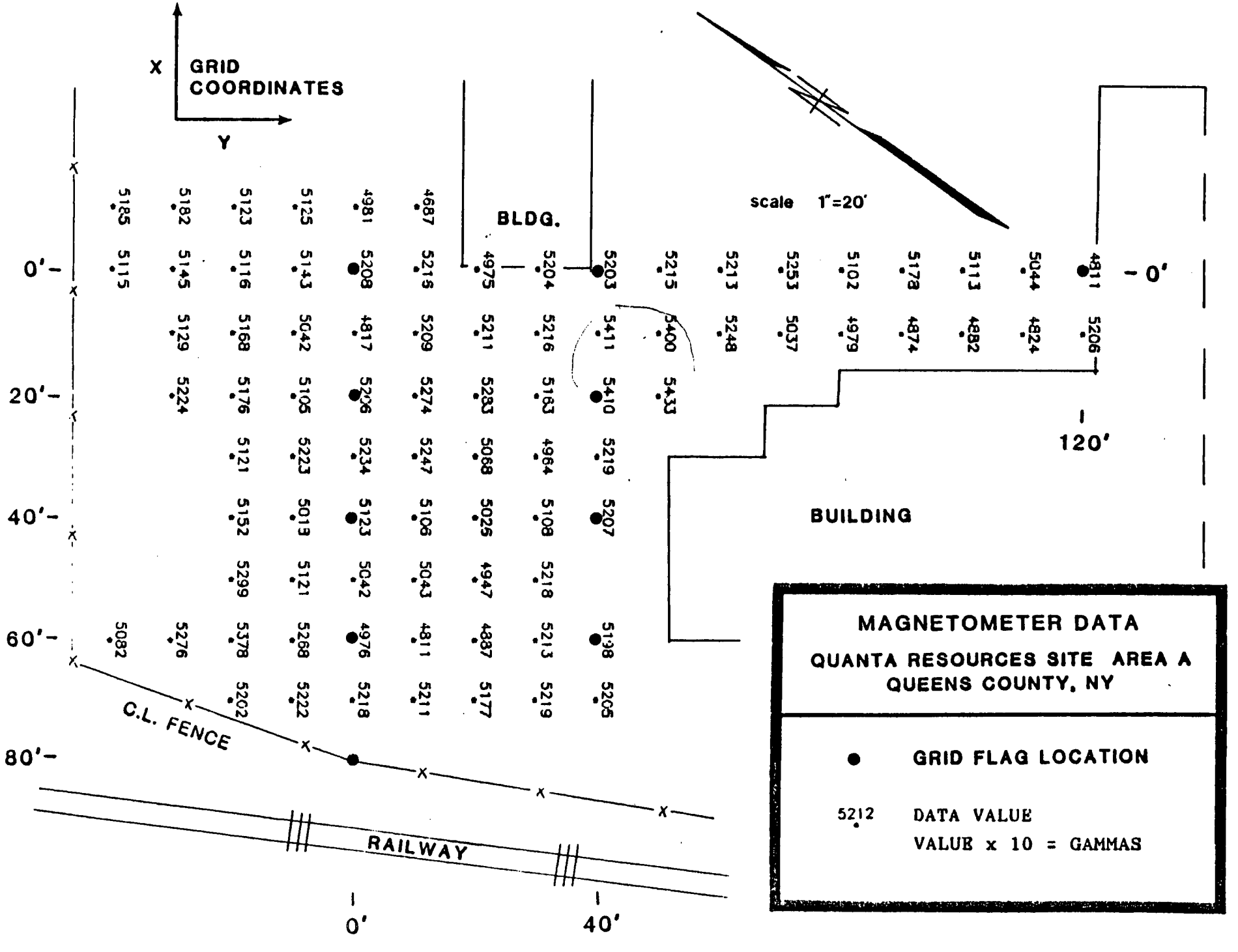
STAKED BORING/WELL

ANOMALOUS ZONE

DELTA GEOPHYSICAL
OCTOBER 1988

FIG. 2

APPENDIX A



MAGNETOMETER DATA

QUANTA RESOURCES SITE AREA A
QUEENS COUNTY, NY

● GRID FLAG LOCATION

5212 DATA VALUE
VALUE x 10 = GAMMAS

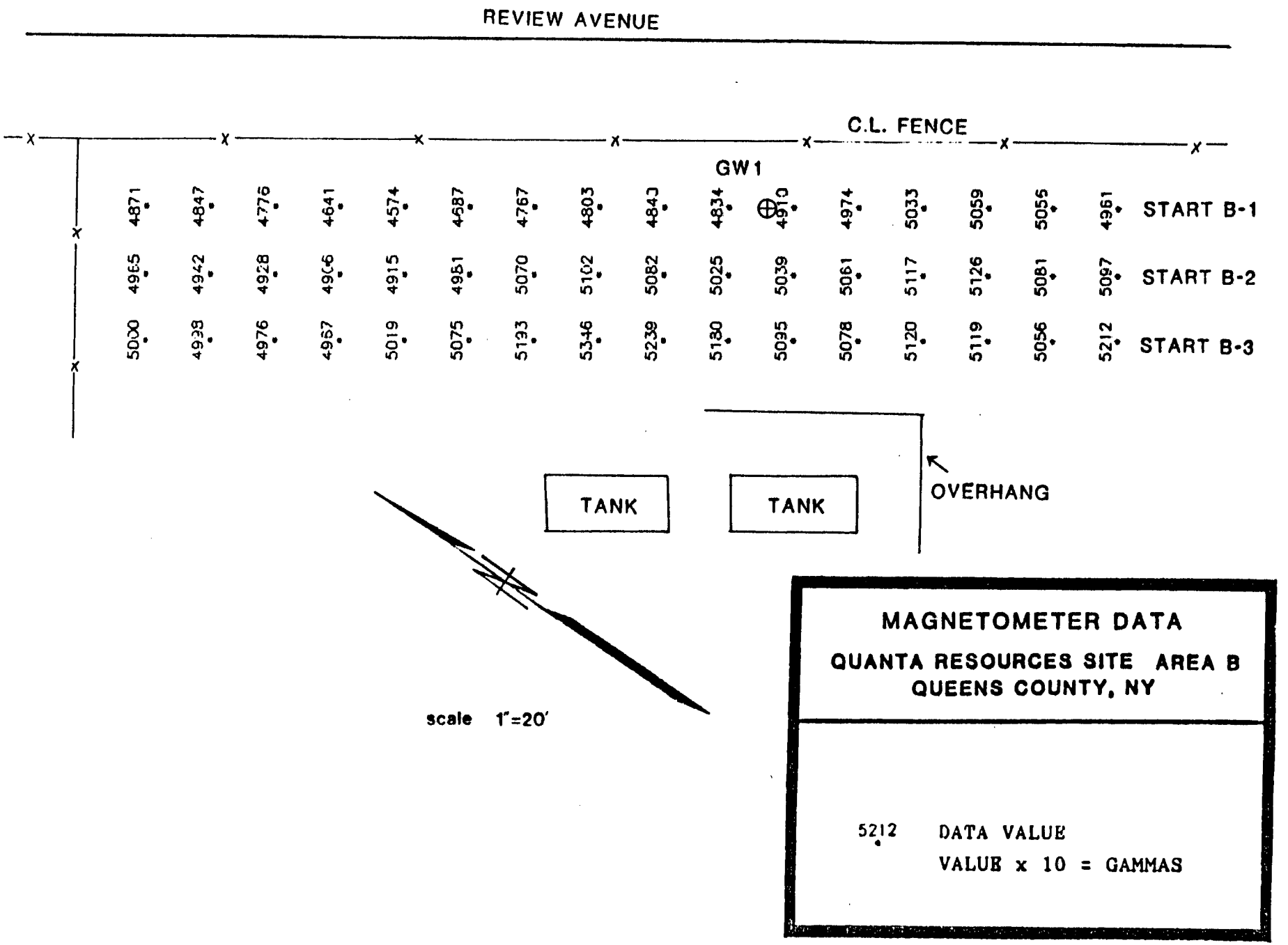
MAGNETOMETER DATA
QAUNTA RESOURCES SITE
AREA A

"X"	"Y"	"VALUE"
-10	-40	51846
-10	-30	51820.6
-10	-20	51225.4
-10	-10	51247.6
-10	0	49809.8
-10	10	46869.6
0	-40	51150.4
0	-30	51452.6
0	-20	51156.6
0	-10	51431.8
0	0	52078.8
0	10	52162.4
0	20	49746.4
0	30	52035
0	40	52031
0	50	52149.6
0	60	52131.6
0	70	52534.6
0	80	51024.8
0	90	51779
0	100	51132
0	110	50438
0	120	48109.8
10	-30	51294.6
10	-20	51676.4
10	-10	50416.6
10	0	48168
10	10	52085.2
10	20	52108.4
10	30	52159.4
10	40	54105.8
10	50	54002
10	60	52482.2
10	70	50367.2
10	80	49794.2
10	90	48743
10	100	48819.6
10	110	48237.2
10	120	52064.4
20	-30	52244.6
20	-20	51760.4
20	-10	51053.4
20	0	52062
20	10	52740.4
20	20	52825.2
20	30	51634
20	40	54104.4
20	50	54325.6
30	-20	51208.4
30	-10	52230.8
30	0	52338.6
30	10	52468.6
30	20	50677.4
30	30	49640
30	40	52187.4
40	-20	51519.2

"X"	"Y"	"VALUE"
40	-10	50184.6
40	0	51231
40	10	51064.6
40	20	50260.2
40	30	51078.6
40	40	52068.6
50	-20	52989.4
50	-10	51213.2
50	0	50422.4
50	10	50426.6
50	20	49468.2
50	30	52183
60	-40	50822.4
60	-30	52764.2
60	-20	53779.4
60	-10	52676.6
60	0	49756
60	10	48111
60	20	48867.8
60	30	52128.8
60	40	51975.4
70	-20	52023.6
70	-10	52217.4
70	0	52177
70	10	52107.6
70	20	51769.6
70	30	52187.2
70	40	52045.6

MAGNETOMETER DATA
QAUNTA RESOURCES SITE
AREA B

LINE	FEET FROM START OF LINE	VALUE	
B-3	0	5211.84	START B-3
B-3	10	5055.88	
B-3	20	5119.44	
B-3	30	5119.94	
B-3	40	5077.82	
B-3	50	5095.26	
B-3	60	5179.68	
B-3	70	5239	
B-3	80	5345.94	
B-3	90	5193.1	
B-3	100	5074.8	
B-3	110	5018.74	
B-3	120	4967.26	
B-3	130	4976.1	
B-3	140	4998.38	
B-3	150	4999.8	
B-2	0	5097.38	START B-2
B-2	10	5080.68	
B-2	20	5125.66	
B-2	30	5117.36	
B-2	40	5060.58	
B-2	50	5038.66	
B-2	60	5025.1	
B-2	70	5081.74	
B-2	80	5101.94	
B-2	90	5069.86	
B-2	100	4980.52	
B-2	110	4914.56	
B-2	120	4906.22	
B-2	130	4928.48	
B-2	140	4941.68	
B-2	150	4965.24	
B-1	0	4960.58	START B-1
B-1	10	5055.84	
B-1	20	5058.52	
B-1	30	5033.22	
B-1	40	4973.92	
B-1	50	4909.52	
B-1	60	4834.08	
B-1	70	4839.52	
B-1	80	4802.54	
B-1	90	4766.52	
B-1	100	4687.46	
B-1	110	4573.62	
B-1	120	4640.5	
B-1	130	4776.06	
B-1	140	4846.7	
B-1	150	4870.62	


REVIEW AVENUE
C.L. FENCE
GW1
4871 4847 4776 4641 4574 4687 4767 4803 4843 4834 4910 4974 5033 5059 5056 4961 START B-1
4965 4942 4928 4906 4915 4951 5070 5102 5082 5025 5039 5061 5117 5126 5081 5097 START B-2
5000 4938 4976 4957 5019 5075 5193 5346 5239 5180 5095 5078 5120 5119 5056 5212 START B-3
TANK
TANK
OVERHANG
scale 1"=20'
MAGNETOMETER DATA
QUANTA RESOURCES SITE AREA B
QUEENS COUNTY, NY
5212 DATA VALUE
VALUE x 10 = GAMMAS

APPENDIX E

BORING LOGS

Data by S. Miller / A. Magliochino / E. Hastings

SUBSURFACE EXPLORATION - TEST BORING LOG

Boring No. GW1
Project No. 576-002

Project Name Quanta Resources
Client NYSDEC
Driller Soil Testing
Monitoring Instrument(s) HNU (instrument readings above background)

SAMPLE HAMMER
Weight 140 lb
Fall 30 in.

Date 11-16-88 (start) 11-16-88 (finish)
Boring Location inside Review Ave. Fence
Total Depth 39' below grade
Depth to Water 22.61' below grade 2/22/90
Hole Diameter approx 8" boring
Ground Surface Elevation 40.59'
(relative to west side of Review Ave, assumed 40.00 ft elevation)
Beaver B-57 mobile drilling
Hollow Stem Augers 4 in ID

(2.60' floating oil inferred from nearby piezometers 2/22/90)

Depth	Blows on Sampler 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading above background	Moisture Content	Stratigraphic Column	Classification of Material (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
0'											0.1' ASPHALT	
	8							↑	Dry		Brown coarse medium (+) SAND, little - Silt, little - fine Gravel; .5' thick	
1'		12						cuttings			Black medium fine SAND, trace Silt, little + medium fine Gravel; .5' thick	cinder ash
			16					17 to 20		Fill	Black Silt and medium fine Sand, little - medium fine Gravel; .2' thick	
2'				10	✓	1.2		↓				
3'												
4'												
	3							only in upper 3"	Dry		Black medium fine SAND, little Silt, little fine Gravel; 0.5' thick	bits of brick black cinder ash
5'		2								Fill	Dark gray coarse medium (+) fine SAND, some - Silt, little + fine Gravel; 1' thick (includes 1cm wet sand lense near base)	
			3						Moist			
6'				4	✓	1.2		8 to 10				(?) possible cobbles, boulders, bricks
7'												
8'												
9'												
	1											
10'		3								Fill		
			6						Moist		Dark gray fine Sand, some - Silt, trace medium fine Gravel	reduced recovery due to course grained sized redbrick
11'				10	✓	0.7						
12'												
13'												

Boring No. GW1
Project No. 576-002

Depth	BLOWS ON SAMPLER 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading	Moisture Content	Stratigraphic Column	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
14'											Black woody fragments; 0.3' thick	
	6											
15'		6							Moist	Fill	Brown coarse medium(+) fine SAND, trace Silt, little medium fine Gravel; 0.9' thick	
			6									
16'				6	✓	1.2						red bricks (cobbles)
	9											
17'		12									Brown medium(+) fine SAND, trace-Silt, little-medium fine Gravel	
			9						Moist	Fill		
18'				10	✓	0.5						
19'												
	5											
20'		7									(Speckled) Gray coarse medium(+) SAND	foul odor
			5						moist			
21'				5	✓	1.0		14+19			STOPPED DRILLING @ 1350h - discuss test boring in contamination w/DEC resume @ 1500h	
22'												
23'												
24'									Wet		Gray Coarse medium fine SAND, trace Silt, trace fine Gravel	wetness in spoon obvious product
	4											
25'		3										
			5									
26'				4	✓2	1.2		6+9				
	4										Gray coarse medium(+) fine SAND, trace Silt, trace + fine Gravel	
27'		4							Wet			
			4									
28'				5	✓	2.0		6+9				
	4											
29'		4							Wet		Gray Coarse(+) medium SAND, some-fine Gravel; 1.1' thick	
			15									
30'				24	✓	1.8		4+5			Dark gray coarse medium(+) fine SAND, some medium fine(+) Gravel; .7' thick	sampled 29'-29.8'
	3											
31'		3									Ditto, above for 1.3' thick -	
			3									
32'				4	✓	2.0		<1			Dark gray coarse medium fine(+) SAND, little - Silt, trace Gravel	sampled 31.5'-32'
33'	CONTINUED											

Boring No. GW1
Project No. 576.002

Depth	BLOWS ON SAMPLER 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading	Moisture Content	Stratigraphic Column	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
32'											Dark gray coarse medium(+) fine SAND, trace-Silt, little-medium(+) fine Gravel	
	6											
33'		8										
			12						Wet			
34'				11	✓	1.6		14+16				
	9											
35'		6									Gray coarse(+) medium fine SAND, trace fine Gravel	
			10									
36'				10	✓	1.2		9+10	Wet			
	8										Ditto above for 1.4' thick	
37'		9										Sampled 37.4'-38'
			10						Wet		Dark gray medium fine(+) SAND, little-Silt; 0.6'	
38'				12	✓	2.0		44+29				
39'		AUGER		DOWN								

Data by S. Miller / A. Magliocchino

Sheet 1 of 2

SUBSURFACE EXPLORATION - TEST BORING LOG

Boring No. GW2
Project No. 576-002

Project Name Quanta Resources

Date 11-17-88 (start) 11-17-88 (finish)

Client NYSDEC

Boring Location rear of site - west + south

Driller Soil Testing

Total Depth 29 ft below grade

Monitoring Instrument(s) HNU (instrument readings above background)

Depth to Water 21.39' below grade 2-22-90

SAMPLE HAMMER

Hole Diameter approx. 8" boring

Weight 140 lb

Ground Surface Elevation 32.36'
(relative to west side of Review Ave, assumed 40.00 ft elevation)
Beaver B 57 Mobil drill rig
Hollow Stem Auger 4 in ID

Fall 30 in.

(7.20' floating oil measured 2-21-90)

Depth	BLOWS ON SAMPLER 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading above background	Moisture Content	Stratigraphic Column	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
0'												2" moist
	2								Dry		Black brown Silt some +, fine SAND, little + fine Gravel	Very Cohesive!
1'		24								Fill		
			36									
2'				40	✓	2.0		up to 40			fragments of plastic sheeting, coal, and brick	Water rises within 3' big between 0-2' + 4-6' spoon
3'												
4'												
	5										Ditto, above for .5', plus 2" tred brick	Wood fragments
5'		2										
			2						Wet		Black coarse medium(+) fine SAND, little - Silt, trace fine Gravel	
6'				4	✓	1.3				brick frags		
7'												
8'												
9'												
	6											
10'		7							Wet/moist		Speckled Gray Coarse(+) medium fine SAND, little - medium fine Gravel	
			6									
11'				6	✓	1.4		up to 6				
12'												
13'												

LAWLER, MATUSKY & SKELLY ENGINEERS

Sheet 2 of 2

Boring No. GW2
Project No. 576-002

Depth	BLOWS ON SAMPLER 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading	Moisture Content	Stratigraphic Column	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
14'												
	4										Brown Gray Coarse medium(+) fine SAND, little fine Gravel; 1.0' thick.	
15'		7										
			8									
16'				9	✓	1.5		1-14	Wet		Black medium fine SAND, some - medium fine Gravel; 0.5' thick	
	8											
17'		9									Black brown coarse medium(+) fine SAND, trace - Silt, little - medium fine(+) Gravel	Product in spoon
			10									
18'				11	✓	1.4		1-11	Wet			
	5											
19'		7									identical sample as above - but color change from Black to gray @ 19 ft	Product in spoon
			7									
20'				8	✓	1.8		0-10	Wet			
	11											
21'		11									Black gray Coarse medium(+) fine SAND, some medium fine(+) Gravel; 0.5' thick	
			17									
22'				15	✓	1.4		0-5	Wet		Black gray medium fine(+) SAND, little - Silt, little medium Gravel; 0.5' thick	Product in spoon
	8											
23'		12									Black gray coarse medium fine SAND, trace Silt, little - medium fine Gravel	
			17									
24'				18	✓	2.0		2-9	Wet			
	10											Color is more gray water > prod.
25'		12									Gray Coarse to fine SAND	
			15						Wet			
26'				24	✓	2.0		1-10				
	13											
27'		17									Gray Coarse(+) to fine SAND, trace Silt	Dark bands yield highest HNU readings near bottom of split spoon
			17									
28'				19	✓	1.4		1-21	Wet			
29'	Augered Down										Boring abandoned after loss of weighted tape during installation of well - auger 5 ft offset without sampling	
30'												

LAWLER, MATUSKY & SKELLY ENGINEERS

Data by K. McGuinness / S. Miller

SUBSURFACE EXPLORATION - TEST BORING LOG

Boring No. GW3
Project No. 576-002

Project Name Quanta Resources
Client NYSDEC
Driller Soil Testing
Monitoring Instrument(s) HNU (instrument readings above background)

SAMPLE HAMMER

Weight 140 lb

Fall 30 in.

Date 11-21-88 (start) 11-21-88 (finish)
Boring Location rear of site - west + north
Total Depth 28 ft below grade
Depth to Water 19.82' below grade 2-22-90
Hole Diameter approx 8" boring
Ground Surface Elevation 38.36'
(relative to west side of Review Ave, assumed 40.00 ft elevation)
Beaver B-57 Mobil drill Rig
Hollow Stem Auger 4.1 ID

(7.36' floating oil measured 2-21-90)

Depth	BLOWS ON SAMPLER 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading (above background)	Moisture Content	Stratigraphic Column	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
0'											Original boring moved to 5' offset of buried tank @ 1.5' b.g. - sample taken from Auger Cut tings	
	REFUSAL								Moist	Fill		Black ash Cohesive
1'												
2'					✓	see note						
3'												
4'											Black Clayey Silt Some fine Gravel ; .4' thick	Very Cohesive
	25									Fill		
5'		26							moist/wet		Gray Coarse medium fine(+) SAND, trace Silt, little medium fine Gravel ; .35' thick	Less Cohesive (loose)
			32									
6'				34	✓	0.75		2.5				
7'												
8'												
										Fill		
9'												
	11										Brown Gray Coarse(+) medium SAND, Some fine Gravel ; 0.7' thick	a red brick in end of spoon
10'		14										
			17						Dry		Black coarse to fine SAND, trace + Silt, trace Gravel ; 0.5' thick	
11'				18	✓	1.20		.5+1.5				
12'												
13'												

Boring No. GW3
Project No. 526 002

Depth	BLOWS ON SAMPLER 0" to 6"	6" to 12"	12" to 18"	18" to 24"	Retained Sample	Recovery (feet)	Sample No.	Instrument Reading	Moisture Content	Stratigraphic Column	CLASSIFICATION OF MATERIAL (f - fine, m - medium, c - coarse; and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%)	Remarks
14'												Odor
	9											product
15'		9									Black gray medium fine SAND, little	in
			10						Wet		Silt, trace + Gravel	spoon
16'				10	✓	1.1		8-130				
17'												
18'												
19'											Gray medium fine Gravel some, coarse to	Spoon
	7										fine Sand; 0.9' thick	rocks
20'		11										product
			18						Wet		Brown Gray coarse medium(+) fine SAND,	on
21'				34	✓	2.0		5to26			trace - S. Lt, trace fine Gravel	spoon
	11										; 1.1' thick	ix thin
22'		18									Gray fine Gravel and, coarse(+) medium Sand, 1' thick	also
			28									
23'				35	✓	2.0		5to16	Wet		Black gray coarse to fine SAND, trace fine Gravel	sampled 22to23
	6										Black gray fine Gravel and(+), coarse(+)	
24'		17									medium fine Sand; 0.8' thick	spoon
			35									wet on
25'				42	✓	2.0		14-52	Wet		Black gray medium fine SAND, little +	outside
	11										medium fine Gravel 1.2' thick	
26'		22									Black gray fine Gravel and(+), coarse(+)	Sequence
			46								to fine Sand, 1' thick	similar
27'				42							Black gray medium fine SAND, trace	to
28'	AUGERED DOWN										coarse to fine Gravel	23+25'

LAWLER, MATUSKY & SKELLY ENGINEERS

APPENDIX F

MONITORING WELL COMPLETION LOGS

Well No. GW 1
Project No. 576 002

Project Name Quanta Resources

Client NYSDEC

MONITORING WELL COMPLETION LOG

Location Long Island City, NYC

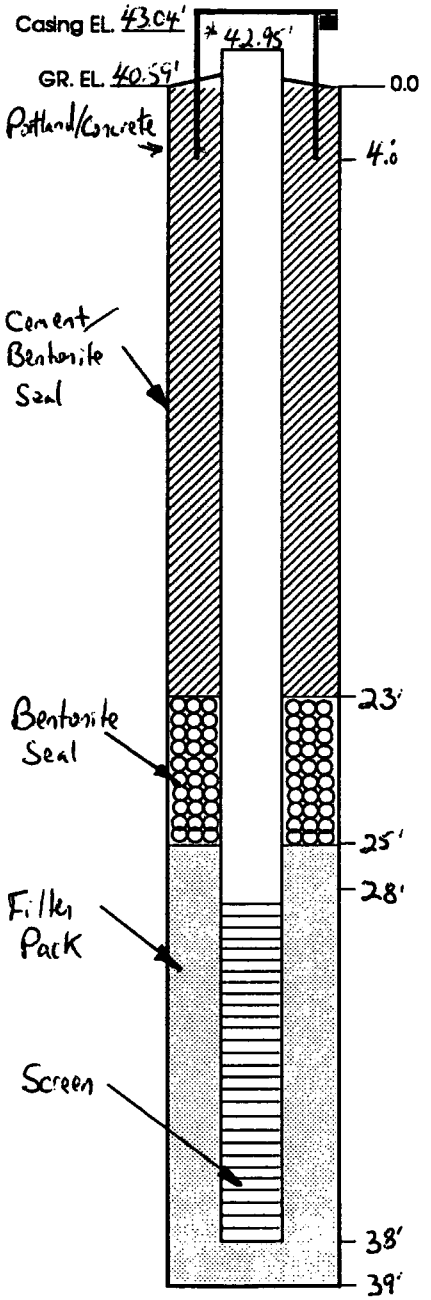
Date Drilled 11-16-88

Date Developed/Purged 12-6-88

Developing Method Purge/develop Bailing

Well Construction Completed 11-17-88

WELL CONSTRUCTION DETAIL



NOT TO SCALE

Inspector Steve Miller, A Magliocchino
Drilling Contractor Soil Testing

Type of Well Monitoring Well - Overburden
Static Water Level 22.61' below grade Date 2-22-90
Measuring Point (M.P.) grade @ 40.59' elevation
Total Depth of Well 37.98' below ground surface
Total Depth of boring 39' below grade

Drilling Method
Type Hollow Stem Auger Diameter 4 in. I.D.
Casing H.S.A.

Sampling Method
Type Split Spoon Diameter 1 3/8" ID.
Weight 140 # Fall 30 in
Interval 5 ft and continuous

Riser Pipe Left in Place
Material Sch 40 PVC Diameter 2" ID
Length 30.34 ft Joint Type threaded/flush

Screen
Material Sch 40 PVC Diameter 2" I.D.
Slot Size 0.010" Length 10 ft
Stratigraphic Unit Screened gravelly sands

Filter Pack
Sand ✓ Gravel _____ Natural _____
Grade #2
Amount _____ Interval 39' to 25' below grade

Seal(s)
Type Bentonite Interval 25' to 23' below grade
Type Cement/bentonite Grout Interval 23' to 4' below grade
Type Port. Concrete Interval 4' to grade

Locking Casing ☑ Yes ☐ No
Notes: *protective casing and risy cut down 2-22-90 PVC @ 1.57' above grade.
Thin veneer of golden brown oily product floating above water table w/ thin casing.
(approximately 2.60' of floating oil interred from nearby piezometer 2-22-90)

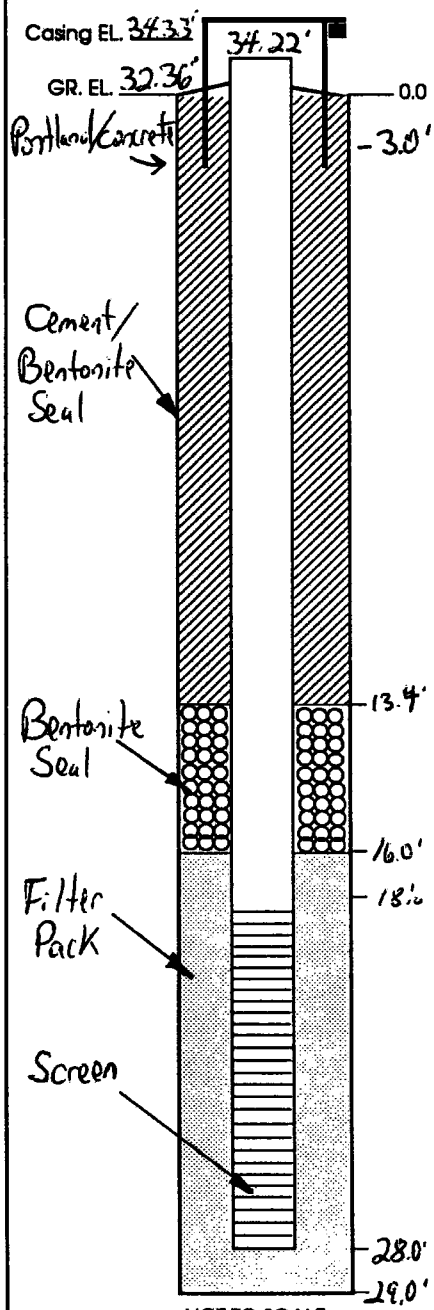
LAWLER, MATUSKY SKELLY ENGINEERS

Well No. GW2
Project No. 576-002

MONITORING WELL COMPLETION LOG

Project Name Quanta Resources
Client NYSDEC
Location Long Island City, NYC
Date Drilled 11-17-88
Date Developed/Purged 12-6-88
Developing Method Purge/develop bailing
Well Construction Completed 11-18-88

WELL CONSTRUCTION DETAIL



NOT TO SCALE

Inspector Steven Miller, Anthony Magliocchino
Drilling Contractor Soil Testing

Type of Well Monitoring Well - Overburden
Static Water Level 21.39' below grade Date 2-22-90
Measuring Point (M.P.) PVC @ 1.86 ft above grade
Total Depth of Well 30.20 ft below MP
Total Depth of boring 29 ft below grade

Drilling Method
Type Hollow Stem Auger Diameter 4 in. ID
Casing H.S.A.

Sampling Method
Type Split Spoon Diameter 1 3/8" I.D.
Weight 140 # Fall 30 in.
Interval 5 ft and continuous

Riser Pipe Left in Place
Material Sch 40 PVC Diameter 2" ID
Length Joint Type Threaded/Flush

Screen
Material Sch 40 PVC Diameter 2" ID
Slot Size 0.010" Length 10 ft
Stratigraphic Unit Screened Gravelly Sands

Filter Pack
Sand ✓ Gravel Natural
Grade #2
Amount Interval 29' to 16' below grade

Seal(s)
Type Bentonite Interval 16' to 13.4' below grade
Type Cement/bentonite Grout Interval 13.7 ft to 3' below grade
Type Port. concrete Interval 3 ft to grade

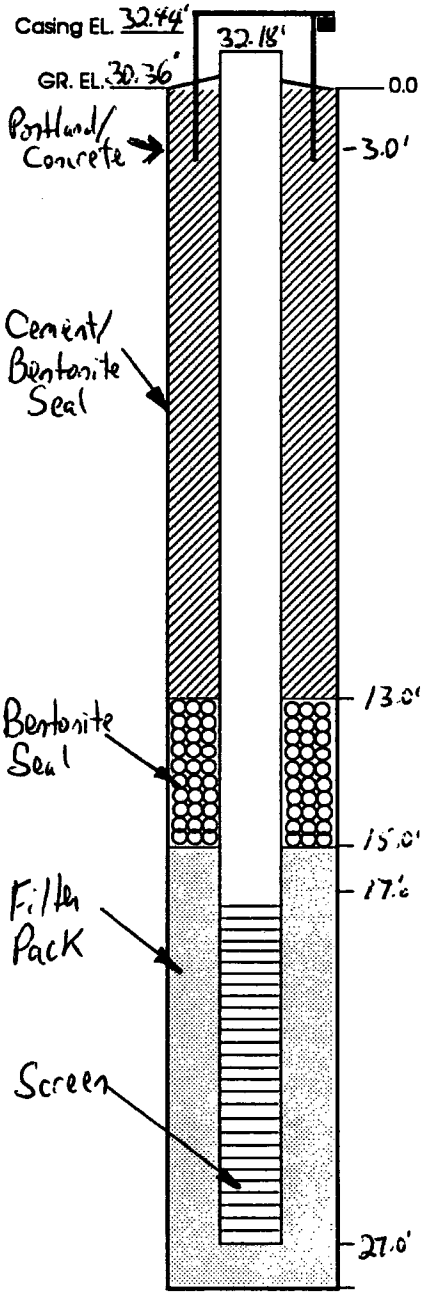
Locking Casing ☑ Yes ☐ No
Notes:
7.20' floating oil measured 2-21-90

LAWLER, MATUSKY SKELLY ENGINEERS

Well No. GW3
Project No. 576-002
Project Name Quanta Resources
Client NYSDEC
Location Long Island City, NYC
Date Drilled 11-21-88
Date Developed Purged 12-6-88
Developing Method Purge/pump bailing
Well Construction Completed 11-22-88

MONITORING WELL COMPLETION LOG

WELL CONSTRUCTION DETAIL



NOT TO SCALE

Inspector S. Miller, K. McGuinness
Drilling Contractor Soil Testing

Type of Well Monitoring Well - overburden
Static Water Level 14.82' below grade Date 2-22-90
Measuring Point (M.P.) PVC @ 1.82 ft above grade
Total Depth of Well 28.81 ft below MP
Total Depth of boring 28 ft below grade

Drilling Method
Type Hollow Stem Auger Diameter 4 in ID
Casing H.S.A.

Sampling Method
Type Split spoon Diameter 1 3/8" ID
Weight 140 # Fall 30 in.
Interval 5 ft and continuous

Riser Pipe Left in Place
Material Sch 40 PVC Diameter 2" ID
Length Joint Type Threaded / flush

Screen
Material Sch 40 PVC Diameter 2" ID
Slot Size 0.010 inch Length 10 ft
Stratigraphic Unit Screened Gravelly Sand

Filter Pack
Sand ✓ Gravel ____ Natural ____
Grade #2
Amount ____ Interval 28' to 15' below grade

Seal(s)
Type Bentonite Interval 15' to 13' below grade
Type Cement/bentonite Grout Interval 13' to 3' below grade
Type Port Concrete Interval 3' to grade

Locking Casing ☒ Yes ☐ No
Notes: 7.36' floating oil measured 2-21-90

LAWLER, MATUSKY SKELLY ENGINEERS

APPENDIX G

SAMPLING LOGS

Date: 12·6·88
Crew: SM/KPM
Job No: 576-002
Project: Quanta/DEC

pH Meter: 4776
Turb Met.: 23324
Cond. Meter: 560
HNU #: 801446

WELL SAMPLING LOG

WELL No: GW1
LOCATION: Northeast, upgradient
WELL TYPE: Overburden
WELL DIAMETER: 2" ID
WELL DEPTH: 40.34 ft
SCREENED INTERVAL: 30.3 to 40.3 ft
CASING HT: PVC 2.36 ft above grade
DEPTH TO WATER: (Static Water Level) 25.61 ft
REFERENCE POINT: Top of PVC
DATE/TIME PURGED: 12-6-88, 0924 hr
PURGING METHOD: PVC Bailer
PURGING DEPTH(s): Top to Bottom
PURGE RATES (gpm): approx 2± gpm
PURGED VOLUME: 45 gals
DTW AFTER PURGING: no difference
EST. YIELD RATE: 2 gpm +
SEAL No:
CHAIN OF CUSTODY No:

TYPE OF SCREENING CASING: PVC Sch 40
WATER BEARING FORMATION(s): SAND and Gravels
SAMPLE DATE/TIME: 12-6-88 @ 1130-1200 h
SAMPLING METHOD: Clear Bailer
DTW BEFORE SAMPLING: same as earlier
WELL CONDITIONS: good
SAMPLING DEPTHS: Top to midwater col
SAMPLING OBSERVATIONS: Tiny oil droplets - water fairly clear moderate oil type odor

WET CHEMISTRIES

SAMPLE TEMP: 13.5°C
SAMPLE pH:
SAMPLE SP. COND:
~~SAMPLE SULFITE:~~
~~SAMPLE REDOX: Rel. mV: ___ mV~~
~~SAMPLE D.O.:~~

PURGE CHEMISTRIES

TIME/VOL	TEMP (°C)	pH	SP. COND.	NTU
17 gal	13.5	↑	665	72
30 gal	13.5	↓	883	70
40 gal	12.5	6.27	805	64

SAMPLE ANALYSES (List Sample Jar Parameters) INV. No.

← Sample chem
3-1l amber ABNs, Pest + PCBs
1-1l clear oil + grease
2-40ml VOA VOCs + SL+10
2-.5l plast. Metals + Cyanide

COMMENTS: 14.73' Column of H_2O @ 3 (Sin) Casing Volumes ± 35 gals. Thin veneer golden Brown floating HC - Cutting oil type odor

Crew Chief Signature: Steve J. Mille
Date: 12-6-88

Date: 12·6·88
Crew: SM/KPM
Job No: 576·002
Project: Quanta, DEC

pH Meter: 4776
Turb Met: L3324
Cond. Meter: <560
HNU #: 801446
:

WELL SAMPLING LOG

WELL No: GW2
LOCATION: Southwest-downgradient
WELL TYPE: Overburden
WELL DIAMETER: 2" ID.
WELL DEPTH: 30.20 ft
SCREENED INTERVAL: 19.86' to 29.86'
CASING HT: PVC 1.86 ft above grade
DEPTH TO WATER: (Static Water Level) 24.90 ft
REFERENCE POINT: Top of PVC
DATE/TIME PURGED: 2/6/88, 1449 hr
PURGING METHOD: Bailer
PURGING DEPTH(s): Top to Bottom
PURGE RATES (gpm): >2 gpm
PURGED VOLUME: 27 gals, det. as in GW1
DTW AFTER PURGING: 19.08 ft
EST. YIELD RATE: > purge rate
SEAL No:
CHAIN OF CUSTODY No:

TYPE OF SCREENING CASING: pvc sch 40
WATER BEARING FORMATION(s): SAND and gravels
SAMPLE DATE/TIME: 12·6·88 @ 1454 hr
SAMPLING METHOD: Clear Bailer
DTW BEFORE SAMPLING: 19.08 ft
WELL CONDITIONS: good structurally
SAMPLING DEPTHS: @ and below interface
SAMPLING OBSERVATIONS: oily product
rel. low HNU readings
Breathing zone range (.4 to .6 ppm)

WET CHEMISTRIES

SAMPLE TEMP: Oily product
SAMPLE pH:
SAMPLE SP. COND: interf.
~~SAMPLE SULFITE~~:
~~SAMPLE REDOX: Rel. mV: ___ mV~~
~~SAMPLE D.O.~~: _____

PURGE CHEMISTRIES

~~TIME~~/VOL	TEMP (°C)	pH	SP. COND.	NTU
20 gal				>1000
25 gal				~80

SAMPLE ANALYSES (List Sample Jar Parameters) INV. No.

sample turb same
~~1-1l~~ oil and grease cont
3-1l amber ABNs HSL +20, Pest, PCBs
1-1l widemouth for prod: EPTox - metals only, PCBs, ignitability
2-VOAs HSL+10 VOCs
2-.5l plast. metals HSL; Cyanide

COMMENTS: HNU readings after opening well cover 12-14 ppm } subseq. rise in SWL
init.: 8.41' layer product
5.3' col. of water
no chems other than Sp. Cond + Turb taken

Crew Chief Signature: [signature]

Date: 12-6-88

Lawler, Matusky & Skelly Engineers

Date: 12-6-88
Crew: SM / KPM
Job No: 576-002
Project: Quanta DEC

pH Meter: 4776
Turb Met.: L3324
Cond. Meter: 560
HNU #: 801446

WELL SAMPLING LOG

WELL No: GW3
LOCATION: Southeast downgradient
WELL TYPE: Overburden
WELL DIAMETER: 2" ID
WELL DEPTH: 28.81 ft
SCREENED INTERVAL: 18.82' to 28.82'
CASING HT: PVC 1.82 ft above grade
DEPTH TO WATER: (Static Water Level) 22.56'
REFERENCE POINT: Top of PVC
DATE/TIME PURGED: 12-6-88 @ 1540 hr
PURGING METHOD: PVC Bailer
PURGING DEPTH(s): Top to Bottom
PURGE RATES (gpm): >2 gpm ±
PURGED VOLUME: 25 gals, det. as in GW1
DTW AFTER PURGING: 18.47 ft
EST. YIELD RATE: > purge rate
SEAL No:
CHAIN OF CUSTODY No:

TYPE OF SCREENING CASING: PVC sch 40
WATER BEARING FORMATION(s): sands + gravels
SAMPLE DATE/TIME: 12-6-88 @ 1623-1920 hr
SAMPLING METHOD: Clear Bailer
DTW BEFORE SAMPLING: 18.47'
WELL CONDITIONS: good structurally
SAMPLING DEPTHS: @ and below interface
SAMPLING OBSERVATIONS:
Similar oil product charact. as GW2
Less oil seemed to enter well as at GW2

WET CHEMISTRIES

SAMPLE TEMP: Oily prod.
SAMPLE pH: interf.
SAMPLE SP. COND:
~~SAMPLE SULFITE:~~
~~SAMPLE REDOX: Rel. mV: ___ mV~~
~~SAMPLE D.O.:~~ _____

Sample turbidity ~73 NTUs

PURGE CHEMISTRIES

TIME/VOL	TEMP (°C)	pH	SP. COND.	NTU
— Similar to GW2 —				

SAMPLE ANALYSES (List Sample Jar Parameters) INV. No.

Sample turb ~75 NTUs
3-1 l amber BNs, Pest + PCBs
1-1 l wide mouth for prod: EP Tox-Met only, PCB's, ignitabil
2-40 ml VOA VOCs HSL + 10
2-.5 l plast. Metals HSL, Cyanide
Matrix spike + Duplicate
1-1 l oil + grease cont. ref.

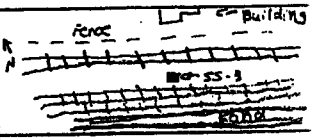
COMMENTS: oil column 8.45 ft thick
init. Top of H2O @ 22.56 ft
" Top of Oil @ 14.11 ft
Turb at sampling ~75 NTU
60 stand. gals 68

Crew Chief Signature: Steve J. Mitch
Date: 12-6-88

Date: 12-1-88
Crew: E.M Hastings, S. Miller
Site: Quanta Resources

LAWLER, MATUSKY & SKELLY ENGINEERS
FIELD DATA SHEET FOR SOIL/SEDIMENT SAMPLES
Job No: 576-002

Oper: Soil Samples, Drum Samples
Thermometer No: —

STA. NO.	TIME	SMPL DPTH	METHOD	TEXT.	CLR.	ODOR	SAMPLE BOTTLES: SAMPLE PARAMETERS	BOT. Nos.	SAMPLE BOTTLES: SAMPLE PARAMETERS	BOT. Nos.	COMMENTS
SS-1	1005	0-1.5'	S/S Spoon	Fine grained, little moist	Black	Oil, Strong	VOCs TCL+10	12711			Within Tank Area. Placed In a pile beneath bottom Pouring Tank. Brick lined and standing water.
							↓	12712			
							EPTOX Metals Only	12713			
							↓	12715			
SS-2	1100-1155	0'-2.5'	Hand Auger + S/S Spoon	Fill: Bricks, Ash Stones, Silt	Black-Brown	Slight oil odor	VOCs TCL+10	12716			
							↓	12717			
							EPTOX Metals Only	12718			
							↓	12725			
SS-2 MS	↓	↓	↓	↓	↓	↓	VOCs TCL+10	12721			
							↓	12722			
							EPTOX Metals Only	12720			
							↓	12726			
SS-2 MSD	↓	↓	↓	↓	↓	↓	VOCs TCL+10	12723			
							↓	12724			
							EPTOX Metals Only	12719			
							↓	12727			
SS-3	1430-1440	0'-1'	Shovel + S/S Spoon	Ash,	Black	Oily odor	VOCs TCL+10	12732			
							↓	12733			
							EPTOX Metals Only	12734			
							↓	12735			
SS-4	1520-1530	0'-.5'	S/S Spoon + Shovel	Ash, Moist Granular	Black	Oily odor	VOCs TCL+10	12736			SS-4 New Location.
							↓	12737			
							EPTOX Metals Only	12738			
							↓	12739			
Drummed Cuttings (Comp.)	1305-1335	Drum Column	JMC Soil Sampler				EPTOX Metals Only	12728			Composited In the field 4 Drums (2-GW-1, 1-GW-2, 1-GW-2)
							PCB 8080	12729			
							Ignitability	12730			
Drummed Decon H_2O (Comp.)	1350	"	Coliwassa				PCB	12731			Composited In the field. 3 Drums

Crew: Sm / KPM
Date: 12-6-88
Job No: 576-002

LAWLER, MATUSKY & SKELLY ENGINEERS
FIELD METER CALIBRATION AND/OR CHECK
DATA SHEET

Site: QUAWTA
Oper: KPM / SM
Calib. By: KPM

METER No./ PROBE No.	TIME	THERM No./ TEMP. (°C)	EXPECTED VALUE	OBSERVED VALUE	ADJ TO[a]	% DIFF.[b]	COMMENTS
NYS DEC 801446 HNU	0917		57 ppm 9.8	58 @ 9.8	—		NO ADJUSTMENT
NYS DEC 63324 MONITEK TURBIDITY	0956		40	48	42		ZERO - OK ADJUSTMENT EXTREMELY SENSITIVE STANDARDS #3257
			60	67	62		
NYS DEC 4776 ORION pH METER	1005		4	(4.03-4.02)	—		NO ADJUST
			7	6.8	7.06		
			10		10.3		

[a]For dissolved oxygen and pH meter calibrations, record adjustments (include % and ppm readings for dissolved oxygen meter calibration).

[b]Include % Diff. calculation for conductivity calibration checks: $\% \text{ Diff} = \frac{Ex - Ob}{Ex} \times 100$

WELL SAMPLING LOG

Date: 2/21-22/90
Crew: JG CSH SM
Job No: 576-002
Project: NYSDEC
Project Site: Quanta Resources

Well ID No: Trip blank
Well Condition: —
Well Depth/Diameter: —
Well Casing Type: —
Screened Interval: —
Casing Ht/Lock No: —
Reference Pt: —
Depth to Water (DTW): —
Water Column; Ht/Vol: —
Purge Est: —
Purge Date/Time(s): —
Purge Method: —
Purge Depth(s): —
Purge Rates (gpm): —
Purged Volume: —
DTW After Purging: —
Yield Rate: L-M-H —
Purge Observations: —

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.

X

METERS USED

Temp: —
pH: —
Cond: —
Turb: —

DTW Before Sampling: —
Sample Date/Time(s): 2/21-22/90
Sampling Method: —
Sampling Depth(s): —
DTW After Sampling: —
Sampling Observations: —
Chain-of-Custody No(s): 004000
Analytical Lab(s): CompuChem

WET SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Before	—			
After	—			

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC's TCL	06	4°	N

Comments:
CompuChem supplied TB water

Air Temp:
Weather Conditions:

Crew Chief Signature: John M Gugewich

Date: 2-22-90

WELL SAMPLING LOG

Date: 2-21-90
Crew: JMG CSH SM
Job No: 576-002
Project: Quanta Resources
Project Site: Quanta Resources

Well ID No: GW-3
Well Condition: Good
Well Depth/Diameter: 28.81' / 2"
Well Casing Type: PVC
Screened Interval: Bottom 10'
Casing Ht/Lock No: 1.82' ag (steel PVC) / #2246
Reference Pt: Top of PVC Casing
Depth to Water (DTW): 21.64'
Water Column; Ht/Vol: 7.17' x .163 = 1.17 (2" well)
Purge Est: 7.17' x 1.05 = 7.53 gal (5" borehole)
7.53 x 4 = 30.2 gal
Purge Date/Time(s): 2-21-90 / 1309-1333
Purge Method: Cent Pump. w/ Dedicated Tubing
Purge Depth(s): Bottom, mid, Surf, Bottom
Purge Rates (gpm): ~3 gpm -
Purged Volume: 65 gal
DTW After Purging: — didn't check due to product. Appeared to recover as quickly as we purged
Yield Rate: L-M-H
Purge Observations: turbid oily odor,

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
50 gal	13.3°	~7	1972	57

METERS USED

Temp: DEC TLC 560
pH: pH paper
Cond: DEC TLC 560
Turb: DEC DRT 15C

D.T.O. 14.59'
DTW Before Sampling: 19.50'
Sample Date/Time(s): 2-21-90 / 1350 - 1540
Sampling Method: Teflon Bailer (#18)
Sampling Depth(s): near bottom (to avoid product
DTW After Sampling: -
Sampling Observations: Slightly Turbid, gray oily product
Chain-of-Custody No(s): 3958, 3953
Analytical Lab(s): Compu Chem

WET SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Before	—	Not done due to		
After	—	oily product interference		

SAMPLE ANALYSES

	Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
GW-3-P-S 1200-1215	VOCs TCL	01	4°C	N
	Pest/PCBs 8080 + TCL Metals	01		
GW-3-P-B 1215-1230	VOC's TCL	01		
	Pest./PCB's 8080 + TCL Metals	01		
GW-3	TCL VOA's	04		
	TCL BNA's	02		
	TCL Metals	01	HNO_3	
	TCL Cyanide	01	NaOH	
	TCL Pest./PCB's	02	4°C	

Comments:
D.T. Oil: 14.28' BPVC (7.36' Product on surface)
Collected surf + bottom product samples before purging

Air Temp: 40-50°F
Weather Conditions: Clear breezy

Purged from bottom first, then worked tubing up slowly to purge whole water column under product, then lowered tubing just off bottom to finish purging. Sampled groundwater near bottom to try & avoid the product

Crew Chief Signature: John M Gingerich
Date: 2-21-90

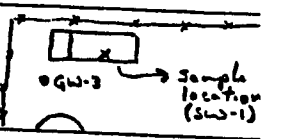
oily product very thick, not going through bailer very well. Took a long time to sample [illegible] bailers [illegible] lot of product in bailer which we tried to keep out of the

Date: 2-21-90
Crew: JG SM CH
Site: Quanta
Oper: Sampling

LAWLER, MATUSKY & SKELLY ENGINEERS
FIELD DATA SHEET FOR SURFACE WATER
Job No: 576-002

pH No: pH paper
Thermometer No: DEC TCL #560
Turbidity SCT No: ↓
~~Velocity~~ Meter No: DEC DRT-15C

STA. NO.	SAMPLE DEPTH (ft/in)	TIME (HHMM)	TEMP. (°C)	pH	SP. COND. (µmhos/cm)	FLOW MEAS.	Basin H_2O ~~CRK.~~ DPTH ft ~~INT.~~ ~~(Rt-Lft)~~ ~~(ft/in)~~	CRK. WDTH (ft)	SAMPLE BOTTLES: SAMPLE PARAMETERS	BOT. Nos.	SAMPLE PARAMETERS	BOT. Nos.	COMMENTS
SW-1	Surface	1530	5.7°	~6.0	648	09	3.5'	~10' across	VOCs TCL	04	CofC #:	3952	Collected from concre basin in back of prope
									BNAs TCL	02			
									Cyanide TCL	01			
									Metals TCL	01			
SW-1 MS/MSD	↓	↓	↓	↓	↓	↓	↓	↓	VOC's TCL	04	Metals TCL	01	There was ~ 1' distan from top of basin to the water surface
									BNA's TCL	02			
									Pest./PCB's TCL	02			
									Cyanide TCL	01	CofC #:	3955	



John M Guzewich
2-21-90

Date: 2-21-90
Crew: JG CSH SM
Site: Quanta

LAWLER, MATUSKY & SKELLY ENGINEERS
FIELD DATA SHEET FOR SOIL/SEDIMENT SAMPLES
Job No: 576-002

Oper: Sampling
Thermometer No: —

STA. NO.	TIME	SMPL DPTH	METHOD	TEXT.	CLR.	ODOR	SAMPLE BOTTLES: SAMPLE PARAMETERS	BOT. Nos.	SAMPLE PARAMETERS	BOT. Nos.	COMMENTS
SED-1	1610	0-6"	Ponar Dredge	Black Muck	Black	Natural Organic	Pest./PCBs TCL	02			Some sheening on water surface when ponar brought up CofC#: 003999
SS-3	1750	0-8"	S/S Spoon	Fine, dusty	Black	None Noticed	Pest./PCBs TCL	01			CofC #: 003999

John M Gruzewich
2-21-90

WELL SAMPLING LOG

Date: 2-21-90 / 2-22-90
Crew: SM, JMG, CSH
Job No: 576-002
Project: Sampling
Project Site: Quanta Resources

METERS USED

Temp: DEC TLC 560
pH: pH paper
Cond: DEC TLC 560
Turb:

Well ID No: GW-2
Well Condition: Good
Well Depth/Diameter: 30.20' / 2"
Well Casing Type: PVC
Screened Interval: Bottom 10'
Casing Ht/Lock No: steel 1.97' PVC 1.86'
Reference Pt: Top of PVC
Depth to Water (DTW): 23.34' (1050) 23.25' (0935 2-22-90)
Water Column; Ht/Vol: 6.95' / 1.13 gal 2" well
Purge Est: 30.20' - 23.25 = 6.95' x 1.05 = 7.3 gal (5" Borehole) 7.3 x 4 = 29.2 gal
Purge Date/Time(s): 2-22-90 / 0955-1020
Purge Method: Centrifugal Pump
Purge Depth(s): Bottom, mid, Surf, Bottom
Purge Rates (gpm): 2 gpm
Purged Volume: 45 gal
DTW After Purging: Not checked due to product. Appears to be about the same
Yield Rate: L-M-H
Purge Observations: Turbid, oily, Seems to be forming oily-water emulsion

DTW Before Sampling: Not checked due to Product
Sample Date/Time(s): 2-21-90/1100-1135* / 2-22-90/1040-11[illegible]*
Sampling Method: Teflon Bailer (#01)
Sampling Depth(s): Near Bottom **
DTW After Sampling: —
Sampling Observations: Turbid gray, some product. Noticed sample water turned from gray to black (oxidation?) as soon as it was drained into bottle.
Chain-of-Custody No(s): 3958 + 3954
Analytical Lab(s): Compu Chem

WET SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Before	—			
After	—			

} not collected to to the product interference

SAMPLE ANALYSES

	Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
GW-2-P-S 1100-1120 2-21-90 *	VOA's TCL	01	4°	N
	8080 Pest/PCB's + TCL Metals	01		
GW-2-P-B 1120-1135 2-21-90 *	VOCs TCL	01		
	8080 Pest./PCB's + TCL Metals	01		
GW-2 2-22-90	VOAs TCL	04		
	BNA's TCL	02		
	Pest./PCBs TCL	02		
	Metals TCL	01	HNO_3	
	Cyanide TCL	01	NaOH	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
40 gal	13.4°	~6.5	1814	too oily

Comments:
D.T. Oil: 16.24' (7.10' Product)
Took ~5l of product off surface
We took product samples from well before purging. The next day (2-22) we returned + purged. As we purged we pulled up more + more product with the purge water
surface + bottom of product layer

Air Temp: ~50° F
Weather Conditions: Overcast

** sampled near bottom to try and avoid product

Crew Chief Signature: John M Guzewski Date: 2-22-90

Oily product very thick, not flowing through bailer very well. Took a long time to sample because bailers usually came up w/ a lot of product in them which we tried to keep out of the sample jars. We mentioned on CofC that samples may need clean up before analysis.

WELL SAMPLING LOG

Date: 2-22-90
Crew: JMG CSH SM
Job No: 576-002
Project: NYSDEC
Project Site: Quanta Resources

Well ID No: Field Blank
Well Condition: —
Well Depth/Diameter: —
Well Casing Type: —
Screened Interval: —
Casing Ht/Lock No: —
Reference Pt: —
Depth to Water (DTW): —
Water Column; Ht/Vol: —
Purge Est: —
Purge Date/Time(s): —
Purge Method: —
Purge Depth(s): —
Purge Rates (gpm): —
Purged Volume: —
DTW After Purging: —
Yield Rate: L-M-H —
Purge Observations: —

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.

X

METERS USED

Temp: —
pH: —
Cond: —
Turb: —

DTW Before Sampling: —
Sample Date/Time(s): 2-22-90 / 1330
Sampling Method: Teflon Bailer (#05)
Sampling Depth(s): —
DTW After Sampling: —
Sampling Observations: —
Chain-of-Custody No(s):
Analytical Lab(s): Compuchem

WET SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Before			—	
After			—	

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC's TCL	03	4°	N
BNA's TCL	02	↓	↓
Pest./PCBs TCL	02	↓	↓
Metals TCL	01	HNO_3	↓
Cyanide TCL	01	NaOH	↓

Comments:
Compuchem supplied FB water. Water poured through GW-1 bailer (#05) into another set of bottles. Bailer then used to sample GW-1

Air Temp: 50's °F
Weather Conditions: Overcast, Lt. intermittent rain

Crew Chief Signature: John M Guzewich

Date: 2-22-90

WELL SAMPLING LOG

Date: 2-22-90

Crew: JMG SM CSH

Job No: 576-002

Project: NYSDEC Resample

Project Site: Quanta Resources

METERS USED

Temp: DEC TLC 560

pH: pH Paper

Cond: DEC TLC 560

Turb: DEC DRT 15C

Well ID No: GW-1

Well Condition: Not Good (There was heat damage @ top of PVC, PVC casing very warped. We cut protective casing down .80', then cut PVC, flush + put a new cap on protective casing)

Well Depth/Diameter: 39.60' / 2"

Well Casing Type: PVC sch 40

Screened Interval: Bottom 10'

Casing Ht/Lock No: 1.57' (PVC + steel) / #2246

Reference Pt: Top of PVC

Depth to Water (DTW): 24.18' (appears to be thin layer of golden yellow viscous product on surf. but no registered interface)

Water Column; Ht/Vol: 15.42' / 2.5 gal (2" well) (5" Borehole)

Purge Est: 15.42 x 1.05 = 16.2 gal
16.2 gal x 4 = 64.8 gal.

Purge Date/Time(s): 2-22-90 / 1220-1250

Purge Method: Cent. Pump w/ Dedicated Tubing (we had to hand surge tubing due to swl)

Purge Depth(s): Bottom → Surface

Purge Rates (gpm): 3-5 gpm

Purged Volume: 100 gal.

DTW After Purging: 24.20' (no registered interface)

Yield Rate: L-M-H

Purge Observations: Turbid, lt brown, petroleum odor

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
90 gal	14.7°	6.5	290	— (product interference)

DTW Before Sampling: 24.20'

Sample Date/Time(s): 2-22-90 / 1400-1420

Sampling Method: Teflon Bailer (#05)

Sampling Depth(s): Mid Water Column

DTW After Sampling: —

Sampling Observations: slightly Turbid, lt grey some sheening, small black particulate matter settl. out

Chain-of-Custody No(s): #3956

Analytical Lab(s): CompuChem

WET SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Before				
After	14.2°	6.5	314	95

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOCs TCL	04	4°C	N
BNAs TCL	02	↓	↓
Pest/PCBs TCL	02	↓	↓
Metals TCL	01	NaO	↓
Cyanide TCL	01	NaOH	↓

Comments:
Light product odor w/ slight sheen on purge water

Air Temp: 50-60°F

Weather Conditions: Overcast intermittent lt rain

Field Blank performed on this bailer. CompuChem FB water poured through bailer into set of bottles. Bailer then used to sample GW-1

Crew Chief Signature: John M Gingerich

Date: 2-22-90

Date: 2-21-90 / 2-22-90
Job No: 576-002

[redacted] & SKEELY ENGINEERS
FIELD METER CALIBRATION AND/OR CHECK
DATA SHEET

Site: Quanta
Oper: Sampling
Calib. By: JMG

	METER No./ PROBE No.	TIME	THERM No./ TEMP. (°C)	EXPECTED VALUE	OBSERVED VALUE	ADJ TO[a]	% DIFF.[b]	COMMENTS
2-21	DEC DRT-15f	1330		100 / 10 / 1.0	101.9 / 10.2 / 1.4	101 / – / –		
2-22	DEC DRT-15e			100 / 10 / 1.0	97.2 / 10.1 / 1.5	100.8 / – / –		

[a] For dissolved oxygen and pH meter calibrations, record adjustments (include % and ppm readings for dissolved oxygen meter calibration).

[b] Include % Diff. calculation for conductivity calibration checks: $\% \text{ Diff} = \frac{Ex - Ob}{Ex} \times 100$

APPENDIX H

APPLICABLE RECORDS

APPLICABLE RECORDS

[1] New York City Department of Environmental Protection (NYCDEP). 1982. Abandoned waste oil facility. Quanta Resources. City On-Scene Coordinator's report to the Commissioner plus 25 attachments. 181 pp.

[2] Letter from Gary Ott (NYCDEP) to Deputy Commissioner Richard Mendes (NYCDEP). 6 November 1982. 3 pp.

[3] Hofstra Environmental Law Digest. 1986. O'Neill, Trustee in Bankruptcy of Quanta Resources Corp., Debtor v City of New York.

[4] CH_2M Hill. 1982. Engineering services report Quanta Resources site cleanup, Figure II-2. Prepared for NYCDEP.

[5] NYCDEP. 1982. Special request report. Lab analysis requested.

[6] The New York Times. 29 February 1989. "State and city debate cleanup of toxic waste."

[7] Tank dimensions and volumes. Quanta Resources.

[8] Field notes of Robert Davis. 1982.

[9] O.H. Materials Co. 1982. Summary report of the survey of the Quanta Resources Corp. site. 1982. Prepared for NYCDEP.

[10] The New York Times. 28 May 1979. Greenport uneasy atop 17-million-gallon oil leak.

APPLICABLE RECORD 1

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE, NEW YORK, N.Y. 10003 (212) 566-2717

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F. FERRAND, Assistant Commissioner

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE & TECHNOLOGY

QUANTA RESOURCES
CITY ON SCENE COORDINATOR'S REPORT TO THE COMMISSIONER

ABANDONED WASTE OIL FACILITY

QUANTA RESOURCES

37-80 REVIEW AVENUE

LONG ISLAND CITY, NY 11101

MAY thru DECEMBER 1982

Gary L. Ott
Director Field Investigations
NYC Representative
Regional Response Team

Dr. Edward Ferrand
Assistant Commissioner
Bureau of Science &
Technology

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE & TECHNOLOGY

QUANTA RESOURCES
CITY ON SCENE COORDINATOR'S REPORT TO THE COMMISSIONER

SUBJECT: QUANTA RESOURCES, immediate cleanup of an abandoned waste oil facility containing petroleum products, water and other materials contaminated with PCBs, solvents, heavy metals and other hazardous materials uncharacteristic of normal waste oil.

Purpose and Content of Report

The City of New York took emergency response actions from May 7, 1982 through December 1, 1982 to secure and remove an imminent hazard to the NYC public and environment. The threat was in the form of an estimated 640,000 gallons of contaminated waste petroleum products, contaminated water, and other hazardous materials abandoned in 106 oil storage tanks at Quanta Resources, 37-80 Review Avenue, Long Island City, N.Y. 11101. The City's hazardous materials contractor accomplished all the objectives of the emergency removal efficiently and with professional control over personnel, safety and costs. Immediate defensive actions that were taken by the City of New York were in compliance with the National Oil and Hazardous Substances Contingency Plan, 40 CFR, Part 300 (section 300.63, Phase I-Discovery and Notification through section 300.65, Phase III-Immediate Removal).

This report includes a summary of events, effectiveness of removal actions, problems encountered and recommendations. A clear recommendation is that the New York State Department of Environmental Conservation, in accordance with State law and their own Policies and Procedures, must investigate the oil and PCB contamination that has been found under Quanta Resources. The investigation must resolve how much oil is under Quanta Resources, how much is contaminated with PCBs, how far the contamination has spread, and what planned removal or remedial actions are appropriate to prevent further contamination of the underground water in Queens, NY.

Finally, the immediate defensive actions taken by the City of New York, at an expense of over $2,300,000, eliminated a potential NYC health and environmental disaster posed by an abandoned hazardous waste site within the limits of New York City. The immediate defensive actions by the City of New York should not preclude Federal and State financial reimbursements for actions taken consistant with the National Oil & Hazardous Materials Contingency Plan. These report documents actions by the City of New York that are consistant with this plan and should be incorporated by reference during any cost recovery activities.

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE & TECHNOLOGY

QUANTA RESOURCES
CITY ON SCENE COORDINATOR'S REPORT TO THE COMMISSIONER

List of Attachments (continued)

13. Quanta Waste Removal Summary, from CH2M Hill's Final Report, Dec 82.
14. NYC DEP Letters to USEPA Dec 22 and Oct 22, Re: Specific waste stream, volume, date of shipment, disposal locations, transportation and manifest numbers of materials removed from Quanta.
15. Chapter V of CH2M Hill's "Engineering Services Report, Quanta Resources Site Cleanup", Dec 29. Re: Site Cleanup

PART II - EFFECTIVESS OF REMOVAL ACTIONS

16. Chapter V of CH2M Hill's "Engineering Services Report, Quanta Resources Site Cleanup" Re: decontamination activities.
17. OH Materials' diagram of the sample locations, and laboratory results.

PART III - PROBLEMS ENCOUNTERED

18. Letter: From Ott to Mendes, Oct 20. Re:Change in scope and extent of work to accomplish the removal of hazardous materials from Quanta.
19. Letter: From Ott to Sparks, Nov 4. Re: Memo for record: Movement of non-contaminated and contaminated materials from the Quanta Resources site.
20. Authorization for OH Materials to ship material to SCA, Model City, Mendes mailgram, Nov 9.
21. NYC DEP Audits and Accounts Memo. Re: General Status of Orders & Requisitions, Feb 83
22. Final Letter of Intent to OH Materials, Nov 12
23. Verified Petition NYC against Commissioner NYS DEC, Dec 27.

PART IV - RECOMMENDATIONS

24. U.S. Geological Survey Quanta Project Proposal, Jan 83.
25. Quanta Facility Location Map.

Name of Current Owner of Site: Hudson Oil Newtown Refinery
Address of Current Owner of Site: _____

Time Period Site Was Used for Hazardous Waste Disposal:
Approximately , 19 60 To Present , 19

Is site Active [X] Inactive [ ]
(Site is inactive if hazardous wastes were disposed of at this site and site was closed prior to August 25, 1979)

Types of Samples: Air [X] Groundwater [ ] None [ ] WASTE [X]
Surface Water [ ] Soil [ ]

Remedial Action: Proposed [ ] Under Design [ ]
In Progress [ ] Completed [ ]
Nature of Action:

Status of Legal Action: Consent order State [X] Federal [ ]

Permits Issued: Federal [ ] Local Government [ ] SPDES [ ]
Solid Waste [ ] Mined Land [ ] Wetlands [ ] Other [ ]

* See below

Assessment of Environmental Problems:

Site needs to be monitored very closely due to number of complaints received.

Assessment of Health Problems:

None known, but complaints from workers in adjacent facilities.

Persons Completing this Form:

Anna Saracco — Ronald Tramontano
G. David Knowles

New York State Department of Environmental Conservation
Date 4-25-80

New York State Department of Health
Date 4-25-80

SPDES Permit
*NYS-DEC Certification of Major on-shore Petroleum Facility.
NYS-DOT Major Petroleum Facility Act
NYS-DEC An Emission Certification
Temporary Part 360 Permit

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-Immediate Removal & Disposal Defensive Actions
-CH2M Hill On-Site Engineering Support-Immediate Removal Phase

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LIST OF ATTACHMENTS

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

QUANTA RESOURCES
CITY ON SCENE COORDINATOR'S REPORT TO THE COMMISSIONER

List of Abreviations

New York City Agencies

NYC - New York City
DEP - Department of Environmental Protection
BS&T - Bureau of Science & Technology
FD - Fire Department

New York State

NYS - New York State
AG - Attorney General
DEC - Department of Environmental Conservation

Federal Agencies

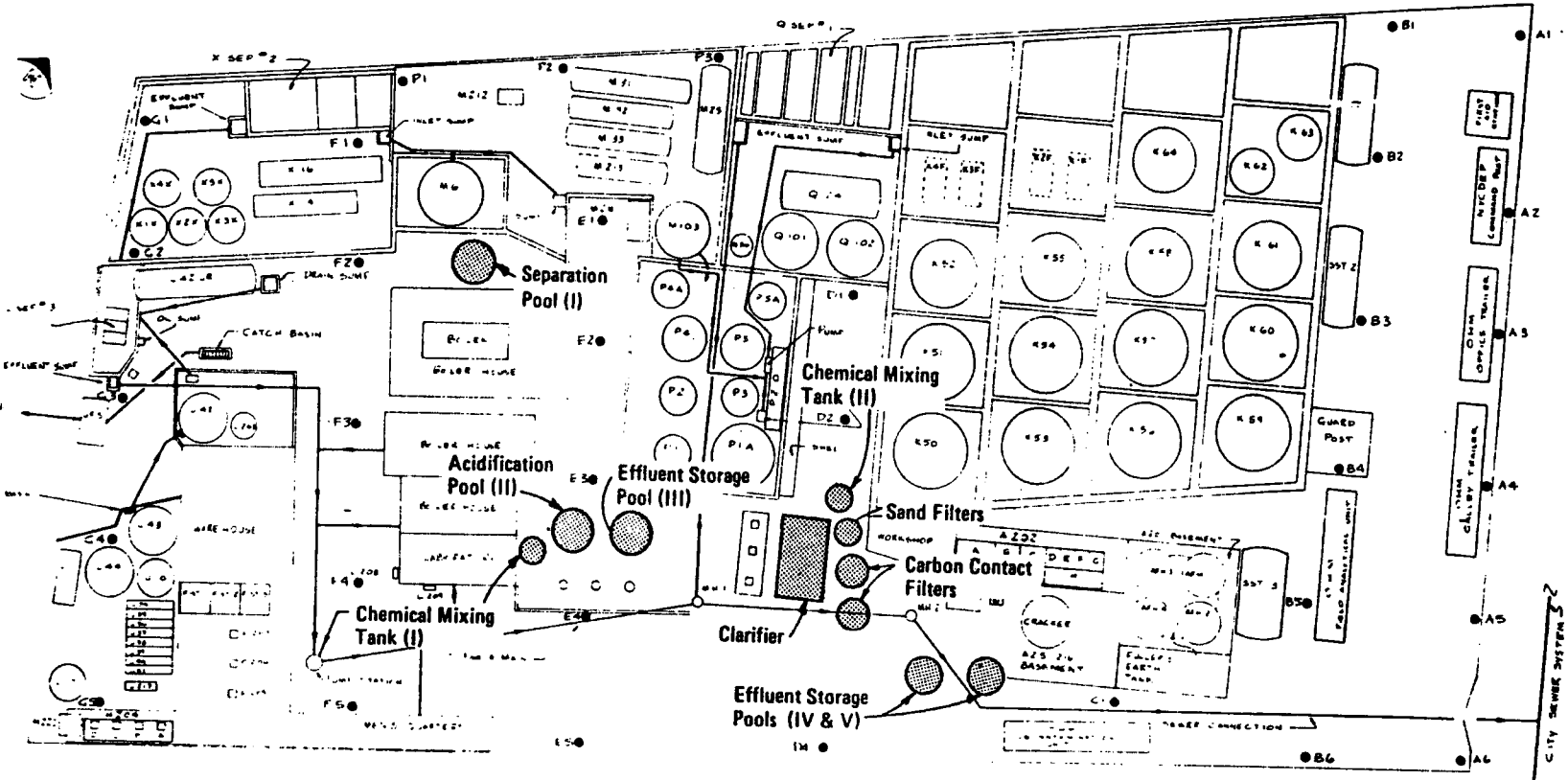
EPA - United States Environmental Protection Agency
USCG - United States Coast Guard
RRT - Regional Response Team
USGS - United States Geological Survey

Contractors

CH2M Hill - CH2M Hill, Consulting Engineers
OHM - O. H. Materials, Inc., Oil & Hazardous Materials Containment and Control Contractor
BFI - Browning-Ferris Industries
CECOS - CECOS International Inc. Chemical & Environmental Conservation Systems
ENSCO - ENSCO Inc.
Rollins - Rollins Environmental Services Inc.
SCA - SCA Chemical Services

Laws Statues

CERCLA - Comprehensive Environmental Response, Compensation and Liability Act of 1980
CWA - Clean Water Act
NCP - National Oil and Hazardous Materials Contingency Plan
TSCA - Toxic Substances Control Act



LEGEND

(K50) Tank and Site Identification Number

C/● Air Monitoring Stations

SCALE:
1 inch = Approximately 40 feet

QUANTA SITE PLAN
37-00 REVISION AVENUE
LONG ISLAND CITY, N.Y.

SOURCE: O.H. Materials

QUANTA WASTE REMOVAL SUMMARY

Material Category	Transport Vehicle	Volume Removed	Dates Shipped	Disposal Facility
Waste Oils 50ppm< PCB <500 ppm	Rail	38,716 gallons	10/21/82	Rollins, TX
Waste Oil with PCB>500 ppm	Truck	1,163 gallons	10/22/82	Rollins, TX
Waste Oil with Chlorinated Organics >10,000 ppm	Rail	78,920 gallons	09/29/82-10/05/82	SCA, ILL.
Noncontaminated Waste Oil	Rail	119,830 gallons	09/21/82-10/05/82	SCA, ILL.
Flammable Sludge	Truck	5,000 gallons	10/13/82	Rollins, NJ
Pumpable Sludge with 50 PPM<PCB<500 ppm	Rail	57,000 gallons	10/15/82	ENSCO, AK
Nonpumpable Sludge with 50 ppm<PCB< 500 ppm	Truck	430 tons	11/09/82-11/11/82	SCA, NY
Cyanide Solution	Truck	9,425 gallons	11/10/82	SCA, NJ
Nonpumpable Sludge PCB >500 ppm	Truck	31 drums (1,705 gallons)	12/01/82	Rollins, TX
Contaminated Decontamination Liquid (Diesel Fuel)	Truck	1,100 gallons	12/01/82	Sea-Bright, KY
Non-hazardous Sludge	Truck	886 tons	11/13/82-11/16/82	SCA, NY and BFI, MD

*Source: Compiled by CH2M Hill

Part I SUMMARY OF EVENTS

PHASE I - Discovery and Notification
40 CFR, Part 300, Section 300.63

On the evening of May 7, 1982, the New York City Department of Environmental Protection (DEP) received notification from New York State Department of Environmental Conservation (DEC) that the Trustee for the bankrupt Quanta Resouces Corporation, previously known as the Hudson Oil Refinery Company, had removed guard security, fire prevention and emergency equipment, from the Corporation's waste oil facility, Quanta Resources, located at 37-80 Review Avenue, Long Island City, New York, 11101.

Previous investigations by the NYS Department of Environmental Conservation had uncovered that an unknown quantity of oil stored at the site was contaminated with polychlorinated biphenyls (PCBs) and unknown quantities of additional contaminants. While NYS DEC took no action the distinct threat of arson and vandalism at the site would require that immediate security be maintained, and that an appropriate assessment of the environmental and health threat of this abandoned waste facility, including an inactive hazardous waste site remedial plan, would be immediately required. The Commissioner, NYC DEP, requested from the NYS Department of Environmental Conservation, assumption of site security at Quanta Resources, a threat assessment of the public health and environmental hazards, and removal of any hazardous materials. This request was made for the following reasons:

1. NYS Department of Environmental Conservation had reported in the NYS DEC 1980 Registry of Hazardous Waste Sites - New York City/New York (Atch 1) that there were environmental hazards at the Quanta Resources site. A follow-up report in July 1981 revealed that the Quanta site contained at least 300,000 gallons of oils contaminated with PCBs and other chemical contaminants. Although Quanta Resources operated under NYS DEC's supervision and consent (ref: Consent Order, NYS DEC and Quanta Resources, October 13, 1980) a complete inventory of the hazardous materials stored on the site was not obtained. When the Quanta Trustee removed all fire protection and security, NYS DEC still had a responsibility to investigate and execute a remedial program for the in-place toxic materials previously identified.

2. NYS Department of Environmental Conservation is mandated by both Federal and State law and their own Policies & Procedures Manual to be responsible for chemical threats, in-place toxic situations and threats to water resources and to provide emergency and planned response actions to remove such threats or hazards to the public. (Atch 2,NYS Department of Environmental Conservation Policies & Procedures Manual, Chapter 4800).

On May 8, 1982, NYC DEP requested that the NYC Police Department begin priority patrols of the Quanta site until the owner, tenant, trustee, receiver, or any other Federal or State government agency responsible for security was identified and on site. Formal emergency assembly of the Regional Response Team (RRT), the regional body representing Federal, State and Local environmental agencies and organizations charged with oil and hazardous substances response, was requested by NYC DEP in order to assist in the identification of responsible individuals, private organizations or government agencies responsible for response to the Quanta site abandonment. (Atch 3,NYC request for assembly of the RRT).

The emergency RRT meeting on May 11, 1982 included the USEPA, US Coast Guard, NYS DEC, NYC DEP, and other participating agencies. The following unresolved issues regarding Quanta were presented to the RRT for resolution:

1. Site security was inadequate to protect the NYC public from potential PCB-contaminated oil fire/explosion capable of creating a poisonous plume over the Metropolitan area.

2. Previous NYS DEC July 1981 technical assessment of oils stored at the Quanta site was imcomplete. Immediate reassessment of total waste streams and volumes on site was required to determine the type and severity of hazard present.

3. Identify the agency responsible for immediate and planned responses to the Quanta site to avert adverse environmental and public health hazard.

4. Identify funding sources for security, risk assessment, and preparation of an inactive hazardous waste site remediation plan.

NYC's Department of Environmental Protection, Bureau of Science and Technology (BS&T) issued a report outlining the technical investigation requirements and funding needed for an accurate site survey and waste stream characterization at the facility. Responsibility for investigation and development of remediation plans for an inactive hazardous waste site was identified as that of the NYS Department of Environmental Conservation (Atch 4, NYC DEP Bureau of Science & Technology, Special Report, July 4, 82). The NYC DEP BS&T report outlined:

1. Immediate sampling and analysis of material stored in the Quanta tanks is required to determine character and severity of the threat posed by chemicals/oil products stored at site. Known estimated 50,000 gallons of PCB-contaminated oil stored at site, in addition to heavy metals and solvents, posed a serious threat to the City, especially in the event of a fire/explosion of the tanks whereupon PCB-contaminated oil could possibly release dioxins or other dangerous chemicals into the atmosphere.

2. Estimated cost of $15,000 for initial sampling and analysis of Quanta site. NYC DEP BS&T sampling & analysis work was recommended over sampling and analysis by private contractors (at an approximated cost of $150,000).

3. Estimated minimum removal and disposal costs of hazardous materials at Quanta over $1.6 million.

4. Recommend NYS DEC conduct complete site assessment and hazard removal actions in accordance with Federal law, State law and their own DEC Policies & Procedures Manual. As an alternative, financial support for NYC DEP to accomplish these tasks on behalf of NYS DEC was acceptable.

On May 21,the NYC DEP Commissioner, the NYS DEC Regional Director, Terry Agriss, and other members of State and NYC agencies met to discuss Quanta site security, risk assessment and development of inactive hazardous waste site remedial plans. Terry Agriss stated that she would not provide security or embark on a site assessment and that, for lack of resources, would discontinue the nightly 8-hour surveillance of the site by DEC enforcement inspectors. Agriss further stated that no State funds were available for security, hazard assessment, and possible removal actions at Quanta.

Action from the Office of the NYS Attorney General was timely and efficient. The Office of the NYS Attorney General filed well documented briefs in the bankruptcy court in an attempt to prevent the abandonment of the Quanta Resources site by the trustee, Thomas J. O'Neill. The information copy of NYS Attorney General brief (Atch 5, NYS AG Brief to the US Bankruptcy Court, July 4,82), demonstrates the professional involvement of the NYS Attorney General with the New York City Department of Environmental Protection. This continued during the entire Quanta Resources emergency response and cleanup project.

PHASE II - Preliminary Assessment
40 CFR, Part 300, Section 300.64

On June 15, by direction of the NYC DEP Commissioner and at the request of the NYS DEC Regional Director and in cooperation with the NYC Fire Department, the NYC DEP Bureau of Science and Technology (Field Investigations Division) entered the Quanta facility for the purposes of taking samples of materials stored in each tank (Atch 6, Notice of Entrance at Quanta Resources, June 15, 82).

By June 17, NYC Department of General Services, at the request of NYC DEP, began a 24-hour private security surveillance of the Quanta premises in order to prevent vandalism, arson, or any other illegal tampering with the site. A special NYC Police unit also began 24-hour patrol of the site on this date.

Site Sampling and Assessment

From June 16 through June 25, technical staff from Field Investigations and, on occasion, 2 DEC employees mapped the site and sampled over 90 known tanks, and collected 142 samples. The NYC DEP BS&T laboratory analyzed all samples. From this extensive sampling/analysis program, the following characterization and estimated quantities of materials abandoned at Quanta were identified by July 8 (Atch 7, NYC DEP Special Report, Quanta Clean-up Program, Progress Report, July 16):

* estimated 500,000 gallons of waste oil/chemicals stored on-site in oil storage tanks, drums, and open vats.

* 6 major waste streams requiring removal, treatment, and/or disposal:

    1. PCB Oil
    2. PCB-contaminated Oil
    3. non-PCB contaminated waste oil (saleable)
    4. non-hazardous sludge
    5. PCB-contaminated water
    6. Heavy metal/chemical contaminated water

* Below-normal flash points (ability to be ignited) of oil stored at site, including PCB-contaminated product, posed distinct fire/explosion threat. Such a fire would burn PCBs, contaminating water, air, people, and affected environs with dangerous chemical, possibly dioxins.

* deteriorated condition of tanks and pipes causing several slow leaks, especially from rusted valves.

* Facility located 450 feet from Newtown Creek which flows into the East River.

* Near homes, businesses, and highways.

* Recommend immediate removal of all flammable hazardous material stored on site.

* Recommend NYS DEC take necessary immediate response actions in accordance with NYS Environmental Conservation Law and Navigation Law, Article 12 (Oil Spill Response Fund and NYS DEC Policies & Procedures Manual).

Immediate Removal Considerations

The arguments by the State of New York in the State Attorney General's briefs opposing the abandonment of the Quanta site by the trustee clearly indicate the magnitude and scope of the public health and environmental threat to New York City. The NYS Attorney General's Memorandum in Opposition to Petition for Abandonment, June 1982, is quoted, in part, as follows:

> "The Long Island City facility is located in the geographic center of New York and is approximately 450 feet from Newtown Creek, a tributary of the East River. The facility contains 52 storage tanks with a combined storage capacity in excess of 1.8 million gallons. There are presently more than 500,000 gallons of waste oil, sludge, and hazardous waste stored in the 52 tanks. Approximately 70,000 gallons of the waste oil are contaminated with polychlorinated biphenyls,"PCB's", which is an extremely hazardous substance.
>
> The Long Island City facility is in an extreme state of disrepair. Some of the storage tanks have holes in them, some are leaking. The system needed by the Fire Department to put out a fire, if one occurred, is not in operation, and some of the equipment necessary to make the system fully effective is missing. Should a fire break out at the facility, the fire department would not be able to extinguish it, and the burning PCB contaminated waste oil would generate smoke laden with PCB's and possibly dioxin, which would threaten the lives of firefighters and New York City residents.

In short, if the Trustee were permitted to just walk away from the Long Island City facility the further deterioration of the untended facility and the possibility of vandalism would substantially increase the possibility of fire or leakage which would seriously endanger the lives and property of New York residents.

In addition to the public health problems that would be created, abandonment of the Long Island City facility by the Trustee would effectively be final disposal of the PCB contaminated oil and other hazardous wastes on the property".

Neither Federal or State environmental agencies, after formal meetings and many discussions, agreed to perform an investigation and hazard assessment of Quanta Resources or develop an inactive hazardous waste site remedial plan. Similarly, no Federal or State agency agreed to provide security for this abandoned waste site.

New York City, from its own site assessment by DEP BS&T, identified the waste oil/chemical materials at Quanta to be a significant and serious risk of harm to the safety and well-being of the New York City public and environment. Any fire involving materials of the types found at Quanta could result in the contamination of the surrounding environmnt with PCB, dibenzofurans and possibly dioxins. The location of this facility between densely populated areas in Greenpoint, Brooklyn, and Long Island City, Queens, as well as the potential exposure of Fire Department and other emergency personnel, caused DEP BS&T to consider removal of hazardous materials at Quanta to be an immediate priority.

The Commissioner of NYC Department of Environmental Protection requested approval from the USEPA Regional Administrator on July 30, 82 for plans, procedures and funding to begin the immediate removal of hazardous materials stored at Quanta Resources. Ths request was in accordance with the National Oil and Hazardous Substances Contingency Plan and included the steps the City of New York took in Discovery and Notification, Preliminary Assessment, Immediate Removal Considerations, and Defensive Actions in accordance with the plan. (Atch 8, NYC DEP Commissioner's letter to the USEPA Regional Administrator Jacqueline E. Schafer, July 30). The Commissioner's letter also includes his request for assistance to NYS Department of Environmental Conservation, NYC's Preliminary Risk Assessment of the abandoned Quanta Resources site, and the City's request for proposal (RFP). The City's RFP initiated the next stage of activities that would begin the immediate investigation and removal of materials hazardous to the NYC public and the environment.

PHASE III - Immediate Defensive Actions
40 CFR, Part 300, Section 300.65

The NYC Request for Proposal outlined the nature and quantities of hazardous materials at Quanta, the scope of work, disposal requirements and work completion deadlines. Six proposals were received by close of business July 29, 1982 in response to the RFP:

* Clean Venture Inc, 1160 State St., Perth Amboy, NJ 08862

* Cecos International Inc., 1 Edgewater Plaza, Staten Island, NY 10305

* OH Materials, Box 551, Findlay, Ohio 45840

* Peabody Clean Industries, 2 Lincoln St., Linden NJ 07036

* Rollins Environmental Services, Bridgeport, NJ 08014

* New England Pollution Control, Co, Inc., 7 Edgewater Place, Norwalk, CT 06855

New York City Department of Environmental Protection contracted with CH2M Hill, an engineering firm, to assist in the evaluation of all contractor proposals. CH2M Hill's confidential report recommended OH Materials (OHM) with the most favorable overall project qualifications. (Atch 9, CH2M Hill Confidential Report, Aug 9, "Summary & Recommendation"). CH2M Hill's evaluations were consistent with the evaluation, using the same criteria, by NYC DEP's Bureau of Science & Technology. The DEP, Bureau of Science and Technology report dated August 2, had previously recommended the selection of OH Materials.

Threat Assessment Phase
Aug 13-Aug 21, 1982

With the assistance of CH2M Hill, New York City began detailed contract negotiations with OH Materials. Initial agreements between the City of New York and OH Materials are reflected in a series of Letters of Intent. The initial Letter of Intent (Atch 10, Initial Letter of Intent to OH Materials, Aug 11) permitted OH Materials to mobilize to the Quanta site and to begin a series of sampling and analysis activities. These activities would, essentially, complete a detailed inventory and risk assessment of the Quanta Resources site.

On August 12, O.H. Materials mobilized and set up its equipment on site which included a mobile analytical laboratory, decontamination unit, office trailer, crew trailer, backhoe and vacuum skid unit. Beginning August 13, through August 22, a site survey of Quanta was initiated and completed.

Two key objectives of this survey phase were completed.

-THREAT ASSESSMENT- The reponsibility of the NYS DEC to perform an investigation of the unknown materials at the Quanta site was completed by OH Materials.

-COST CONTROL- The inventory of all materials abandoned at Quanta permitted clearer identification of costs required for their immediate removal and legal disposal.

OH Materials' report Summary Report of the Survey of the Quanta Resources Corp. Site dated Sept. 2, performed these two objectives and described the following activities:

Safety

- Product leaking from several tanks were contained by OHM using sorbent material.

- Aqueous product in J SEP 3 was transferred to tank J 17 to prevent product from overflowing onto the Long Island Rail Road tracks adjoining the site. Some product had previously leaked onto the tracks; however, later analysis showed this material was an oil/water mixture not contaminated with PCBs or other hazardous chemicals.

- A contaminated "Hot" zone was established by O.H.M. demarkating dangerous areas requiring minimal protective equipment for all visitors and workers. Protection gear required in this zone included hardhats with face shields, respirators with R-563 filter cartridges, tyvek suits, Kobar boots, and hand protection. Self-contained breathing air was worn by the sample team when opening hatches & obtaining samples.

Air Monitoring

- Daily monitoring of ambient air on-site was conducted with infrared air analyzer (MIRAN) and a photoionization detector (PID) in both the "Hot" and "Clean" areas of the site. Overall air quality at the site throughout project was acceptable. Two areas at the site produced higher than average levels of organic vapors: vapors near a hood in building C, laboratory, were emitted but dispersed quickly and posed no danger; liquid under tank J44 showed absorbance in chlorinated organic absorption range, indicating a hazard in the immediate area but one which was strictly local. The latter required the use of protective equipment by all in that "Hot" zone.

Tank Inventory and Inspection

A total of 106 tanks were inventoried on site. OHM technicians inspected and measured each tank. A total of 639,000 gallons of product was measured to be in the tanks. Total storage capacity of facility is estimated to be 1.5 million gallons. Appendix B of the OHM report described the results of this activity in detail.

Sampling

A bacon bomb sampler was used to collect oil samples and determine product layering in each tank. An aluminum sludge sampler was used to scoop sludge samples. Glass quart jars were used with teflon-lined screw caps. All sampling equipment (bacon bomb sampler, chains, etc.) were decontaminated with reagent hexane plus an acetone rinse between samples to prevent cross contamination of samples. Split samples were provided to DEP for each sample collected by OHM. A total of 13 * waste streams were identified from total tank inventory:

CLASSIFICATION

1. Oil
2. Oil contaminated with PCBs
3. Oil contaminated with chlorinated solvents
4. Uncontaminated water
5. Water contaminated with PCBs
6. Water " " volatile organics
7. Water " " heavy metals
8. Uncontaminated sludge
9. Sludge contaminated with PCBs
10. Flammable sludges
11. Sludge contaminated with heavy metals
12. Uncontaminated solids
13. Solids contaminated with heavy metals

*Reduced to 11 waste streams Oct 18 for disposal purposes.

Additionally, tanks Q-24 & J-44 were found to contain 3,454 gallons of caustic materials.

Appendix C of the OHM Report summarizes the tanks and volumes of each of the above waste streams.

Quality control of samples was maintained throughout using field blanks, method blanks, solvent blanks, spiked samples, and quality control samples submitted by DEP Bureau of Science and Technology laboratory.

Analytical Methodology

Analytical procedures used were performed in accordance with standard EPA procedures. Those analyses not covered by EPA procedures were performed according to ASTM or NIOSH methods. Specific tests performed on each waste stream, are noted in the OHM Report.

Appendix D of the OHM Report summarizes the results of the analyses performed on each of the tanks at Quanta Resources.

CH2M Hill On-Site Engineering Support
Threat Assessment Phase

During the entire threat assessment sampling and analysis phase, CH2M Hill provided engineering & technical support to the City of New York at the Quanta site. CH2M Hill's On-Site Engineer provided the City with assistance in overseeing the contractor's technical sampling and analysis activities. In addition, CH2M Hill's field service laboratory in Montgomery, Alabama provided quality assurance by analyzing split samples on approximately 15 percent of the total samples taken by the contractor. CH2M Hill's On-Site Inventory Phase Report noted that the laboratory results "achieved (by CH2M Hill) in the evaluation of the oils & sludges were quite comparable to those of the contractor" Portions of CH2M Hill's evaluation of the sampling and anaysis phase is included as attachment 11 to this report. (Atch 11, CH2M Hill, On-Site Inventory Phase Report, Sept. 1). CH2M Hill's final report also discusses this phase in some detail under Chapter IV, "Site Survey and Waste Characterization".

Immediate Removal And Disposal Defensive Actions

The next Letter of Intent (Atch 12, Letter of Intent to OH Materials, Sep 10) authorized removal of the hazardous materials identified at Quanta Resources with an upset ceiling price of $1,700,000.

Removal of materials from the Quanta site commenced on September 21 and ended December 1, 1982. A total of 11 waste streams (Atch 13, Master Summary, Materials Removed From Quanta Site, Dec 1) were removed and disposed at 7 different disposal facilities as appropriate per waste stream. A total of 312,859 gallons of liquid materials and 1,316 tons of sludge were removed, including chemical rinse solutions used in decontamination of PCB oil tanks as per TSCA requirement. A total of 166,469 gallons of contaminated and non-contaminated water was treated with a special water treatment system before discharge into the city sewer. Specific waste stream, volume, date of shipment, disposal location, transportation and manifest numbers were provided to the EPA in two letters from NYC DEP (Atch 14, NYC DEP letters to EPA, Dec 22 and Oct 22). These letters and details of Manifest shipments summarized NYC activities in the immediate removal of hazardous materials from Quanta Resources under EPA's Emergency Identification Number NYP000773002. The EPA Emergency ID number was issued to NYC DEP on August 30, 1982.

CH2M Hill On-Site Engineering Support Immediate Removal Phase

During the entire immediate removal phase, CH2M Hill provided engineering and technical support to the City of New York at the Quanta site. CH2M Hill's on-site presence during the entire immediate removal phase permitted a third party overview of all the Contractor's and City's activities at Quanta Resources. This independent third party overview may be very significant during the cost recovery phase following the removal of hazardous materials from the Quanta site.

All of the CH2M Hill's On-Site Engineers provided professional and valuable assistance during this phase of activities by:

* maintenance of the daily log
* verification of quantities of materials treated, removed, transported & disposed
* verification of Contractor's estimates for payment-OH Materials daily report

In addition, CH2M Hill continued analytical support for a quality assurance program from their Montgomery laboratory. Finally, CH2M Hill assured the City of New York that the legal disposal of hazardous materials from Quanta Resources was achieved through actual on-site inspection of the hazardous waste shipments at the disposal facility.

CH2M Hill's draft report Engineering Services Report Quanta Resources Site Cleanup provides a clear professional summary of removal and disposal activities at Quanta Resources. Portions of this report (Atch 15, Chapter V, CH2M Hill Engineering Services Report, Quanta Resources Site Cleanup, Dec 29) include a detailed description of major tasks at Quanta Resources including:

* Waste consolidation

* On-Site waste treatment

* Waste Removal Treatment & Disposal

PART II - EFFECTIVENESS OF REMOVAL ACTIONS

The removal of all hazardous materials from all tanks at Quanta Resources completed the immediate removal phase of the defensive actions taken by the City of New York in accordance with the National Oil And Hazardous Substances Contingency Plan. All materials that were an immediate threat to the health & safety of the NYC public were removed. All activities of the City's Contractor, OH Materials, accomplished the goals of the City of New York as specified in NYC's Request for Proposal.

A detailed description of the decontamination of tanks, piping, dikes and separators is included in CH2M Hill's discussion of decontamination activities. (Atch 16, Chapter V, CH2M Hill Engineering Services Support Quanta Resources Site Cleanup)

Surface Soil Investigations

The analysis of surface soil for PCB contamination was conducted by OH Materials on Nov 5. Surface split spoon samples were taken from 10 locations both on the Quanta site and next to the rail road tracks just behind the Quanta facility. Analysis of these samples show no significant PCB contamination of the surface soil. (Atch 17, OHM diagram of the sample locations, and lab results)

Subsurface Investigations

A preliminary subsurface investigation was conducted by OHM on Nov 1 and Nov 2. This study was implemented to determine general subsurface conditions and groundwater description at the Quanta site. Four(4) test wells were installed. PCB analysis of the borings do not indicate significant PCB contamination of the soil. However, analysis of the liquid material found in well number 4 indicates a significant PCB contamination of the oil underground. Four samples were analized and show a level of PCBs in a range from 43 parts per million to 143 parts per million. The Toxic Substances Control Act established the standard for PCB contamination at any level over 50 parts per million. All oil found under the Quanta Site is a significant contaminant of the underground aquifer.

PART III - PROBLEMS ENCOUNTERED

Disposal Delays-Cost Increases

Four delays in removal and disposal of certain waste streams resulted in unforseen complications to the immediate removal effort. These events are summarized as follows:

1. On September 9, removal of 12,939 gallons of non-contaminated oil into 2 Oldover Corporation trailers for disposal (incineration) in Industrial Environmental System's light-weight aggregate kiln at Marion, NY was reversed after adverse information was received from NYS DEC. Recommendations for an alternative disposal location at Arvonia, Virginia was also disapproved. On September 10, material was ordered returned and downloaded back into decontaminated storage tanks at Quanta due to anticipated legal problems.

2. On October 18, 5,000 gallons of non-contaminated sludge scheduled for incineration at the Rollins Environmental Services incinerator in Bridgeport, New Jersey was returned back to the Quanta site. Rollins claimed that the extreme viscosity of the material would inhibit its processing through the incinerator. Material was transferred to pool 6 and tank J 42 Jr and later solidified for land disposal as a solid material. As a result of this event, much of the sludge previously categorized as "pumpable" was re-categorized into a "non-pumpable" category. Attachment 18 (Atch 18, Letter: From Ott to Mendes, Oct 20. Re: Change in scope and extent of work to accomplish the removal of hazardous materials from the Quanta Resources site) documents this significant change in scope and extent of work to accomplish the removal of hazardous materials at Quanta. CH2M Hill's final report also notes this incident in their Final report under a section entitled "Site Cleanup Difficulties/Resolutions".

3. On November 3, eight trucks containing an estimated 96 cubic yards of non-contaminated sludge were sent to the Browning-Ferris Industries landfill in Baltimore, Maryland for disposal. After one truck was unloaded, the State of Maryland denied the seven remaining trucks permission to unload at BFI. The State of Maryland questioned the sludge waste characterization and requested additional analysis, not routinely or previously requested when the disposal contract agreement was made. Attachment 19 (Atch 19, Letter, Ott to Sparks, Movement of Non-contaminated and Contaminated Materials from the Site, Nov 4) provided direction to the contractor on

Flash point testing and special Gas Chromatograph-Mass Spectrometer (GC-MS) analysis of organic constituents in the sludge was completed independently by both OHM and CH2M Hill. Both special analysis tests by the two laboratories concurred that the material was not hazardous (did not contain any of the hazardous waste characteristics or abnormal levels of the 129 priority pollutants as defined by RCRA part 261), and that the material had a high flash point, thus characterizing the material as a non-hazardous material.

Due to the delays and difficulties involved in the shipment to BFI in Maryland, much of the remainder of the non-hazardous materials was directed to be sent to the SCA Chemical Services Company's Model City site in Niagara Falls, New York, for disposal. (Atch 20, Authorization for OHM to ship materials to SCA, Model City, NY, Mendes Mailgram, Nov 9) On November 16, 1982 the State of Maryland approved the disposal of non-hazardous material at BFI, and the last remaining 4 truckloads of non-hazardous material at Quanta were transported to BFI for disposal on November 18, 1982.

This problem area is discussed by CH2M Hill in some detail in their Final report under a section entitled "Site Cleanup Difficulties/Resolutions".

4. On October 28, ENSCO in El Dorado, Arkansas, notified NYC DEP and OHM that 2 of the 3 rail tankers containing PCB-contaminated sludge as sent from New York on Oct 15, 82 had leaked oil. A 1-inch air valve on tanker ACFX12086 was open, and tanker NATX21632 was leaking oil from a pressure relief valve. These events occurred sometime between departure at Quanta and arrival at ENSCO.

   The unsealed tanker ACFX12086 was resealed, and tanker NATX21632 was determined to have leaked oil under normal operating conditions of the relief valve. A special report by CH2M Hill was provided for this incident. It is included in CH2M Hill's final report under the section entitled "Site Cleanup Difficulties/Resolutions.

Cost Recovery Documentation

Immediate removal of the hazardous materials from Quanta Resources that were an immediate risk to the health & safety of the New York City public and the environment was necessary. It was accomplished by the City of New York in accordance with 40 CFR, section 300.65, Phase III-Immediate Removal, of the National Oil & Hazardous Substances Contingency Plan. Documentation for all costs associated with the threat assessment phase and the immediate removal phase was accomplished by the City of New York on EPA form 1900-55. In addition, O.H. Materials prepared a daily report of all personnel, equipment, expendables and subcontractor expenses. This report was reviewed daily by both the DEP OSC and CH2M Hill with final appoval by the NYC DEP On Scene Coordinator.

Documentation for daily site activities was also maintained through use of a log book. Quanta activities were noted in the logbooks by either the NYC DEP On-Scene Coordinator, or the CH2M Hill On-Site Engineer. Log book entries begin on June 15, and continue through Dec 1,. Four bound log books numbered Quanta Book #1 through Quanta Book #4 are located at 51 Astor Place NY, NY. Copies of these log books were also provided to CH2M Hill, Reston, VA.

In addition to the logbooks, the NYC DEP On-Scene Coordinator maintained a chronological file of letters, memorandums and miscellaneous correspondence relating to the on-site risk assessment and removal activities. This file is in five binders filed at 51 Astor Place, NY, NY 10003. Also included in this file are all copies of the Marine Chemist Certificate for all the cleaned and decontaminated tanks at Quanta.

File copies of all manifests are maintained in a three ring binder located at 51 Astor Place. The original copies of applicable hazardous materials manifests are maintained by the originating and disposal state. A list of all manifest numbers is provided as attachment 14 (Atch 14, NYC DEP letters to USEPA, Dec 22 and Oct 22, Re: specific waste stream, volume, date of shipment, disposal locations, transportation and manifest numbers of materials removed from Quanta) to this report.

OH Materials maintains detailed documentation of their Quanta activities at their home office in Findlay, Ohio. This documentation includes: detailed daily activity logs, sampling & analysis logs, laboratory logs/reports, copies of most letters and memorandum and the cost/expense documentation.

The submission of invoices to the City of New York by OH Materials included copies of the daily report and copies of all applicable recipts. Each OH Materials invoice was submitted to the NYC DEP On-Scene Coordinator. The complete review of all documents by the NYC DEP On Scene Coordinator and the CH2M Hill On-Site Engineer was documented on the "Certification for Estimate for Partial Payment" and included the City's calculations for 5% retainage as agreed in the Letter of Intent. Approved invoices were then submitted to NYC DEP's Audits and Accounts for payment and final record disposition. Copies of all invoices are also maintained by the On Scene Coordinator, NYC DEP BS&T, 51 Astor Place, N.Y.,N.Y. 10003 and OH Materials, Findlay, Ohio.

Files not maintained by the NYC DEP On-Scene Coordinator at 51 Astor Place include any documents related to discussion of the Quanta site history, records from the Quanta Corporation, legal status of the facility, or ongoing discussions between the City and State of New York regarding cost recovery.

A summary of Quanta expenses is provided by NYC DEP Audits and Accounts. (Atch 21, NYC DEP Audits & Accounts Memo, Re: General Status of Orders & Requisitions, Feb 83)

The Final Letter of Intent raised the authorization to expend to $2,100,000.(Attachment "22", Final Letter of Intent, O.H. Materials). Unforeseen disposal obstacles that may increase disposal costs beyond this estimate are still a possibility. Discussions related to these final disposal costs are pending resolution.

Initial cost recovery from the State of New York by the City of New York for the City's expenses related to the immediate removal of hazardous materials at the Quanta site has been requested through a petition in the Supreme Court of the State of New York. (Atch 22, Verified Petition NYC Against Commissioner NYS DEC, Dec 27)

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE & TECHNOLOGY

QUANTA RESOURCES
CITY ON SCENE COORDINATOR'S REPORT TO THE COMMISSIONER

Total Expense Summary

VENDOR	TASK/SERVICE	TOTAL AMT. ENCUMBERED
1. OH Materials	Removal,Disposal	$2,100,000.00
2. CH2M Hill	Consultants	176,015.00
3. Accurate Fence	Fence	9,000.00
4. J & H Berge	Flash Point Apparatus	2,130.50
5. Cecos Int'l	Sampling	777.00
6. Eastco Safety Co.	Safety Supplies	249.16
7. Hobbs Electrical Dist.	Electrical Supplies	302.03
8. Chemical Waste Disposal	Disposal chemicals	1,275.00
9. Mercer Rubber Co.	Safety Supplies	51.66
10. Mr. John Sanitary Units	Portable Toilets	490.00
11. Radiac Research Corp.	Radiological Survey	800.00
12. United Linens Inc.	Safety Equipment	349.05
13. GCI Temporary	Clerical Support	4,059.00
	GRAND TOTAL	$2,295,498.40

PART IV RECOMMENDATIONS

Remedial Actions
40 CFR, section 300.68

The City of New York completed the removal of hazardous materials that were an immediate threat to the health of the public and to the environment. Four observation wells were installed in the concluding phases of site cleanup to check for contamination of underground water resources due to past leakage from this site. Evidence from these wells demonstrate that:

1) oil products have contaminated the underlying aquifer material;
2) there is a significant amount of floating product (as much as 7 feet standing in one observation well),
3) the different chemical nature of the products found -specifically, PCBs over 100 ppm- suggest that multiple leaks may have occurred.

Further, it can reasonably be assumed that in addition to a floating plume:

1) residual traces of the product can be found in the unsaturated aquifer material that the plume has come in contact with, and
2) a plume of dissolved product can be found in the ground-water reservoir.

Clearly, an investigation should be conducted to determine the degree and extent of surface, subsurface, and groundwater contamination on, and adjacent to the abandoned Quanta site.

Failure to act responsibly could result in PCB or other unknown contamination to:

- provide additional contamination of ground water in the area

- contaminate buildings or basements if the product is near the land surface

- contaminate the nearby navigable waterway, Newtown Creek, which flows into the East River.

The development of an Inactive Hazardous Waste Site Remediation Plan is the responsibility of New York State Department of Environmental Conservation. This remediation plan will require:

* Investigation Of Underground Contamination

The US Geological Survey has outlined requirements for such an investigation (Atch 24, U.S. Geological Survey Quanta Project Proposal, Jan 17, 83). The investigation suggested by the US Geological Service includes:

Short Term

- to determine the vertical and ariel extent of the floating and dissolved plumes,
- to determine the extent of contaminaton of the oil plume by poly chlorinated biphenyls (PCB's)
- to determine the general patterns of ground-water movement in the area and the general direction of plumes migration,
- to estimate the volume of products underground

Follow-up

- to define in greater detail the extent of the plumes,
- to determine the chemical constituents of the floating and dissolved plumes,
- to document movement of the plume, if possible,
- to determine the ultimate fate of the plume, and
- to help develop and optimize a feasible recovery plan

* Development Of Appropriate Removal, Remediation Alternatives

- installation of a monitoring well network (in three dimensions) and collection of:

  1) water-level data to define ground-water flow patterns, and

  2) ground-water samples to determine the present extent of the contamination

  3) estimation of the ultimate discharge point of the contamination

- propose recovery or cleanup plans, and provide a means of optimizing purge well locations and pumping rates.

* Disposition of Above Ground Tanks, Buildings And Property

Final cleanup of the Quanta facility will occur only after all the above ground structures are removed. Oil saturated soil remains on the facility around every tank, in every dike and, in fact, under the entire facility. Planned removal of this material can occur only after all above ground structures are removed.

Discussion about final disposition of the Quanta property is beyond the scope of this report.

* Cost Recovery

Entry of this site into the Federally funded "Superfund" program is the responsibility of NYS DEC. Reference Environmental Conservation Law: Sec. 3:0301. Recommend that NYS DEC consider this action at the earliest possible time.

Reimbursement to the City of New York for immediate removal actions should, similarly be accomplished. The provisions and intent of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) legislation was to tax industry to provide a fund for removal of abandoned and or other dangerous chemical emergencies. The actions by the City of New York were consistent with the National Oil and Hazardous Substances Contingency Plan and were responsible defensive actions to a substantial immediate health and environmental threat. Failure of Federal or State agencies to respond in a timely manner should not prevent reimbursement to local government in accordance with the provisions and intent of CERCLA.

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE & TECHNOLOGY

QUANTA RESOURCES
CITY ON SCENE COORDINATOR'S REPORT TO THE COMMISSIONER

List of Attachments

PART I
PHASE I - Discovery and Notification

1. 1980 Registry of Hazardous Waste Sites-New York City/New York State
2. NYS DEC Policies & Procedures Manual, Chapter 4800
3. NYC Request for assembly of the RRT, May 8
4. NYC DEP BS&T Special Report, July 4. Outline of an investigation required for threat assessment and long range planning at Quanta Resources
5. NYS Attorney General Objection to proposed abandonment, to US Bankruptcy Court, June 4.

PHASE II - Preliminary Assessment

6. Notice of Entrance to Quanta Facility by NYC DEP BS&T, June 15.
7. NYC DEP Special Report, Quanta Clean-up Program, Progress Report, Jul 16)
8. NYC DEP Commissioner's letter to the USEPA Regional Administrator, Jacqueline E. Schafer, July 30. Included are the following attachments:

    a. Letter: Sen. Ralph J. Marino to Mayor Edward I. Koch, Re: Committee on Crime
    b. BS&T Special Report, July 29, NYC DEP Preliminary Risk Assessment.
    c. Mailgram, May 8, Re: NYC Request for Assembly of the RRT.
    d. Letter: Joseph T. McGough to Robert F. Flacke, Comm, NYS DEC, July 26. Re: Quanta Resources
    e. Request For Proposals (RFP) by the City of New York, July 22.
    f. Letter: Joseph T. McGough to Frederick A.O. Schwarz, Jr., Corporation Counsel, City of New York, June 16. Re: Declaration of Emergency
    g. Letter: Corporation Counsel to Joseph T. McGough, June 17, Re: Acknowledgement of Declaration of Emergency

PHASE III - Immediate Defensive Actions

9. CH2M Hill's Confidential Report, August 9, "Summary and Recommendation" on contractor selection.
10. Initial Letter of Intent to OH Materials, Aug 11, Re: Quanta Resources Hazardous Waste Contract.
11. Portions of CH2M Hill's "On-site Inventory Phase Report", Sept. 1.
12. Letter of Intent to OH Materials, Sept 9, Re: Quanta Resource Upset Ceiling Price.

HAZARDOUS WASTE DISPOSAL SITES REPORT
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Code: B
Site Code: 2 41 004
Name of Site: ~~Hudson Oil~~ Refinery/Newtown Refinery Region: 2
County: Queens Town/City New York
Street Address: 37-80 Review Ave., Long Island City, NY 11101

Status of Site Narrative:

The facility processes and stores waste lubricating oil. Possibility of hazardous waste having been spilled on this site, particularly since there is a great deal of asphalt pavement. Observed leakage of materials around the site.

"Discharge means any... leaking ... of petroleum into the waters... or onto the lands from which it might flow.

"Section 611.1, ... section 191 of the Navigation Law... provides for the cleanup and removal of any petroleum discharge..."

"... payment of all cleanup and removal costs ... through the New York environmental protection and spill compensation fund supervised by the State Comptroller."

Type of Site: Open Dump ☐ Treatment Pond(s) ☐ Number of Ponds ____
Landfill ☐ Lagoon(s) ☐ Number of Lagoons ____
Structure ☒ Standing tanks
Estimated Size 2. Acres

Hazardous Wastes Disposed? Confirmed ☐ Suspected ☒

*Type and Quantity of Hazardous Wastes:

TYPE	QUANTITY (Pounds, drums, tons, gallons)
Lubricating oils	

*Use additional sheets if more space is needed.

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

POLICIES AND PROCEDURES MANUAL

TITLE 4800 - HAZARDOUS SUBSTANCES
CHAPTER 4810 - IN-PLACE TOXICS RESPONSE

Introduction. The policy and procedures described herein are to be followed when the Department is investigating or responding to a situation involving an unpermitted or inactive hazardous waste disposal site, improper use of a permitted site, or any situation involving priority response to in-place toxics.

In investigations of and execution of remedial programs for hazardous waste disposal sites and in-place toxic situations, the Department will undertake physical surveys and assessment of the problem, conduct sampling and analysis and other activities to determine the nature of the problem, responsible parties and appropriate response requirements.

These response actions of surveying, sampling and analysis must be done in accordance with the established organizational structure and established lines of communications, as set forth in these policies and procedures, to ensure consistent and effective response efforts, to achieve required objectives while minimizing risks to DEC staff, agents and the general public.

In responding to in-place toxic situations involving water quality accidents, the policies and procedures as contained in Title 1800 Emergency Operations, Chapter 1810 Water Quality Accidents and detailed in ECH 1809.12, New York State Water Quality Accident Contingency Plan and Handbook should be adhered to. Where investigatory situations concerning hazardous waste disposal sites and other in-place toxics evolve into emergency situations, or threaten to, the Department's Emergency Operations and Disaster Preparedness Plan shall be the guiding document concerning appropriate policies and procedures.

4810. Response for In-Place Hazardous and Toxic Situations

4810.1 Authority.

Included in its mandate as defined in the New York State Environmental Conservation Law, the Department is required to:

Commissioner's Directive _____

Date: February 17, 1981 First Deputy Commissioner

SPECIAL INSTRUCTIONS:

DISTRIBUTION:

HTC #2

Form 1100-1

1. Provide and recommend methods for disposal c. wastes, including domestic and industrial refuse consistent with sound environmental quality standards.

2. Ensure that no deleterious or poisonous substances shall be thrown or allowed to run into the waters.

3. Notify persons whose actions present "an imminent danger to the health or welfare of the people of the State or results in or is likely to result in irreversible or irreparable damage to natural resources, to discontinue, abate or alleviate such condition or activity."

4. Be responsible "... for inactive hazardous waste disposal site remedial programs."

Specific sections of the Environmental Conservation Law (ECL) from which this authority arises are §3-0301, §11-0503, §13-0345, §17-0501, §17-0503, §17-1743, §27-0913, §27-1301 through §27-1315, §71-0301, §71-1941, §71-1943.

4810.2 Objectives.

1. To ensure timely investigations of uncontrolled hazardous waste disposal sites and other priority situations involving the presence of in-place toxics in the environment.

2. To ensure appropriate Departmental response to these situations in order to provide protection of public health and the environmental resources of the State.

4810.3 Policy.

1. It is the policy of the Department of Environmental Conservation that it will assess the effects of hazardous materials on the environmental quality of the State, and review and approve actions to contain and prevent severe adverse environmental impacts associated with hazardous waste disposal sites. Furthermore, consistent with the urgency of the situation and the availability of resources, the Department will directly and immediately take such containment and preventive actions in instances in which the environment and public health are jeopardized and the parties responsible for the disposal sites are unidentified.

2. This policy reflects the Department's mandate under Title 13, Sections 27-1305 and 27-1313 of the ECL to identify inactive hazardous waste disposal sites throughout the State, prepare annual reports to the Governor and Legislature on these sites, develop and update annually a regional Registry of these sites and develop remedial plans as may be needed to protect public health and welfare and the environmental resources of the State.

3. The Department places primary liability for containment, clean up and all necessary restoration of areas affected on the responsible party. Local government is primarily responsible for implementing public safety meansures associated with the presence of hazardous materials in the environment. The Department shall support the local efforts by providing technical advice on the environmental effects of the situation or incidents and the proposed remedial actions.

4. It is the Department's policy to inform the New York State Department of Health of all in-place toxic situations as well as to inform appropriate local governmental officials of such conditions. In the event that a hazardous waste disposal site is declared a public health hazard by the Commissioner of Health, as defined under Chapter 282, Laws of 1979, then the Department of Health shall assume the lead role and the Department of Environmental Conservation will proceed consistent with the requirements of law and the guidance of DOH, to ensure that remedial measures are implemented.

5. It is the Department's policy that investigations and responses be accomplished consistent with established safety, technical and engineering standards so as to ensure maximum protection of the environment at minimal risk to DEC personnel and/or agents.

6. It is recognized that there are inherent risks in investigating and responding to hazardous materials and toxic situations. Where it is determined by the DEC staffer in charge of such investigations or response, that the safety of DEC personnel or its agents are in jeopardy in these situations, all site related activity will terminate until proper protection is afforded to persons on site.

4810.4 Responsibilities of DEC Units and Individuals.

4810.41 Regional Offices.

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

POLICIES AND PROCEDURES MANUAL

TITLE 4800 - HAZARDOUS SUBSTANCES

4810.41a. Regional Director.

1. The Regional Director is responsible for the initial investigation and response to the discovery of an uncontrolled hazardous waste disposal site or other reported in-place toxic situation within his region to determine the source, cause, environmental impact and need for further action to prevent or minimize environmental damage.

2. The Regional Director shall utilize Department resources and personnel under his control to assess the severity and the scope of necessary response to a particular situation.

3. The Regional Director is responsible for handling Regional media inquiries dealing with the situation. (See 4810.42f for Central Office assistance and responses)

4810.41b. Regional Engineer for Environmental Quality or Air Pollution Control Engineer or Water/Solid Waste Engineer or Regional Toxic Coordinator where Regional Engineers do not exist.

1. The Regional Engineer for Environmental Quality or his designee will act as the Department's representative and will direct all technical regional activities related to the investigation and oversight of necessary remedial efforts.

2. The Regional Engineer or his designee will coordinate all monitoring during and after a situation or an incident to assess and evaluate the overall environmental damage and effects of remedial action.

4810.42 Central Office.

4810.42a. Office of Environmental Quality.

1. The Assistant Commissioner for Environmental Quality is responsible for overall policy and coordination of the Department's toxic and hazardous waste programs and shall ensure that adequate resources are available to DEC Regions in investigations and responses to priority toxic situations, including the establishment of a Central Office Technical Assistance Team.

2. The Policy and Toxics Coordination Unit in the Office Of Environmental Quality will provide coordinating efforts, as effecting liaison between the DEC Regional Offices and DOH for toxicity information and guidelines, for the Assistant Commissioner for Environmental Quality to assist him in carrying out his responsibilities. (See exhibit 1 for contacts).

4810.42b. Office of Regional Affairs.

1. The Assistant Commissioner for Regional Affairs is responsible for oversight of the Regional response and for inter-Regional coordination and the assignments of personnel from other Regions when appropriate to support the effort. (See Exhibit 2 for Regional contacts).

4810.42c. Office of Natural Resources.

1. The Assistant Commissioner for Natural Resources is responsible for assigning the appropriate personnel and resources from the Program Divisions under his jurisdiction to support the Regional and Central Office efforts, especially as they pertain to assessments and impacts on fish and wildlife resources of the State.

4810.42d. Office of Administration.

1. The Assistant Commissioner for Administration is responsible for identifying the appropriate funding sources to support DEC efforts in responding to toxic situations and providing any necessary administrative assistance from Divisions under his jurisdiction.

4810.42e. Office of Legal Affairs/Compliance Unit.

1. The General Counsel is responsible for implementing appropriate legal and enforcement measures to ensure that responsible parties take necessary remedial measures or pay the State an appropriate sum for this purpose. In instances where the Compliance Unit is delegated these responsibilities, they shall assume these actions.

4810.42f. Office of Communications.

1. The Office of Communications shall respond to all inquiries directed to the Central Office from the media concerning toxic related investigations and shall prepare press releases as the situation warrants upon the request of the Regional Director, the Assistant Commissioner for Environmental Quality, with the concurrence of the Executive Leadership of the Department.

4810.42g. Program Divisions.

1. The Assistant Commissioner for Environmental Quality may assign lead Central Office technical support to an appropriate Program Division Director. In instances

where the lead response belongs within the Office of Natural Resources, the Assistant Commissioner for Natural Resources shall provide the Assistant Commissioner for Environmental Quality with a designated lead Program Division Director for technical support. It is the responsibility of the Program Division Director to then ensure the establishment of an appropriate technical support effort with the resources he has available within his division and with the assignment of other program division personnel. The Director shall designate an appropriate coordinator from his Division.

4810.42h. Laboratory Coordinator.

1. The laboratory coordinator shall be responsible for liaison with the New York State Department of Health, Division of Laboratories and Research. Requests for analytical services from all programs of Environmental Quality will be made through him. The laboratory coordinator or his designee shall be the only person contacting the State Department of Health laboratory to discuss procedures, type of analyses or use of data obtained. Requests for information, changes in protocol, guidance on sampling techniques and status of analysis will be directed to the laboratory coordinator.

4810.42i. Office of Emergency Operations.

1. The Office of Emergency Operations is responsible for coordination of DEC activities in conjunction with Department and State level responses to toxics emergency situations of disaster proportions.

4810.43 Responsibilities and Involvement of Other Agencies.

4810.43a. Local Government.

1. Local governments are responsible for public safety measures that may be required in response to discovery and investigations of uncontrolled hazardous waste sites and other in-place toxic situations. In the event of reasonable apprehension of immediate danger and a finding by the Chief Executive of the municipality that the public safety is imperiled, a state of emergency can be proclaimed within that area of the municipal jurisdiction. At that time, local orders may be issued to protect the life and property including prohibition and control of pedestrian and vehicular traffic, evacuation of endangered areas and suspending any local law, ordinances or regulations which may prevent, hinder or delay necessary action.

4810.43b. New York State Department of Health (DOH).

1. The New York State Department of Health is responsible for assessments and decisions relating to public health and DOH will be the lead agency where public health hazards are determined to exist. DOH is responsible for dispatching personnel to sites where suspected health hazards exist so that they may provide prompt follow-up to protect public health. The Bureau of Toxics Substance Management in the Division of Environmental Health is the coordinating section for their Central Office activities.

2. Section 27-1305 of the Environmental Conservation Law and Section 1389 of the Public Health Law requires the Department of Health to assess (i) any serious health problems in the immediate vicinity of an inactive hazardous waste disposal site and (ii) any health problems deemed by the Department to be related to conditions at such a site.

3. When there is a situation dangerous to life and health resulting from an inactive hazardous waste disposal site which results in a declaration by the Commissioner of Health of a public health emergency under the provisions of Section 1389 of the Public Health Law and throughout the time period during which such a declaration is effective, the Department of Health shall be responsible for:

   a. monitoring such inactive hazardous waste disposal sites;

   b. approving inactive waste disposal site remedial programs for such sites and;

   c. coordinating all inactive hazardous waste disposal site remedial programs for such sites.

4810.5 Requirements for Regional Notifications to Central Office.

When an initial investigation of an uncontrolled hazardous waste site or other in-place toxic situation is conducted by the DEC Regional Office and is deemed to require Central Office technical assistance or policy guidance or is of serious scope and impact to deserve notification to the Central Office, the Regional Director or his representative shall contact the Assistant Commissioner for Regional Affairs and provide the following information:

1. Nature of the Problem: i.e., specific situation dealing with in-place toxics or hazardous materials in the environment.

2. Location - street address, name of facility (if applicable), hamlet, village, town, etc., (as specific as possible).

3. Magnitude of Problem - available information on chemical contaminants, any indication of the potential risk to people or the environment, i.e., heavily populated area, near water supply, any estimated levels or concentrations or discharges (this is not meant to be a definitive statement, but some indication of possible degree of seriousness).

4. Persons, agencies, and organizations currently aware of the situation, i.e., local public officials, State Health Department, newspapers, local residents.

5. Unit and lead individual in the Region who is handling the situation and actions being implemented.

4810.6 Procedures for Coordinated Central Office/Regional Response

A. Initiation and Coordination of Response

Regional Director or Authorized Representative	1. Requests that a technical assistance team be dispatched from the Central Office when there is a need for additional technical support beyond those of the Regional Office.
	2. Requests funding for situations which demand expenditures of money beyond the capabilities of the Regional Office.
	3. Directs the above requests to the Assistant Commissioner for Regional Affairs.
Assistant Commissioner for Regional Affairs	4. Contacts the Assistant Commssioner for Environmental Quality and requests the organization of a technical assistance team.
Regional Engineer or Designee	5. Works with the Central Office Technical Team Coordinator to: (a) establish the investigative procedure and (b) schedule and determines the extent of needed Central Office and Regional resources.

6. Keeps the Regional Attorney advised of all developments so that proper sampling and chain of custody protocols may be established in the event of litigation in connection with the incident.

7. Coordinates with the Regional Office of the Department of Health and County Health agencies as appropriate.

8. Provides the Policy and Toxics Coordination Unit with copies of all information for the purposes of preparing status reports.

Assistant Commissioner for Environmental Quality

9. Directs the Office of Environmental Quality, Policy and Toxics Coordination Unit which becomes the focal point for incoming information and its proper dissemination to agencies, units or staff that must respond.

10. Approves a DEC Central Office Coordinator based upon designation by the assigned lead Program Division Director so that all communications will then be channeled through this one person, rather than the Policy and Toxics Coordination Unit.

a. Where the lead response belongs within the Office of Natural Resources, requests for the Assistant Commissioner of Natural Resources to designate a lead Program Division Director.

Policy and Toxics Coordination Unit - Office of Environmental Quality

11. Prepares status reports which are sent to each DEC Division, State Agency representatives involved in the project and DEC Executive Management and local agencies where applicable.

12. Organizes a meeting of representatives of the Department of Health, Department of Environmental Conservation and other appropriate State and Federal agencies to determine:

    a. present status of the situation from environmental and public health points of view;

    b. overall State strategy to be followed to resolve the identified problem;

    c. additional sampling or investigation necessary to complete the solution of the problem;

    d. the immediate next steps for each agency to follow;

    e. identification of the lead agency, which will be a function of the statutes being violated and character of the problem;

    f. additional technical support required from each agency.

Assistant Commissioner for Natural Resources

13. Designates a lead program Division Director when the lead response belongs within his Office, and at the request of the Assistant Commissioner for Environmental Quality.

DEC Central Office Coordinator

14. Becomes the representative of the Assistant Commissioner for Environmental Quality, although he is administratively within a particular Program Division.

15. Arranges the necessary meetings for technical exchange or addressing of policy issues.

16. Provides copies of all information to the Policy and Toxics Coordination Unit, for the purpose of preparing status reports.

B. Sampling and Chain of Custody

Regional Attorney	1. Ensures that proper sampling and chain of custody protocols are established in the event of litigation in connection with the incident and coordinates with DEC Laboratory Coordinator or his designee.
DEC Central Office Laboratory Coordinator	2. Participates in any meeting and provides technical expertise needed for in-place toxic situations where sampling protocols are to be determined prior to extensive sampling.
	3. Contributes his/her expertise and administration towards the sampling protocols in 1 and 2.

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PMS NEW YORK STATE DEC RPT DLY MGM, TLX 145316, DLR
50 WOLF RD
ALBANY NY
THE CITY OF NEW YORK DEPARTMENT OF ENVIORNMENTAL PROTECTION IS EXTREMELY CONCERNED ABOUT THE APPARENT ABANDONMENT OF THE RECEIVERSHIP AND REMOVAL OF SECURITY FROM QUANTUS RESOURCES 30-87 REVIEW AVENUE LIC QUEENS NEW YORK. AS IN INTERIM MEASURE, WE HAVE REQUESTED NEW YORK CITY POLICE PROVIDE INCREASED POLICE PATROLS IN THIS AREA. THIS IS NOT, HOWEVER, A SATISFACTORY SECURITY SOLUTION FOR THIS WASTE OIL FACILITY. WE REQUEST CHAIRMAN OF THE RRT ASSEMBLE CONCERNED MEMBERS OF THE RRT TO DISCUSS LONGER RANGE ACTIONS AND ASSURED PROTECTION OF THE FACILITY UNTIL ALL HAZARDOUS MATERIALS ARE REMOVED.
RELEASED BY COMMISSIONER NEW YORK CITY DEP

51 ASTOR PL
NEW YORK NY 10003

09:53 EST

MGMCOMP

TO REPLY BY MAILGRAM, SEE REVERSE SIDE FOR WESTERN UNION'S TOLL - FREE PHONE NUMBERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

June 4, 82

Special Report

SUBJECT: Outline of an investigation required for threat assessment and long range planning at Quanta Resources.

NYS is required to initiate an investigation to:

a. Determine if hazardous materials at Quanta Resources are a significant threat to the environment and

b. Develop and implement an appropriate inactive hazardous waste site remedial plan.

Responsibility for these investigation actions by NYS are referenced in the following:

NYS Policies and Procedures Manual, sec 4810.41a----------Atch 1
NYS ECL, secs 3-0301,27-0905,27-1301 thru 27-1315----------Atch 2
6NCRR Part 360, Solid Waste Mgmt Facilities------Exerpts in--Atch 3

NYS DEC is required to be the Lead Agency in This Investigation.

NYS DEC must "act as the official agency of the state in all matters affecting the purpose of the department under any federal laws...and as the official agency of the...city...in connection with the grant or advance of any federal or other funds or credits to the state or through the state to its local governing bodies..." for environmental issues. (Ref. ECL sec 3-0301)

REPORT REQUIREMENTS

1. Historical efforts by NYS to obtain compliance with ECL/Regs.

NYS has been aware of Quanta Resources' operations and alleged improper activities with contaminated waste oil for several years. In fact, the June 1980 report of NYS DEC includes Quanta Resources as a "hazardous waste site." NYS activities to enforce their own laws and permitting regulations should be outlined.

2. Ongoing legal options by NYS To obtain compliance with ECL/Regs. Other investigations and legal activities should be outlined.

3. Sampling and analysis requirements.

Basic to a complete NYS investigation of Quanta Resources is an understanding of the waste oil inventory at the facility. Records of the contents of all tanks, required under NYS permitting regulations, should have been turned over to NYS. If these records are incomplete, inaccurate or unavailable, NYS should sample and analyze all tanks to determine:

a. the relative hazard of the contents to the public and,
b. requirements for long range remediation/disposal.

UNITED STATES BANKRUPTCY COURT
DISTRICT OF NEW JERSEY

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In the Matter of	:	Case No. 81-05967
Quanta Resources Corporation, a corporation of the State of Delaware,	:	AFFIDAVIT
Debtor	:	
	:	

----------X

State of New York)
: SS.:
County of New York)

JAMES REID, being duly sworn deposes and says:

1. I am employed by the New York State Department of Environmental Conservation with offices at Two World Trade Center, New York City in the position of "Regional Engineer for Solid Waste."

2. I have held this position for the past 7 1/2 years.

3. In my capacity as Regional Engineer for Solid Waste I supervise the Solid Waste Unit of Region Two. The Solid Waste Unit which includes in addition to myself, one

engineer and three environmental technicians is responsible for the regulation and control of all solid waste disposed of in New York City.

4. In the discharge of its statutory responsibilities, the Department of Environmental Conservation had samples taken from nineteen storage tanks on the Quanta Resources, Inc. facility at 37-80 Review Avenue, Queens, New York on July 30, 1981 analyzed by the New York State Department of Health.

5. The results of that analysis revealed that five of the nineteen storage tanks were contaminated with poly chlorinated biphenyls (PCB's). More specifically:

Tank No.	Quality of Waste Oil Contaminated	Contaminant	
F1	12,280 gallons	PCB	82 ppm
F3	13,280 gallons	PCB	83 ppm
56	8,029 gallons	PCB	78 ppm
63	25,000 gallons	PCB	83 ppm
64	7,050 gallons	PCB	139 ppm

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6. In addition, I am informed that as a result of chemical analysis of the contents of Tank No. 31 the United States Environmental Protection Agency had that tank labeled as contaminated with PCB's.

James D Reid

JAMES REID

Sworn to before me
this 4 day of June, 1982

Notary Public

Qualified N.Y. Cty.

key for this facility will be made available to the owner, receiver, 38/5800 any other person responsible by court order to this facility upon request.

My Commission expires 3/30/83

References:
NYS DEC Policies and Procedures Manual, 6010.41a
NYS Environ. Conservation Law 3-0301, 27-0305
27-1301 - 27-1315
NYS 6 NCRR Part 360, Solid Waste Mgmt Facilities
Chapter 19, NYC Administrative Code

NOTICE NOTICE NOTICE NOTICE NOTICE

At the request of the Regional Director, New York State Department of Environmental Conservation, by direction of the Commissioner New York City Department of Environmental Protection and in cooperation with the Fire Department, Quanta Resources, 37-80 Review Avenue was entered on June 15, 1982 for the purpose of taking samples of the materials in each tank on the facility.

The purpose of this sampling and future analysis of the product is to determine the nature of the stored materials, their risk to the environment and provide technical information required for planning future remedial actions.

In pursuit of this goal a new lock was placed on the gate and keys have been provided to:

New York State Dept. of Environmental Conservation
Solid Waste 488-3862

New York State Attorney General's Office 488-6226

Fire Department, Prevention 643-3016
Key at Engine #259, 33-51 Greenpoint Ave

Department of General Services 566-6280

During the period,6/15/82 through 6/23/82, NYC DEP has been directed to sample material at the Quanta Facility, a key will be maintained by NYC DEP Field Investigations. 566-8977

A key for this facility will be made available to the owner, receiver, manager or any other person responsible by court order for this facility upon request.

Gary L. Ott
Director
Field Investigations
NYC DEP

References:
NYS DEC Policies and Procedures Manual, 4810.41a
NYS Environ. Conservation Law 3-0301, 27-0905
27-1301 - 27-1315
NYS 6 NCRR Part 360, Solid Waste Mgmt Facilities
Chapter 19, NYC Administrative Code

Quanta file
cc - Carey Files

M E M O R A N D U M

June 7, 1982

TO: TERRY AGRISS
JOSEPH McGOUGH
JAMES KOHLER

FROM: NANCY STEARNS
NORMAN SPIEGEL

RE: Quanta Resources Corp.
37-80 Review Avenue
Long Island City, N.Y.

On Friday, June 4, 1982, we filed the enclosed papers with the bankruptcy court in Newark objecting to the proposed abandonment of the Long Island City facility by the Trustee. We also asked the court to require the Trustee to utilize existing resources in order to bring the facility into compliance with fire codes and to legally dispose of the hazardous materials.

A hearing on these issues is presently scheduled for Tuesday, June 8, 1982 in Newark. After the court rules on these issues we suggest a meeting of all concerned agencies to consider our next step.

NS:rac

Norman Spiegel (rac)
NORMAN SPIEGEL

Gary O'

UNITED STATES BANKRUPTCY COURT
DISTRICT OF NEW JERSEY

In the Matter of	:	Case No. 81-05967
Quanta Resources Corporation, a corporation of the State of Delaware,	:	OBJECTION TO PROPOSED ABANDONMENT
Debtor	:	

The State of New York by its Attorney General, Robert Abrams objects to the proposed abandonment by Thomas J. O'Neill as Trustee of Quanta Resources Corporation of a waste oil processing and storage facility located in Long Island City, New York on the grounds that such abandonment would be in violation of state law and could result in a fire or spill spreading toxic chemicals which even at extremely low levels could cause serious health effects and even death to unknown thousands of New Yorkers. More specifically the basis for this objection is as follows:

1. On October 6, 1981 Quanta Resources Corporation, hereinafter "Quanta" filed a voluntary petition for reorganization under Chapter 11 of the Bankruptcy Code. Quanta continued in the operation of its business and in possession of its property as debtor-in-possession until November 12, 1981.

2. On November 12, 1981 Quanta's Chapter 11 reorganization proceeding was converted to a Chapter 7 liquidation proceeding under the Bankruptcy Code. Thomas J. O'Neill was thereupon appointed trustee in bankruptcy, hereinafter "Trustee".

3. The Trustee is responsible for the management of the property of the debtor in order to effectuate an orderly liquidation of the estate.

4. Among the assets of the Debtor that were placed under the management and control of the Trustee was a waste oil processing and storage facility located at 37-80 Review Avenue, Long Island City, Queens, New York, hereinafter the "Long Island City facility".

5. The Long Island City facility is located in the geographic center of New York City, the Bronx is to the north, Manhattan to the south, Queens to the east, Brooklyn to the south and Staten Island to the southwest. In addition the Long Island City facility is located approximately 450 feet from Newton Creek, a tributory to the East River.

6. The Long Island City facility contains 52 storage tanks with a combined storage capacity in excess of 1.8 million gallons. Docyk affidavit para. 5.

7. There are presently in excess of 500,000 gallons of waste oil and other chemicals stored in the tanks on the Long Island City facility. Docyk affidavit para. 6.

8. Chemical analysis of some of these stored substances revealed that approximately 70,000 gallons of waste oil are contaminated with polychlorinated biphenyls, "PCBs", an extremely hazardous substance. Reid affidavit para. 5-6, Levy affidavit.

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9. The extent to which the remaining 430,000 gallons of untested waste oil and other chemical substances are contaminated with hazardous waste is unknown at the present time.

10. At present the Long Island City facility is in a state of disrepair and progressive physical deterioration. For example, there are holes in a number of the storage tanks, there are breaches in the dikes surrounding the storage tanks, a number of the tanks shows signs of corrosion and the on site steam smothering system is not in operation. In addition the telephone necessary on site for communicating with the Fire Department is no longer operational.

11. By notice dated May 25, 1982 the Trustee proposed to abandon the Long Island City facility on the grounds that "the property is burdensome to the estate and of inconsequential value."

12. If the Long Island City facility is abandoned it will be only a matter of time before the continued deterioration of the facility results in a discharge of these dangerous materials into the environment of New York City thereby threatening the lives and safety of the public.

13. In addition if this Court permits the Trustee to abandon the Long Island City facility it would become an open invitation to vandals and arsonists. A fire on this facility

would generate smoke laden with PCBs and possibly dioxin which would spread out over New York City placing the lives and safety of firefighters and residents in jeopardy. Levy affidavit para. 7. An act of vandalism could also result in a spill of waste oil contaminated with PCB's which would flow from surface drains on the facility into Newtown Creek and the East River contaminating the surface and groundwater of New York thereby threatening the lives and safety of the residents of New York City. Levy affidavit para. 4-5.

14. The United States Judicial Code, 28 U.S.C. § 959(b) mandates that the Trustee in the discharge of his duties "shall manage and operate the property in his possession... according to the requirements of the valid laws of the State in which such property is situated in the same manner that the owner or possessor thereof would be bound to do if in possession thereof".

15. The Trustee's proposal to abandon the deteriorating Long Island City facility is in reality a proposal to dispose of at least 70,000 gallons of hazardous waste in the midst of New York City.

16. The New York State Environmental Conservation Law, section 27-0913 and 71-2701 et seq. not only prohibit such an act but deem such conduct to constitute a felony.

sd

17. The Trustees proposal to abandon the Long Island City facility would also create substantial hazards to the lives and health of the public as is more fully described in paragraphs 12 and 13 supra in violation of the New York State common law of public nuisance and the Real Property actions and Proceeding Law section 841.

18. The Judicial Code, 28 U.S.C. § 959(b) therefore prohibits the Trustee from abandoning the Long Island City facility as long as hazardous wastes are stored there. The Trustee may be entitled to liquidate the estate and to abandon such property as is burdensome to the estate but he cannot use the discharge of these ministerial duties as a justification for acts which threaten the lives and safety of countless innocent people and which violate provisions of the civil and criminal code of the State of New York designed to protect the health and safety of residents of the State.

19. If the Trustee wishes to abandon the Long Island City facility he must first determine consistent with New York State law and regulation how much of the waste oil is contaminated with hazardous waste oil then remove and properly dispose of these hazardous materials. The Trustee should be required to use any and all assets of the estate whether secured or unsecured to effectuate this task. Public policy consideration require that the lives and safety of the innocent public take priority over the claims of creditors.

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The importance of complying with statutory requirements has been recognized by the United States Supreme Court in Nicholas v. United States, 384 U.S. 678 (1967) wherein a priority was given to the payment of taxes. See also Reading Co. v. Brown, 391 U.S. 484 (1968). Here it is not only revenue laws which are at stake, but rather laws necessary to protect the health and safety of the populace and the environment and obviously must take precedence over other claims.

20. Pending the appropriate removal and disposal of the hazardous waste the Trustee is required to maintain the Long Island City facility in compliance with the New York City Administrative Code, "N.Y.C. Adm. Code" whose requirements include.

a. Provide continuous care and supervision of the site 24 hours per day, seven days a week by a person holding a certificate of fitness as manager or supervision thereof. N.Y.C. Adm. Code C19-50(d).

b. Place back into operation the steam smothering system that provides fire extinguishing protection for all storage tanks. N.Y.C. Adm. Code C19-50(b)(12)(A). Otherwise a fire on the Long Island City facility could not be controlled by the New York City Fire Department since water does not extinguish an oil fire.

c. Place back into operation the central office connection (fire box) between the facility and the New York City Fire Department N.Y.C. Adm. Code C19-50(b)(12)(B).

d. Properly seal all dikes. N.Y.C. Adm. Code C19-50(b)(8).

WHEREFORE the State of New York respectfully requests that the Trustee's proposal to abandon the Long Island City facility be denied unless and until all hazardous wastes are removed from this facility and disposed of in conformity with New York State law.

New York, New York
June 4, 1982

ROBERT ABRAMS
Attorney General of the
State of New York

Norman Spiegel

NORMAN SPIEGEL
NANCY STEARNS
Assistant Attorneys General
2 World Trade Center
New York, New York 10047
(212) 488-6226
(212) 488-6249

UNITED STATES BANKRUPTCY COURT
DISTRICT OF NEW JERSEY

----------X

In the Matter of	:	Case No. 81-05967
Quanta Resources Corporation, a corporation of the State of Delaware,	:	AFFIDAVIT
Debtor	:	

----------X

STATE OF NEW YORK)
: SS.:
COUNTY OF NEW YORK)

RICHARD DOCYK, being duly sworn, deposes and says:

1. I am a Deputy Chief Inspector for the New York City Fire Department with the Bulk Oil Storage Unit.

2. The Bulk Oil Storage Unit montiors, surveils and permits all bulk oil storage (storage of oil in excess of ten thousand gallons) and is also responsible for monitoring, surveillance and permits of smaller waste oil storage facilities in the city of New York.

3. As part of my duties I have five persons who conduct field inspections who report directly to me.

4. Three of the field inspectors who report to me have been monitoring the storage facility on 37-80 Review Avenue, Long Island City owned by Quanta Resources. Over the past four weeks, those field inspectors have been inspecting the Quanta facility approximately twice a week and have made

reports to me following their inspections of the facility. The following information concerning the conditions that exist at the Quanta facility and the conclusions I have drawn concerning concerning the facility are based on the information I have received from my field inspectors.

5. The Quanta facility covers approximately two acres of land. Within the facility there are 52 above and below ground tanks with capacities which vary from approximately 1400 gallons to 100,000 gallons. The total capacity of the storage facility is more than 1.8 million gallons.

6. On the basis of our inspections we estimate that the tanks now contain approximately 507,000 gallons of liquid and or sludge.

7. Several of the tanks have holes and leaky valves and there are signs of corrosion. In addition, the dikes surrounding several of the tanks have holes in them and therefore could not properly contain oil which might leak from the tank, particularly if there were a fire.

8. The steam smothering system which requires the high pressure boiler to be functioning 24 hours per day, 7 days per week, andwhich is necessary to extinguish fires at the facility is not in operation. In addition, at least 19, and possibly as many as 36 of the tanks do not have the necessary pipes connecting them to the boiler and steam system.

9. One of the tanks, tank number 31, is labeled as containing PCB's (poly chlorinated biphenyl).

10. Two buildings on the property are old and would burn easily. Should they catch fire they would constitute a tremendous hazard to adjacent tanks, at least one of which is full to capacity, of 20,000 gallons.

11. Next door to the Quanta facility is a construction firm, Nanco Equipment Company, which, on a regular basis, uses oxygen acetylene twenty feet away from Quanta Resources tanks. Burning with Oxygen acetylene creates high heat and sparks.

12. The New York City Administative Code Ch. 19-50.0 establishes certain requirements for fire protection in bulk oil storage plants. The following items are necessary to maintain fire protection at the Quanta facility but are not now present or fuctioning:

a. Steam smothering system: it is necessary to put the existing steam system back into operation with a licensed person to maintain the high pressure boilers 24 hours per day seven days per week.

b. Lines must be run from the boiler to the approximately nineteen tanks which are now unprotected by the steam smothering system.

c. A person who has a certificate of fitness from the New York City Fire Department must be on duty 24 hours per day, seven days per week to assist the fire department should there be a fire. That persons would be necessary to

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show the fire department where the necessary pipes, valves, etc. are.

d. The Central Office Connection (fire box) must be re-connected in the plant.

13. Without the protections specified above the Fire Department would not learn about any fire which started at the Quanta facility fast enough to protect the lives and property of New Yorkers. What is more, without a functioning steam smothering system, the fire department would not be able to put out a fire which started at the Quanta facility since the function of the steam is to deprive the fire of oxygen, and would not be effective in extinguishing the fire.

e. The dikes around the various tanks must be repaired to eliminate holes.

14. For the above reasons I believe that it is imperative that the Quanta facility not be abandoned and that the requirements of the New York administrative code for bulk storage oil set forth above be complied with.

Richard Docyk

RICHARD DOCYK

Sworn to before me this
4th day of June, 1982

NOTARY PUBLIC

Qualified N.Y. Ct.
8818900

UNITED STATES BANKRUPTCY COURT
DISTRICT OF NEW JERSEY

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In the Matter of :

QUANTA RESOURCES CORPORATION, a corporation of the State of Delaware, : Case No. 81-05967 AFFIDAVIT OF DAN LEVY

Debtor. :

----------X

STATE OF NEW YORK)
: SS.:
COUNTY OF NEW YORK)

DAN LEVY, being duly sworn, deposes and says:

1. I am an Environmental Scientist employed by the New York State Department of Law. I have been employed by the Department for 2½ years. My duties include the collection of environmental samples for chemical analysis and supervision of laboratories carrying out these analyses. I am responsible for assuring personal safety during sampling programs conducted by all Law Department scientists. Prior to joining the Department of Law, I was a Researcher in physical organic chemistry at the Battelle Memorial Institute in Columbus, Ohio for two years. I have a B.A. with Honors in Chemistry from Oberlin College and have attended the American Chemical Society course "Toxicology for Chemists" as well as numerous conferences and seminars on hazardous waste treatment and site evaluation.

2. Polychlorinated biphenyls (PCB's) are chlorinated aromatic hydrocarbons. They are formed by chemically substituting chlorine for hydrogen on biphenyl molecules.

Biphenyl is an aromatic hydrocarbon consisting of two benzene (phenyl) rings joined by a carbon-carbon bond. PCB's are oily liquids with fairly high boiling points, high heat capacity (i.e. capable of absorbing heat with little rise in temperature) and low flammability. Increasing the number of chlorine substituents on the biphenyl increases the viscosity, boiling point, heat capacity, and toxicity of the compound while lowering the flammability.

3. PCB's have been used as insulators/heat absorbers in capacitors and other electrical equipment, lubricants, dyes, inks, and coatings. They are frequently sold and used as mixtures with varying degrees of chlorination.

4. PCB's cause a wide spectrum of toxic effects in humans. The most noticeable effect of chronic exposure is chloracne: "blackheads" and pustules which tend to develop around the face, neck, and hands. Lesions of the liver, jaundice, and other hepatic diseases are associated with chronic PCB exposure, as are nausea, dizziness, headaches, and abdominal pain. They are soluble in fats and oils, not water. PCB's are poorly metabolized and bioaccumulate in the liver, fatty tissue, and milk. They can be inhaled when vapor escapes from unsealed containers. Liquid PCB's or PCB vapors can also be absorbed directly through the skin.

5. In animal tests, PCB's are associated with cancer of the liver, fetal toxicity, and birth defects. The existence and degree of the carcinogenicity, fetotoxicity (ability to

UNITED STATES BANKRUPTCY COURT
DISTRICT OF NEW JERSEY

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In the Matter of

Quanta Resources Corporation, a corporation of the State of Delaware,

Debtor

: Case No. 81-05967

: AFFIDAVIT

----------X

STATE OF NEW YORK)
: SS.:
COUNTY OF NEW YORK)

ALFONSO DRAFTS, being duly sworn, deposes and says:

1. I am a confidential investigator for the New York State Department of Law, Environmental Protection Bureau.

2. Previously I was employed by the New York City Police Department for twenty years.

3.As part of my duties for the New York Department of Law, on May 27, 1982, I inspected the Quanta Resources facility at 37-80 Review Avenue, Long Island City.

4. The facility is located in an industrial area of Long Island City, Queens, New York.

5. I observed that one side of the property has about 250 feet of frontage along Review Avenue with a perimeter fence. The second side, adjacent to the Nanco Equipment Company is protected with a ten foot galvanized steel fence with barbed wire on top. The rear of the property, which

is adjacent to Long Island Railroad tracks has a similar fence. The fourth side of the property, adjacent to the Guinness Harp plant, however has a low fence which a person even a child , could easily climb in order to enter the property .

6. On the basis of my experience as a New York City police officer, I believe that the Quanta facility is readily accessable and without 24-hour security is likely to become a target for vandals.

Alfonso Drafts

ALFONSO DRAFTS

Sworn to before me this
4th day of June, 1982

Nancy Stearns

Notary Public
qualified NY Cty
38/8800
my commission expires
3/30/83

poison the fetus), and teratogenicity (ability to cause birth defects) vary with the dose level and species.

6. When PCB's are burned, heated to high temperatures, or exposed to sunlight they are oxidized. Oxidized PCB's are much more toxic than the PCB's themselves. Oxidation products include the polychlorinated dibenzo-p-dioxins (commonly called dioxins) and polychlorinated dibenzofurans. There are many isotopes (varieties) of these compounds containing four chlorine atoms which are common oxidation products of PCB's. These tetrachlorodibenzo-p-dioxins (TCDD's) and tetrachlorodibenzofurans (TCBF's) include some of the most toxic compounds known. They are among the most potent carcinogens, teratogens , and liver toxins. Oral doses on the order of a few micrograms (a millionth of a gram) can be lethal.

7. PCB's are most likely to be contaminated by dibenzodioxins and dibenzofurans if they are burned, or if they come from a source in which they were subject to high temperatures. While it is difficult to burn pure PCB's, they can be ignited if brought to a high enough temperature or mixed with a flammable fluid, such as fuel oil. The lower the temperature of burning, the higher the level of dioxins and furans produced in the process. High temperature incineration, such as in a hazardous waste incinerator, will more completely break the molecules down into carbon dioxide and hydrochloric acid. Uncontrolled burning will be at much lower temperatures.

8. The most common industrial use of PCB's has been in large electrical transformers and capacitors. Because of the

high temperatures attained during the operation of these components, frequently leading to electrical arcs and fires, PCB's from these sources frequently contain the highly toxic oxidation products.

9. Because of the extreme toxicity of PCB's and the oxidation byproducts frequently mixed with them, they were among the first non-radioactive materials whose disposal was specifically regulated by the federal government. Federal limitations have caused a precipitous drop in the production of PCB's. They may only be used in closed containers from which they cannot escape into the environment. PCB contaminated fluids, containing 50-100 ppm PCB's, must be disposed of in special hazardous waste landfills. Any fluids containing more than 100 ppm total PCB's must be incinerated or disposed of in facilities specifically designed for PCB destruction or containment. Dilution of PCB-containing materials to achieve the 50 or 100 ppm breakpoints is forbidden by federal regulations.

DAN LEVY

Sworn to before me this
4th day of June, 1982

NOTARY PUBLIC
qualified in NY Cty
3002800
My commission expires
3/30/83

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE, NEW YORK, N.Y. 10003 (212) 566-2717

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F. FERRANDO, Assistant Commissioner

QUANTA CLEAN - UP

PROGRAM

Progress Report

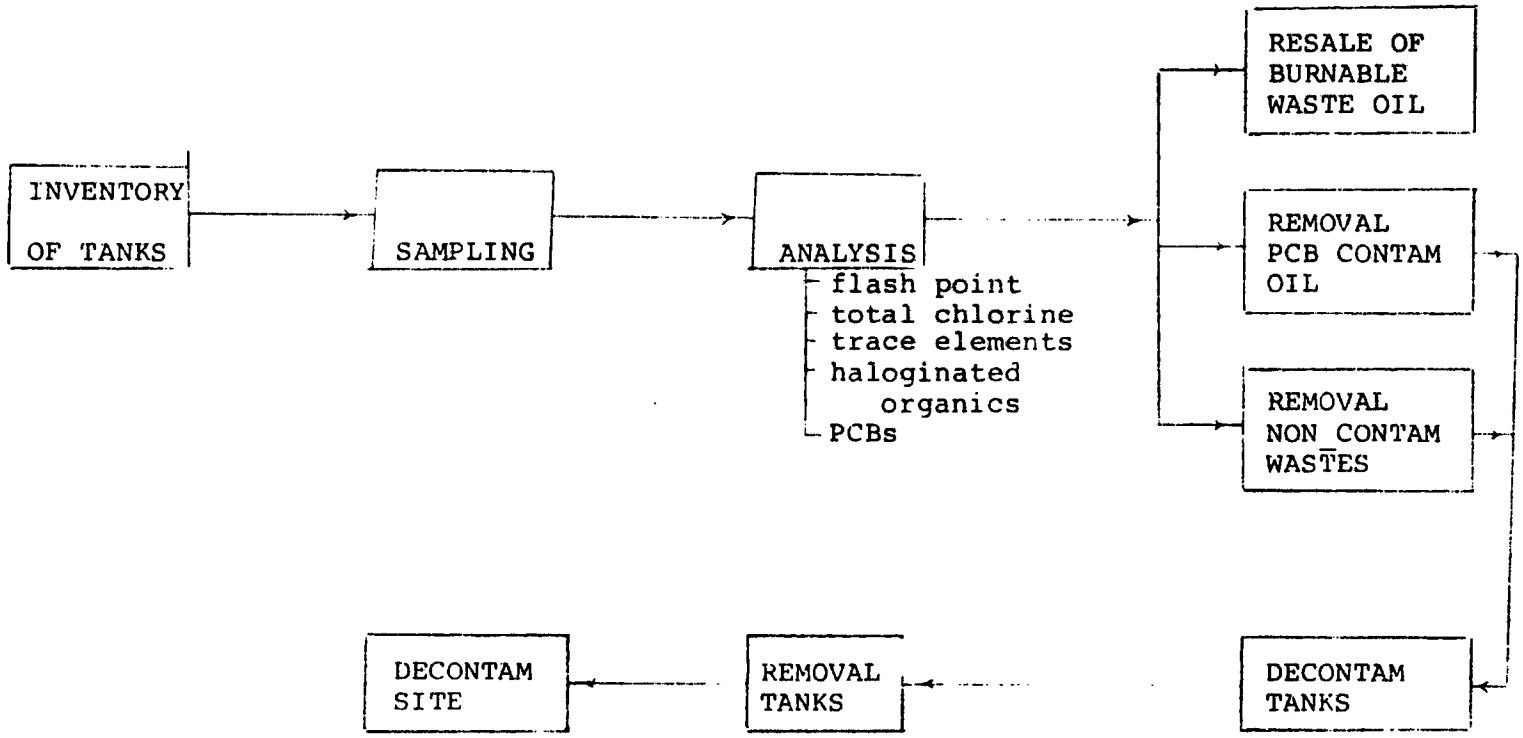
July 16, 1982

Submitted by:

Edward F. Ferrand

Assistant Commissioner/Director

QUANTA CLEANUP PROGRAM



CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING NEW YORK N.Y. 10007 (212) 566-4124-5

JOSEPH F. McGOUGH, JR., Commissioner

July 26, 1982

Hon. Robert F. Flacke, Commissioner
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233

Re: Quanta Resources, Inc.

Dear Commissioner Flacke:

As you well know, some 90 tanks containing approximately 450,000 gallons of waste oil and sludge are located on the property of a former waste oil facility at 37-80 Review Avenue in Long Island City, Queens. Initial inspection by the City of New York has revealed that at least 36,000 gallons of the material, owned by the bankrupt Quanta Resources, Inc., is contaminated with PCBs and other hazardous materials. Quanta's trustee in bankruptcy has abandoned the property by order of the United States Bankruptcy Court.

The abandoned property is a potentially serious environmental hazard to New York City residents. Necessary emergency action has been taken by the New York City Department of Environmental Protection after consultation with the New York State Department of Environmental Conservation, the United States Environmental Protection Agency and the New York City Fire Department. Flashpoint results indicate that some of the material may be ignited by a spark at a temperature as low as 80° F. Combustion of the PCB contaminated oil would result in the release of dioxin into the atmosphere over New York City. Moreover, the tanks containing these oils are in poor condition as some of them are already leaking. Indeed, a letter (attached) from the New York State Select Committee on Crime portrays a highly hazardous situation presenting an imminent danger of causing irreparable damage to the public health and in need of immediate action.

In view of the possible danger to the public the City immediately posted 24-hour security on Quanta's abandoned property. The City Department of Environmental Protection is pursuing a costly testing program to determine the exact contents of the tanks so that cleanup and disposal of the material can proceed as expeditiously as possible. Requests for proposals to cleanup the Quanta site have also been circulated by the Department of Environmental Protection. The City has

undertaken these emergency measures notwithstanding New York State Department of Environmental Conservation's ultimate responsibility for cleanup of the Quanta site due to its regulation of waste oil facilities.

In light of State Department of Environmental Conservation's responsibility in this matter, I request that the Department of Environmental Conservation provide the City Department of Environmental Protection with funds defraying the costs of sampling and of future expenditures, including cleanup, necessary for the resolution of this serious problem. Please also consider this letter a formal application to the State for Federal super fund money within the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. §§9601-9657) and for any State money that may become available under Title 9 of the State Environmental Conservation Law (§§27-0900 et. seq.).

Thank you for your cooperation in this matter.

Very truly yours,

Joseph T. McGough, Jr.

JOSEPH T. McGOUGH, JR.
Commissioner

JTMc:mm
Encl.

cc: Terry Agriss, Regional Director

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OVERVIEW OF ANALYSIS PROGRAM RESULTS

The results to date indicate the following:

- Many of the samples have relatively low flash points indicating possible contamination by gasoline and/or other volatile solvents.

- Many of the samples have relatively high concentrations of chlorinated organic solvents, in particular, methylene chloride, 1,1,1-trichlorethene and tetrachlorethylene. Combustion of these oils will generate hydrochloric acid emissions.

- Most of the 15 samples analyzed by DEP thus far for PCB have either trace or contamination levels of PCB. In addition, 6 tanks were labeled as contaminated with PCB by USEPA. A possible explanation is that the tanks at one time were used to hold waste oils with high concentrations of PCB.

- The concentrations of trace elements such as lead, iron, bromine found in many of the tanks indicates crankcase oils. There were no unusually high levels found for the trace elements measured.

OVERVIEW OF ANALYTICAL WORK REMAINING

Critical element at present is completion of the PCB analyses. The presence of PCB in most samples slows the analyses because of need to ensure decontamination of equipment after each analysis.

For the remaining samples 8 to 10 working days will be required. A double shift could shorten time to 5 days but increase possibility of malfunction of equipment. The additional samples collected with the contractors will add several days.

An alternative is to contract for removal and disposal of waste oils including analyses of samples. (It is likely that contractors removing waste oils will do some analyses.)

Representative costs for EP-toxicity testing of oils is $360 - 420 per sample; PCB analyses would be about $110.

I SAMPLING

Sampling completed by [illegible] to date [illegible].

61 tanks sampled

4 tanks underwater/unsampled*

3 tanks rusted shut/unsampled*

5 tanks reportedly empty*

73 TOTAL

* Contractor will attempt sampling on 7/17/82

II ANALYSES

Flash Point (Pensky-Marten closed cup as per RCRA)

Flash points have been determined for 45 of the 61 tanks sampled. The remainder of the samples are not candidates for flash point because of the nature of the material. Differences between laboratories in flash points can be the result of the manner in which sample was taken or because the open cup method was used by one and the Pensky-Marten by another. All the samples tested by DEP had flash points lower than waste oil; the lowest was 80°F.

Reference flash points:

Waste oil	275°F
Commercial varnish	60°
Ethyl Alcohol	55°
Rubbing alcohol	53°
Acetone	-40°
Gasoline	-45°

/c

SCREENING FOR TOTAL CHLORINE AND TRACE ELEMENTS BY XRAY FLUORESCENCE

A total chlorine concentration less than 25 ppm indicates that the PCB concentration must be less than 50 ppm. All samples contained more than 100 ppm, therefore, no samples were eliminated by this method.

Some of the smaples contianed sufficiently high chlorine concentrations to cause concern about hydrogen chloride (hydrochloric acid) formed by combustion. Therefore, analysis for selected chlorinated organic compounds was undertaken and completed.

38 of the 61 samples could be anlayzed by xray fluorescence; the remaining samples consisted of water with thin layer of oily material.

None of the samples analyzed by xray fluorescence contained unusually high concentrations of the 13 trace elements checked as compared to those found in waste oils.

VOLATILE HALOGENATED ORGANICS

40 samples screened by gas chromatography for 10 organic compounds; the remainder were primarily water.

Highest concentration found of total halogenated organic compounds was about 3 percent.

POLYCHLORINATED BIPHENYLS PCB

Samples from 56 tanks will be analyzed for PCB. As of 7/15/82 1 have been completed. PCB has been found only at the trace level (less than 50 ppm) and the contaminated level (between 50 and 500 ppm). An estimated 10 working days are required to complete PCB analysis.

III DISPOSAL

There are four categories of oil to consider:

1.	PCB Oil -	contains more than 500 (0.05%) of PCB
2.	PCB - Contaminated Oil -	contains between 50 and 500 ppm of PCB
3.	Non-PCB waste oil (burnable)*-	contains less than 50 ppm of PCB
4.	Non-PCB waste oil (non burnable)-	predominantly sludge-like material; will have to be shovelled or vacuumed out of tank.

*Burnable oil must meet specifications, either directly or through blending, based upon content of water, sulfur, chlorine and BTU value. Some of the samples analyzed have high chlorine content (non PCB) that may preclude their use as burnable oil.

DISPOSAL METHODS AND COSTS

PCB - oil -	Incineration in an approved special incinerator. Estimated cost (removal, transportation, incineration) = $13/gallon.
PCB-Contaminated Oil-	Incineration ($6-10/gallon) Landfill after solidification ($6-10/gallon)
Non-PCB Waste Oil-	Possibly saleable with some return depending upon quality and necessity of blending to meet specifications. (-10¢/gal)
Non-PCB Waste Oil- (non-burnable)	Landfill - estimated cost $2-5/gal.

I request the United States Environmental Protection Agency's consent and approval of plans, procedures and funding costs to begin immediate removal activities of hazardous substances stored at Quanta in accordance with the proposed National Oil and Hazardous Substances Pollution Contingency Plan, Subpart F, Hazardous Substances Response. I have attached (attachment "B") a report prepared by the Bureau of Science and Technology underscoring the immediacy of the situation. Please feel free to call me if you require additional information in order to make a determination.

I have also petitioned the State Department of Environmental Conservation to apply to the United States for superfund money within the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. §§9601-9657). In the event that immediate remedial action will not be directly undertaken by EPA, please consider this to be an additional request for superfund money.

Thank you for your cooperation in this matter.

Very truly yours,

Joseph T. McGough, Jr.

JOSEPH T. McGOUGH, JR.
Commissioner

JTMc:RB:mm
Encls.

NEW YORK STATE
SELECT COMMITTEE ON CRIME
ITS CAUSES, CONTROL AND EFFECT ON SOCIETY

270 Broadway
New York, New York 10007
Area Code 212 488-3545

Joseph J. Marino
Chairman

Jeremiah B. McKenna
General Counsel

July 14, 1982

Hon. Edward I. Koch
Mayor of the City of New York
City Hall
New York, New York

Dear Mayor Koch:

The Select Committee on Crime has been investigating the illegal dumping of hazardous wastes at New York City landfills. One of the major dumpers in this criminal conspiracy has been the Hudson Oil Refining Corp. reorganized as Quanta Resources Corp. in 1980. One facility of this corporate dumper is located at 37-80 Review Avenue, Long Island City.

The Review Avenue location is little more than an abandoned illegal hazardous waste storage dump consisting of corroding oil tanks filled with PCB contaminated oil and other highly flammable chemicals. An inspection of the facility by the City's Department of Environmental Protection revealed the flash point on some of the tanks is 82 degrees F. The tanks at Review Avenue are in bad shape and a leak of the flammable wastes stored there could be ignited by an electrical spark from the defective wiring at the facility. Former employees of the facility were afraid to turn on the lights in some of the buildings there.

Our information, obtained from the former manager of the facility who has pled guilty to the criminal dumping conspiracy mentioned above, is that the fire control system at the facility is a sham. Were a fire to start at the facility, the fire fighters would have to use extraordinary precautions for their own safety and dioxin could be released into the atmosphere. Dioxin is one of the most deadly toxins known.

ob

We urgently request that a task force be assembled at your initiative to address this situation and eliminate the public hazard. My own opinion is that the State Department of Environmental Conservation is ultimately responsible for the clean-up of this dump because of their negligent supervision of Hudson/Quanta. However, the fire hazard must be immediately reduced and a clean-up begun.

We will make available to such task force the results of our investigation, the location of former employees of Hudson/Quanta, their statements concerning the contents of the tanks at Review Avenue and our good offices in obtaining whatever State action is required.

Frankly, we have been surprised at the way this whole dumping conspiracy has been approached by public officials. Tests are being conducted at City landfills without consultation with knowledgeable investigators as to the exact site of the dumping or the wastes dumped. Our own investigation indicates some of the generators of the hazardous wastes had to know of the illegal dumping making them financially responsible to the City for the costs of clean-up or the mitigation of the health hazards caused by the dumping. The Select Committee will, of course, assist any City effort in this area.

We, therefore, again urge the convening of a task force to address immediately the Review Avenue situation and thereafter the remediation of the illegal hazardous waste dumping at the City landfills.

Very truly yours,

Ralph J. Marino

Ralph J. Marino
Senator

RJM:lb

CC: Ms. Terry Agriss, Regional Director
Depart. Environmental Conservation,
Region II

Bureau of Science and Technology
Department of Environmental Protection

The New York City Department of Environmental Protection requests consent and approval of plans, procedures and funding costs to begin immediate removal activities of hazardous substances stored in an abandoned waste oil facility known as Quanta Resources, 37-80 Review Avenue, Long Island City, Oueens, New York, This request is in accordance with the proposed National Oil and Hazardous Substances Pollution Contingency Plan, Subpart F, Hazardous Substance Response. To date New York City has taken the following actions:

Discovery and Notification

NYC requested activation of the Regional Response Team (RRT) on May 11, 1982, to assemble US EPA, New York State Department of Environmental Protection and other members of the RRT to initiate single and collective agency response actions to an immediate hazard suspected to exist at Quanta Resources. Attachment A is our mailgram requesting this meeting.

To date, no action or indication of future actions have been taken by state or federal agencies to make a preliminary assessment of the hazard, or potential hazard, existing at Quanta Resources or in initiating immediate or planned removal actions.

Preliminary Assessment

NYC DEP conducted a preliminary assessment of the facility to determine the immediate and significant risk of harm to human life and health of the NYC public. This assessment is reflected in our request for proposals (RFP) which outlines the scope of the tasks required to remove this imminent hazard. This RFP is attachment B.

1. 90 above and belowground tanks are known to exist on the site.

2. 3 oil separators, numerous open drums, vats and metal containers of oily/chemical materials are located about the site

3. Estimated total of 530,000 gallons of waste oil materials are stored in tanks on site.

4. Open diked containment areas, holding varying amounts of oil/chemical materials and rainwater are rapidly deteriorating. Many already have holes and cracks through which oil/chemical material is leaking.

5. A minimum of 100,000 gallons of total material is PCB-contaminated (50-500 ppm).

8d

6. Several thousand gallons are PCB oil (500 ppm and above).

7. The tanks examined were found, in some cases, to contain up to 3% volatile chlorinated solvents.

8. The majority of waste oil stored at the site have flash points significantly lower than those of normal waste oil (270°-600°F).

Immediate Removal Considerations

New York City considers the waste oil/chemical materials stored and abandoned at Quanta Resources to be a significant and serious risk of harm to the safety and well-being of the New York City public and environment. (See New York City Declaration of Emergency, Attachment C.) Any fire involving materials of the types found at Quanta could result in the contamination of the surrounding environment with PCB, dibenzofurans and possibly dioxins. The location of this facility between densely populated areas in Greenpoint, Brooklyn, and Long Island City, Queens, as well as the potential exposure of Fire Department and other emergency personnel, causes us to consider clean-up of this problem site to be a very high priority.

Defensive Actions by NYC

New York City has provided a 24-hour security and additional NYC Police patrols to prevent access to the Quanta site from arsonists and vandals. In addition, NYC has requested contractors to stop one leak (Tank #10). Further, considerable amounts of sorbants have been spread to stop additional oil runoff and movement of leaking oil onto adjacent property which, via Newtown Creek, connects to the East River. Finally, NYC has requested major hazardous materials contractors to propose detailed plans, procedures and costs to remove the hazardous substances at Quanta Resources that are an immiment hazard to the public and the environment.

EPA consent and approval of these plans, procedures and costs, again should be requested so that immediate removal actions can proceed.

cc

MAILGRAM SERVICE CENTER
MIDDLETOWN, VA. 22645

western union Mailgram

4-008895S128002 05/08/82 ICS IPMMTZZ CSP NYBB
1 2125662710 MGM TDMT NEW YORK NY 05-08 0952A EST

GARY OTT
51 ASTOR PL
NEW YORK NY 10003

THIS MAILGRAM IS A CONFIRMATION COPY OF THE FOLLOWING MESSAGE:

2125662710 TDMT NEW YORK NY 100 05-08 0952A EST
PMS NEW YORK STATE DEC RPT DLY MGM, DLR
REGION 2 2 WORLD TRADE CENTER 61 FLOOR
NEW YORK NY
THE CITY OF NEW YORK DEPARTMENT OF ENVIORNMENTAL PROTECTION IS EXTREMELY CONCERNED ABOUT THE APPARENT ABANDONMENT OF THE RECEIVERSHIP AND REMOVAL OF SECURITY FROM QUANTUS RESOURCES 30-87 REVIEW AVENUE LIC QUEENS NEW YORK. AS IN INTERIM MEASURE, WE HAVE REQUESTED NEW YORK CITY POLICE PROVIDE INCREASED POLICE PATROLS IN THIS AREA. THIS IS NOT, HOWEVER, A SATISFACTORY SECURITY SOLUTION FOR THIS WASTE OIL FACILITY. WE REQUEST CHAIRMAN OF THE RRT ASSEMBLE CONCERNED MEMBERS OF THE RRT TO DISCUSS LONGER RANGE ACTIONS AND ASSURED PROTECTION OF THE FACILITY UNTIL ALL HAZARDOUS MATERIALS ARE REMOVED.
RELEASED BY COMMISSIONER NEW YORK CITY DEP

51 ASTOR PL
NEW YORK NY 10003

09:55 EST

MGMCOMP

TO REPLY BY MAILGRAM, SEE REVERSE SIDE FOR WESTERN UNION'S TOLL - FREE PHONE NUMBERS

REMOVAL OF HAZARDOUS AND OTHER

MATERIALS

FROM QUANTA RESOURCES

37-80 REVIEW AVENUE

QUEENS, NEW YORK

REQUEST

FOR

PROPOSALS

Request for proposals will be received by the Department of Environmental Protection, Bureau of Science and Technology in room 115, 51 Astor Place, New York, NY until

5:00 p.m., Thursday, July 29, 1982

to furnish all labor, equipment and skills necessary to accomplish the removal and disposal of PCB contaminated waste oil, solvents, chemicals, water and other materials uncharacteristic of waste oil products which are a hazard to the public and the environment located at the Quanta Resources in Long Island City

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REQUEST FOR PROPOSAL
NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

GENERAL ORDER OF WORK

Phase I:

Remove materials hazardous to the New York City public and environment. Such materials include waste oil, much of it containing polychlorinated biphenyls (PCBs), solvents, chemicals, water, solids, sludge and other materials uncharacteristic of waste oil products. Removal includes the legal treatment, transport and disposal of said materials to an approved hazardous waste disposal facility for final disposal, or to an approved high temperature facility or incinerator facility for legal destruction of the materials.

Phase II:

Decontaminate and stabilize all tanks, separators, and other containers and appurtenances and containment areas which hold said materials, according to Federal, State and industry standards for such materials and until all the insides of the tanks, etc. are squeegee clean or otherwise cleaned as described below. A gas free certificate will be required from a licensed Marine Chemist for all tanks on the Quanta facility.

SCOPE OF WORK FOR PHASE I

1. Legally remove, treat, transport and dispose of all liquids within all tanks, etc. Such liquids include petroleum products including waste oil, PCB contaminated waste oil, solvents and other chemicals.

2. Legally remove, treat, transport and dispose of all sludges, semi-solids and solid contaminated materials.

3. Separate and remove all water layers, separable from petroleum products or other materials, that meet the discharge criteria of the City of New York, section 687-1.0 of the Administrative Code, by discharging into the public sewer system.

SCOPE OF WORK FOR PHASE II

1. Decontaminate PCB contaminated tanks, according to guidelines stated in the Federal Resource Conservation and Recovery Act (RCRA), CFR Part 40, for such tanks and until they are squeegee clean.

2. Decontaminate non-PCB tanks, according to the American Petroleum Institute's practices for such tanks and until they are squeegee clean.

3. All tanks will be certified gas free by a licensed Marine Chemist. Services of the Marine Chemist will be obtained and paid for by contractor after approval by NYC DEP.

4. All separators, containers, apurtenances and containment areas other than tanks, will be decontaminated or purged in accordance with all Federal, State, and local laws, regulations and ordinances and with recognized industry standards.

SITE DESCRIPTION

1. The facility, Quanta Resources, is located at 37-80 Review Avenue, Long Island City, New York.

2. The property lies approximately 450 feet north of the Newtown Creek, and is separated from the Creek by the property of the Long Island Railroad. The properties of Guiness Harp Company and NANCO adjoin to the west and east respectively. The property is completely fenced and has only one entrance and is padlocked.

3. Two full-time private security guards and two trained attack dogs guard the interior of the site 24 hours a day. An exterior 24-hour police patrol is also maintained. The City intends to keep these security measures at the site throughout the term of the clean-up contract.

4. 500,000 gallons of described materials is estimated to be on site.

5. The Quanta Resources facility includes four separate tankage areas with a total of 90 or more tanks above and below ground.

6. Two separate sewer lines leave the Quanta Resources property. The line heading south under the Long Island Railroad is a 6 inch storm drain which terminates at Newtown Creek. This 12 inch line is connected to the sanitary sewer line on Review Avenue.

7. One barge loading line (6 inch) that runs from the Quanta facility to Newtown Creek is capped and is known to have at least one leak.

8. There are an estimated 15 open drums on the site that contain unknown oily materials.

9. There are diked containment areas holding rainwater and materials leaked from overlying tanks. These dikes are holed in several locations and have not been maintained.

10. Attachments to this request for proposal show tank number, size, estimate of materials in tank and available analysis of materials in the tank. The attachments contain only estimates and are not meant to definitively state the number and size of tanks nor the materials in the tanks.

11. New York City will provide 440 volt triple phase, 220 volt and 110 volt single phase power to one location on the site In addition, NYC will provide water at one location at the site.

12. New York City will provide a general authorization for entry to the site for Contractor employees.

13. Contractor will be held harmless by NYC for lawsuits involving unauthorized entry to the site, until contractor has taken control of site.

14. NYC Fire Department permit applications for tanker trucks will receive special coordination and assistance.

BK

CONTRACTOR GUIDELINES

TECHNICAL AND OPERATIONAL GUIDELINES

1. Removal, treatment, transport and disposal operations of all said materials on site shall comply with all Federal, State, and local laws, regulations and ordinances for such operations including, but not limited to, RCRA and Toxic Substances Control Act (TSCA).

2. Contractor and City shall agree to a detailed narrative list of the tasks and subtasks to be performed and the technical and operational approach to be taken with each.

3. Any testing of materials required by Federal and State regulations shall be the responsibility of the contractor. The work plan shall include a detailed description of possible tests and the quality assurance management program supporting the validity of the tests.

4. NYC DEP's designated On-Scene-Coordinator (OSC) will certify daily task time and materials work sheets.

5. Removal, treatment, transport and disposal methods and equipment shall be state-of-the-art and recognized standard industry practices.

6. Contractor is responsible for removal of non-hazardous rubbish and garbage generated on the site. Good housekeeping practices shall be observed.

7. Contractor shall provide within 30 days, a site map and complete inventory of all tanks, collection basins, separators, and other containers including tank number, contents, general condition and remarks.

8. All tasks to be performed under this contract must be completed as expeditiously as possible.

9. Contractor is responsible for the safe removal of materials from the facility. This includes, but is not limited to, the use of non-sparking tools and equipment employed in removal of flammable materials.

10. Any field sampling collection and analysis conducted shall be documented and chain of custody procedures shall be implemented.

TRANSPORTATION

11. Transportation routing to and from the work location and disposal site shall provide the least possible danger to the public and must be approved by the City.

12. All trucks, containers and other vehicles to be used to remove and transport materials from the Quanta site must be clean and empty of any materials or contaminants. Contractor must be able to demonstrate that removal tanks and trucks have been adequately cleaned and are safe to load materials from the site for removal.

EQUIPMENT

13. Vehicles, tankers and containers used to transport hazardous materials shall be labeled in accordance with all laws, regulations and ordinances, including but not limited to, 49 CFR Parts 171 and 397.

14. Vehicles used for transportation of PCB contaminated oil (greater than 50ppm) must be labeled in accordance with all laws, regulations, and ordinances, including but not limited to 40 CFR Part 761.

15. Vehicles and equipment in direct contact with PCB contaminated oil must be decontaminated prior to removal in accordance with all laws, regulations and ordinances, including but not limited to 40 CFR Part 761.

16. NYC assumes no responsibility for loss or damage to Contractor's supplies and equipment.

DISPOSAL

17. Treatment and disposal shall be carried out in accordance with all laws, regulations and ordinances, including but not limited to RCRA and TSCA.

18. Name, location, certification, permit and other references of fitness for hazardous waste disposal and incineration facilities must be provided to the OSC by the contractor before disposal. Proposed final disposal of materials must be explicitly described as to location and method of disposal.

19. No interim storage of removed materials from Quanta to the ultimate disposal facility is allowed unless contractor first receives approval from NYC DEP. Any approved interim storage must be carried out in accordance with all Federal, State and local laws, regulations and ordinances, including but not limited to RCRA.

20. Unit of measure for liquid and sludge materials is in US gallons.

DECONTAMINATION

1. Decontamination of tanks, etc., must be completed as expeditiously as possible.

2. Equipment in direct contact with PCB contaminated oil must be decontaminated in accordance with all laws, regulations and ordinances, including but not limited to 40 CFR Part 761, prior to removal from the Quanta site.

3. Contractor is responsible for decontamination of all contractor employees or agents.

CONTRACTUAL GUIDELINES

1. Upon agreement by both parties to terms and conditions of contract, Contractor shall agree to accept a Letter of Intent from the Commissioner of NYC DEP, while NYC proceeds to draw and register a formal contract with the selected proposer.

2. Contractor will be required to sign a standard NYC DEP agreement.

3. NYC reserves the right to contract for services from more than one contractor.

4. The selected proposer will be required to assume sole responsibility for the complete effort as required by this RFP. The NYC DEP will consider the selected proposer to be the sole point of contact with regard to contractual matters.

5. If any part of the work covered by this RFP is to be subcontracted the contractor shall identify the subcontracting organization and the contractual arrangements made therewith. All subcontractors must be approved by the NYC DEP. The successful proposer will furnish the corporate or company name and the names of the officers of said companies.

6. Rights under the agreement may not be sold, assigned or otherwise transferred.

7. The City is not entitled to commission or brokerage fees.

8. The City is not responsible for any costs incurred in the preparation of proposals.

9. A bid security deposit is not required.

10. Insurance is required and is the responsibility of the contractor. The type and amounts of policies carried by the contractor must be specified, and must include Fire Insurance, Automobile Liability Insurance, Worker's Compensation and Disability Insurance, Public Liability Insurance, Owner's Protective Liability Insurance, and Fidelity Insurance. This requirement does not preclude the City from requiring additional policies.

11. The contractor shall be solely responsible for and shall keep, save, and hold harmless the City of New York and its employees from and against any and all claims, demands, suits, actions, recoveries, judgements, and costs and expenses in connection therewith on account of the loss of life, property, or injury or damage to the person, body, or property of any person, agency, corporation, or government entity, which shall arise from or result directly or indirectly from the work and/or materials supplied by or arising out of the performance of this contract. The contractor's liability under this contract shall continue after the termination of the contract with respect to any liability, loss, expense or damage resulting from acts occurring prior to termination. This idemnification obligation is not limited by, but is in addition to, the insurance obligation contained in this agreement.

12. The contractor is responsible for all costs and damage incurred in the correction of any accident or spill during the term of the contract.

13. The contractor is required to maintain proper accounting records and other evidence pertaining to monies received and costs incurred on the program and to make the material available to the NYC DEP at all reasonable times during the contract period and three (3) full years from the date of final contract termination.

In addition to terms stated elsewhere in ths RFP, NYCDEP, shall have access, upon demand, to any books, documents, papers and records of the vendor which are directly pertinent to this contract, for the purpose of making audit examination, excerpts, and transcriptions.

14. The contractor shall be required to obtain and maintain, during the terms of this contract, all licenses, permits, authorization, or any documents required by Federal authorities, State government, county and municipal governments, also international authorities, wherever necessary so that he may complete the requirements necessary to perform this contract.

15. NYC DEP reserves the right to terminate any contract entered into as a result of this RFP, providing written notice has been given to the contractor at least ten (10) days prior to such proposed termination date.

16. There shall be no discrimination against any employees who are employed in the work covered by this Agreement or against any applicant for such employment, because of race, religion, color or national origin. This provision shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoffs or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor shall insert a similar provision in all subcontracts for services covered by this agreement.

17. Contractor will be required to provide a payment, performance, bond or other form of surety covering all work performed under the contract.

INSTRUCTIONS FOR PROPOSAL SUBMISSION

1. All proposals must be sent or carried to:

   Gary Ott
   New York City Department of Environmental Protection
   51 Astor Place
   New York, New York 10003
   (212) 566-8977

2. Deadline for delivery of proposal will be Thursday, July 29, 1982 at 5:00 p.m.

3. Ten copies of the proposal should be submitted

4. NYCDEP will accept questions in writing from any and all proposers.

5. In the event it becomes necessary to revise any part of this RFP, revisions will be provided to all proposers who receive the initial RFP.

CONTENTS OF THE PROPOSAL

1. General Program and Plan
   a. A brief introduction outlining the bidder's overall approach to complete the total project and illustrating an understanding of the problem that the project is intended to solve.

   b. A summary of the problems which the bidder might reasonably expect and an illustration of potential solutions to those problems.

2. Detailed Technical and Operational Plan

   a. timetables
   b. safety measures for public and employees
   c. testing protocols and names of laboratories to be used
   d. removal and disposal methods for materials
      (1) PCB contaminated and PCB oils
      (2) non-PCB contaminated oil
      (3) all other materials - specify categories
   e. types of vehicles and equipment to be used to carry out contract
   f. safety, spill prevention, and contingency plans covering spills. fires, toxic vapor releases, and medical emergencies which may occur on-site or during transportation or disposal
   g. Detailed list of all tasks and sub-tasks.

3. Detailed Financial Plan

   a. Proposed method for calculating charges to the City resulting from the contract. Proposed billing procedures
   b. Proposed schedule for payment to the contractor

c. Estimated costs as specified in sections c.1, c.2, and c.3, below. Cost estimates should include a breakdown of all costs, including but not limited to: labor costs, costs of equipment and materials, insurance, bonding, and out-of- pocket expenses.

(1) Removal of all materials, including physical emptying of containers, required treatment such as neutralization or stabilization, transportation,and disposal of petroleum products and chemicals, both PCB and non-PCB contaminated.Additionally, provide disposal costs for all other substances, and break these out by category.

(2) Decontamination of tanks and appurtenances and containment areas

(3) All other costs

4. Experience and Qualifications of Applicants

This section of the proposal shall contain at least the following information:

a) Location of bidder's headquarters and nearest offices;
b) A chart of the bidder's organization which shows, for key project staff members, their level of responsibility within that organization;
c) A list of principles of the bidder's organization;
d) Other business affiliations of major stockholders (greater than 10%). Affiliation is defined to mean holding or having held, or having an interest in any business entity which deals with hazardous materials, petroleum, or petroleum products;
e) Statement of financial condition;
f) A list of personnel to be assigned, their function on the project, and an indication of their labor category;
g) Detailed resumes for each person assigned to the project which shows related experience;
h) Documentation which clearly shows experience in performing similar projects, including but not limited to, all government contracts awarded during the last three years;
i) A manload for each activity which will show the committment of staff members to the project.

CRITERIA TO BE USED TO EVALUATE PROPOSAL

1. Technical competence of Contractor;

2. Cost will be considered independently of operational and technical factors;

3. Assurances of efforts and actions to protect the public safety, such actions including but not limited to special fire protection devices and procedures;

4. Assurances of legal practices and methods in the removal, treatment, transport and disposal of all liquids, sludges and solids stored at the Quanta facility;

5. Experience and qualifications of proposers as well as the proposer's past performance on comparable projects;

6. Any information the Commissioner of NYCDEP sees fit to obtain concerning the ability of a bidder to supply and/or render the service NYCDEP has a right to expect from a contractor with a good reputation;

7. Furnishing of Payment and Performance Bonds or other forms of surety;

8. Furnishing of required insurance.

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING NEW YORK N.Y. 10007 (212) 566-4124-5

JOSEPH T. McGOUGH, JR. Commissioner

June 16, 1982

Honorable Frederick A.O. Schwarz, Jr.
Corporation Counsel
City of New York
100 Church Street
New York, N.Y. 10007

Att: Ira Blankstein, Esq.

Re: Declaration of Emergency

Dear Mr. Schwarz:

Enclosed is a Declaration of Emergency concerning security on the property located at 37-80 Review Avenue in Long Island City, Queens. The property, formerly owned and operated by Quanta Resources, Inc., is presently under the supervision of a trustee in Bankruptcy. On June 8, 1982, the U.S. Bankruptcy Court in Newark, New Jersey, granted the trustee's motion to remove all security from the site due to lack of funds. Surveillance by a police patrol car, temporarily ordered to protect the site, was terminated as of 8:00 A.M. on June 16.

As the attached memorandum indicates, approximately 450,000 gallons of sludge and oil containing PCB's and other organic compounds are currently being stored on the property. The NYS Department of Environmental Conservation in conjunction with DEP, has undertaken to sample the materials in order to ascertain its specific contents. Until a final determination has been made, there exists a potential risk of fire. Since there is presently no operational fire prevention system in accordance with the New York City Administrative Code, Sec. C19-50.0, the unattended site poses a significant threat to the health and safety of nearby residents and area workers.

In light of the fact that security will be required for an indefinite period while samples are analyzed and remedial actions taken, weekly bids for two unarmed guards, each with one dog, have been received. The cost of the contract will be approximately $3360.00 per week. Two additional expenses are anticipated, namely $98/month

ot

The City of New York

LAW DEPARTMENT

[illegible] CHURCH STREET
NEW YORK, N.Y.
Rm. 5-E-7
888
[illegible]

7/30/82 TO Richard Meade FYI Dorothy

4476/77

June 17, 1982

Department of Environmental
Protection
2358 Municipal Building
New York, New York 10007
ATTN: Mr. Joseph T. McGough, Jr.

Dear Mr. McGough:

We acknowledge receipt of your Declaration of Emergency dated June 16, 1982 received in the department June 17, 1982 resulting from the storage of approximately 450,000 gallons of sludge and oil containing PCB and other highly toxic chemicals located at 37-30 Review Avenue, Long Island City, (this property is presently under supervision by a trustee in Bankruptcy); thus creating a potential fire hazard, endangering nearby residents and property. The area must be protected, thus requiring unarmed guards with dogs, portable toilets and fence repair.

You are advised that the facts set forth in the Declaration of Emergency are sufficient under General Municipal Law Section 103, subd.4 to authorize you to award a contract in excess of $5,000 without public letting for such work as is required to remove the danger to public property, public buildings, or the life, health, safety or property of the inhabitants of the City.

Orders and the agreement for such work should provide that the contractor make and maintain records of the time and material required to perform the emergency work and that the vouchers and payments therefor are subject to audit by the Comptroller.

Where the contractor has submitted an estimate for the cost of performing the necessary emergency work, the Letter of Intent, if used, and the written agreement should provide that the cost shall not exceed the contractor's estimate.

Please submit the Letter of Intent, if used, and the written agreement for the emergency work to this department for approval as to form as required by the Mayor's Executive Order No.2, dated January 21, 1970, and Section 394(b) of the Charter.

Sincerely,

Nathan Ratner

Acting Corporation Counsel

cc: Mayor, Comptroller
Budget Director
Commissioner of Investigation

SUMMARY AND RECOMMENDATION

The purpose of this work effort was to evaluate the proposals submitted by 6 hazardous waste cleanup and disposal contractors and to recommend the one best suited to perform the Quanta Resources project in a safe, responsible, and cost-effective manner. The following contractors submitted technical and cost proposals:

- CECOS International
- Clean Venture
- New England Pollution Control
- O.H. Materials
- Peabody Clean
- Rollins Environmental Services

Each firm's proposal was evaluated considering 4 major criteria; understanding of, and responsiveness to the RFP, technical approach, experience and qualifications, and financial considerations.

The project team performed a screening of all the proposals and determined that 2 of the proposers, Clean Venture and New England Pollution Control, were generally non-responsive and therefore did not warrant as detailed an evaluation as the other contractors.

The responsive contractors were evaluated in-depth, and O.H. Materials was determined by the proposal review team to offer the most favorable overall project qualifications.

CH2M HILL recommends that the NYC DEP negotiate a contract with O.H. Materials for the Quanta site remedial work considering the factors outlined in the RECOMMENDATIONS FOR PROCEEDING.

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ATC-1 1

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2538 MUNICIPAL BUILDING, NEW YORK, N.Y. 10007 (212) 566-4124/5

JOSEPH T. McGOUGH, JR.
Commissioner

AUG 11 1981

Mr. James Kirk
President
O.H. Materials
P.O. Box 551
Findlay, Ohio 45840

Letter of Intent
Quanta Resources
Hazardous Waste
Contract

Dear Mr. Kirk:

This will confirm the engagement of your firm by the New York City Department of Environmental Protection (NYCDEP) for the clean-up of hazardous waste as described below. All work will be at the abandoned waste oil facility known as Quanta Resources, 37-80 Review Avenue in Long Island City, New York. Materials at this site include waste oil, much of it containing polychlorinated biphyenyls (PCB's), solvents, chemicals, wastes, solids, sludges and other materials uncharacteristic of waste oil products.

It is our mutual understanding that your services are needed immediately. It is expected that a contract between your firm and NYCDEP will be approved by the City following completion of the first stage of work which is covered by this letter of intent. Prior to approval of this contract, however, you will commence work on August 11 for equipment mobilization and on August 13th for site survey and other tasks as outlined below.

Your services shall include a site survey to identify location, physical condition and measurements, and volume level of all tanks, pipes and appurtenances; sampling (with split samples to NYCDEP) of all materials contained in tanks, pipes and appurtenances based upon approximately 300 samples; analyses of these samples at an on-site laboratory; immediate remedial measures such as diking and leak repair as needed to effectuate site safety and to minimize spill potential; as specified in Scope of Work (attached). All sampling under this Letter of Intent will be completed within 14 days of start of site survey. All analyses under this Letter of Intent will be completed within 17 days of the supply of a three-phase 440 power supply and start of site survey and these analyses will provide 100% characterization of materials located on-site as per the Scope of Work.

When the aforementioned contract is approved and registered with the Comptroller, the time and materials spent up to the time of contract approval will be deducted from the maximum sum approved

under the contract terms. Payment up to the time the contract is approved will be based upon the fee schedule described in O.H. Material's published spill recovery price list, as attached and made part of this letter (the last two lines of page 1 referring to interest rates is deleted). In no event shall the City pay you more than $190,000 pursuant to this Letter of Intent.

You will submit invoices based upon the actual hours worked by each employee and materials used or retained, as appropriate, during each time period. It is understood by both O.H. Materials and the City that the timely completion of the work is of high priority. The City acknowledges that all such work performed in excess of forty hours per week will be invoiced at a higher rate than regular time, as set out in the aforementioned rate schedule.

Each daily shift working more than 8 hours shall include 8 hours of regular time, except for weekends and holidays as per O.H. Material's published spill recovery price list, as attached. Sampling and all other non-analytical services shall be performed between 7:00 a.m. and 7:00 p.m. Laboratory services will be performed over 2 shifts per day for 12 hours per shift. Costs for the mobilization of equipment will be reimbursed, as accepted by the NYCDEP, effective August 11, 1982.All other project costs will be reimbursable effective August 12, 1982.

The On-Site Coordinator (OSC) or designated NYCDEP representative shall sign all time and material daily record forms each working day. These records will be the final determination of time and materials used daily for payment purposes.

The Contractor shall furnish the On-site Coordinator (OSC) daily with three copies of written statements signed by the Contractor's representatives at the site showing:

1) The name and job category of each workman employed on such work, the number of hours employed thereon, and the character of the work each is doing; and

2) The nature and quantity of any materials and equipment furnished or used in connection with the performance of such work and from whom purchased or rented.

A copy of such statement will be countersigned by the OSC noting thereon, any items not agreed to or questioned, and be returned to the Contractor within 2 days after submission.

The Contractor and his subcontractors, when required by the Commissioner, or the Comptroller, or either of them, must also produce for inspection, at the office of the Contractor or subcontractor, any and all of their books, vouchers, records, daily job diaries and reports, and cancelled checks showing the nature and quantity of the labor, materials, and equipment actually used in the performance of work, and the amounts expended therefor, and must permit the Commissioner and the Comptroller to make such extracts therefrom or copies thereof as they or either of them may desire. This Letter of Intent may be modified or changed by the Commisioner from time to time, in a manner not materially

affecting the substance thereof, or increasing the price to be paid by more than five percent of the contract price in the case of a lump sum contract, or five percent of the estimated cost thereof in the case of a unit price contract in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed. An order for extra work shall designate the method of payment therefor, and shall be valid only if issued in writing and signed by the Commissioner. The Contractor shall submit his written proposal for extra work within 2 days from receipt of change order request for proposal, or as otherwise directed by the Commissioner. Work so ordered must be performed by the Contractor.

The City agrees to pay upon the Contractor's weekly invoices, an amount not to exceed the amount set forth in the Letter of Intent and the Contractor agrees to accept, as full consideration for the complete and satisfactory performance of the services required herein, the amount set forth in the letter of intent. Payment(s) shall be made within 30 days after the filing with the Comptroller of voucher(s) for such payment(s). In the event any items in the billing may be questioned or disputed by the Commissioner, these items may be deleted from the billing until their resolution and the remainder of the billing shall be processed within the above period(s). The Contractor shall submit numbered invoices for payment in accordance with the payment schedule established. Such invoices shall set forth the services for which payment is requested, and approval thereof by the Department shall be a prerequisite to payment. All payments shall be subject to such provisions for set off as may be set forth in this Agreement.

All payments under this agreement are subject to audit by the DEP and post-audit by the Comptroller.

All discussions in connection with the services to be rendered by you pursuant to this agreement with members of DEP, and all written material furnished to you by DEP shall be deemed confidential. All written material developed by you pursuant to this agreement shall become and remain the property of the City and may not be reproduced for distribution elsewhere, copyrighted or otherwise published without the prior written consent of the City.

Very truly yours,

JEFFREY SOMMER
Acting Commissioner

Accepted:

Harold M. Hanna
Secretary
O.H. Materials

SUMMARY

CH2M HILL provided the City of New York Department of Environmental Protection with engineering support services related to the inventory of tank contents at the Quanta Resources site in Queens.

Our on-site engineer provided the City on-site coordinator (OSC) with assistance from Friday, August 13 through Saturday, August 21. During this period, O.H. Materials completed all tank sampling efforts.

CH2M HILL's full service laboratory in Montgomery, Alabama analyzed split samples on approximately 15 percent of the total samples taken by the Contractor. The results achieved in the evaluation of the oils and sludges were quite comparable to those of the Contractor. The discrepancies in the aqueous solution test results were caused by differing sample preparation techniques.

ON-SITE ASSISTANCE

On Friday, August 13, 1982, O.H. Materials began to sample the 90 tanks, separators, and basins at the Quanta Resources site. CH2M HILL provided an on-site engineer, specializing in hazardous wastes, to provide the NYC DEP with the following services:

- Assist the DEP on-site coordinator (OSC)
- Oversee Contractor's activities
- Receive split samples for CH2M HILL testing.

For this initial 2 days of sampling, the chief chemist of the CH2M HILL laboratory was present on the site to help establish quality control and chain of custody procedures for taking split samples and transporting these to the CH2M HILL laboratory.

The CH2M HILL on-site engineer maintained a daily log of site activities with the OSC. A copy of these logs is included in Appendix A of this report.

In the estimation of the on-site engineer, the Contractor did a conscientous job in establishing a safety and monitoring program, developing tank access, taking waste samples, and other inventory related activities.

ANALYTICAL TESTING

CH2M HILL was retained by the City of New York to monitor the waste characterization program at the Quanta facility. O.H. Materials was selected by the City to perform the waste characterization sampling and analyses. CH2M HILL randomly selected approximately 15% of the oil, sludge, and aqueous samples as quality control splits. By ensuring that the sampling and analytical program was properly conducted, the City can have additional confidence that the location and method of waste disposal, as well as disposal costs, are as accurate as possible.

At the beginning of the characterization process, an analytical flow scheme was developed in order to ensure complete waste characterization. This flow scheme is as follows:

Category	Analyses
I. WASTE OILS -	PCB, Flashpoint, BTU, % Sulfur, % Chloride, Total Solids
II. SLUDGES -	A. PCB>500, Flashpoint. (Stop) B. PCB<500, >50, Flashpoint. (Stop) C. PCB<50, Flashpoint<140. (Stop) D. PCB<50, Flashpoint>140, EP Toxicity with metals until complete or until one metal exceeded MCL.
III. AQUEOUS	A. PCB<0.01, VOA, Metals. (Stop) B. PCB>0.01. (Stop)

Generally, CH2M HILL and O.H. Materials agreed on all analyses involving oils and sludges. Due to the extreme complexity and contamination of the oils, the PCB analysis is subject to large deviations. Since the primary goal of the program was to ensure proper waste characterization, PCB concentration ranges of less than 50 ppm; greater than 50 ppm but less than 500 ppm; and greater than 500 ppm were established for accuracy.

Consistent discrepancies were evident in the results obtained when testing the aqueous solutions. These differences were as a result of two different analysis approaches: (1) CH2M HILL conducted a total sample analysis, and (2) O.H. Materials segregated the oil from the water prior to analysis. Since the aqueous waste sample had a trace of oil contamination,

CH2M HILL blended the sample prior to analytical preparation. O.H. Materials filtered the sample in order to completely separate the oil and water prior to analysis. Due to these differences in the preparation phase, CH2M HILL's aqueous PCB concentrations are consistently greater than those obtained by O.H. Materials.

Worthwhile data is available from both sets of results; CH2M HILL's results indicate the characteristics of the aqueous liquids in the tanks, while O.H. Materials' results indicate more accurately the characterization of the aqueous wastes following phase separation and filtration, and prior to discharge to the City's sewers.

The analytical methods used by both labs were essentially the same. A summary of all CH2M HILL laboratory test results are included in Table A.

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING, NEW YORK, N.Y. 10007 (212) 566-4124/5

JEREMIAH T. McGOUGH, JR., Commissioner

September 10, 1982

Mr. James Kirk
President
O.H. Materials
P.O. Box 551
Findlay, Ohio 45840

Letter of Intent
Quanta Resources
Hazardous Waste Contract

Dear Mr. Kirk:

This will confirm the engagement of your firm by the New York City Department of Environmental Protection (NYCDEP) for the clean-up of hazardous waste as described below. All work will be at the abandoned waste oil facility known as Quanta Resources, 37-80 Review Avenue in Long Island City, New York. Materials at this site include waste oil, much of it containing polychlorinated biphyenyls (PCB's), solvents, chemicals, wastes, solids, sludges and other materials uncharacteristic of waste oil products.

Your services shall include those set forth in the document entitled "Quanta Resources Phase II Scope of Work" attached hereto and hereby made a part of this letter.

It is our mutual understanding that your activities are needed immediately and, specifically, that you will commence work on September 3, 1982. It is expected that a contract between your firm and NYCDEP will be approved by the City during the course of work which is covered by this letter of intent. When the aforementioned contract is approved and registered with the Comptroller, the amounts paid to you up to the time of contract approval will be deducted from the maximum sum approved under the contract terms. In no event shall the aforementioned contract, or negotiations for same, delay the payment of your invoices in the manner set forth hereunder.

JHCH 12

from time to time in a manner not materially affecting the substance thereof, or increasing the price to be paid by more than five percent of the contract price in the case of a lump sum contract, or five percent of the estimated cost thereof in the case of a unit price contract in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed. An order for extra work shall designate the method of payment therefor, and shall be valid only if issued in writing and signed by the Commissioner. The Contractor shall submit his written proposal for extra work within 2 days from receipt of change order request for proposal, or as otherwise directed by the Commissioner. Work so ordered must be performed by the Contractor.

The City agrees to pay upon submission of the Contractor's weekly invoices an amount, less the retainage set forth below, not to exceed the amount set forth in the Letter of Intent and the Contractor agrees to accept, as full consideration of the complete and satisfactory performance of the services required herein, the amount set forth in the Letter of Intent. The City shall retain five per cent (5%) of all O.H. Materials Co. personnel (excluding per diem charges thereon) and equipment (i.e. equipment owned by O.H. Materials Co.) charges invoiced hereunder to be due and payable immediately upon completion of all work. In addition, the City shall retain 5% of the 15% surcharges imposed by O.H. Materials on its expendables, or transportation, disposal, or other subcontractor charges. The City agrees that there shall be no other retainage withheld on expendables or transportation, disposal, or other subcontractor charges.

Payment(s) shall be made within thirty (30) days after the filing with the Comptroller of voucher(s) for such payment(s). Upon receipt of the Contractor's invoices, the NYCDEP shall take all steps necessary to deliver said invoices to the Comptroller as soon as possible. In the event any items in the billing may be questioned or disputed by the Commissioner, these items may be deleted from the billing until their resolution and the remainder of the billing shall be processed with the above periods(s). The Contractor shall submit numbered invoices for payment in accordance with the payment schedule established. Such invoices shall set forth the services for which payment is requested, and approval thereof by the Department shall be a prerequisite to payment. All payments shall be subject to such provisions for set off as may be set forth in this agreement.

All payments under this agreement are subject to audit by the DEP and postaudit by the Comptroller.

12c

All discussions in connection with the services to be rendered by you pursuant to this agreement with members of NYCDEP, and all written material furnished to you by DEP shall be deemed confidential. All written material developed by you pursuant to this agreement shall become and remain the property of the City and may not be reproduced for distribution elsewhere, copyrighted or otherwise published without the prior written consent of the City.

At any time during the period of this agreement NYCDEP, upon written notice to you, may cancel this agreement and terminate your service. In such event, you shall be paid whatever sum has become due for services performed prior to the effective date of the cancellation together with the demobilization charges for yourself and your subcontractors, if any, without further liability of the City for additional payment for services hereunder.

Very truly yours,

Joseph T. McGough, Jr.

Joseph T. McGough, Jr.
Commissioner

JTM:bw

Accepted:

Harold M. Hanna
Secretary
O.H. Materials

17d

QUANTA WASTE REMOVAL SUMMARY

Material Category	Transport Vehicle	Volume Removed	Dates Shipped	Disposal Facility
Waste Oils 50ppm< PCB <500 ppm	Rail	38,716 gallons	10/21/82	Rollins, TX
Waste Oil with PCB>500 ppm	Truck	1,163 gallons	10/22/82	Rollins, TX
Waste Oil with Chlorinated Organics [illegible],000 ppm	Rail	78,920 gallons	09/29/82-10/05/82	SCA, ILL.
Uncontaminated Waste Oil	Rail	119,830 gallons	09/21/82-10/05/82	SCA, ILL.
Pumpable Sludge	Truck	5,000 gallons	10/13/82	Rollins, NJ
Pumpable Sludge with 50 PPM<PCB<500 ppm	Rail	57,000 gallons	10/15/82	ENSCO, AK
Unpumpable Sludge with 50 ppm<PCB< [illegible] ppm	Truck	430 tons	11/09/82-11/11/82	SCA, NY
Cyanide Solution	Truck	9,425 gallons	11/10/82	SCA, NJ
Unpumpable Sludge [illegible] >500 ppm	Truck	31 drums (1,705 gallons)	12/01/82	Rollins, TX
Contaminated [illegible] (Contamination [illegible] Diesel Fuel)	Truck	1,100 gallons	12/01/82	Sea-Bright, KY
Non-Hazardous [illegible]	Truck	886 tons	11/13/82-11/16/82	SCA, NY and BFI, MD

[illegible]: Compiled by CH2M Hill

ATCH 13

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE NEW YORK, N.Y. 10003

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F. FERRAND, Assistant Commissioner

December 20, 1982

Richard A. Baker, PhD
Chief
Permits Administration Branch
United States Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

SUBJECT: Follow up to issuance of EPA Emergency ID # NYP000773002 issued August 30, 1982. Reference EPA Region II letter Sept. 14, 1982.

Dear Dr. Baker:

Removal of hazardous materials from Quanta Resources was completed on December 1, 1982. A summary of all materials removed from Quanta (atch 1) as well as a detailed list of all manifested shipments (atch 2) is hereby provided as you requested. My interim response dated Oct. 22, 82 on New York City efforts at Quanta Resources is also included, for the record, as atch 3.

The removal of all hazardous materials from the 106 tanks on the Quanta Resources facility will complete the immediate removal phase of the defensive actions taken by the City of New York in accordance with the National Oil & Hazardous Substances Contingency Plan. All materials that were an immediate threat to the health and safety of the NYC Public have been removed.

Further efforts, however, will be required at the Quanta Resources site.

1. Determine the extent of PCB contamination of the soil, underground oils and ground water that is under and around the Quanta site.

2. Prepare inactive hazardous waste site remediation plan for removal, containment, or control of PCB contaminated oil & oil on the aquifer.

3. Complete the demolition of buildings, tanks and the removal of other non-hazardous materials that are not an immediate threat to the health and safety of the NYC Public.

ATCH 14

All of these activities are in the planned response and site remediation categories listed in the National Oil and Hazardous Substances Contingency Plan. It is the responsibility of the State of New York to ensure that these programs are implemented, reference Environmental Conservation Law, section 3-0301 and the National Oil and Hazardous Substances Contingency Plan, 40 CFR, part 300.

If I can be of any help with information or assistance regarding the Quanta project, please feel free to call me. I thank you for your help in assuring a smooth expedition of the necessary manifests and other paperwork required for this project.

Sincerely,

Gary L. Ott
On Scene Coordinator

GLO/ms

Attachments:

1. Master Summary
2. Detailed Manifest Shipments
3. NYC Letter Oct. 22, 1982, same subject.
4. Copies NYS Manifests 11/9/82 thru 12/1/82.

MASTER SUMMARY

MATERIALS REMOVED FROM QUANTA SITE

DECEMBER 1, 1982

WASTE STREAM	QUANTITY
1. OIL - Recyclable, Combustible Liquid <50ppm	119,830 Gallons
2. OIL - Chlorinated, Combustible Liquid <50ppm	78,920 Gallons
3. PCB OIL (50-500ppm)	38,716 Gallons
4. PCB OIL (>500ppm)	1,163 Gallons
5. PCB SLUDGE (8000+ppm)	31 drums (1,705 Gallons)
6. PCB PUMPABLE SLUDGE (50-500ppm)	57,000 Gallons
7. PUMPABLE SLUDGE, (FLAMMABLE)	5,000 Gallons-(43,370 lbs.)
8. PCB-CONTAMINATED, SOLIDIFIED SLUDGE	430 Tons
9. CYANIDE SOLUTION	9,425 Gallons
10. NON-HAZARDOUS, SOLIDIFIED SLUDGE	886 Tons
11. PCB-CONTAMINATED, DIESEL FUEL (SOLVENT TRIPLE RINSE)	20 drums (1,100 Gallons)
12. WATER DISCHARGED CITY SEWER	166,469 Gallons

WASTE STREAM	RAIL/TRUCK TANKER	VOLUME GALLONS	DATE SHIPPED	DISPOSAL DESTINATION	MANIFEST
1. OIL	LIRR WRNX20001	20,230	9/21/82	SCA CHICAGO	NY 1615752 ILL 0685227
2. OIL	LIRR WRNY20006	18,900	9/21/82	SCA CHICAGO	NY 1615986 ILL 06852[illegible]6
3. OIL	LIRR SCUX86709	20,000	9/22/82	SCA CHICAGO	NY 1615761 ILL 0685230
4. OIL - Cl	LIRR NATX21134	20,120	9/28/82	SCA CHICAGO	NY 1615896 ILL 0701508
5. OIL - Cl	LIRR MONX40006	20,500	10/1/82	SCA CHICAGO	NY 1615905 ILL 0685228
6. OIL - Cl	LIRR MONX40011	20,500	10/1/82	SCA CHICAGO	NY1615914 ILL0685229
7. OIL	LIRR NATX20161	20,100	10/4/82	SCA CHICAGO	NY 2300112 ILL 0701510
8. OIL	LIRR NATX21642	20,400	10/4/82	SCA CHICAGO	NY 2300121 ILL 0701509
9. OIL- Cl	LIRR ACFX81086	17,800	10/5/82	SCA CHICAGO	NY 2300148 ILL 0701512
10. OIL	LIRR NATX21645	20,200	10/5/82	SCA CHICAGO	NY 2300139 ILL 0701511
11. SLUDGE PCB-CONT.	LIRR NATX21596	20,000	10/15/82	ENSCO ARK	AR-08480 NY 2967966
12. SLUDGE PCB-CONT.	LIRR NATX21632	20,000	10/15/82	ENSCO ARK	AR-08494 NY 2967975
13. SLUDGE PCB-CONT.	LIRR ACFY12086	20,000	10/15/82	ENSCO ARK	AR-08486 NY 2967741
14A SLUDGE FLAMMABLE	ROLLINS 1751	RETURNED	10/13/82	ROLLINS NJ	NY 2300184
15A SLUDGE FLAMMABLE	ROLLINS 7238	5,000	10/13/82	ROLLINS NJ	NY 1615968
14 OIL-PCB-CONT.	LIRR MONX40008	19,000	10/21/82	ROLLINS TX	TX 00527124 NY 2968002
15 OIL-PCB-CONT.	LIRR MONX40023	19,716	10/21/82	ROLLINS TX	TX 00527125 NY 2967714
16. OIL-PCB	ROLLINS 5232	1,600	10/22/82	ROLLINS TX	TX 00527126

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XVW-8V/ NJ TZ-3605J	12	11/9/82	SCA Model City	NY-2300256
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XWX-53N/ NJ T66166	12	11/9/82	SCA MODEL City	NY-2300364
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XB-28FN/ NJ TN-888H	12	11/9/82	SCA Model City	NY-2300373
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XPU-90X/ NJ TY-775V	12	11/9/82	SCA Model City	NY-2300355
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XVC-87H/ NJ T2-4421	12	11/9/82	SCA Model City	NY-2300472
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XLK-41D/ NJ THO-777	12	11/9/82	SCA Model City	NY-2300445
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XTA-84R/ NJ 502-TFW	12	11/9/82	SCA Model City	NY-2300238
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XNX-29V/ NJ TS-867R	12	11/9/82	SCA Model City	NY-2300319
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 8702-TV/ NY H-79392	12	11/9/82	SCA Model City	NY-2300382
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 8716-TV/ NY H-79392	12	11/9/82	SCA Model City	NY-2300265
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. PA CZ-26962/ PA TG-72975	12	11/9/82	SCA Model City	NY-2300283
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 5424 TX/ NY M-50316	12	11/9/82	SCA Model City	NY-2300292
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. PA CJ-42848/ PA TG-28166	12	11/9/82	SCA Model City	NY-2300301
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. PA CU-56074/ PA TG-94606	12	11/9/82	SCA Model City	NY-2300463

Waste Stream	Transporter Tractor/Trailer #	Volume Cubic Yards	Date Shipped	Disposal Destination	Manifest
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 8704-TU/ NY A-90186	12	11/9/82	SCA Model City	NY-2300274
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. PA CU-28243/ PA TF-12864	12	11/9/82	SCA Model City	NY-2300346
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XWX-53N/ NJ TN-888H	14	11/11/82	SCA Model City	NY-2300643
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XLK-41D/ NJ THO-777	14	11/11/82	SCA Model City	NY-2300103
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XNX-29V/ NJ TS-867R	14	11/11/82	SCA Model City	NY-2300652
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ TY-775U/ NJ XPU-90X	14	11/11/82	SCA Model City	NY-2300661
PCB-Contaminated Solidified Sludge	R&R Sanitation NJ XUW-80V/ NJ TZ-360J	14	11/11/82	SCA Model City	NY-2300454
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp.. NY 8702-TV/ NY S-60165	14	11/11/82	SCA Model City	NY-2300508
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. Ohio 15Z-970/ Ohio 335-F13	14	11/11/82	SCA Model City	NY-2300418
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. PA CU-28245/ PA TF-12864	14	11/11/82	SCA Model City	NY-2300625
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 5424-TX/ NY M-50316	14	11/11/82	SCA Model City	NY-2300517
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 8704-TV/ NY A-90186	14	11/11/82	SCA Model City	NY-2300544
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 5426-TX/ NY R-59793	14	11/11/82	SCA Model City	NY-2300553
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 9790-TV/ NY M-54680	14	11/11/82	SCA Model City	NY-2300616
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 8716-TV/ NY H-79392	14	11/11/82	SCA Model City	NY-2300607

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Manifest
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 8694-TV/ NY A98284	14	11/11/82	SCA Model Sity	NY-2300634
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 5431-TX/ NY S-60179	14	11/11/82	SCA Model City	NY-2300598
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. NY 1130-TW/ NY M-50491	14	11/11/82	SCA Model City	NY-2300589
PCB-Contaminated Solidified Sludge	Buffalo Fuel Corp. ONT. -XJ81 PA T6-94602	14	11/11/82	SCA Model City	NY-2300571
Cyanide Solution	R&R Sanitation NJ XWJ-40V/ NJ TX-9864	1,100 Gallons	11/10/82	SCA Newark, N.J.	NY-2300427
Cyanide Solution	R&R Sanitation NJ XMH-47C/ NJ TP-615D	5,000 Gallons	11/10/82	SCA Newark, N.J.	NY-2300436
Cyanide Solution	R&R Sanitation NJ XUC-84H	3,325 Gallons	11/10/82	SCA Newark, N.J.	NY-2300328
PCB SLUDGE (8000 + ppm)	S&J Transp. NJ XVV40J NJ659TFW	1,700 Gal. (31 drums)	12/01/82	ROLLINS Deer Park, TX	NY-2967534 TX-00552409
PCB-CONTAMINATED DIESEL FUEL (SOLVENT TRIPLE RINSE)	S&J NJ XVV40J NJ659TFW	1,100 Gal. (20 drums)	12/01/82	SEA-BRIGHT Wilder, Kentucky	NY-2967561 KY-#1

*Except where noted otherwise

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE NEW YORK N.Y. 10003 (212) 566-2717

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F. FERRAND, Assistant Commissioner

October 22, 1982

Richard A. Baker, PhD
Chief
Permits Administration Branch - Room 432
United States Environmental Protection Agency
26 Federal Plaza
New York, N.Y. 10278

SUBJECT: Follow up to issuance of EPA Emergency ID # NYP000773002, issued August 30, 1982. Reference EPA Region II Ltr Sep 14, 1982.

Dear Dr. Baker:

New York City requested activation of the Regional Response Team, (RRT) on May 11, 1982 to assemble USEPA, New York State Department of Environmental Conservation and other members of the RRT to discuss and initiate each agency's response to an immediate hazard suspected to exist at Quanta Resources. Quanta Resources located at 37-80 Review Avenue Long Island City, Queens, N.Y. , is an abandoned waste oil facility containing over half a million gallons of waste oil, PCB oil, PCB contaminated oil and sludge and other unknown chemicals in 103 tanks. Bankrupt Quanta Resources' trustee abandoned the property by consent of the Bankruptcy Court on October 6,1981.

Neither Federal nor State environmental agencies, after formal meetings and many discussions, agreed to perform an investigation and hazard assessment of the abandoned materials at Quanta Resources or develop an inactive hazardous waste site remedial plan. Similarly, no Federal or State agency agreed to provide security for this abandoned waste site.

In June, 1982, the New York City Department of Environmental Protection conducted a preliminary assessment of the facility to determine the immediate and significant risk of harm to human life and health of the New York City public. This preliminary assessment, including a site inventory, sampling and analysis program noted:

1. An estimated total of 530,000 gallons of liquid and sludge materials in over 90 separate tanks.

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2. Several thousand gallons of PCB oil.

3. An estimated 100,000 gallons of PCB contaminated oil and sludge.

4. Open diked containment areas, separators, open drums, vats and metal tanks containing varying amounts of oil and chemical materials and rain water in deteriorating condition. Oil and contaminated water were leaking off site and into the soil.

5. Significant quantities of materials with low flash points, enough to pose a significant fire hazard.

On August 11, 1982, NYC DEP initiated a rigorous inventory, sampling and analysis investigation of the Quanta Resources Site. OH Materials, a hazardous waste contractor, was selected over 5 other contractors to perform this first stage of a total effort. OH Materials report dated Sept. 2, 1982 documents this complete investigation. On September 3, 1982 OH Materials was authorized to proceed with an immediate removal of the hazardous materials documented in their report. Completion of this immediate removal phase of the New York City Quanta project is projected by November 15, 1982.

As requested, a summary of the waste streams, transporters, and destination of hazardous materials removed from Quanta is attached for your information. (Materials treated on-site are not included in this report) This report includes all transporter and disposer permit numbers on copies of all applicable out-of-state manifests prepared by the City of New York at the Quanta Site. These documents and all other Quanta status reports have been available to any Federal or State agencies when they visited the Quanta site during the entire clean up effort. As a policy, New York City Department of Environmental Protection used only licensed haulers and disposal facilities for all hazardous waste response efforts.

Two categories of sludge remain at the Quanta Site for solidification for landfill disposal, an estimated 28,000 gallons of PCB contaminated sludge and an estimated 135,000 gallons of non-PCB contaminated sludge. Our initial plans are to bulk the solidified PCB contaminated sludge to the SCA Model City, NY, landfill. Similarly, solidified non-contaminated sludge will be bulked to the BFI landfill in Maryland once all applicable landfill forms have been completed. We will forward to you details of these shipments prior to mid-November 1982.

New York City's final report to the Chairman RRT on this emergency response will be forwarded in December 1982 in accordance with 40 CFR part 300.56. We will again include all the above details in this final report. Attachments to this report will also be the final report of our contractor, OH Materials, and of the consulting engineering firm, CH2M Hill, selected by the NYC Department of Environmental Protection to oversee the entire cleanup effort. Requirements for future Quanta site decontamination, extent of PCB soil contamination and future site remedial actions for New York State or Federal programs will be discussed in this report.

Gary L. Ott
OSC, NYC Representative RRT

QUANTA CLEANUP EPA ID # NYP000773002

WASTE STREAM	RAIL/TRUCK TANKER	VOLUME GALLONS	DATE SHIPPED	DISPOSAL DESTINATION	MANIFEST
1. OIL	LIRR WRNX20001	20,230	9/21/82	SCA CHICAGO	NY 1615752 ILL 0685227
2. OIL	LIRR WRNY20006	18,900	9/21/82	SCA CHICAGO	NY 1615986 ILL 0685226
3. OIL	LIRR SCUX86709	20,000	9/22/82	SCA CHICAGO	NY 1615761 ILL 0685230
4. OIL - Cl	LIRR NATX21134	20,120	9/28/82	SCA CHICAGO	NY 1615896 ILL 0701508
5. OIL - Cl	LIRR MONX40006	20,500	10/1/82	SCA CHICAGO	NY 1615905 ILL 0685228
6. OIL - Cl	LIRR MONX40011	20,500	10/1/82	SCA CHICAGO	NY1615914 ILL0685229
7. OIL	LIRR NATX20161	20,100	10/4/82	SCA CHICAGO	NY 2300112 ILL 0701510
8. OIL	LIRR NATX21642	20,400	10/4/82	SCA CHICAGO	NY 2300121 ILL 0701509
9. OIL- Cl	LIRR ACFX81086	17,800	10/5/82	SCA CHICAGO	NY 2300148 ILL 0701512
10. OIL	LIRR NATX21645	20,200	10/5/82	SCA CHICAGO	NY 2300139 ILL 0701511
11. SLUDGE PCB-CONT.	LIRR NATX21596	20,000	10/15/82	ENSCO ARK	AR-08480 NY 2967966
12. SLUDGE PCB-CONT.	LIRR NATX21632	20,000	10/15/82	ENSCO ARK	AR-08494 NY 2967975
13. SLUDGE PCB-CONT.	LIRR ACFY12086	20,000	10/15/82	ENSCO ARK	AR-08486 NY 2967741
14A SLUDGE FLAMMABLE	ROLLINS 1751	RETURNED	10/13/82	ROLLINS NJ	NY 2300184
15A SLUDGE FLAMMABLE	ROLLINS 7238	5,000	10/13/82	ROLLINS NJ	NY 1615968
14 OIL-PCB-CONT.	LIRR MONX40008	19,000	10/21/82	ROLLINS TX	TX 00527124 NY 2968002
15 OIL-PCB-CONT.	LIRR MONX40023	19,716	10/21/82	ROLLINS TX	TX 00527125 NY 2967714
16. OIL-PCB	ROLLINS 5232	1,600	10/22/82	ROLLINS TX	TX 00527126

Chapter V
SITE CLEANUP

SUMMARY OF SERVICES PERFORMED DURING SITE CLEANUP

Upon completion of the waste characterization work phase, onsite waste removal activities were initiated. The major tasks included in this process were:

- waste consolidation
- onsite waste treatment
- waste removal, transport, and disposal
- tank, dike, separator, piping, and building decontamination
- tank and structure certification

Figure V-1 provides a general schematic that summarizes Quanta site decontamination and waste disposal activities. The responsibilities and duties of OHM and CH2M HILL regarding the tasks addressed above are summarized below.

OH Materials

OHM was responsible for all onsite and offsite tasks related to the waste disposal activities and site decontamination. The key elements accomplished during the site cleanup by OHM are summarized below.

- OHM provided for the removal of contaminated and noncontaminated wastes from all tanks, containment areas, separators, piping, and appurtenances.

- All onsite waste management procedures resulted in the continuous separation and consolidation of different waste disposal categories.

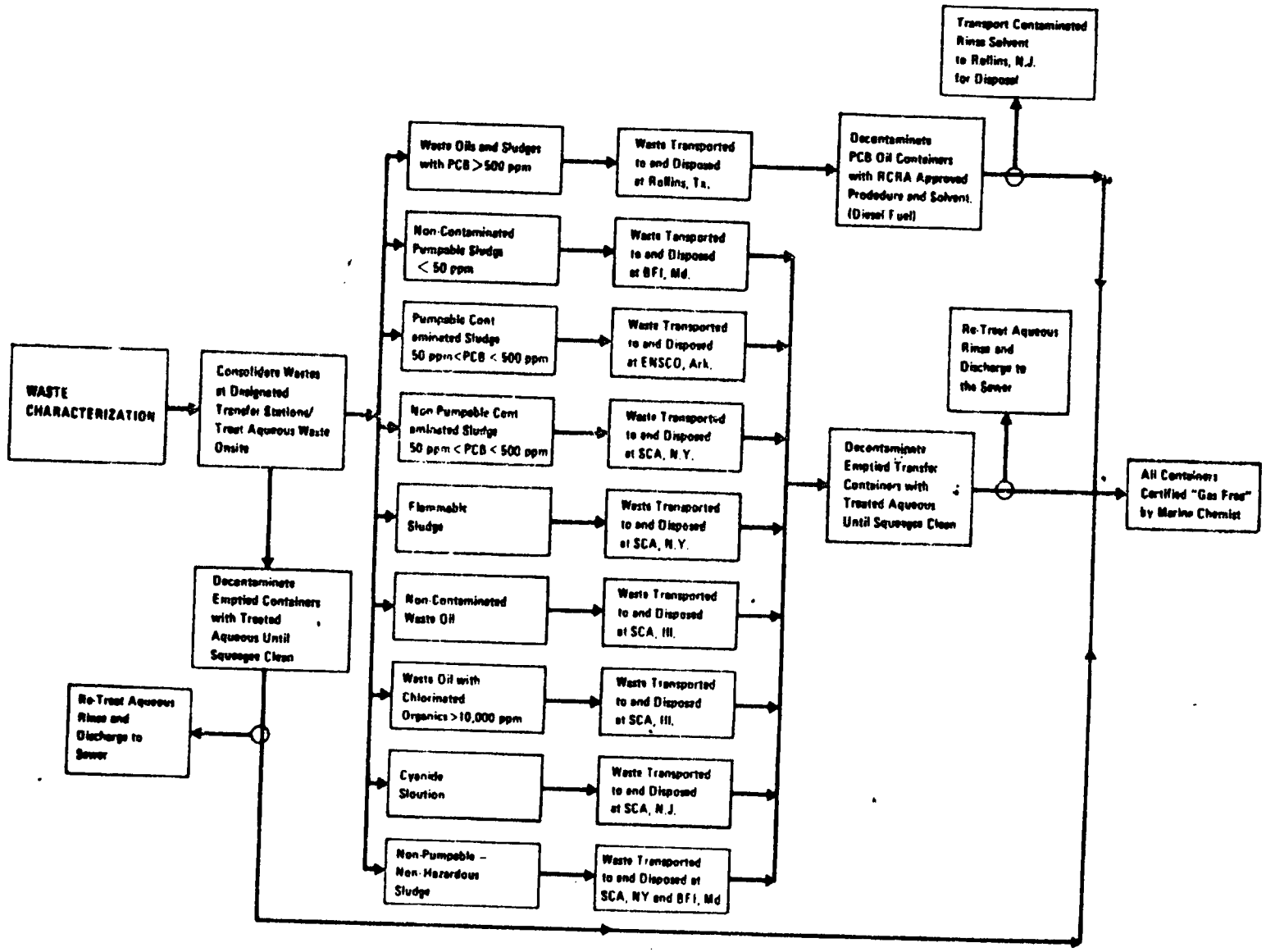

Figure V–1
Quanta Waste Consolidation, and Site Cleanup Schematic

- Onsite treated aqueous wastes discharged to the City sewers by OHM were to be in compliance with the discharge criteria acceptable to the OSC.

- OHM provided all sampling and analytical services necessary to ensure the proper categorization of onsite and decontamination materials for discharge, reuse, recycling, and disposal.

- With regard to the transport of the waste materials, OHM prepared the manifest forms for all hazardous wastes leaving the site in accordance with state and Federal regulations.

- Verification samples were taken on all wastes removed from the site.

- Wastes removed from the Quanta site were disposed of at locations permitted and certified by the appropriate state and Federal agencies for the specific treatment, recycling, reuse, or disposal process intended. Recommendations of appropriate disposal sites were provided by the contractor and approved by NYCDEP.

- OHM properly decontaminated PCB contaminated tanks in accordance with state and Federal guidelines.

- All non-PCB tanks, separators, dikes, structures, pipes, and appurtenances were decontaminated (squeegee clean) in accordance with Federal, state, and local regulations.

- OHM obtained an independent, licensed marine chemist for the purpose of certifying all tanks as being gas free.

CH2M HILL

During site cleanup activities, CH2M HILL provided daily onsite services as follows:

- Maintained a diary (or logbook as a form of daily report) describing the progress of the work, specific problems encountered, and all other pertinent data, sketches and information relative to the execution of the Quanta cleanup.

- Verified the final measurement of quantities of materials treated, removed, transported, and disposed, and verified Contractor's estimates for payment, which included records of labor, equipment and materials used in performing the work by OHM.

- Verified the final measurement of quantities relative to extra work authorized by the Commissioner for payment, including disputed work, which included records of labor, equipment, and materials used in performing the extra work by OHM.

- Provided analytical support for the purpose of quality control for every third discharge of aqueous liquid to the city sewer.

- Provided offsite assistance in documenting the arrival of hazardous waste materials at the point of disposal.

ONSITE WASTE CONSOLIDATION AND TRANSFER

The consolidation of the various waste types dispersed throughout the site, and subsequent tank cleanup, was necessary to effectively decontaminate the waste tanks. In

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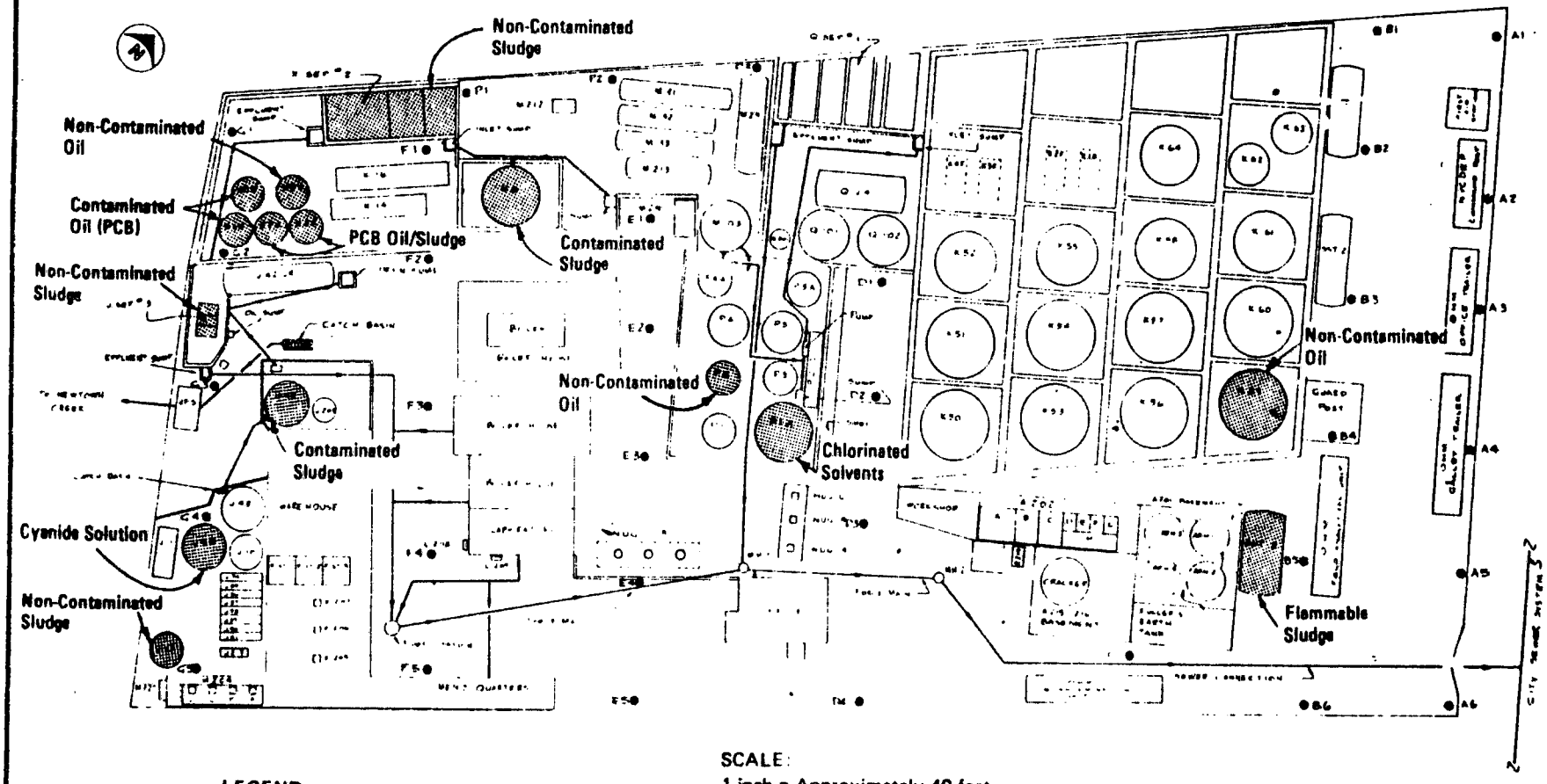

SCALE:
1 inch = Approximately 40 feet

LEGEND

(K50) Tank and Site Identification Number

C/● Air Monitoring Stations

Figure V–2
Major Waste Transfer/Storage Stations

SOURCE: O.H. Materials

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TRANSFER/REMOVAL EQUIPMENT	WASTE TYPE			
	AQUEOUS	OIL	PUMPABLE SLUDGE	NON-PUMPABLE SLUDGE/SOLIDS
1500 gallon Vacuum Skid - Unit	●	●	●	
215 Backhoe				●
3000 gallon Vacuum Truck	●	●	●	
955 Front End Loader				●
Diaphram Pumps	●	●	●	
Bobcat Front End Loader				●
Submersible Pumps	●	●		
580 C Backhoe				●
Hydraulically Operated Centrifugal Pump	●	●		

Figure V–3
Pumping and Mechanical Waste
Transfer and Removal Equipment Matrix

8. Flammable Sludge
9. Noncontaminated Waste Oil
10. Cyanide Solution
11. Nonhazardous Nonpumpable Sludge

As previously discussed, a large amount of the Quanta waste materials consisted of sludge. A significant amount of the sludge was considered nonpumpable and required the application of the heavy equipment described in Figure V-3 for consolidation and removal. For reasons discussed in the special issues section of this report, it was decided that the nonpumpable sludges would be disposed of at an approved hazardous waste landfill (refer to Figure V-1 for disposal site and location).

Since the nonpumpable sludge was to be disposed of at a landfill, solidification of the flowable material was necessary (RCRA guidelines). The solidification process involved transferring the nonpumpable sludge to the exposed underground KF tanks. The exposed tanks provided an ideal mixing station with regard to accessibility and containment. Several absorbent substances were tested by OHM for use as solidification material. Lime dust was considered to be the most efficient and cost effective material. The solidification ratios were determined onsite by OHM's chemists in accordance with RCRA and the receiving landfill's guidelines. The process of determining the correct ratio of sludge to absorbent material and the procedure used in the field to assure correct ratio mixtures are discussed in daily Field Log Book No. 3. A mixture of 1 Part sludge to 1 Part absorbent material by weight was considered to be the correct ratio in accordance with the guidelines previously discussed.

A total of 893 tons of absorbent materials were used in the solidification process. Once the sludge was sufficiently

solidified in the KF mixing area, it was transferred and consolidated in stockpiles and covered with polyethylene. The noncontaminated sludge was solidified prior to the contaminated sludge and kept separate from the latter for disposal.

Waste Material Transport and Disposal

All wastes at the Quanta site were transported and disposed of in accordance with existing Federal, state and local regulations. Proper manifests and bills of lading were prepared by OHM, reviewed by CH2M HILL's representative, and approved by the NYCDEP OSC. The transport vehicles were properly placarded in accordance with Department of Transportation regulations.

The wastes were conveyed offsite by rail and truck. The loading process was carefully performed to avoid transport vehicle external surface contamination. Upon completion of the loading process all major hatches were sealed with evidence bands. This entire process, for all wastes, was observed by the CH2M HILL onsite engineer (refer to the daily field logbook).

Composite samples for each shipment of the wastes being removed offsite were obtained and analyzed by OHM. The exact volume of waste within each transport vehicle was carefully measured prior to leaving the site. These measurements were verified by the CH2M HILL onsite engineer. Prior to leaving the site, all transport vehicles were carefully inspected for site related contamination and properly decontaminated, if necessary. Protective equipment for this task was the same as that used for dike and separator decontamination as described in a subsequent section.

A summary of the transport and disposal activities for each waste category follows. Table V-1 summarizes the final waste categories, volumes, and associated disposal sites. Costs associated with the transport and disposal of the Quanta wastes are presented in Table V-2.

Waste Oils 50 ppm <PCB <500 ppm. The oil wastes with limited PCB contamination were transported from the Quanta facility in late October, 1982. The wastes were transported via rail to the Rollins disposal facility in Deer Park, Texas to be incinerated. The total measured volume of the limited PCB contaminated oil transported offsite was 38,716 gallons.

Waste Oils with PCB >500 ppm. The oil wastes with high concentrations of PCBs were also transported to the Rollins facility in Texas for incineration. On October 22, 1982 a total of 1163 gallons of PCB waste oil were transported offsite via rail.

Waste Oils with Chlorinated Organics >10,000 ppm. Oil waste containing chlorinated solvents was transported offsite via rail to the SCA disposal facility in Chicago for incineration. The wastes were removed from the Quanta facility during the period of September 28 through October 5, 1982. The total volume of waste oil with chlorinated solvents removed from the facility was 78,920 gallons.

Noncontaminated Waste Oil. The noncontaminated waste oil was removed offsite via rail to the SCA disposal facility in Chicago, Illinois. The transport process of the noncontaminated waste oil began on September 9 and was completed by October 5, 1982. The 119,830 gallons of noncontaminated oil were incinerated at the SCA facility.

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Flammable Sludge with PCB <50 ppm. On October 15, 1982 5,000 gallons of flammable sludge were removed offsite via truck. The flammable materials were shipped to the Rollins disposal facility in New Jersey for incineration.

Pumpable Sludge with 50 ppm <PCB <500 ppm. The PCB contaminated sludge considered pumpable was transported via rail to the ENSCO disposal facility in El Dorado, Arkansas. 57,000 gallons of contaminated sludge were removed offsite on October 15, 1982 for incineration at this disposal facility.

Nonpumpable Sludge with 50 ppm <PCB <500 PPM. The nonpumpable materials were solidified onsite prior to transport. The material was shipped to the SCA facility landfill in Niagara Falls (Model City) for disposal during November 9 through November 11, 1982. The solidified sludge was shipped in bulk (12-14 cubic yards) via rolloff container trucks. Preparation of the trucks included visqueen lining of the bed and sides and tarping of the top after loading. A total of 430 cubic yards of contaminated nonpumpable sludge were disposed of at the Model City landfill.

Cyanide Solution. On November 10, 1982, 9,425 gallons of cyanide solution were removed offsite via truck to the SCA disposal facility in Newark, New Jersey.

Nonpumpable Sludge PCB >500 PPM. The PCB sludge was transferred from the storage tanks to 55 gallon drums for transport. Thirty-one drums of contaminated sludge were removed from the site on December 1, 1982. The drums were transported to the Rollins disposal facility in Texas via truck. The sludge is to be incinerated at the disposal facility.

Nonhazardous Sludge. Prior to transport to a disposal facility, the nonhazardous sludge was solidified. During the second week of December 1982, the solidified material was

transported offsite via roll-off container truck to the BFI disposal facility in Maryland and the SCA disposal facility in New York. A total of 886 tons of nonhazardous solidified sludge was transported offsite with 838 tons transported to SCA-NY and 48 tons transported to BFI-MD.

Tank Rinse (Diesel Fuel) with PCB Contamination. The diesel fuel used to decontaminate the X2X and X3X PCB tanks was collected in 20 drums (55 gallon capacity each). On December 1, 1982, the drums were removed offsite via truck and transported to the Sea-Bright disposal facility in Kentucky, from which they were transported to Rollins in Deer Park, Texas for incineration.

AQUEOUS SOLUTION TREATMENT

Approximately 166,469 gallons of the noncontaminated waste at the Quanta facility was aqueous solution. In order to avoid high disposal costs, an onsite wastewater treatment plant was installed at the Quanta facility by OHM. The aqueous wastes, dispersed throughout the dikes, tanks, separators, and building basements, was collected and introduced to the system for treatment. Once treated, in accordance with the NYC discharge guidelines listed (Table V-3), the aqueous waste effluent was either discharged to the city sewer or used for onsite tank decontamination.

Table V-3
NYC INDUSTRIAL DISCHARGE CRITERIA

Parameter	Discharge Criteria
PCB	Less than 10 ppb
Cadmium	Less than 5 ppm
Chromium (hexavalent)	Less than 5 ppm
Copper	Less than 5 ppm
Cyanide	Less than 2 ppm
Nickel	Less than 3 ppm
Zinc	Less than 5 ppm
Bromine, Iodine, Chlorine	Less than 100 ppm

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No discharges to the city sewer were permitted without written approval of the OSC. OHM was responsible for sampling and testing every pool of treated water prior to discharge. An analytical report for each discharge of the treated aqueous wastes was provided to the OSC for approval. Table V-4 is an example discharge report form.

For the purpose of quality control and assurance, split samples for every pool discharge were provided to NYCDEP. In addition, a split sample of every third pool discharge was provided to the CH2M HILL onsite engineer for the same purpose. The samples were sent overnight to CH2M HILL's analytical laboratory in Montgomery, Alabama for analysis in accordance with accepted sample preservation techniques and chain of custody procedures. The results of the discharge quality assurance program are tabulated on Table V-5 and were considered to be comparable to the results attained by OHM.

The onsite aqueous treatment system consisted of a two stage process. The first stage was oil/water separation. The second stage provided physical clarification and filtration. The system consisted of five 10,000 gallon pools, two chemical mixing tanks, one clarifier, one pressure sand filter, two carbon contact units, and several types of pumps (Figure V-4 illustrates the layout and location of the onsite treatment system). The function and benefits associated with

15m

Table V-4
SAMPLE DISCHARGE REPORT
LABORATORY RESULTS
DISCHARGE AGREEMENT

Discharge of water from _____

Consisting of _____ gallons is consistent with the water quality discharge criteria as established by the OSC, NYCDEP.

PCB _____
Cd _____
Cr _____
Cu _____
Cn _____
Ni _____
Zn _____
Br, I, Cl _____

OHM Laboratory Representative _____

NYC DEP Representative _____

Date/Time _____

RW24/14

Table V-5
POOL DISCHARGE QUALITY ASSURANCE SUMMARY

Sample Identification	PCB's (ppb)	Cadmium (ppm)	Hexavalent Chromium (ppm)	Copper (ppm)	Cyanide (ppm)	Nickel (ppm)	Zinc (ppm)	Chloride** (ppm)
Pool V (9-4-82)								
OHM	<10	<0.1	<1.0	<0.1	<0.1	<0.4	<0.1	240
CH2M HILL	3.1	0.012	<0.01	<0.02	<0.005	<0.10	<0.10	311
NYCDEP	<10	<1.0	<1.0	<1.0	<0.2	<0.50	<0.10	--
Pool III (9-15-82)*								
OHM	<10	<0.1	<1.0	<0.1	8.6	1.0	0.70	--
CH2M HILL	<3.0	<0.01	<0.1	0.08	2.5	0.96	0.42	3866
NYCDEP	--	--	--	--	--	--	--	--
Pool III (9-18-82)*								
OHM	<10.0	<0.1	<1.0	<0.1	2.4	<0.4	2.2	4000
CH2M HILL	<3.0	<0.01	<0.1	0.1	2.4	0.77	0.8	4196
NYCDEP	--	--	--	--	--	--	--	--
Pool V (9-25-82)								
OHM	<10	<0.1	<1.0	<0.1	2.9	0.40	4.1	<1.0
CH2M HILL	<1.0	0.01	<0.01	0.15	2.2	0.72	3.7	4055
NYCDEP	--	--	--	--	--	--	--	--
Pool IV (10-3-82)*								
OHM	<10	<0.1	<1.0	<0.1	3.3	1.2	4.5	<1
CH2M HILL	0.003	0.008	0.01	0.05	1.5	0.15	5.9	4311
NYCDEP	--	--	--	--	--	--	--	--
Pool V (10-7-82)								
OHM	<10	<0.1	<1.0	<0.1	2.2	0.80	2.0	<1
CH2M HILL	0.003	0.03	0.01	0.04	<0.005	0.95	2.9	4492
NYCDEP	--	--	--	--	--	--	--	--

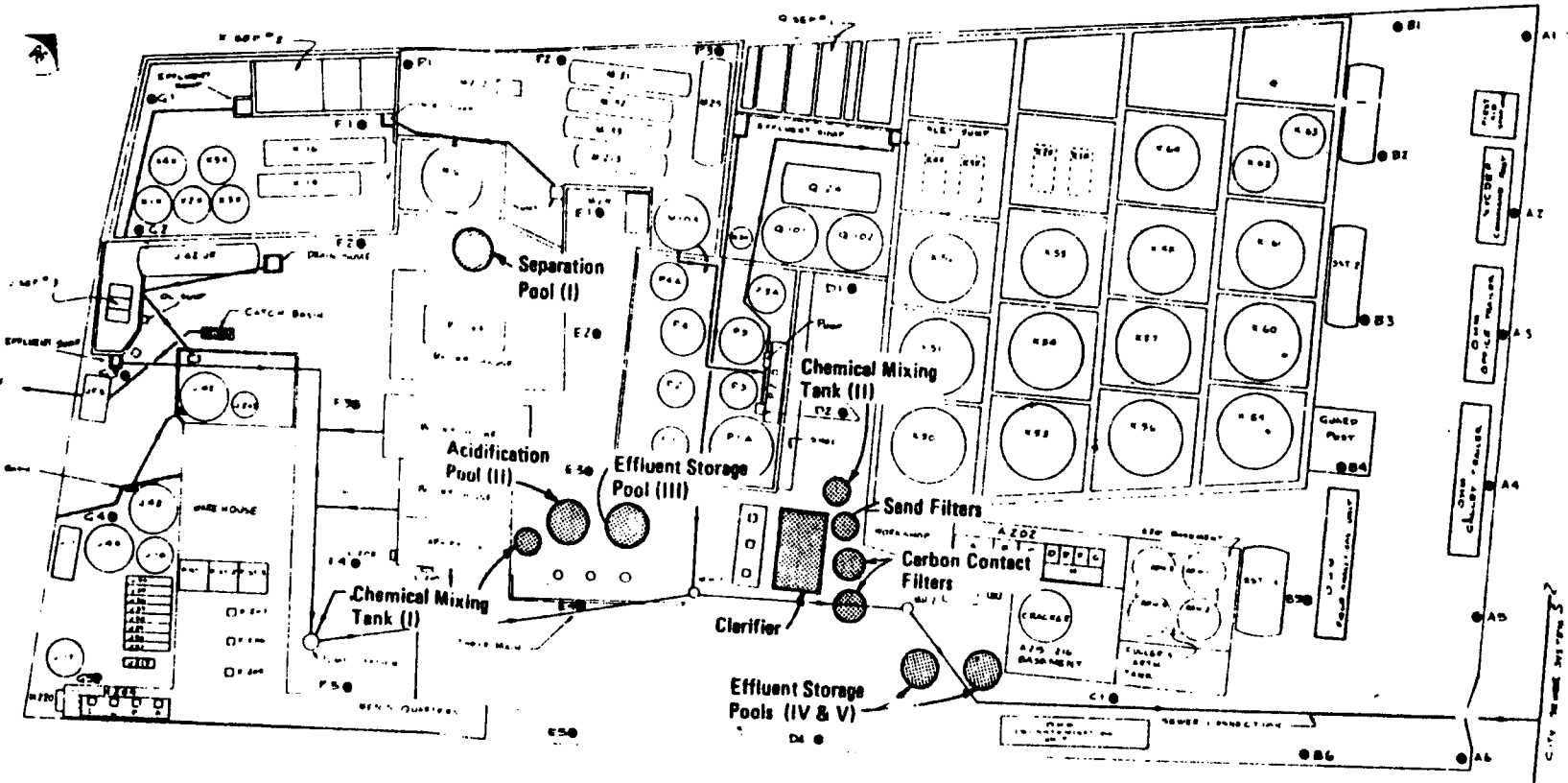
Table V-5
POOL DISCHARGE QUALITY ASSURANCE SUMMARY
(Continued)

Sample Identification	PCB's (ppb)	Cadmium (ppm)	Hexavalent Chromium (ppm)	Copper (ppm)	Cyanide (ppm)	Nickel (ppm)	Zinc (ppm)	Chloride** (ppm)
Pool V (10-12-82)*								
OHM	<10	<5	<5	<5	1.3	<3	<5	<100
CH2M HILL	0.003	0.008	0.01	0.09	2.20	2.20	5.5	4810
NYCDEP	--	--	--	--	--	--	--	--
Pool IV (10-26-82)								
OHM	<10	<0.1	1.2	0.30	1.00	5.20	0.3	<100
CH2M HILL	0.003	0.035	0.01	0.97	0.57	0.92	5.9	2694
NYCDEP	--	--	--	--	--	--	--	--
Pool V (10-17-82)								
OHM	<10	<0.1	<0.1	<0.1	1.10	2.60	2.3	<100
CH2M HILL	0.003	0.039	0.01	0.02	1.40	4.46	10.4	5225
NYCDEP	--	--	--	--	--	--	--	--
Pool IV (10-31-82)								
OHM	<10	<0.1	1.3	<0.5	2.4	3.0	10.0	<100
CH2M HILL	0.003	0.07	0.01	0.33	0.56	2.13	13.6	3369
NYCDEP	--	--	--	--	--	--	--	--

*Indication Pool was not discharged to the sewer but used for tank cleaning.

**In mid-September 1982 OHM changed analytical procedure from total chloride to free chlorine. CH2M HILL continued to test for total chloride; thus, explaining the differences.

RW24/15



LEGEND

Tank and Site Identification Number

Air Monitoring Stations

SCALE:
1 inch = Approximately 40 feet

SOURCE: O.H. Materials

Figure V–4
Onsite Wastewater Treatment Facility

the major elements of the treatment system are summarized below.

Pool I - All oily wastewater from the various tanks, separators, and containment dikes was pumped into this pool. The pool allowed for the free oil to separate from the aqueous wastewater.

Pool II - Received wastewater from Pool I. Here the wastewater was acidified (pH adjustment to approximately 4) to break any oil emulsion and allow the oil to separate from the water.

Chemical Mix Tank I (CMT I) - Wastewater from either Pool I or Pool II was treated with caustic to bring the pH up to 11 to 12. In addition, a polymer was added to aid in the agglomeration of flocculant particles formed by raising the pH.

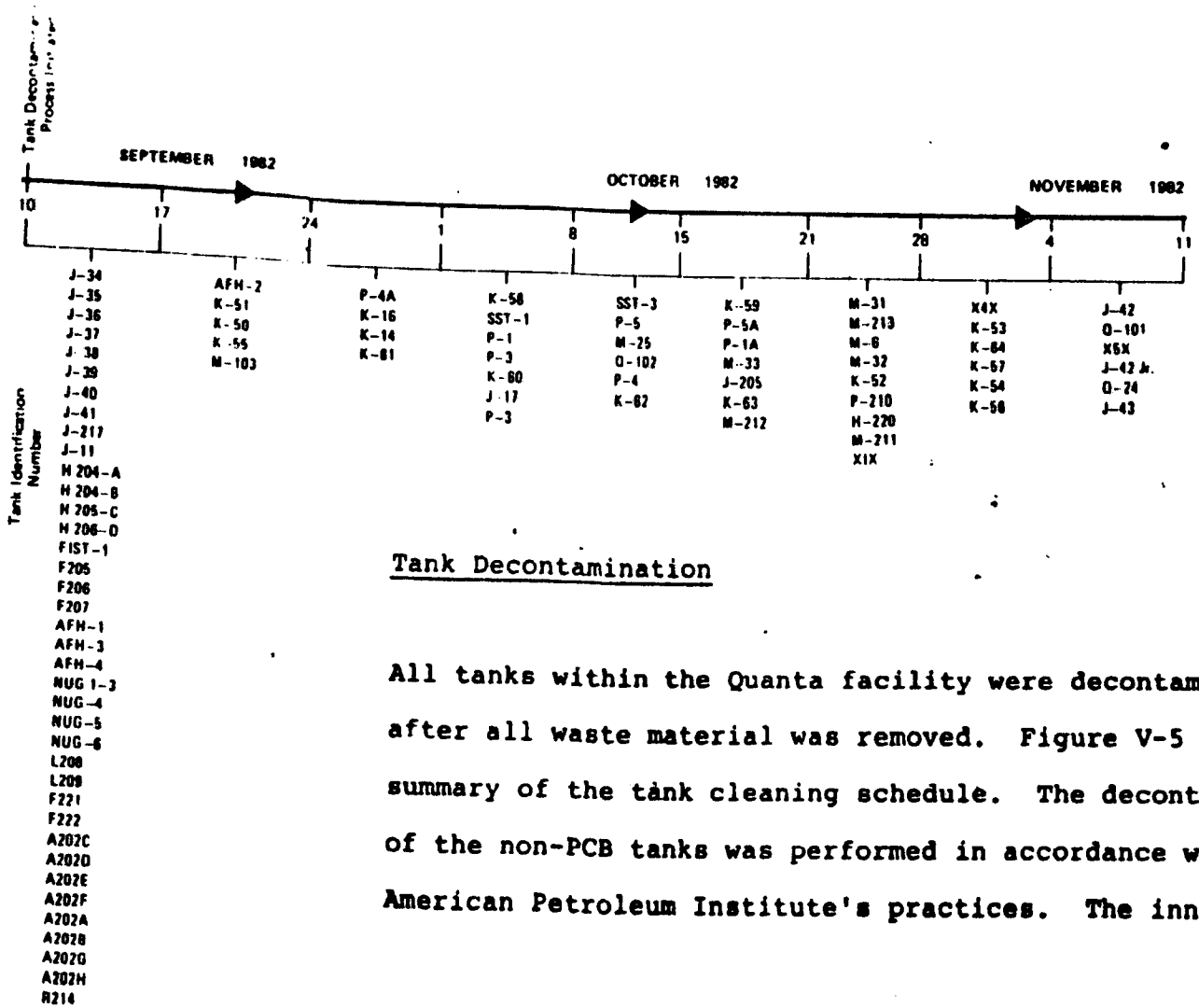
Chemical Mix Tank II (CMT II) - Treated wastewater from the clarifier was acidified, bringing the pH from 11 - 12 back to 6 - 9 to be compatible with the storage and sewer system.

Pool III, IV, V - Wastewater treatment effluent (treated wastewater) storage pools.

A clarifier is a tank designed to allow settleable solids to settle for subsequent removal and disposal. The purpose of the clarifier at Quanta was to remove solids, heavy metals, and PCBs from the wastewater being treated.

The sand filter at Quanta was used to filter out any flocculant solids or other particulate matter that did not settle out of the wastewater in the clarifier. Uniformly graded sand was used as the filter media.

The carbon contact units were installed to adsorb organic material present in the wastewater (PCBs and volatile organic compounds.) The carbon utilized had a high surface area and chemical/polar adsorptivity to enhance organic material removal. The carbon contact units were not needed because the PCB levels in the physical/chemical treatment system effluent were within effluent discharge limitations.



Tank Decontamination

All tanks within the Quanta facility were decontaminated after all waste material was removed. Figure V-5 is a summary of the tank cleaning schedule. The decontamination of the non-PCB tanks was performed in accordance with the American Petroleum Institute's practices. The inner and

Figure V-5
Quanta Tank Decontamination Schedule

outer walls of the tanks were rinsed to the point of being "squeegee" clean. The rinsing process involved the application of the Butterworth System. The Butterworth System is a stainless steel unit that spins on 2 perpendicular axes allowing the rinse water to be sprayed 360 degrees, thus providing for the decontamination of all inner sides of the tank. During operation, the unit is lowered midway into the tank and then raised to the top of the tank for an extended period of time, until the inside of the tank is considered "squeegee" clean. At this point in the decontamination procedure, the tank insides are exposed to ambient air and vented with an electric blower. Upon completion of the decontamination process, the aqueous liquid was treated, tested, and discharged to the City's sewer system.

The tanks considered PCB oil tanks, X2X and X3X, were thoroughly rinsed (solvent triple rinse) with diesel fuel for decontamination. The diesel fuel was applied to the tanks using the 1500 gallon vacuum skid unit. Approximately 1,000 gallons of diesel fuel were applied to tanks X2X and X3X. The diesel fuel was collected and disposed of at Rollins in Deer Park, Texas via the Sea-Bright Facility in Kentucky. In addition to the diesel fuel rinse, tanks X2X and X3X were rinsed with City water using a fire hose. The rinse water was collected, treated, and stored onsite for subsequent treatment at the City's onsite treatment facility.

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The tank cleaning process often involved the entry of tanks by OHM personnel. This procedure was necessary for visual inspection and the removal of accumulated debris and heavy sludge from tank bottoms.

When OHM personnel entered a tank, all safety protocols were followed in an efficient and professional manner. Personnel entering the confined tanks were equipped with a supplied air positive pressure respirator, five-minute emergency egress self-contained breathing apparatus, splash suit, protective over-boot, tyvek/saranex suit with attached hood, and protective gloves.

Piping and Appurtenance Decontamination

The cleaning and decontamination of the facility's extensive piping network and appurtenances was initiated in September. The procedure usually involved four crews. The process included the use of two high pressure water lasers. The piping was dismantled into workable sections and thoroughly cleaned with city water using the laser. This task was time consuming and lasted throughout the duration of the project. Protective equipment worn during this process included hard hats, full-free respirators, saranex suit and hood, splash suit, protective gloves, and over boots.

Building Decontamination

As shown on the site map of Figure II-2, there are several buildings within the Quanta facility. Of these buildings, it was necessary to clean and decontaminate two, the Cracker building (building A) and the Warehouse building (building F). The other buildings did not contain any liquids.

Building A

The cleanup and decontamination of building A required a great deal of effort. In addition to cleaning the 14 tanks within the building, it was necessary to clean and decontaminate the walls, floors, and basement areas of the building. Throughout the entire basement area of building A was an accumulation of approximately 3 feet of aqueous/oil waste and sludge. Removal of the pumpable materials was accomplished using the two vacuum units. The nonpumpable sludge was manually removed by crews using shovels. Cleanup personnel within the basement were equipped with the same protective equipment as crews entering tanks since high concentrations of organic vapors were detected during the waste removal process.

16c

Building F

In addition to the 10 tanks within building F, the floors and walls of building F were slightly contaminated and required cleaning.

Dike and Separator Decontamination

The dike areas and separators were decontaminated following the removal of all aqueous/oil liquids and accumulated sludge. The wastes were removed by vacuum units, Bobcat front end loaders, and crews using shovels. The protective clothing for this task included respirators, splash suits, protective boots and gloves, and hard hats with face shields.

TANK CERTIFICATION

A licensed marine chemist from Marine Chemists Inc. of Hoboken, New Jersey was contracted to test all tanks within the Quanta facility. Each tank was visually inspected and tested with an explosimeter during the period of mid-October through mid-November. All tanks were approved gas free on the initial survey attempt and properly certified. Copies of the marine chemist's individual tank reports are on record at the NYCDEP. The marine chemist's certification included a brief report on each tank (see Figure V-6 for sample report form).

Area Code 201
656-7754
Tel Nights: (212) 494-0778

Marine Chemists, Inc.

P.O. BOX 366
Uptown Station
HOBOKEN, N. J. 07030

24 HOUR SERVICE

MARINE CHEMIST'S CERTIFICATE

Survey Requested By OH. MATERIALS

Vessel SEE BELOW.
Type Vessel
Location QUANTA SITE
REVIEW AVE.
LIC. NY.

Owner or Agent NYC
Test Method STANDARD
Last Cargo WASTE OIL *

Date NOV-1-1982
Time of Completion 12:15PM
Certificate No. 10.

Figure V–6
Sample Tank Certification Report

EXAMPLE

TANK K53
K58

SAFE FOR MEN

NOT SAFE FOR FIRE.

CONTAINMENT AREA AROUND TANK CONTAMINATED WITH OIL-

REMOVE ALL PIPING BY MECHANICAL MEANS.

NOTE: TANK INTERIORS ARE CLEAN & GAS-FREE.

* NOTE — OIL/SLUDGE CONTAMINATED WITH PCB.

SLUDGE/OIL ~~[illegible]~~ NO LONGER DETECTABLE (VISUAL INSPECTION)

In The Event Of Any Physical Or Atmospheric Changes Affecting The Gas-Free Condition Of The Above Spaces, Or If In Any Doubt, Immediately Stop All Work And Contact The Undersigned.

[illegible]ations

[illegible] of ballast or manipulation of valves or closure equipment [illegible] to alter conditions in pipe lines, tanks or compartments subject [illegible] cumulation, unless specifically approved in this Certificate, re[illegible]pection and endorsement or reissue of Certificate for the spaces [illegible]ed. All lines, vents, heating coils, valves, and similarly enclosed [illegible]ces shall be considered "not safe" unless otherwise specifically [illegible]ed.

[illegible] Safety Designations

[illegible] For Men. Means that in the compartment or space so [illegible] (a) The oxygen content of the atmosphere is at least 19.5 [illegible] and that, (b) Toxic materials in the atmosphere are [illegible]able concentrations, and (c) In the judgment of the Marine [illegible] residues are not capable of producing toxic materials under [illegible]spheric conditions while maintained as directed on the [illegible]'s Certificate.

[illegible] Fire. Means that in the compartment so designated: (a) The [illegible] of flammable materials in the atmosphere is below 10 per[illegible] lower flammable limit; and that, (b) In the judgment of the [illegible], the residues are not capable of producing a higher con[illegible] than permitted by 1-5.2 (a) under existing atmospheric con[illegible] the presence of fire and while maintained as directed on the [illegible] Chemist's Certificate; and further, (c) All adjacent spaces have [illegible] been cleaned sufficiently to prevent the spread of fire, are [illegible] inerted, or, in the case of fuel tanks, have been treated as [illegible] necessary by the Marine Chemist.

Safe For Shipbreaking. Means that the compartment so designated: (a) Shall meet the requirements of 1-5.1, and (b) In the judgment of the Marine Chemist, the residual combustible materials designated are not capable of producing fires beyond the extinguishing capabilities of the equipment on hand, and, (c) All adjacent compartments or spaces shall meet the requirements of 1-5.2 (c).

Chemist's Endorsement

This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with the Standard For the Control of Gas Hazards on Vessels to Be Repaired, adopted by the National Fire Protection Association, and have found the condition of each to be in accordance with its assigned designation.

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

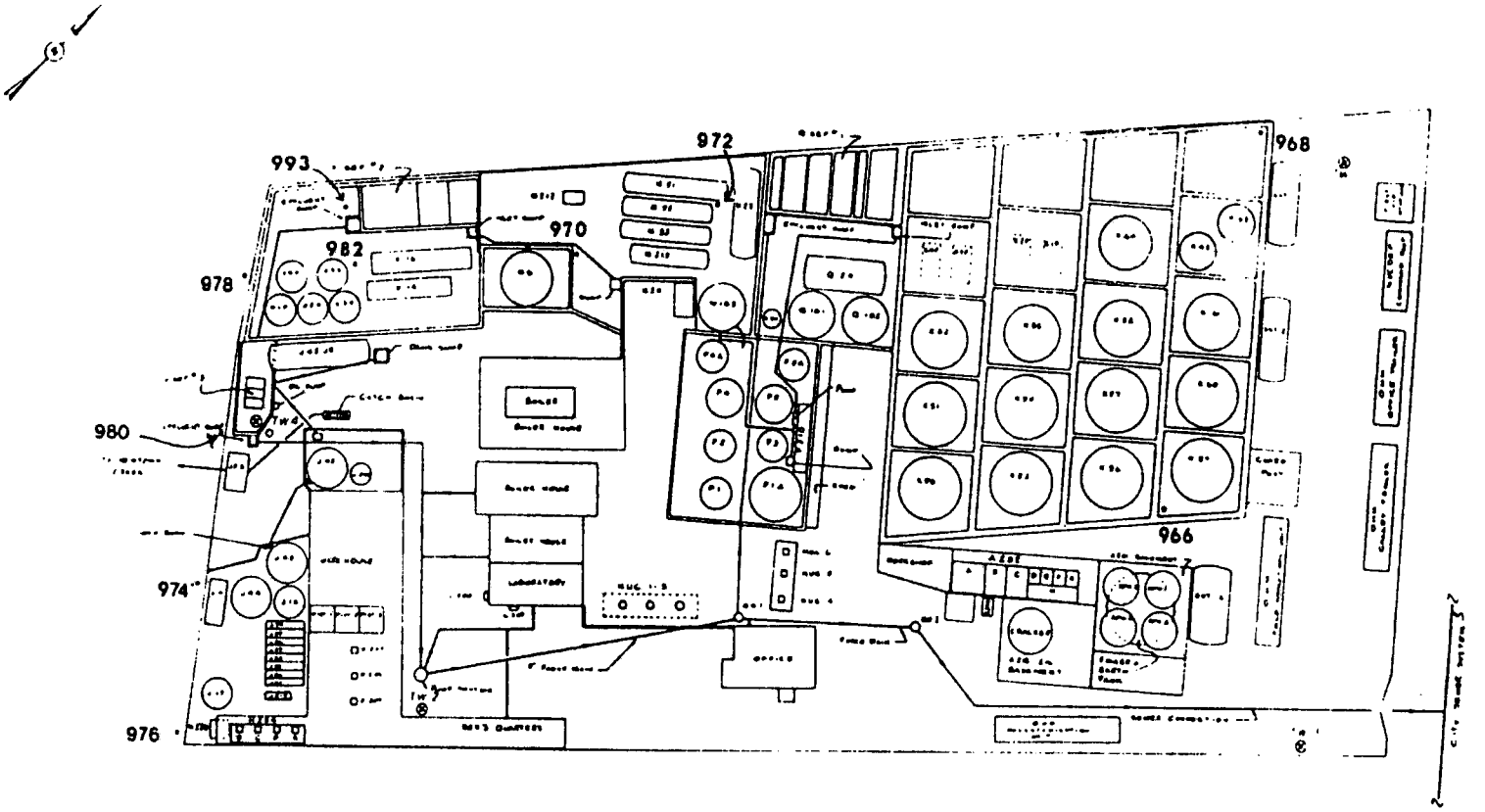
Signed Anthony Matthews 634
Marine Chemist Cert. No.

The undersigned shipyard representative acknowledges receipt of this Certificate and understands the conditions and limitations under which it was issued.

Project Control Tech

Mark Allingaw 11/1/82 1300
Shipyard Representative Title Date Time

16e



✕ TEST WELL
• BORING SAMPLES

N.Y.C.D.E.P.

QUANTA SITE PLAN

37-80 REVIEW AVENUE
LONG ISLAND CITY, N.Y.

O. H. MATERIALS CO.

EMERGENCY RESPONSE AND ENVIRONMENTAL RESTORATION

PROJECT NO. 1148

Quanta Wells - Liquid Phase

SAMPLE NO	DATE	DESCRIPTION	PCP RESULT
1148-955	11-2	Test Well #01	<5 ppm (approx. 30% oil)
1148-956	11-2	Test Well #01 oil layer	<5 ppm
1148-957	11-2	Test Well #02 oil layer	<5 ppm
1148-958	11-2	Test Well #03 water	<5 ppm (approx. 40% oil)
1148-959	11-2	Test Well #04 oil layer	133 ppm
1148-1013	11-7	Test Well #2	<5 ppm
1148-1015	11-7	Test Well #4	143 ppm

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE NEW YORK, N.Y. 10003 (212) 566-2717

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F. FERRANDO, Assistant Commissioner

October 20, 1982

Richard Mendes
Deputy Commissioner
Planning and Enforcement
NYC Department of
Environmental Protection

MEMO FOR RECORD: Change of OH Materials scope and extent of work regarding sludge materials, Quanta Resources.

Dear Deputy Commissioner Mendes:

On October 18, 1982, one of two Rollins trucks loaded with non-contaminated sludge and shipped to Rollins Environmental Services, Bridgeport, NJ, was returned to the Quanta Resources cleanup site. Material in this truck could not be removed by Rollins' industry standard pumping equipment. Material was pumped from the Rollins truck by OH Materials into a Quanta non-contaminated tank. Rollins has refused further such shipments of non-contaminated sludge.

This event has clarified two factors affecting the contractor, OH Materials, scope and extent of work at Quanta.

1. NON-PUMPABLE SLUDGE: Both non-contaminated and PCB contaminated sludges, once identified during the site inventory as pumpable must now be identified as unpumpable. This material can be made pumpable by adding and blending solvents. It can also be totally solidified by using flyash, lime or other sorbents.

2. QUANTITY OF SLUDGE: The quantity of PCB contaminated sludge has decreased. Sludge in this catagory has been recatagorized, after laboratory tests, as non-contaminated sludge. Similarly, sludge on the bottoms of tanks with materials in all the other waste streams have been consolidated, where appropriate, into the non-contaminated sludge catagory. As a result, this non-contaminated sludge catagory has significantly increased. A summary of volumes and volume changes to all catagories is attached to this report.

Both the increase in volume of non-contaminated sludge and the realization that disposal firms can not pump this material will result in increased time and materials costs to prepare the material for disposal and increased disposal costs.

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE, NEW YORK, N Y 10003 (212) 566-2717

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F FERRAND Assistant Commissioner

November 4, 1982

Mr. James Sparks
Supervisor
OH Materials
Quanta Resources Site

SUBJECT: Memo for Record: Movement of non-contaminated and contaminated materials from the Quanta Resources site.

Dear Mr. Sparks:

On Nov 1, 1982 I authorized the loading and movement on Nov 3 of as many loads as possible of non-hazardous waste to the BFI landfill at Solley Road, Glen Burne, MD. This schedule of activities was necessary and was planned such that all materials at Quanta Resources could be removed by Nov 11, 1982(the projected end of our contract.) Our procedures for authorizing such activities are contained in the Letter of Intent dated Sep 11, 82; Aug 27,82 and Aug 11, 82 as well as OH Materials Proposal dated July 28, 82.

Activities on Nov 3 by the State of New York, the City of New York and the State of Maryland resulted in the refusal by the State of Maryland of a routine shipment of the 8 trucks we did in fact load and dispatch. Additional data was requested by the State of Maryland before they would provide the City of New York with a special authorization for this routine shipment. You are hereby authorized to perform requested non-routine lab work and provide the City of New York with the report as soon as possible at an estimated price of $1,500.

Until I receive special authorization from the State of Maryland and the State of New York to move this non-hazardous waste, (I do not expect this to be available until Nov 9th at the earliest) all trucks loaded on Nov 3 must be returned to the Quanta site and unloaded on Nov 4th. Starting now we must focus all attention on moving all the hazardous materials from the Quanta Site. Accordingly, you must move the non-contaminated piles of materials we had scheduled to be removed from the Quanta Site out of the way to the "Q" dike area. For the record, I note that this additional movement of non-hazardous materials will increase T & M costs more than that of our original schedule of activities. This non-hazardous material will stay in this area until I have both written authorization and written direction to move it off site.

The mixing of PCB contaminated material and the removal of the PCB sludge must proceed as soon as the non-contaminated materials are moved aside. Special care should be taken that non-contaminated and contaminated materials do not mix. I will request that CH_2M Hill, our engineering consultant representative, make special notes that we have accomplished this task with special care. Because of the possibility of mixing PCB materials with non-PCB materials I will not authorize concurrent movement of these materials while I am On-Scene Coordinator.

Upon removal of the hazardous materials from the Quanta site, you are expected to remove all equipment, supplies and personnel that are no longer required in a non-hazardous environment. Your preparation of the Quanta site such that rainwater will flow to the on-site water treatment system is a key activity in this next time frame. This site preparation, set up of the water treatment system and demobilization is expected to be completed the week of Nov 15, 1982.

At some time I may have both written permission and written direction to remove non-hazardous materials from the Quanta site. After Nov 11, 1982, if all hazardous materials are removed as I anticipate, this removal of non-hazardous materials could again continue. You should now plan for the availability of one loader and up to 7 people, after Nov 11, to respond to the Quanta Site upon 48 hours notice to load up to 12 trucks per day. OH Materials rate sheet, at the time this work is requested, will be used to calculate time and materials costs. Transportation and disposal costs plus OH Materials standard 15% handling will be used to guide these costs.

Sincerely,

Gary L. Ott
NYC DEP OSC

GO/ms

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CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING NEW YORK N.Y. 10007
(212) 566-4124/5

JOSEPH T. McGOUGH, JR.
Commissioner

November 12, 1982

Mr. James Kirk
President
O.H. Materials
P.O. Box 551
Findlay, Ohio 45840

Letter of Intent
Quanta Resources
Hazardous Waste Contract

Dear Mr. Kirk:

This letter will confirm a modification of my September 10, 1982 letter of intent regarding the Quanta Resources Hazardous Waste Contract. Specifically, the new upset price is $2,100,000. All other terms and conditions contained in the September 10, 1982 letter and its appendicies remain in effect without change.

The purpose of the increase in the upset price is to avoid disruptions to the completion of the work. This increase in no way acknowledges that the City of New York accepts responsibility or liability for any direct or indirect cost increases stemming from the refusal of the State of Maryland to permit the BFI landfill to accept non-PCB contaminated sludge from the Quanta site. The City is currently reviewing this matter.

Very truly yours,

Joseph T. McGough, Jr.

Joseph T. McGough, Jr.
Commissioner

Accepted: James Kirk
November 15, 1982

AICH 22

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF QUEENS
----------x

In the Matter of the Application of
THE CITY OF NEW YORK,

Petitioner,

For a Judgment pursuant to Article 78
of the Civil Practice Laws and Rules,

-against-

ROBERT F. FLACKE, As Commissioner of
the New York State Department of
Environmental Conservation and
The State of New York,

Respondents.

----------x

VERIFIED PETITION

Index No. 19963/82

Petitioner, the City of New York, by its attorney, FREDERICK A. O. SCHWARZ, JR., Corporation Counsel of the City of New York, alleges:

1. Petitioner, the City of New York, is a domestic municipal corporation.

2. Respondent, Robert F. Flacke, is the Commissioner of the New York State Department of Environmental Conservation.

BACKGROUND

3. Property located at 37-80 Review Avenue, Queens, New York (hereinafter "the property") was classified in June 1980 as a "hazardous waste disposal site" by the New York State Department of Environmental Conservation in its "Listing of Hazardous Waste Disposal Sites in New York State," published by the Division of Solid Waste.

HTC . 23

Petition

4. The property is located in the geographic center of New York City approximately 450 feet from Newtown Creek, a tributary of the East River.

5. Prior to mid July, 1982, the property was owned and operated by Quanta Resources Corporation (Quanta).

6. Quanta was engaged in the business of processing, storing and shipping waste materials.

7. Quanta purchased the assets, facilities and related operations of Hudson Oil Refining Corporation (HUDSON). The property was part of those assets. Hudson had operated under a Consent Order issued by New York State on January 21, 1980.

8. After Quanta purchased Hudson, Quanta operated under a Consent Order from the New York State Department of Environmental Conservation (DEC) entered on October 13, 1980. (Exh. "A").

9. Quanta violated the terms of the Consent Order and a Modified Consent Order was issued by DEC on February 9, 1981. (Exh. "B").

10. Upon information and belief Quanta received no permits from either New York State or the federal government authorizing the disposal of hazardous waste after August 25, 1979.

11. The consent orders under which Quanta and Hudson operated did not authorize the storing or dumping of toxic material or PCB-contaminated waste oil on the property.

12. The State of New York, through DEC, was responsible for overseeing and enforcing the provisions of the consent orders.

13. On October 6, 1981, Quanta filed a voluntary petition for reorganization under Chapter XI of the Bankruptcy Code in the United States District Court, District of New Jersey. This was subsequently converted to a Chapter VII liquidation proceeding.

14. Quanta operated the property under the umbrella of the DEC Consent Order until November 12, 1981. Quanta ceased operations on that date.

15. By decision filed on July 7, 1982, the United States Bankruptcy Court granted Qunata's application to abandon the property as an asset and denied a motion to order expenditure of estate funds for the cleanup of the facility.

16. Despite Quanta's operation of the property under the State's supervision and consent, inspection of the property by the City in the summer of 1982 revealed numerous large tanks containing over 500,000 gallons of waste oil and sludge including at least 100,000 gallons which were contaminated with hazardous matter including but not limited to PCB's, tetrachloroethylene, methylene, and other contaminated materials.

17. The hazardous matter was placed on the Quanta site in an unsafe and illegal manner. Many of the tanks containing the hazardous waste were either leaking or were in an advanced state of deterioration.

18. Due to illegal placement and the deteriorated condition of many of the tanks sub-surface contamination is also present on the property.

19. Flashpoints of some of the material on the property were at dangerously low levels.

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36. The City is entitled pursuant to §97-b of the State Finance Law and the ECL, to money for its actions an behalf of DEC.

SUPERFUND APPLICATION

37. The New York City Department of Environmental Protection applied to respondent, by letters dated July 26, 1982, and August 24, 1982, for funds to be made available from the New York State hazardous waste remedial fund (Superfund) as established in §97-b of the State Finance Law. (See Exh. "H").

38. The application was rejected by respondent by letter dated October 22, 1982. (See Exh. "I").

39. State Finance Law §97-b reads in pertinent part as follows:

> §97-b. Hazardous waste remedial fund
> 1. There is hereby established in the custody of the state comptroller a non-lapsing revolving fund to be known as the "hazardous waste remedial fund."
> 2. Such fund shall consist of all moneys appropriated for the purpose of such fund, and all fines and other sums payable to the fund pursuant to section 71-2723 of the environmental conservation law and all moneys collected or received by the department of taxation and finance pursuant to section 27-0923 of the environmental conservation law.
>
> 3. Moneys of the hazardous waste remedial fund, when allocated, shall be available to the department of environmental conservation for the following purposes:
>
> (a) inactive hazardous waste disposal site remedial programs pursuant to section

23e

27-1313 of the environmental conservation law and section thirteen hundred eighty-nine-b of the public health law;

(b)
cleaning up or restoring to its original state any area where hazardous wastes were disposed of or possessed unlawfully in violation of article twenty-seven of the environmental conservation law. For the purposes of this section "the original state of the area" shall mean the reasonably ascertainable condition of the property immediately prior to the unlawful disposal or, if it is impracticable to determine such condition, then it is the reasonable environmentally sound condition of the area;

(c)
inactive hazardous waste site identification, classification and investigation actions including testing, analyses, record searches and other expenditures necessary to develop the state inactive hazardous waste disposal site remedial plan required pursuant to section 27-1305 of the environmental conservation law;

(d)
financing the non-federal share of the cost of clean up, and site remediation activities as well as post-closure operation and maintenance costs, pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980;

(e)
emergency response action to clean up spills or abate other public health or environmental hazards involving hazardous wastes.

40. Section 97-b became effective July 27, 1982, pursuant to L. 1982, c. 857 §23.

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up work done prior to December 1982, is arbitrary, capricious and erroneous as a matter of law.

53. Petitioner, in assuming the State's responsibilities of cleanup and restoration of a hazardous site on behalf of DEC, has established a clear legal right to the relief requested.

54. In seeking the relief requested herein petitioner has complied with all statutory procedures as well as with all applicable rules and regulations.

WHEREFORE, petitioner requests that a judgment be entered.

(a) setting aside the denial by respondent on October 22, 1982, of the petitioners application for state funds from the hazardous waste remedial fund;

(b) directing respondents to allocate the expenditure of funds to the petitioner pursuant to section 27-0900 et seq. of the Environmental Conservation Law and §97-b of the State Finance law to pay for the cleanup, removal and disposal of hazardous waste from the property located at 37-80 Review Avenue, Queens, New York; and

(c) granting petitioner such other and further or different relief as may seem just and proper together with the costs and disbursements of this proceeding.

Dated: New York, New York
December 27, 1982

Respectfully Submitted,

FREDERICK A. O. SCHWARZ JR.,
Corporation Counsel of the
City of New York
Attorney for Petitioner
100 Church Street
New York, New York 10007
(212)566-1168

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United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division
5 Aerial Way
Syosset, NY 11791
(516) 938-8830

January 17, 1983

Dr. Edward F. Ferrand, Ph.D.
Assistant Commissioner
New York City Department of
Environmental Protection
51 Astor Place
New York, NY 10003

83/170

Dear Dr. Ferrand:

As we discussed at our meeting of December 6, 1982, we have developed a project proposal which provides a meaningful approach to defining the petroleum spill problem at the Quanta Resources site. The proposal includes both short-term and follow-up phases. The short-term phase can be completed within a year and addresses defining the extent and character of the contaminant plume. The follow-up phase can be completed in an additional year and provides a means of better defining the extent of the problem, as well as a means of determining an optimum recovery method.

The U.S. Geological Survey, Water Resources Division is mandated by Congress to monitor and evaluate the freshwater resources of the country. As we discussed, our water resources investigations are funded through cooperative funding with local government agencies and/or direct contributions by local government agencies.

In a "cooperative" study, if Federal Matching Funds are available, the U.S. Geological Survey will match dollar for dollar the amount contributed by the local agency. This is one way to direct federal money to help solve local problems and at the same time develop scientific expertise with national transfer value.

For instance, the U.S.G.S. will bring to this study expertise gained in several recent studies of landfill contamination; assistance provided to the U.S. Coast Guard in the clean-up of the oil spill in Greenpoint, Brooklyn; and assistance provided to various other agencies in clean-up operations at other gasoline spill sites.

ATCH 24

If you agree with the ideas outlined in this proposal, I suggest we have a meeting to further discuss the level of funding, the availability of federal matching dollars, and possible involvement of your laboratory in providing analytical assistance during this project. We look forward to cooperating in this investigation with your bureau.

Sincerely,

Donald L. Bingham
Subdistrict Chief

DLB/HTB:jb
encs.

U.S. Geological Survey
Water Resources Division
5 Aerial Way
Syosset, NY 11791

HB/HK/1/17/83

PROJECT PROPOSAL

PROBLEM

The City of New York has undertaken cleanup operations at the Quanta Resources oil storage facility in Sunnyside Queens. Surface and subsurface storage tanks were removed and surface cleanup basically completed. Four observation wells were installed in the concluding phases of site cleanup to check for contamination of underground water resources from past leakage. Evidence from these wells demonstrate that: 1) oil products have contaminated the underlying aquifer material; 2) there is a significant amount of floating product (as much as 7 feet standing in one observation well), and 3) the different chemical nature of the products found suggest that multiple leaks may have occurred. Further, it can reasonably be assumed that in addition to a floating plume: 1) residual traces of the product can be found in the unsaturated aquifer material that the plume has come in contact with, and 2) a plume of dissolved product can be found in the ground-water reservoir.

If these products are allowed to migrate, the following may result: 1) additional contamination of ground water, 2) contamination of buildings or basements if the product is near land surface, 3) contamination of the nearby navigable waterway, Newtown Creek.

OBJECTIVES:

The objectives of both the short term and follow-up phases of the proposed investigation are as follows:

Short term

-- to determine the vertical and areal extent of the floating and dissolved plumes,

-- to determine the general patterns of ground-water movement in the area and the general direction of plume migration,

-- to estimate the volume of product underground

Follow-up

-- to define in greater detail the extent of the plume,

-- to determine the chemical constituents of the floating and dissolved plumes,

-- to document movement of the plume if possible,

-- to determine the ultimate fate of the plume, and

-- to help develop and optimize a feasible recovery plan

APPROACH:

Short term

-- installation of a monitoring well network (in three dimensions) and collection of:

1) water-level data to define ground-water flow patterns, and

2) ground-water samples to determine the present extent of the contamination (attempt to limit chemical analyses to several indicator constituents or general fingerprint analyses)

-- determine local hydrologic and geologic conditions from existing U.S.G.S. data base and any additional hydrogeologic data gathered in the drilling program

-- prepare maps showing:

1) the areal extent of the contamination

2) the vertical extent of the contamination

3) thickness of the floating plume

4) configuration of water table and general ground-water flow patterns

Follow-up

-- collection of additional ground-water level and quality data in the following year to determine changes in flow patterns and movement of the contaminant plume. More complete chemical analyses should be done to determine in detail the chemical characteristics of the plume.

-- use of additional data collected in this phase to update maps prepared in short-term phase

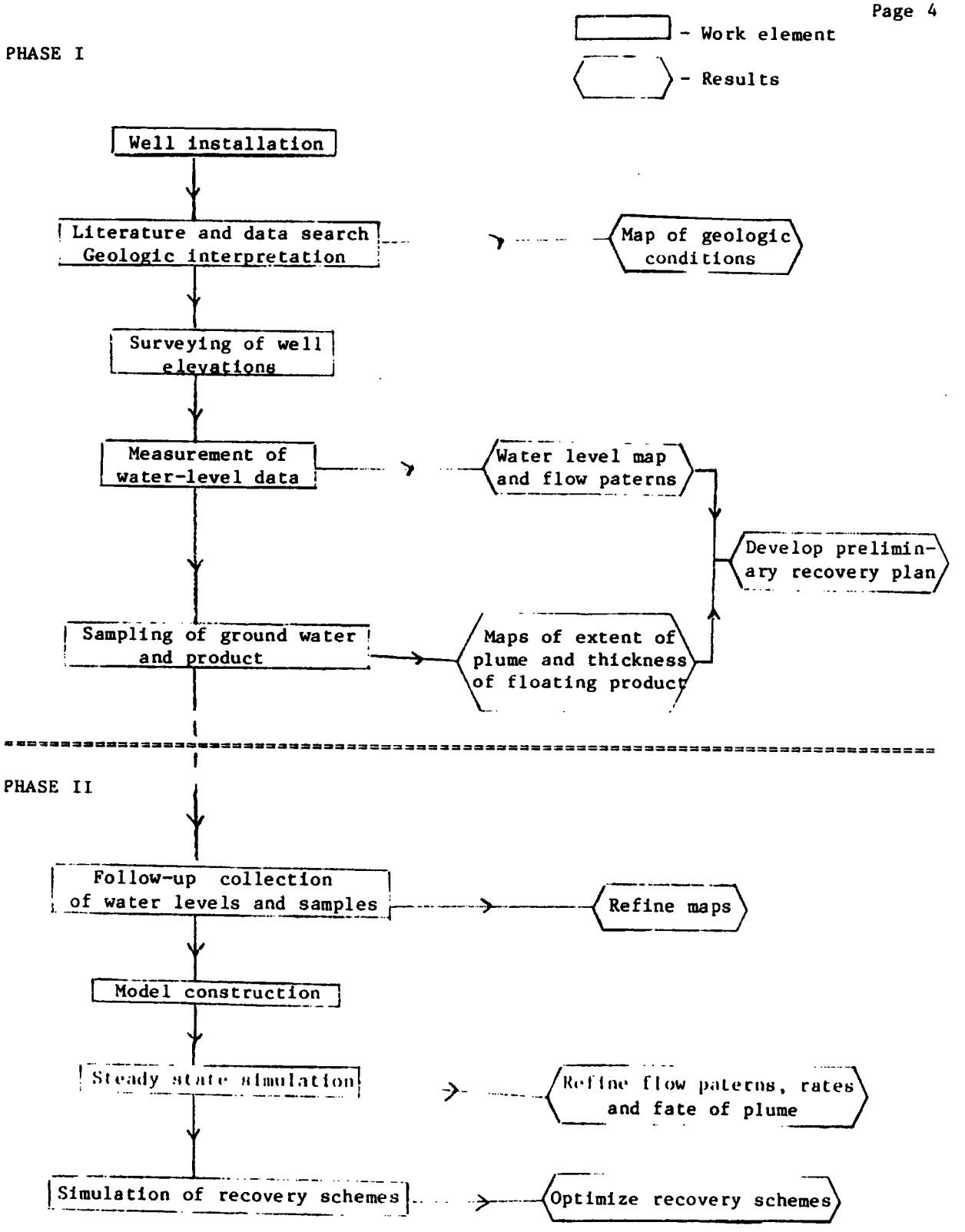
-- development of a ground-water flow model in the area of the Quanta Resources facility. The model will be used to simulate:

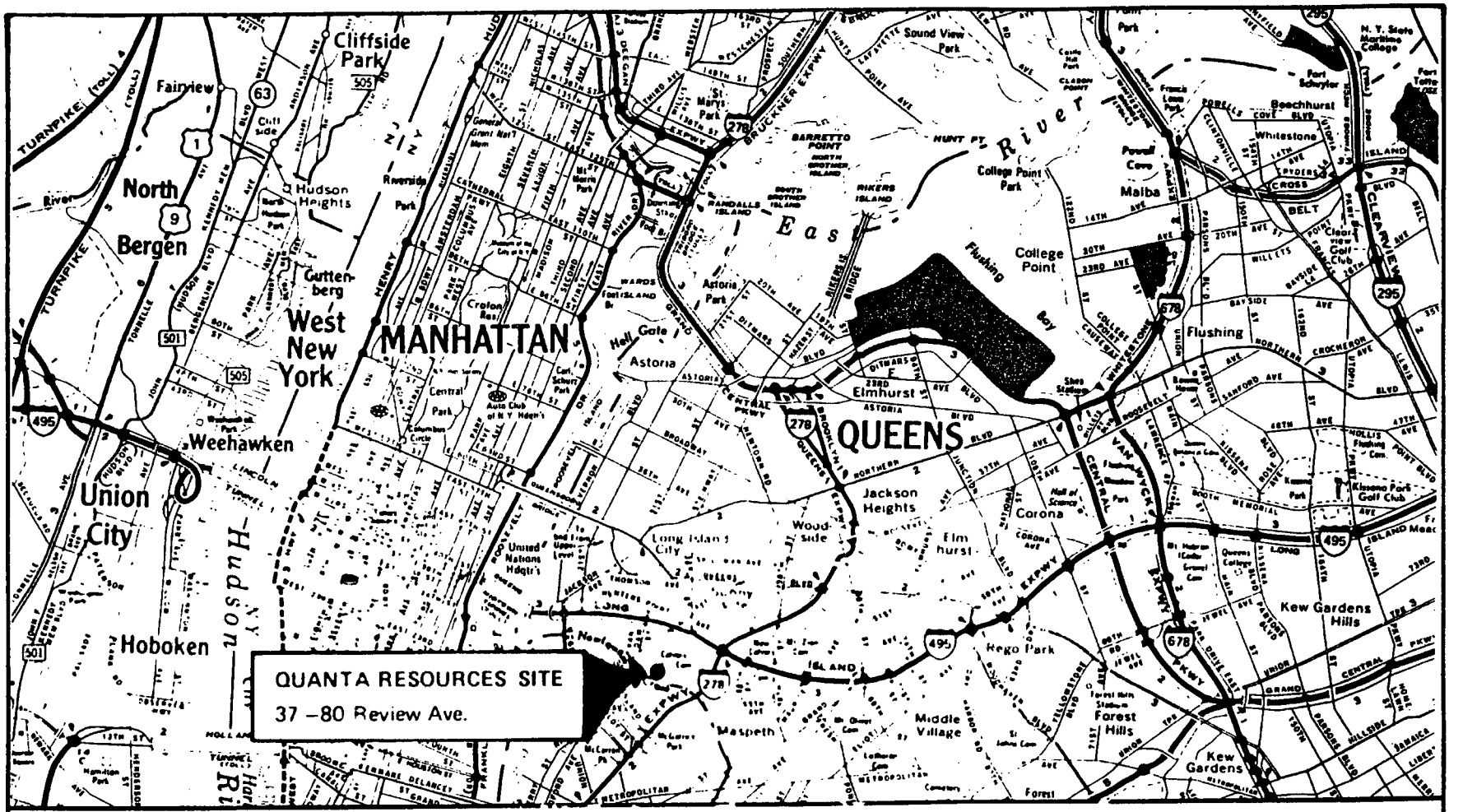
1) average hydrologic conditions, and provide

-- more detailed definition of ground-water flow patterns and rates of movement, and

-- an idea of the ultimate discharge point of the contamination and residence time.

2) propose recovery or cleanup plans, and provide a means of optimizing purge well locations and pumping rates.


- Work element
- Results
PHASE I
Well installation
Literature and data search
Geologic interpretation
Map of geologic conditions
Surveying of well elevations
Measurement of water-level data
Water level map and flow paterns
Develop preliminary recovery plan
Sampling of ground water and product
Maps of extent of plume and thickness of floating product
PHASE II
Follow-up collection of water levels and samples
Refine maps
Model construction
Steady state simulation
Refine flow paterns, rates and fate of plume
Simulation of recovery schemes
Optimize recovery schemes



Quanta Facility Location Map

APPLICABLE RECORD 2

If NYS delegates responsibility for sampling and analysis to NYC the following minimum NYC cost estimates apply.

Activity	Cost Estimated Cost	Time NOT available for normal activities
Sampling	$ 5,220	140 hours
Lab Analysis	$43,480-$58,480	560 hours
X-Ray Screening	$ 3,340-$ 4,720	70 hours

4. Threat Assessment Requirements.

a. Complete analysis of lab results for all tanks. Threat assessment should include:

1-Short term hazard to the environment from spill or fire.
2-Long term hazard to the environment if no spill or fire.

b. Analysis of 19 tanks previously tested. ---------- Atch 5

Lab analysis of 19 tanks of a reported 69 tanks on the Quanta facility showed a dirty waste oil contaminated with heavy metals and containing small amounts of solvents.

Flash point tests on 6 samples indicated this dirty material will not readily burn.

5 of the 19 tanks tested (45,000 gal) showed low level PCB contamination. One tank (5,000 gal) for which no lab test is available, was marked as PCB contaminated. A minimum of 50,000 gallons of low level PCB contaminated oil is stored at this site.

5. The NYS Investigation Should Provide and Recommend Methods for Remediation/Disposal.

a. Removal and Disposal costs could exceed ONE MILLION DOLLARS.

Removal cost estimate----------$150,000 Atch 4
Disposal cost estimate----------$1,400,000
Contract monitoring, overhead estimate-------$ 50,000

b. Other inactive hazardous waste site remedial options.

Stabilization/solidification on-site
Incineration on-site
Improve facility to comply with ECL and Part 360 requirements.

6. Recommendation

According to NYS DEC Policies and Procedures Manual, The ECLs, and 6NYCRR part 360, NYS should complete and make available to all concerned an investigation of Quanta Resources to determine the threat to the environment and long range remedial options. NYS delegation of sampling or analysis tasks to NYC should not be accepted without compensation. Assumption by NYC of any task without a clear MOU with NYS regarding respective responsibilities compensations could result in further inaction by NYS and total assumption of all liability by NYC for Quanta Resources.

Attachment 4
COST ESTIMATES

SAMPLING:

Sample each of 69 tanks, top and bottom. Total 138 samples.
2 persons/ 1 week

COST ESTIMATE IF NYS DELEGATES RESPONSIBILITY TO NYC

Salary at $38/hr. and $28/hr	$4,620
Equipment use including safety equipment	600
140 hours not available for other activities	
	$5,220

COMPLETE LAB ANALYSIS

Lab analysis including ignitability, corrosivity, reactivity, EP toxicity, chlorinated hydrocarbons (including PCBs). 2 persons, 2 months.

COST ESTIMATE IF NYS DELEGATES RESPONSIBILITY TO NYC

Salary at $38/hr and $28/hr	$18,480
Equipment use $10-$20/test 18 tests/sample	$25,000-$50,000
560 hours not available for trace chemical analysis of NYC water supply	
	$43,480-$68,480

LIMITED LAB ANALYSIS USING X-RAY SCREENING:

Screening procedure would show if the dirty waste oil product in other tanks is significantly different from tanks previously analyzed. 1 person/2 weeks.

COST ESTIMATE IF NYS DELEGATES RESPONSIBILITY TO NYC

Salary at $28/hr	$1,960
Equipment use at $10-$20 test; 1 test/sample	$1,380-$2,760
70 hrs not available for routine lab work	
	$3,340-$4,720

REMOVAL OF 500,000 GALLONS OF SOLID AND LIQUID WASTE OIL

Crew of 4, $25/hr, 1 tank/day	labor-$60,200
Rental of equipment $1,150/day;69 days	equip-$79,440

DISPOSAL AT A HAZARDOUS WASTE FACILITY

Contaminated waste oil $1-2/gal	$900,000
PCB contaminated oil $6-$10/gal	$500,000

CONTRACT MONITORING

2 persons/69 days; plus other legal,IG,	$24,248
Public affairs and senior staff plus 100%	
	$50,000

SCOPE OF CLEANUP

Disposal of material includes a number of steps.

1. Removal of low flash point PCB - Oil and PCB - Contaminated Oil.

2. Removal of remaining materials.

3. Cleaning of tanks according to TSCA specification.

4. Removal of tanks from site and decontamination of area.

Present estimate through Step 2 is $1.5 million. Step 3 and 4 still to be estimated.

RECOMMENDATIONS

All waste oil stored at Quanta should be sold or disposed of according to its PCB or waste characterization.

The NYS DEC is responsible for the initial investigation and development of future remedial plans for Quanta.

Finally, the long-range impact of NYC actions on this waste oil site must be carefully evaluated. State and Federal action on their own laws and requlations is required. Actions by NYC without a memo of understanding with NYS regarding respective responsibilities and compensations could result in further inactions by NYS.

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING, NEW YORK, N.Y. 10007 (212) 566-4124/5

JOSEPH T. McGOUGH, JR., Commissioner

July 30, 1982

Ms. Jacqueline E. Schafer
Regional Administrator
United States Environmental
Protection Agency
26 Federal Plaza - Region II
New York, N.Y. 10278

Re: Quanta Resources, Inc.

Dear Ms. Schafer:

Some 90 tanks containing approximately 530,000 gallons of waste oil and sludge are located on the property of a former waste oil facility at 37-80 Review Avenue in Long Island City, Queens. Initial inspection by the City of New York has revealed that at least 100,000 gallons of the material, owned by the bankrupt Quant Resources, Inc., is PCB contaminated oil. There are also other hazardous materials including several thousand gallons of PCB oil at the Quanta site. Quanta's trustee in bankruptcy has abandoned the property by order of the United States Bankruptcy Court.

The abandoned property poses an imminent serious environmental hazard to New York City residents. Combustion of the contaminated oil would result in the release of dioxin and other unkr toxic chemicals into the atmosphere over New York City. Moreover, the tanks containing these oils are in extremely poor condition as some of them are already leaking. Indeed, a letter (attachment "A from the New York State Select Committee on Crime portrays a highl hazardous situation presenting an imminent danger of irreparable damage to the public and in need of immediate action.

Initial emergency action has been taken by the New York Ci Department of Environmental Protection after consultation with the United States Environmental Protection Agency, the New York State Department of Environmental Conservation and the New York City Fir Department. In view of the danger to the public the City immediat posted 24-hour security on Quanta's abandoned property. The City partment of Environmental Protection is pursuing a costly testing gram to determine the exact contents of the tanks so that cleanup disposal of the material can proceed as expeditiously as possible. have also circulated requests for proposals to cleanup the Quanta in case neither the State nor the federal government are able to i ately remediate the situation.

for portable toilets and a $8,000 flat charge for fence repair and razor-edge wire installation. At this time bids have been taken only for the security guards; the toilet and fence expenses are estimates.

Pursuant to Mayor's Executive Order 2(2D), dated January 21, 1970, we require the opinion of the Corporation Counsel as to whether the circumstances constitute an emergency.

I would appreciate it if you would respond as promptly as possible. If you require any further information or clarification, please do not hesitate to call me.

Very truly yours,

Joseph T. McGough, Jr.

Joseph T. McGough, Jr.
Commissioner

JTMc/pw

DECLARATION OF EMERGENCY

WHEREAS, oil and sludge containing toxic chemicals and other hazardous materials exist on the property at 37-80 Review Avenue, Queens, and

WHEREAS, the aforesaid circumstances may constitute a significant fire hazard, and

WHEREAS, a fire on the site would affect public buildings, public property, and the health, safety, and property of the inhabitants of the affected area, and

WHEREAS, security, required by Chapter 19, Section C19-50.0 of the New York City Administrative Code, is not currently being provided at the site, and

WHEREAS, immediate action which cannot await public bidding is required, and

WHEREAS, departmental forces are inadequate to handle the situation,

NOW, THEREFORE, for reasons aforesaid, pursuant to the authority conferred by Subdivision 4 of the Section 103 of the General Municipal Law and Mayor's Executive Order No. 2, dated January 21, 1970, I hereby determine that an emergency exists, and

I FURTHERMORE DETERMINE that immediate action is required and that Open Market Orders relating to adequate security may be let without public bidding.

Joseph T. McGough, Jr.
Commissioner

6/16/82
Date

Until the aforementioned contract is approved and registered with the Comptroller, NYCDEP shall take all steps necessary to ensure payment of your invoices according to the terms of this letter.

Payment up to the time the contract is approved will be based upon the fee schedule described in O.H. Material Co.'s published spill recovery price list, as attached and made a part of this letter (excepting only the last two lines of pages 1 and 3 referring to interest rates, which lines are deleted). Specifically, with the exception of the foregoing references to interest, all of the "Notes" section concerning surcharges and per diems shall apply. In no event shall the City pay you more than $1,700,000.00 for all of the work described in the attached "Quanta Resources Phase II Scope of Work" plus all of the work described in our prior letters of intent of August 11 and August 27, 1982 concerning the cleanup of the Quanta site.

The $1,700,000.00 upset price herein does not include up to $34,000.00 for a performance bond which you must obtain for the full amount of the $1,700,000.00 upset price upon written demand of the NYCDEP. It is also agreed that any assessments, pursuant to Chapter 857 of the laws of the State of New York of 1982, or under any other Federal, New York State, or New York City statute, regulation, or ordinance* covering the generation, treatment, or disposal of hazardous waste will not be part of the $1,700,000.00 upset price. Specifically, if the City requests a performance bond, it is agreed that you shall invoice the City separately therefor and that the City shall pay said invoice in the same manner as it agrees to pay your weekly invoices as set forth below, except that there shall be no retainage withheld upon such invoice.

You shall complete all the described work within 70 days of September 3, 1982. Moreover, it is agreed that you will not withdraw from the Quanta site members of your work force or equipment which will have the effect of delaying the progress of your work at the Quanta site, without the written permission of NYCDEP.

You shall continue compliance with the same insurance provisions that you have agreed to as set forth in the August 12, 1982 letter from Jeffrey Sommer to James Kirk.

*Enacted after the date of the proposal herein of O.H. Materials Co.

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You will submit invoices based upon the actual hours worked by each employee and materials used or retained or based upon the measured quantity of waste materials removed, as appropriate, during each time period. It is understood by both O.H. Materials and the City that the timely completion of the work is of high priority. The City acknowledges that all such work performed in excess of forty hours per week will be invoiced at a higher rate than regular time, as set out in the aformentioned rate schedule.

Each daily shift working more than 8 hours shall include 8 hours of regular time, except for weekends and holidays as per O.H. Material's published spill recovery price list, as attached.

The On-Site Coordinator (OSC) or designated NYCDEP representative shall sign all time and material daily record forms or Removal Volume record forms, each working day. These records will be the final determination of time and materials used daily for payment purposes.

The Contractor shall furnish the On-Site Coordinator (OSC) daily with three copies of written statments signed by the Contractor's representatives at the site showing:

1) The name and job category of each workman employed on such work, the number of hours employed thereon, and the character of the work each is doing; and

2) The nature and quantity of any materials and equipment furnished or used in connection with the performance of such work and from whom purchased or rented.

3) The amount and constituent nature of waste materials removed from the site for transportation and disposal.

A copy of such statment will be countersigned by the OSC, noting thereon any items not agreed to or questioned, and will be returned to the Contractor within 2 days after submission.

The Contractor and his subcontractors, when required by the Commissioner, or the Comptroller, or either of them, must also produce for inspection, at the office of the Contractor or subcontractor, any and all of their books, vouchers, records, daily job diaries and reports, and cancelled checks showing the nature and quantity of the labor, materials, and equipment actually used in the performance of work, and the amounts expended therefor, and must permit the Commissioner and the Comptroller to make such extracts therefrom or copies thereof as they or either of them may desire. This letter of Intent may be modified or changed by the Commissioner

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Table V-1
QUANTA WASTE REMOVAL SUMMARY

Material Category	Transport Vehicle	Volume Removed	Dates Shipped	Disposal Facility
Waste Oils 50 ppm< PCB <500 ppm	Rail	38,716 gallons	10/21/82	Rollins, TX
Waste Oil with PCB >500 ppm	Rail	1,163 gallons	10/22/82	Rollins, TX
Waste Oil with Chlorinated Organics >10,000 ppm	Rail	78,920 gallons	09/29/82-10/05/82	SCA, ILL
Noncontaminated Waste Oil	Rail	119,830 gallons	09/21/82-10/05/82	SCA, ILL
Flammable Sludge	Truck	5,000 gallons	10/13/82	Rollins, NJ
Pumpable Sludge with ppm <PCB <500 ppm	Rail	57,000 gallons	10/15/82	ENSCO, AK
Nonpumpable Sludge with 50 ppm< PCB< ppm	Truck	430 cubic yards	11/09/82-11/11/82	SCA, NY
Cyanide Solution	Truck	9,425 gallons	11/10/82	SCA, NJ
Nonpumpable Sludge PCB >500 ppm	Truck	31 drums (1,705 gallons)	12/01/82	Rollins, TX
Contaminated Decontamination Liquid (Diesel Fuel)	Truck	1,100 gallons	12/01/82	Sea-Bright, KY
Nonhazardous Sludge	Truck	886 cubic yards	11/13/82-11/16/82	SCA, NY and BFI, MD

Table V-2
QUANTA WASTE TRANSPORT AND DISPOSAL COSTS

Material Category	Destruction Location	Disposal Unit Cost	Total Cost (i.e. disposal and transport)
Waste Oils 50 ppm< PCB <500 ppm	Rollins - TX	$.15/lb	$ 83,3[illegible]
Waste Oil with PCB >500 ppm	Rollins - TX	$.15/lb	7,607
Waste Oil with Chlorinated Organics >10,000 ppm	SCA - IL	$.12/lb	36,466
Noncontaminated Waste Oil	SCA - IL	$.05/gal	45,254
Flammable Sludge	Rollins, NJ	$.147/lb	8,105
Pumpable Sludge with 50 ppm <PCB <500 ppm	ENSCO, AK	$.14/lb	113,521
Nonpumpable Sludge with 50 ppm <PCB< 500 ppm	SCA, NY	-	86,410
Cyanide Solution	SCA, NJ	$1.35/gal	15,495
Nonpumpable Sludge PCB >500 ppm	Rollins, TX	-	22,885
Contaminated Decontamination Liquid (Diesel Fuel)	Sea-Bright, KY	-	4,416
Nonhazardous Sludge	SCA - NY, BFI - MD	-	147,603
Subtotal			571,092
Additional Misc. Transport Costs			64,149
TOTAL			$635,241

Source: OHM - December 16, 1982

[illegible]4/18

15K

Disposal options for both non-contaminated and PCB contaminated sludges include:

1. Blending the material with a flammable solvent for incineration. This method is very costly and the blending operation presents a degree of risk to the neighboring community.

2. Blending this material with flyash, lime or other sorbent to make this material into a solid. Disposal will be at a certified, licensed and approved landfill. This method is both cost effective and consistant with "best available disposal technology."

Excluding extra contractor costs, the costs for incineration versus lioensed landfill are as follows:

Waste Catagory	Incineration	Landfill
non-contaminated sludge	$468,300	$180,000
PCB contaminated sludge	$124,000	$ 46,000

RECOMMENDATION:

As the On-Scene-Coordinator, I adamantly recommend that the cost effective landfill method using "best available disposal technology" be followed.

COST CHANGES:

The change in OH Materials scope and extent of work will affect the overall contract price as follows:

	Incineration	Landfill
Disposal variance	$430,400	64,400
Solvent/Sorbent	74,000	21,600
Labor/Equipment	200,000	69,700
PROJECT TOTAL.....	$2,540,000	$1,991,000

Variance from original estimate less than 5%.

Sincerely,

Gary L. Ott
On-Scene-Coordinator
Quanta Cleanup Site

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

SUMMARY REPORT

WASTE STREAM	9/2/82 ESTIMATE GALLONS	10/18/82 ESTIMATE GALLONS	CHANGE	NEW CATAGORY	DISPOSAL CHANGE COST
Oil / cont Cl	75,267	78,920	+3653		+ 438
Non-cont oil	121,150	119,000	-2150		- 108
PCB cont oil	97,742	36,000	-61742	sludge noncont	-101700
PCB oil	22,500	3,000	-19500	sludge noncont	-52350
Caustic	29,881	0	-29881	sludge noncont	-
Non-cont sludge	32,391	139,500	+107109		+112,000
Flammable sludge	9,722	12,000	+2278	PCBsludge	+4239
Cont sludge	31,283	76,000	+44717	sludge noncont	+93,478
Solids	3,600	3,600	0		-
Solid toxic	1,000	0	-1000		-
	424,536	468,020	+43,484		+56,000 plus 15% $64,400

actual size of underground tanks 64,000 includes sludge noncont
original estimated size 17,232
46,768 variance is less 1%

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MAILGRAM SERVICE CENTER
MIDDLETOWN, VA. 22645

Western Union Mailgram

4-020740S313002 11/09/82 ICS IPMMTZZ CSP NYAB
1 2125663341 MGM TDMT NEW YORK NY 11-09 1240P EST

DEPT OF ENVIRONMENTAL PROTECTION MS WHALEN
1 CENTRE ST
NEW YORK NY 10007

THIS MAILGRAM IS A CONFIRMATION COPY OF THE FOLLOWING MESSAGE:

2125663341 TDMT NEW YORK NY 41 11-09 1240P EST
FON 4194233526
JAMES KIRK, O H MATERIALS RPT DLY MGM COPY MESSAGE
16406 STATE ROUTE 224 EAST
FINDLAY OH 45840
THIS TELEGRAM WILL SERVE TO CONFIRM OUR DISCUSSION OF TODAY. I AUTHORIZE O H MATERIALS TO REMOVE THE 134,500 GALLONS OF SLUDGE LESS 50 PPM OF PCB, TO S C A FACILITY MODEL CITY NEW YORK
RICHARD MENDES DEPUTY COMMISSIONER DEPT OF ENVIRONMENTAL PROTECTION
ROOM 2355
1 CENTRE ST
NEW YORK NY 10007

12142 EST

MGMCOMP

REPLY BY MAILGRAM MESSAGE. SEE REVERSE SIDE FOR WESTERN UNION'S TOLL - FREE PHONE NUMBERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF ADMINISTRATION
346 BROADWAY, NEW YORK, N.Y. 10013 (212) 566-8132

JOSEPH T. McGOUGH, JR.
Commissioner

IRA WECHTER
Deputy Commissioner For Administration

TO: EDWARD NICASTRO; Procurement Chief

FROM: FRANK BELLO; Assistant Purchasing Agent

DATE: FEBRUARY, 25, 1983

SUBJECT: UPDATE- THE QUANTA PROJECT
GENERAL STATUS OF CONTRACTS AND ORDERS

Listed below are the various vendors involved in the Quanta Cleanup Project and the payment status for each vendor.

This report consists of two parts:
Part I summarizes the two major Quanta accounts-O.H. Materials and CH_2 M-Hill;
Part II summarizes the other vendors involved.

The total project cost for all vendors directly paid by DEP is $2,302,700.00

The total paid directly by DEP to date is $1,681,107.66.

Part I

O.H. Materials
P.O. Box 551
Findlay, Ohio 45840

O.H. Materials was awarded the contract to furnish all material and labor required for the removal, transportation and disposal of Polychlorinated Biphenyl (PCB) contaminated oil and other dangerous waste that exist (ed) in the Quanta Resource location.

There are, presently, four Advice of Awards that have been prepared; three of which have been certified and accepted into IFMS. The fourth Advice of Award has been precumbered but the Comptroller's acceptance has not yet been received.

ATCH 21

Advice of Award No.1

Contract No. 3000215
Req. # 3002413
Budget Code: 0064-400-66
Amount: $195,000.00
Date of acceptance
into IFMS: 9/8/82

Advice of Award No. 2

Contract No. 3000215
Req. # 3002440
Budget Code: 0064-400-66
Amount: $305,000.00
Date of acceptance
into IFMS: 10/19/82

Advice of Award No.3

Contract No. 3000215
Req. # 3002441
Budget Code: 0064-400-66
Amount: $1,200,000.00
Date of acceptance
into IFMS: 11/10/82

Advice of Award No. 4

Contract No. 3000215
Req. # 3002502
Budget Code: 0064-400-66
Amount: $270,000.00
Date of acceptance
into IFMS:

Total amount contracted:	$2,100,000.00
Total amount in Advice of Awards	1,970,000.00
Balance	130,000.00

Listed below is a summary of all O.H. Material invoices received as of 2/25/83 and the payment status of each. (See next page)

NOTE: The final contract for O.H. Material has yet to be completely negotiated.

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O. H. MATERIALS INVOICE/PAYMENT HISTORY AS OF 2/25/83

INVOICE NO.	PERIOD COVERED	TOTAL INVOICE	LESS RETAINAGE	NET (Paid) VOUCHERED AMT.	WARRANT NO.
1148-001		$87,747.65	-	$87,747.65	
1148-002		80,120.76	-	80,120.76	
1156-001		1,598.80	-	1,598.80	
Total:		$169,467.21		$169,467.21	PMY0483761941
1148-003		$59,619.05	$2,717.56	$56,901.49	
1148-004		66,163.44	2,882.50	63,280.94	
Total:		$125,782.49	$5,600.06	$120,182.43	PMY0483762728
1148-005		$89,854.07	$3,997.34	$85,856.73	PMY0483762728
1148-006		$92,183.06	3,933.27	88,249.79	PMY0483762737
1148-007		94,463.40	4,168.67	90,294.73	PMY0483763203
1148-008		143,354.78	4,981.38	138,373.40	PMY0483763197
1148-009		188,426.66	5,915.52	182,511.14	
1148-010		176,789.28	6,588.85	170,200.43	
1148-011		154,059.79	6,937.01	147,122.78	
1148-012		168,487.28	9,003.08	159,484.20	
1148-013		135,505.85	5,073.35	130,432.50	
Total:		$823,268.86	$33,517.81	$789,751.05	PMA0483207154
1148-014		$137,372.01	$5,008.99	$132,363.02	PMA0483272367
Grand Totals (PAID)		$1,675,745.88	$61,207.52	(1,614,538.26 total paid as of 2/25/83)	
1148-015		$100,344.24	$2,870.01	$97,474.23	No payment
1148-016		185,099.47	-	185,099.47	No payment
1148-017		61,709.22	392.99	61,316.23	No payment
1148-018		36,063.43	234.22	35,829.21	No payment
Total: (Due)		$383,216.36	$3,497.22	($379,719.14 total due as of 2/25/83)	
Grand Total Project Costs as of 2/25/83		$2,058,962.24	$64,704.74	$1,994.257.50	

2. CH2M - Hill
1941 Roland Clarke Place
Reston Va. 22091

- The Consultant contractors selected to assist the Department of Environmental Protection with technical advice to select a contractor for the removal of hazardous material from the Quanta site.

There are, presently, two Advice of Awards and two respective purchase orders that have been prepared. All four have been accepted.

ADVICE OF AWARD NUMBER 1 - Sent to Gobin Budhu's office on 10/27/82 to initiate the contract procedure. Aggregate sum of Contract No. 1 - $69,876.00

A.
Contract No. 3000409
Req. No. 3002415
Budget Code 0064-406
Amount $59,886.00
Date of Acceptance into IFMS: 10/29/83

B.
Order No. 3AR0074
Req. No. 3002385
Budget Code 0064-406
Amount $9,990.00
Date of Acceptance into IFMS: 11/1/82

ADVICE OF AWARD NUMBER 2 - Sent to Gobin Budhu's office on 10/28/82. Aggregate sum of contract number 2 - $106,139.00

A.
Contract No. 3000411
Req. No. 3002422
Budget Code 0064-406
Amount $96,149.00
Date of Acceptance 11/1/82

B.
Order No. 3AR0121
Req. No. 3002431
Budget Code 0064-406
Amount $9,900.00
Date of Acceptance 12/10/82

Total Amount Contracted:	$176,015.00
Total Amount Vouchered:	50,149.90
Balance Remaining Unpaid:	$125,865.01

Listed below is a summary of all CH2M Hill invoices received as of 2/25/83 and the payment status of each:

ADVICE OF AWARD NUMBER 1 (Includes Contract No. 3000409 and Purchase Order #3AR0074)
Aggregate total - $69,876.00

CONTRACT TASKS	TOTAL CONTRACT COSTS	INVOICE AMOUNT TO DATE	TOTAL PAID	BALANCE NOT PAID
Task #1 Proposal Evaluation	$16,869.00	$13,316.28	$13,216.28	$3,652.72
Task #2 Contract Negotiations	21,114.00	7,937.66	4,714.03	16,399.97
Task #3 Inventory Assistance	31,893.00	22,405.88	22,405.88	9,487.12
Grand Total:	$69,876.00	$43,559.82	$40,336.19	$29,539.81

ADVICE OF AWARD NO.2 (Includes Contract #3000411 and Purchase Order #3AR0121)
Aggregate total - $106,139.00

CONTRACT TASKS	TOTAL CONTRACT COSTS	INVOICE AMOUNT TO DATE	TOTAL PAID	BALANCE NOT PAID
Task #1 Evaluation of Contractor	$68,610	$68,374.00	$9,813.80	$58,796.20
Task #2 Contractor Negotiations	20,364.	9,954.06		20,364.00
Task #3 Characterization of Site	12,475.	9,083.15		12,475.00
Task #4 Other Direct Costs	4,690.	2,264.01		4,690.00
Grand Totals:	$106,139.	$89,675.62	$9,813.80	$96,325.20

PART II
List of services and vendors involved with the waste removal (directly or indirectly) and the IFMS status of each, as of 2/25/83.

1. Fence Repair

Vendor: Accurate Fence Corp.
73 Frost St.
Yonkers NY. 10404

Order #: 3AR0104
Req. # 3002412
Budget Code 0064-400
Total: $9,000.00

IFMS STATUS: Vouchered

2. Sample Testing of Twelve Contaminated Tanks

Vendor: Cecos Int'l
Niagra Falls Blvd.
P.O. Box 619
Niagra Falls NY 14302

Order #: 3AR0107
Req. # 3002418
Budget Code 0064-400
Total: $777.00

IFMS STATUS: Vouchered

Drums and Cans for Waste

Vendor: Chemical Waste Disposal
42-14 19th Ave.
Astoria, NY 11105

Order # 3AR0183
3AR0122
Budget Code 0064-400
Total: $1,275.00

IFMS STATUS: Vouchered

Portable Toilets

Vendor: Mr. John Sanitary Units
P.O. Box 415
Edison, NJ 08818

Order # 3AR0103
Req. # 3002411
Budget Code 0064-400
Amount: $490.00

IFMS STATUS: Encumbered but not vouchered

2/d

5. Radiological Survey

Vendor: Radiac Research Corp.
261 Kent Ave.
Brooklyn, NY 11211

Order #: 3AR0134
3AR0123
Budget Code 0064-400
Total: $ 800.00

IFMS STATUS: Vouchered

6. Equipment for Analysis of Flash Point

Vendor: J & H Berge Inc.
4111 So. Clinton Ave.
So. Plainfield, NJ

Order # S302849
Req. # 3002377
Budget Code 0064-107
Total: $2,130.50

IFMS STATUS: Vouchered

7. Safety Clothing - Coveralls

Vendor: Eastco Safety Co.
26-15 123rd St.
Flushing, NY 11354

Order # 3AR0097
Req. # 3002400
Budget Code 0064-100
Total: $249.16

IFMS STATUS: Vouchered

8. Raincoats

Vendor: Mercer Rubber Co., Inc.
66 Reade St.
New York, NY 10007

Order # 3AR0088
Req. # 3002388
Budget Code 0064-100
Amt. $51.66

IFMS STATUS: Vouchered

9. Lab Coats & Coveralls

Vendor: United Linens Inc.
1252 Brunswick Ave.
Far Rockaway, NY 11691

Order # 3AR0087
Req. # 3002388
Budget Code 0064-100
Amount: $349.05

IFMS STATUS: Vouchered

10. Temporary Employment

Vendor: GCI Temporary Services Inc.
295 Madison Ave.
New York, NY 10017

Order # 3AR0231
3AR0209
3AR0187
3AR0173
Budget Code 0064-406
Total: $4,059.00

IFMS STATUS: $1,485. vouchered

11 Electrical Supplies

Vendor: Hobbs Electrical Dist.
541 West 24th St.
New York, NY 10001

Order # 3BA0128
Req. # 3000551
Budget Code: 0034-100
Total: $302.03

IFMS STATUS: Vouchered

2/e

Guard Service

Payment made by DGS - Division of Real Property under Agency Code 856. Contact Jack Hindin - 566-7650

Vendor: Proetorian Protection Inc.
116-16 Queens Blvd.
Forest Hills, NY 11375

Order # 856-3350508
856-3350341
856-3350348

Total: $10,202.00

IFMS STATUS: $9,919.80 vouchered

Emergency Medical Service

Processing and payment being handled by:
The Department of Health and Hospital Corp.
Emergency Medical Services Division
51-30 58th St.
Maspeth, NY 11378
Contact: Mr. Howard Horne 326-0600

Electricity

Processed and payment handled by D.G.S. via Inter-City Orders

SUMMARY OF DEP COSTS AS PER
IFMS STATUS OF ORDERS, ETC.

VDR	TOTAL CURRENT AMOUNT	TOTAL VOUCHERED	REMAINING BALANCE
D.H. Materials	$2,100,000.00	$1,614,538.36	$485,461.64
CH2M-Hill	176,015.00	50,149.90	125,865.10
Sub Total:	$2,276,015.00	$1,664,688.26	$611,326.74
Accurate Fence	9,000.00	9,000.00	-
Cecos Int'l.	777.00	777.00	-
Chemical Waste Disp.	1,275.00	1,275.00	-
Mr. John	490.00	-	490.00
Radiac Research	800.00	800.00	-
J. & H. Berge	2,130.50	2,130.50	-
Eastco Safety Co.	249.16	249.16	-
Mercer Rubber Co.	51.66	51.66	-
United Linens	349.05	349.05	-
E Temps.	4,059.00	1,485.00	2,574.00
Hobbs Elect. Dist.	302.03	302.0	-
Items 3-13 Total	$19,483.40	$16,419.40	$3,064.00
Grand Total:	$2,295,498.40	$1,681,107.66	$614,390.74

D: Gary Ott

21f

20. The dangerous and improperly placed hazardous matter created an imminently dangerous condition to the public's life and health thereby constituting a public health nuisance.

21. On August 2, 1982 Quanta was ordered by the New York City Department of Health to abate the conditions at the property. (Exh. "C")

22. Quanta took no steps to do so.

23. The New York City Department of Environmental Protection (DEP) issued a Declaration of Emergency on August 4, 1982, declaring the property a significant fire hazard which could affect health, safety and property. (See Exh. "D").

THE CLEANUP

24. Due to the State's failure to take any affirmative action to remediate the substantial and immediate threat to the health and safety of the public, the New York City Corporation Counsel approved a Declaration of Emergency, on August 4, 1982, authorizing the award of a contract, without public letting, for such work as is required to remove the danger. (See Exh. "E").

25. Following the Declaration of Emergency the firm of O.H. Materials of Findlay, Ohio was hired by the City to perform the cleanup of the hazardous waste site. (See Exh. "F").

26. As of November 12, 1982, the anticipated cost of the cleanup of this hazardous condition was more than $2,100,000.00.

27. Due to the potential for hazard, the City was instructed by DEC to hire permanent 24 hour guard service for the protection of the

95c

property and the surrounding community at a cost of $480.00 per day commencing June 16, 1982. (See Exh. "G").

28. The City will expend over two and one half million dollars in the clean up of this inactive hazardous waste site.

STATE SUPERFUND ASSISTANCE

29. Under Title 13 of the New York State Environmental Conservation Law §27-1313 the Department of Environmental Conservation is responsible for, inter alia inactive hazardous waste disposal site remedial programs.

30. The property constitutes an inactive hazardous waste site within the meaning of ECL §27-1301(2) and ECL §27-1313.

31. Since Quanta illegally operated its property while under the State's direct supervision, the State is obligated under ECL §27-1313 to develop and implement an inactive hazardous disposal site remedial program.

32. The actions taken by the New York City Department of Environmental Protection (DEP) in cleaning up and restoring the property have been closely monitored and approved by DEC.

33. The actions taken by the DEP to clean up the property constitute an inactive disposal site remedial program which is serving as the remedial plan of DEC.

34. The State through DEC has over sum the development of the cleanup program since its inception.

35. DEP and its contractors were authorized on behalf of DEC to effectuate the removal of hazardous waste from the property.

41. In denying petitioner moneys appropriated by the State legislature for the express purpose of cleaning and restoring hazardous waste sites respondent has failed to perform a duty enjoined upon him by law, and has acted in an arbitrary and capricous manner.

THE DENIAL IS ERRONEOUS, ARBITRARY AND CAPRICIOUS

42. Respondents' denial of petitioner's application was based on the fact that Quanta was not an inactive hazardous waste site and that Superfund payments could not be made for cleanup activity which was performed prior to December of 1982. (See Exh. I).

43. ECL §27-1301(2) defines inactive hazardous waste disposal site as:

> any area or structure used for the long term storage or final placement of hazardous waste ... as to which area or structure no permit or authorization issued by the department or a federal agency for the disposal of hazardous waste was in effect after the effective date of this title.[1]

44. No permits were granted to place hazardous waste at the property after August 26, 1979.

45. No authorization was granted to Quanta or its predecessors after August 26, 1979 to place hazardous waste at the property.

---

1 Effective on the 60th day after June 26, 1979.

83

46. The property is an inactive hazardous waste site.

47. Even if the property is not inactive, §97-b(3) of the State Finance Law authorizes use of the remedial fund for cleaning up or restoring any area where hazardous wastes were disposed of in violation of law. Since Quanta violated the State consent order and placed highly dangerous wastes on the property in direct contravention of State and Federal laws, it is unnecessary, pursuant to §97-b of the SFL, for the property to be categorized as inactive in order to qualify for remedial funds.

48. Respondents' denial of the petitioner's application on the ground that the property is not an "inactive" hazardous waste site was arbitrary, capricious and erroneous as a matter of law.

49. The amendments to the Environmental Conservation Law and the State Finance Law creating the State Superfund were passed on July 3, 1982 and by the terms of the Legislation are effective on that date. (See Exhibit "I".) In addition, the amendments established an immediate appropriation of $5,000,000 for site remediation.

50. Procedures for revenues to be collected for the fund are included in ECL §27-0923. The imposition of assessments began September 1, 1982 and collections for the fund commenced in December of 1982. There is nothing in the legislation which indicates that cleanups which occur before those dates are not covered by the legislation.

51. A request for superfund money made after July 3, 1982 is not premature and is expressly contemplated by the legislation.

52 Respondents' denial of the petitioner's application on the grounds that the legislation does not authorize payments for clean-

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

51 ASTOR PLACE, NEW YORK, N.Y. 10003 (212) 566-2717

JOSEPH T. McGOUGH, JR., Commissioner

EDWARD F. FERRAND, Assistant Commissioner

November 6, 1982

Deputy Commissioner Richard Mendes
NYC Department Environmental Protection
Planning and Enforcement
Municipal Building
New York, NY 10007

SUBJECT: MEMO FOR RECORD: Completion of the Immediate Response Phase, Quanta Resources Site, IAW National Contingency Plan.

Dear Deputy Commissioner Mendes:

Removal of all materials from Quanta Resources would have been completed on time (Nov 11, 82) if the movement of uncontaminated, non-hazardous waste materials had proceeded as scheduled starting Nov 3, 82. The movement of this non-hazardous materials to a local sanitary landfill was disapproved on Nov 3, 82. Similarly, the routine movement of 8 truckloads of this non-hazardous waste to a licensed secure landfill in Maryland was prevented when several phone calls from New York City to the Officials in the State of Maryland suggested that this routine shipment needed special attention and special approvals. Special State of Maryland approvals, requested by the State of New York, are not now anticipated until Nov 9th. Non-routine laboratory work required to provide data for these special approvals is being accomplished by both OH Materials and CH_2M Hill. This special GC-MS lab work requires this much time and will cost an excess of $3,000.

Because the special approvals for the movement of non-hazardous waste have not been received, and are not immediately anticipated, I have directed OH Materials to carefully move the non-hazardous materials to one side and to complete the movement of all hazardous materials from the Quanta site. I expect this important task to be completed on time and under budget.

Upon the removal of all hazardous materials from the Quanta site, I have directed OH Materials to demobilize and

remove their decontamination unit, mobile laboratory, and crew trailer. This equipment is required when there are hazardous materials on site; it is not required when hazardous materials are no longer present. I have also directed that the water treatment system used to treat all aqueous materials found or used on site to be removed. In its place, to treat surface rainwater runoff, I have directed OH Materials to build a small water treatment system from materials found on site or previously purchased.

COMPLETION OF IMMEDIATE REMOVAL PHASE, NYC DEFENSIVE ACTIONS.

The removal, by November 11, of all hazardous materials from the 103 tanks on the Quanta Resources facility will complete the immediate removal phase of the defensive actions taken by the City of New York IAW the National Oil and Hazardous Substances Contingency Plan. All materials that were a threat to the health and safety of the NYC Public will have been removed. All activities of the contractor, OH Materials, will have accomplished the goals of the City of New York as specified in NYC's Request for Proposal dated July 22, 82.

Further efforts, however, will be required at the Quanta Resources site.

1. Determine the extent of PCB contamination of the soil, underground oils and ground water that is under and around the Quanta site.

2. Complete the demolition of buildings, tanks and the removal of other non-hazardous materials that are not an immediate threat to the health and safety of the NYC Public.

Both of these activities are in the planned response and site remediation categories listed in the National Oil and Hazardous Substances Contingency Plan. It is the responsibility of the State of New York to enter the Quanta Resources site into these programs, reference Environmental Conservation Law, section 3-0301. Similarly, The National Oil and Hazardous Substances Contingency Plan, 40CFR, part 300, identifies the State as the responsible agent for all these activities.

RECOMMENDATIONS FOR FUTURE ACTIONS.

1. Additional subsurface investigation will be required to determine the scope of underground PCB contamination. A report on surface PCB contamination on the Quanta facility will be available in Field Investigation's final report which will include both OH Materials' final report and that of our engineering consultant, CH_2M Hill.

2. Movement of non-hazardous materials, including removal of tanks and buildings, can proceed after the movement of all hazardous materials are completed and whenever special written

approvals have been obtained. This sequence is required for three important reasons:

a. Non-contaminated and contaminated materials, if moved at the same time, could be accidently mixed. Any increase in the volume and subsequent increased cost of disposal of contaminated materials because of accidental mixing of non-contaminated materials is not acceptable.

b. Since special approvals have been requested by the State of New York before movement of non-hazardous waste can begin, I will direct that non-hazardous materials be moved only when these written approvals have been received.

c. Movement of non-hazardous waste from the Quanta site is not required under the immediate response phase of the National Oil and Hazardous Substances Contingency Plan. Accordingly, I will arrange for movement of non-hazardous materials only when I receive, in writing, direction to move this non-hazardous material and expend such funds.

Sincerely,

Gary L. Ott
On-Scene-Coordinator

cc:Quanta distribution

APPLICABLE RECORD 3

Lawler, Matusky & Skelly Engineers

HOFSTRA ENVIRONMENTAL LAW DIGEST

A Publication of the Environmental Law Society
Hofstra University School of Law

Vol. 3 No. 1 Spring 1986

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BANKRUPTCY

Midlantic National Bank v. New Jersey Department of Environmental Protection; O'Neill, Trustee in Bankruptcy of Quanta Resources Corp., Debtor, v. City of New York, 106 S.Ct. 755 (January 17, 1986).

The issue in these two petitions for *certiorari*, which arose out of the same bankruptcy petition, is whether a bankruptcy trustee may abandon property under §554(a) of the Bankruptcy Code, 11 U.S.C. §554(a) (1982), in contravention of state and local public health and safety laws. Section 554(a) reads: "After notice and a hearing, the trustee may abandon any property of the estate that is burdensome to the estate or that is of inconsequential value and benefit to the estate." "Abandonment" is defined as "the release from the debtor's estate of property previously included in that estate." (*See* dissenting opinion of Justice Rehnquist, 106 S.Ct. at 763, citing 2 W. Norton, Bankruptcy Law and Practice §39.01). The Supreme Court, in a 5-4 decision written by Justice Powell, held that a trustee may not abandon property in contravention of local laws "reasonably designed to protect the public's health or safety from identified hazards." 106 S.Ct. at 762.

Quanta Resources Corporation (Quanta) processed waste oil at two locations, one facility in Long Island City, New York and the other in Edgewater, New Jersey. In June 1981, Midlantic National Bank (Midlantic) provided Quanta with a $600,000 loan secured by Quanta's inventory, accounts receivable and certain equipment. Also in June 1981, the New Jersey Department of Environmental Protection (NJDEP), which had given Quanta a temporary permit to operate the Edgewater facility, discovered that Quanta had violated its permit by accepting more than 400,000 gallons of oil containing PCBs. As a result, NJDEP ordered Quanta to halt its operations at Edgewater. Negotiations between NJDEP and Quanta concerning the cleanup of the facility commenced soon after the NJDEP order. However, on October 6, 1981, Quanta filed a petition for reorganization under Chapter 11 of the Bankruptcy Code. The next day, NJDEP ordered Quanta to clean up the site, and in November, 1981, Quanta converted its Chapter 11 petition to Chapter 7, liquidation. Thomas O'Neill was appointed as Quanta's trustee in bankruptcy.

An investigation of the Long Island City facility revealed that Quanta had accepted and stored over 70,000 gallons of PCB-contaminated oil in leaky containers. O'Neill notified Quanta's creditors and the Bankruptcy Court for the District of New Jersey that he intended to abandon the Long Island City property pursuant to §554(a) after attempts to sell the property proved unsuccessful. The trustee's allegation that the Long Island City property was "burdensome" and of "inconsequential value to the estate" within the meaning of §554 was not disputed by any party involved in the bankruptcy proceeding.

Although not parties to the proceeding, the City and State of New York (New York) objected to the abandonment, contending that it would threaten public health and safety and would violate state and federal environmental law. New York based its objection on considerations of "public policy" that pervade local laws and on 28 U.S.C. §959(b) (1982) which requires that a trustee "manage and operate" the property of the estate "according to the requirements of the valid laws of the State in which such property is situated." However, the Bankruptcy Court approved the abandonment and the U.S. District Court for the District of New Jersey affirmed. New York appealed this decision to the Third Circuit.

Upon abandonment, the trustee removed the 24-hour protection service from the Long Island City facility and shut down the fire-suppression system. To protect public health, New York spent $2.5 million to decontaminate the facility.

On April 23, 1983, shortly after the District Court approved the abandonment of the Long Island City site, the trustee announced his intention to abandon the Edgewater site. On May 20, the Bankruptcy Court approved this abandonment. NJDEP objected to the abandonment "because the estate had sufficient funds to protect the public from dangers posed by the hazardous waste." 106 S.Ct. at 758. Presumably, the abandonment could require New Jersey to make expenditures to decontaminate the Edgewater site.

Pursuant to §405(c)(1)(B) of the Bankruptcy Code, the parties in the New Jersey litigation consented to NJDEP appealing from the Bankruptcy Court to the Third Circuit because the abandonments of the New Jersey and New York sites presented the same issue.

The Third Circuit held that the Bankruptcy Court erred in permitting abandonment. *In re Quanta Resources Corp.*, 739 F.2d 912 (3d Cir. 1984) and *In re Quanta Resources Corp.*, 739 F.2d 927 (3d Cir. 1984). (For a discussion of *Quanta*, 739 F.2d 912, *see* Vol. 1, No. 2, *Hofstra Environmental Law Digest* (Fall 1984).)

In affirming the Third Circuit's decision, Justice Powell, joined by Justices Brennan, Marshall, Blackmun and Stevens, emphasized three factors prohibiting a trustee from the abandonment of property in contravention of state law designed to protect public health and safety. Justice Powell first examined the trustee's abandonment power prior to the 1978 revisions of the Bankruptcy Code. Prior to 1978, "the trustee's abandonment power had been limited by a judicially developed doctrine intended to protect legitimate state or federal interests." 106 S.Ct. at 759. Justice Powell then concluded that when Congress codified the rule of abandonment in §554, it "also presumably included the established corollary that a trustee could not exercise his abandonment power in violation of certain state and federal laws." *Id.* If Congress intends to change the interpretation of a judicially created concept, it normally makes the intent specific in

the construction of the statute. Because Congress did not specify its intent to change the pre-1978 judicially created abandonment rule, Justice Powell reasoned that Congress intended that the pre-1978 rule be unaffected by the 1978 revisions.

Secondly, Justice Powell noted Congress' determination "that the trustee is not to have *carte blanche* to ignore nonbankruptcy law." *Id.* at 760. In situations where the Bankruptcy Code "has conferred special powers upon the trustee and where there was no common law limitation on that power, Congress has expressly provided that the efforts of the trustee to marshal and distribute the assets of the estate must yield to governmental interest in public health and safety." *Id.* Justice Powell accepted New York's argument that 28 U.S.C. §959(b) "did not intend for the Bankruptcy Code to pre-empt all state laws that otherwise constrain the exercise of a trustee's powers." *Id.* at 762.

Justice Powell found additional support for restricting the trustee's abandoning power "in repeated congressional emphasis on its goal of 'protecting the environment against toxic pollution.'" *Id.* (citation omitted.) The policies of both the Resource Conservation and Recovery Act, 42 U.S.C. §6901 (1982), and the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9601 (1982), demonstrate Congress' intent to restrain activities involving hazardous waste that may result in "imminent and substantial endangerment to the public health or welfare or environment." 106 S.Ct. at 762 citing 42 U.S.C. §9606. Justice Powell explained "[i]n the face of Congress' undisputed concern over the risks of the improper storage of hazardous and toxic substances, we are unwilling to presume that by enactment of §554(a), Congress implicitly overturned long-standing restrictions on the common law abandonment power." 106 S.Ct. at 762.

The Supreme Court concluded that "[t]he Bankruptcy Court does not have the power to authorize an abandonment without formulating conditions that will adequately protect the public's health and safety." *Id.*

In dissent, Justice Rehnquist, joined by Chief Justice Burger and Justices White and O'Connor, found "particularly unpersuasive" the Court's main argument supporting state power to bar abandonment, namely, that Congress "codified well-recognized restrictions of a trustee's abandonment power." *Id.* at 763 quoting Justice Powell, *Id.* at 759. Justice Rehnquist looked solely at the language of §554 and concluded that it "is limited only by considerations of the property's value to the estate. It makes no mention of other factors to be balanced or weighed and permits no easy inference that Congress was concerned about state environmental regulations." *Id.* at 763-64.

HOFSTRA
ENVIRONMENTAL LAW DIGEST

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Justice Rehnquist noted that many of the sections of the Bankruptcy Code have explicit exceptions to them and that §554(a) is not one of them. Therefore, New York's argument that 28 U.S.C. §959(b) creates an implicit exception to §554(a) of the Bankruptcy Code should be rejected. Justice Rehnquist concluded that the "Court errs by permitting [the States] to impose conditions on the abandonment power that Congress never contemplated." *Id.* at 768.

Steven Sonkin, '86

WETLANDS

United States v. Riverside Bayview Homes, Inc., 106 S.Ct. 455 (December 4, 1985).

A recent Supreme Court decision expanded the definition of "wetlands" under the Federal Water Pollution Control Act, 33 U.S.C. §1251 (1982) (the Clean Water Act). The initial enactment defined "freshwater wetlands" as areas that are periodically inundated and covered by vegetation. 33 C.F.R. §209.120(d)(2)(h) (1976). "Periodically" was eliminated from the definition in 1977. In 1982, the present, almost identical, regulation was promulgated which states that a wetland is an area that is "inundated or saturated by surface or groundwater at a frequency and duration sufficient to support . . . a prevalence of vegetation." 33 C.F.R. §323.2(c) (1978).

Section 1311 of the Act forbids the discharge of fill material into navigable water unless authorized by the Army Corps of Engineering through the issuance of a permit. It is the nation's navigable waters with which the Act is concerned and it defines the term as the "waters of the United States." 33 U.S.C. §1362(7) (1982). In 1976, the Corps' Regulation of the "waters of the United States" was expanded to include all "fresh water wetlands" that were adjacent to other waters covered by the Clean Water Act, waters actually navigable, as well as tributaries of such waters and non-navigable intrastate waters whose use or misuse could affect interstate commerce. 40 Fed. Reg. 31320 (1975).

In the present case, defendant, Riverside Bayview Homes, Inc. owned 80 acres of low-lying marshland near the shores of Lake St. Clair in Macomb County, Michigan. In 1976, defendant began to place fill material on its property without a permit. The Corps, seeking to enjoin defendant's filling, filed suit in the United States District Court for the Eastern District of Michigan.

The District Court granted the injunction, finding that the property was an adjacent wetland as per the 1975 regulations which requires a permit for filling. Following defendant's appeal, the Court of Appeals remanded for consideration of the intervening 1977 amendments to the regulation. 615 F.2d 1363 (6th Cir. 1980). Upon remand, the District Court again found that the property was a wetland subject to the Corps' authority.

Following a second appeal, the Sixth Circuit reversed the finding that the defendant's property fell within the regulation. 729 F.2d 391 (6th Cir. 1984). The court declared that the Corps' definition of adjacent wetland under the regulations excluded wetlands that were not subject to flooding by adjacent navigable waters. The court limited the breadth of the regulation for fear that a broad reading of the regulation and a broad definition of wetland would result in the taking of private property without just compensation in violation of the Fifth Amendment. The court also doubted whether Congress intended to allow regulation of wetlands that were not the result of the flooding of navigable waters.

ALBANY TIMES UNION Thursday November 25, 1982 p. F4

Loopholes led to toxic waste trafficking . . . legacy of residue

By Bob Wyrick
Newsday

WASHINGTON — During the past six years Russell W. Mahler, a former oil company president, took advantage of federal regulatory loopholes to fashion a multimillion-dollar business empire that trafficked in toxic wastes in four northeastern states and Canada.

Today Mahler is in prison, and most of his empire is bankrupt. But Mahler has left buried in landfills in metropolitan New York a legacy of millions of gallons of poisonous chemicals, some of which will pose hazards for decades, officials say.

And the federal loopholes on waste-oil refiners that allowed Mahler's companies to make money while doing heavy environmental damage in New York, Pennsylvania and New Jersey remain open.

REP. FLORIO

"There is as much hazardous waste presently escaping regulation as is subject to federal controls," said Rep. James J. Florio, D-N.J., chairman of the subcommittee on commerce, transportation and tourism, which has oversight responsibility for hazardous wastes and toxic substances. "Unless these loopholes are closed, the present hazardous waste management system ..., will simply continue to sow the seeds of future superfund sites and create new victims of hazardous waste pollution."

Subcommittee investigators concluded that about 80 billion pounds of toxins escape federal regulation each year because of loopholes in the 1976 Resources Conservation and Recovery Act (RCRA). These wastes typically wind up in landfill dumps or are converted to heating fuel, which, when burned, spreads the toxons back into the atmosphere.

Florio, with the support of the subcommittee's ranking minority member, Rep. Norman F. Lent, R-N.Y., recently succeeded in getting overwhelming House approval (the vote was 317-32) for a bill to close several of the loopholes in RCRA. But the White House opposes the bill on the ground that the Environmental Protection Agency already has the necessary authority, and the measure's future in the Senate is uncertain.

Nowhere are the problems that can occur under the present law better illustrated than in the remarkable history of Russell Mahler, 56, a Cornell University graduate who is probably the most prominent business executive ever jailed in a white-collar prosecution connected with toxic waste disposal.

Mahler, now serving a year in prison on a Pennsylvania conviction for illegal dumping, was a major East Coast collector and re-refiner of waste oil. From local service stations, his trucks picked up used lubricating oil. From major corporations, such as Exxon and Pratt and Whitney, they carried away millions of gallons of industrial waste oil containing

If those activities had been regulated, Mahler would have been required to maintain records to account for the toxic material he collected and the site and method of its disposal. Routine federal inspection should have quickly turned up evidence of dangerous practices. But in the absence of federal regulation, Mahler's multimillion-dollar enterprise continued for five years with practically no intervention. He finally was sentenced to prison under a state law in Pennsylvania but is being permitted to serve his term in the comparatively comfortable federal penitentiary at Allenwood, Pa.

Some of the health and environmental damage resulting from Mahler's toxic-waste business is described in the report of an investigation completed this year by the New York State Select Committee on Crime, headed by state sen. Ralph J. Marino, (R). The report characterized Mahler's operation as "a long, complex trail of flagrant and unconscionable dumping."

SEN. MARINO

Between one dozen and 20 corporations controlled by Mahler operated in Connecticut, New York, Pennsylvania and New Jersey either simultaneously or at various times during the five-year period investigated. Because of this hydra-headed corporate network, no single state regulatory agency had a grasp of the magnitude of the dangers presented. The absence of federal control at a regional level allowed Mahler's firms to escape for years with only occasional small state fines, congressional investigators say.

Some federal statutes, such as those against water pollution, do apply to operations such as Mahler's, and he faces additional federal charges in New York. But criminal actions under those statutes are brought after the damage has occurred. There is no federal regulation that provides for routine monitoring of oil-reprocessing firms.

One of Mahler's first brushes with local authorities came in March 1976, when officials in Syracuse, N.Y., caught Northeast Oil Service discharging hazardous waste into the city sewer system. Northeast, owned by Mahler, was a transfer station for moving wastes to Mahler's re-refining operation in Edgewater, N.J. No legal action was taken as a result of this first evidence of dumping. The transfer station was sold to another firm headed by Mahler called Anchor Oil Co. Dumping into the sewer continued.

In February, 1977, Anchor was fined $2,758 for the cost of cleaning up a large quantity of waste oil that was discharged into the city sewer. On March 20, 1979, still another "new" owner of the transfer station, Hudson Oil Co., whose president was the same Russell W. Mahler, was fined $4,500 for the same transgression.

WASHINGTON — During the past six years Russell W. Mahler, a former oil company president, took advantage of federal regulatory loopholes to fashion a multimillion-dollar business empire that trafficked in toxic wastes in four northeastern states and Canada.

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The clear intent of Congress when it approved RCRA in 1976 was to provide cradle-to-grave monitoring of hazardous chemicals. But major oil and chemical companies managed to secure significant exemptions when regulations were written to implement the law. These exemptions allowed Mahler to operate free from federal scrutiny.

Under federal law, for example, hazardous wastes that are converted to fuel use are not regulated. Neither are companies that re-refine waste oil for use as heating fuel. Thus, because he was a re-refiner, Mahler's activities — which included selling unsus-

If those activities had been regulated, Mahler would have been required to maintain records to account for the toxic material he collected and the site and method of its disposal. Routine federal inspection should have quickly turned up evidence of dangerous practices. But in the absence of federal regulation, Mahler's multimillion-dollar enterprise continued for five years with practically no intervention. He finally was sentenced to prison under a state law in Pennsylvania but is being permitted to serve his term in the comparatively comfortable federal penitentiary at Allenwood, Pa.

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Between one dozen and 20 corporations controlled by Mahler operated in Connecticut, New York, Pennsylvania and New Jersey either simultaneously or at various times during the five-year period investigated. Because of this hydra-headed corporate network, no single state regulatory agency had a grasp of the magnitude of the dangers presented. The absence of federal control at a regional level allowed Mahler's firms to escape for years with only occasional small state fines, congressional investigators say.

Some federal statutes, such as those against water pollution, do apply to operations such as Mahler's, and he faces additional federal charges in New York. But criminal actions under those statutes are brought after the damage has occurred. There is no federal regulation that provides for routine monitoring of oil-reprocessing firms.

One of Mahler's first brushes with local authorities came in March 1976, when officials in Syracuse, N.Y., caught Northeast Oil Service discharging hazardous waste into the city sewer system. Northeast, owned by Mahler, was a transfer station for moving wastes to Mahler's re-refining operation in Edgewater, N.J. No legal action was taken as a result of this first evidence of dumping. The transfer station was sold to another firm headed by Mahler called Anchor Oil Co. Dumping into the sewer continued.

In February, 1977, Anchor was fined $2,758 for the cost of cleaning up a large quantity of waste oil that was discharged into the city sewer. On March 20, 1979, still another "new" owner of the transfer station, Hudson Oil Co., whose president was the same Russell W. Mahler, was fined $4,500 for the same transgression.

Shortly afterward the sanitation department received reports that another 10,000 gallons of oil wastes containing cyanide had been dumped over a weekend. Investigators later found that the cyanide was part of a shipment of eight truckloads that included highly toxic nickel and copper-plating wastes, and a mixture of chlorinated solvents with phenol derivatives that had been picked up in 1979 from Pratt and Whitney in Montreal, Canada.

When officials of the New York Department of Environmental Conservation were called in, they discovered that all of the waste-oil storage tanks at the transfer station had drain valves that led to a gravity oil separator that removed toxins from the oil

several violations of state law, they found no records to indicate that the Syracuse case was part of a large interstate operation. Company books showed the volume that moved through the transfer station but did not indicate what type of waste was involved, how it was disposed of or the fact that it was being transported across state lines. That type of information, normally is required in federal monitoring programs but is exempt under RCRA regulations for oil-waste recycling operators such as Mahler.

When the problems in Syracuse were halted by installation of tamper-proof monitoring devices in the sewers, pollution problems in Pennsylvania increased. Trucks laden with toxic chemicals from Hudson Oil's facilities at Syracuse and Edgewater began to show up regularly on Route 81 in Pittston, Pa. After pulling off the road behind an auto-service garage owned by Elmo Scatena, the drivers dumped their loads into a bore hole behind the garage that led into an abandoned mine shaft called the Butler Tunnel. In July 1979, a huge spill of oil and toxins was discovered in the Susquehanna River.

A Pennsylvania grand jury indicted Mahler, Hudson's New Jersey dispatcher, Ken Mansfield, and Scatena and his three sons.

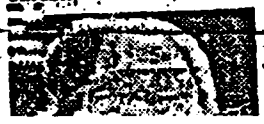
The grand jury also investigated the discharges. It identified the chemicals and described their toxicity in the following manner:

"Dichlorobenzene and naphthalene are known carcinogens; dichlorobenzene and dioctylphthalate are known mutagens — meaning that they can cause chromosome breaks and birth defects; dioctylphthalate is also a known teratogen — meaning it can affect the formation of unborn fetuses. Ethyl benzene, toluene, xylene and dioctylphthalate are suspected carcinogens."

Later investigation showed that after Pennsylvania was closed off as a dumping site, Mahler's trucks continued to collect wastes from the same industrial companies, and to dump them into sewers and landfills in New York City, a practice that persisted until late last year.

The Select Committee on Crime was critical of DEC officials for permitting Mahler to stay in business after the 1979 incidents in Syracuse and Pittston. Internal DEC documents obtained by the committee showed that agency officials suspected Hudson of "discharging large quantities of various types of industrial wastes," but officials also feared at the time that the agency "may be unable to prove the allegations in a court of law." Therefore, Hudson Oil was allowed to continue its waste-oil operations in both Long Island City and Syracuse after agreeing to a DEC consent order at the close of 1979 that required the company to pay a $50,000 fine and post a $250,000 bond for 16 alleged violations.

Within a short time, however, Mahler sold Hudson Oil to Quanta Resources Corp., a Delaware corporation in which Mahler held a highly paid post as chief salesman but was not listed as a corporate officer. "Mahler was home free," the crime committee reported. "Legally, he was not in business in New York."



houses and fuel oil distributors. Tests of the oils by New Jersey's Department of Environmental Protection following broadcast of the TV documentary showed that fuel oils in the holding tanks at Edgewater were contaminated with high levels of PCBs. When it is mixed with oils burned at low levels in apartment boilers, the dangerous chemical is released into the atmosphere.

New Jersey promptly shut down Quanta's Edgewater facility, but the move did not eliminate the problems in New York. Quanta filed for bankruptcy in October 1981 in New Jersey, abandoning its facility in Long Island City in Queens and leaving behind 530,000 gallons of waste oil contaminated with PCBs and other poisonous chemicals. New York City now is cleaning up the site at a cost of $2 million, a large sum compared with the fines levied against Mahler's firms. The city requested federal "superfund" help to pay for the cleanup but was turned down. The State of Pennsylvania fined Mahler $750,000, while cleanup costs for the Susquehanna are put at $10 million.

Mahler was brought out of prison early this month to enter a guilty plea in New Jersey with his associate Mansfield to extensive chemical dumping in the

Millions of gallons of wastes from reprocessing at both Long Island City and Edgewater were dumped into New York City sewers and landfills . . .

Hudson River and other unspecified sites in 1978-79. After responding to the charge, which could result in a five-year prison sentence and fines of $10,000, Mahler was taken to Staten Island to testify in State Supreme Court as a prosecution witness against John Cassillano, a former supervisor in the city Department of Sanitation, who was convicted Nov. 11 in State Supreme Court of taking illegal payments from Mahler's firms to permit dumping of toxics in city landfills.

Rep. James H. Scheuer, D-N.Y., who also supported the legislation to close the federal loopholes, said, "You've got people like Mahler running around all over the country. The present administration certainly doesn't seem to have the will to do enforcement. I think the problem is going to grow."

The Hazardous Waste Treatment Council, a trade group that represents high-technology companies involved in toxic-waste disposal, has assembled case studies of problems that exist nationwide as the result of blending toxic waste in fuel oil. In August, Michigan attorney general Frank J. Kelley notified the EPA that 22 companies were operating in the state as hazardous-waste-fuel blenders without regulation. Michigan, like the state of New York, has sent letters threatening to bring lawsuits if EPA does not regulate such operations.

The Chemical Manufacturing Association supports the exemptions in the law, contending that chemical companies obtain a "beneficial use" and conserve energy by being able to burn their own toxics as boiler fuel. In opposing the House reform measure, Assistant EPA Administrator Rita M. Lavelle testified that the agency has legal authority to act under RCRA and contended that no new legislation is needed. In spite of the fact that EPA has not acted on this authority since 1976, Lavelle said the agency is "already studying the nature and extent of problems created by these types of facilities and expects to prepare regulations next year as necessary based on

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REP. SCHEUER

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Quanta continued to operate the reprocessing plant at Long Island City, where waste oil was refined and sold as boiler fuel.

Testimony indicates that the heating oil was laced with a variety of toxic substances that could be handled in the re-refining process, but "if the wastes could not easily be broken down or refined, they were disposed of." Millions of gallons of wastes from reprocessing at both Long Island City and Edgewater were dumped into New York City sewers and landfills, according to witnesses [illegible] and other poisonous chemicals. New York City [illegible] cleaning up the site at a cost of $2 million, a large sum compared with the fines levied against Mahler's firms. The city requested federal "superfund" help to pay for the cleanup but was turned down. The State of Pennsylvania fined Mahler $750,000, while cleanup costs for the Susquehanna are put at $10 million.

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No matter what action is taken in the Senate, a final question remains for New York residents: What long-term effect can be expected from the hazardous wastes that witnesses say were disposed of at landfills in Brooklyn, Queens, the Bronx and on Staten Island?

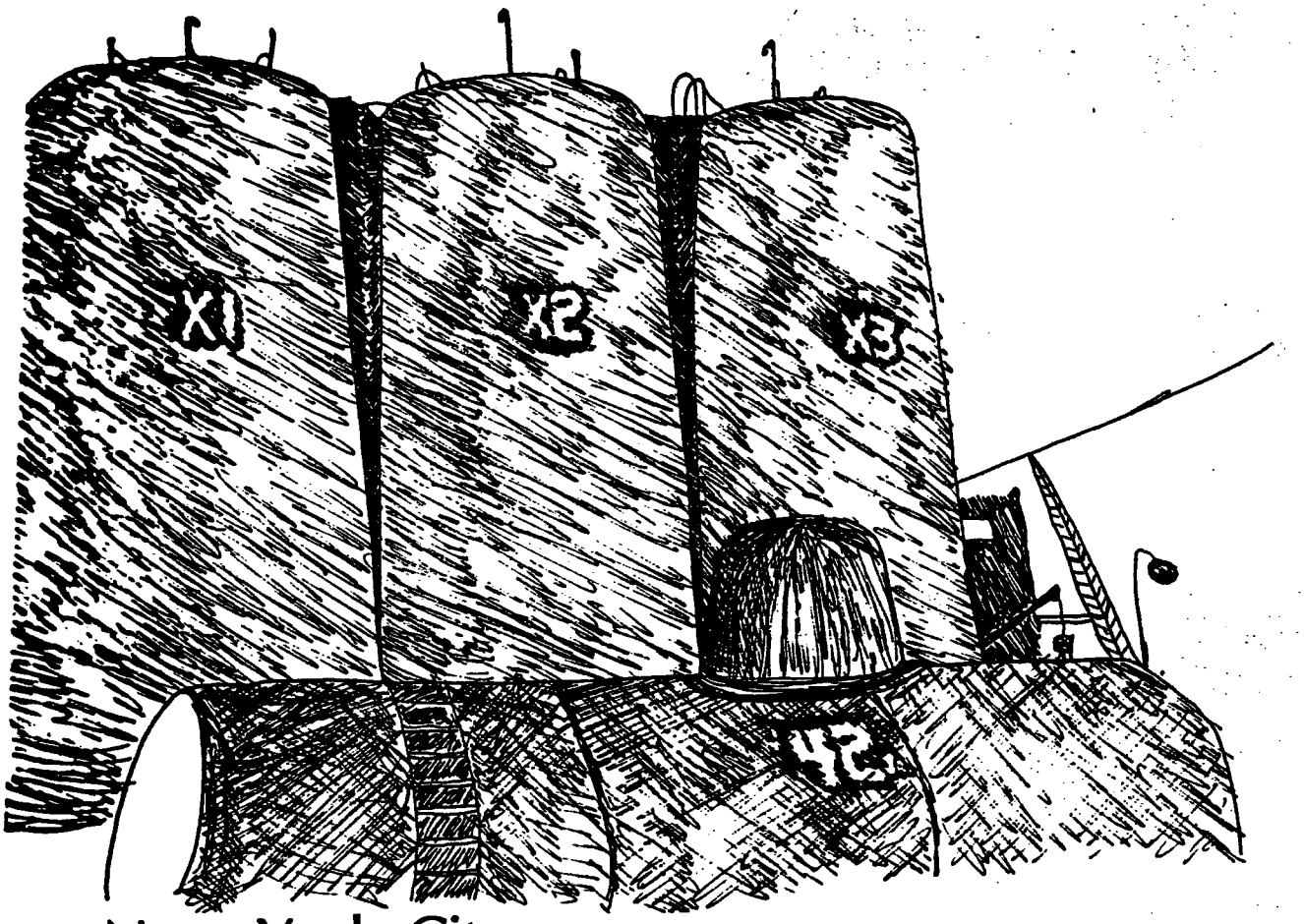
Neither city nor state officials can answer that question. The city dumps have been known since 1980 not to be compliance with state or federal standards, leaking hundreds of thousands of gallons of chemically contaminated material daily into groundwater and adjoining salt-water areas such as Jamaica Bay.

City tests taken earlier this year to try to determine whether the dumping by Mahler's companies was affecting drinking water supplies were

APPLICABLE RECORD 4

Carey Weiss

ENGINEERING SERVICES REPORT
QUANTA RESOURCES SITE CLEANUP



New York City
Department of Environmental Protection

CH2M HILL
December 1982

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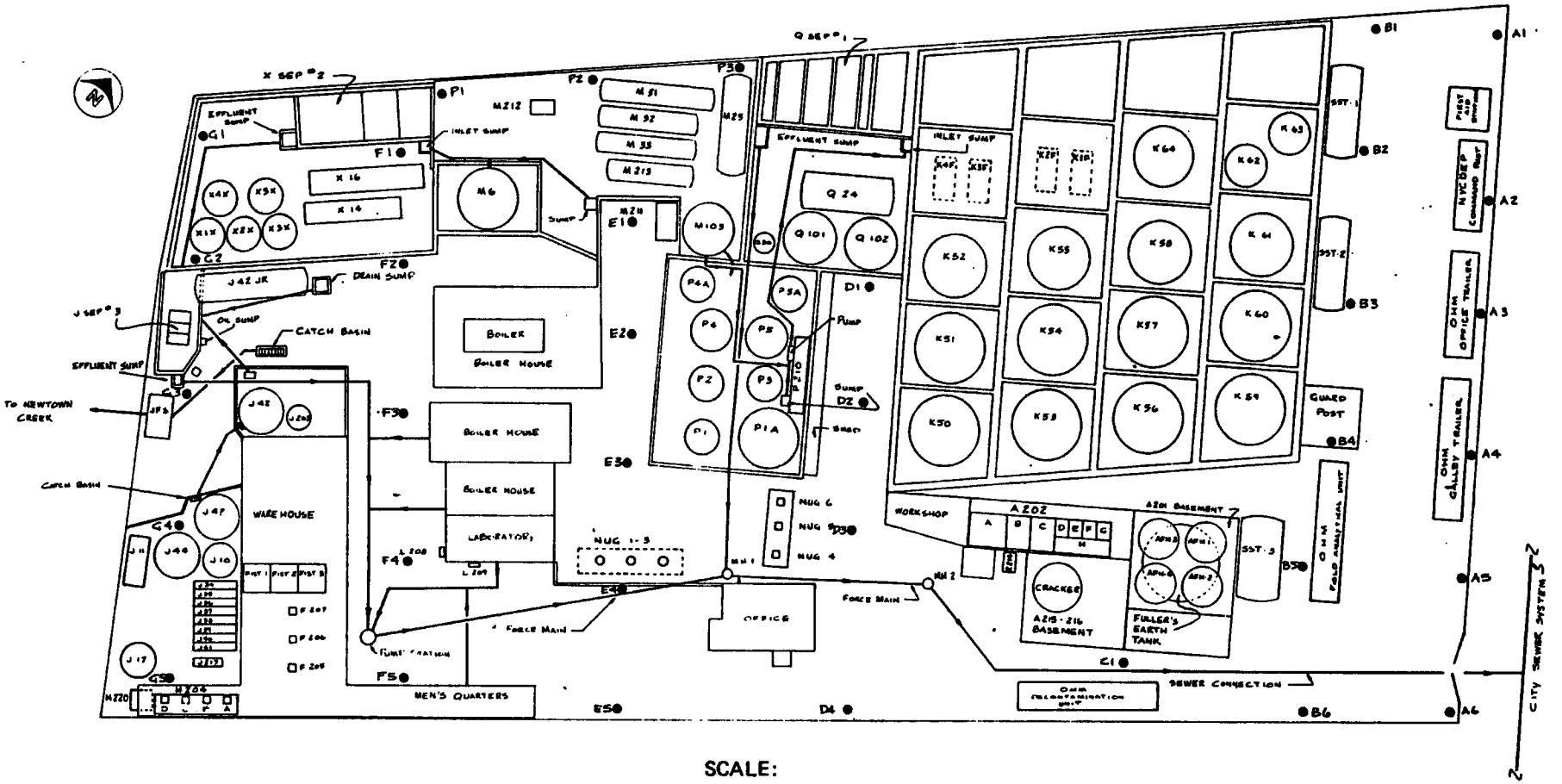


SCALE:
1 inch = Approximately 40 feet

LEGEND

(K50) Tank and Site Identification Number

C/● Air Monitoring Stations

Figure II–2
Quanta Facility Prior to Cleaning Operations

SOURCE: O.H. Materials

APPLICABLE RECORD 5

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

SPECIAL REQUEST REPORT

LAB ANALYSIS REQUESTED

	HAZM IN / HAZM CN / ASBES / R N D / IN AIR / OUT AIR	INCIDENT # / SRR#	EMER / INFO / AN LAB / AN FIELD / REVIEW / CONTRACT / MONITOR	START DATE	MUST BE DONE DATE	INPUT DATE	START / HOLD / DONE
ID	TYPE HAZMCN	82 11/09/17 10293	TASK AN LAB	11/9/82	11/16/82		Case Status
NAME	Notifier GARY OTT			PHONE 566-8977		REFERRAL	
ADDRESS	Where Incident Took Place 37-80 Review ave					BORO Q	ZIP 113

SITUATION QUANTA RESOURCE MATERIALS

Time Incident Occurred (Hour) 2 OIL SAMPLES

Cause

Operation in Progress

sample #1 TW #4 NYC 1016

sample #2 TW #2 NYC 1014

Require PCB analysis only of both samples

OBSERVATION

LABEL INFORMATION

Material OH sample #1015 date 11-7 results PCB 143 ppm 1242+1210 test well #4

Quantity OH sample #959 date 11-2 results PCB 133 ppm 1242+1260 test well #4

Weather

ACTION TAKEN UPDATE, SITE VISIT, REFERRAL, PHONE, MAIL TO DATE

LABORATORY ANALYSIS

TW #2 : NO PCB

TW #4 : 46 ppm PCB (Ar 1240 + Ar 1260) B.B.A (11/17/82)

FUTURE PLANS & RECOMMENDATION

FIELD INVESTIGATIONS ADMIN REVIEW FILE AND [illegible]

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SCIENCE AND TECHNOLOGY

SPECIAL REQUEST REPORT

LAB ANALYSIS REQUESTED

URGENT

G.R.I

	HAZM IN / HAZM CN / ASBES / R N D / IN AIR / OUT AIR	INCIDENT # / SRR#	EMER / INFO / AN LAB / AN FIELD / REVIEW / CONTRACT / MONITOR	START DATE	MUST BE DONE DATE	INPUT DATE	START / HOLD / DONE
ID	TYPE HAZM CN	82 11 18 17 / 0301 (M O/DAY, SERIAL#)	TASK AN LAB			11/18/82	Case Status
NAME	Notifier Field Operations			PHONE 566-8977-8		REFERRAL GARY OTT	
ADDRESS	Where Incident Took Place Quanta: 37-80 Review Avenue					BORO Queens	ZIP

SITUATION Sample submitted for analysis drawn from 24 foot deep well drilled at the Quanta site.

Time Incident Occurred (Hour)
Cause
Operation in Progress

Well #4 [illegible]

OBSERVATION

LABEL INFORMATION

Material
Quantity
Weather

ACTION TAKEN UPDATE, SITE VISIT, REFERRAL, PHONE, MAIL TO DATE

LABORATORY ANALYSIS Fuel Oil Sample

(1) Request PCB content

85 ppm PCB (Ar 1248 + Ar 1260)

B.B.A

FUTURE PLANS & RECOMMENDATION

FIELD INVESTIGATIONS ADMIN REVIEW FILE SRR CRONO OTHER

APPLICABLE RECORD 6

Mike Fate
Lusaka

State and City Debate Cleanup Of Toxic Waste

A Question of Liability Is Raised in Lawsuit

By JAMES LeMOYNE

In a cleanup effort that has cost New York City $5 million so far, city and state officials are debating who should pay for clearing many of the toxic waste sites in the five boroughs.

In an effort to recover some of its costs, the city has sued the state for reimbursement of $2.5 million spent to remove wastes from a Long Island City site whose owner is bankrupt.

The case has raised broad legal questions of the city's liability in toxic waste removal and has compelled reconsideration of environmental and property laws, city officials say.

In particular, the city is re-examining its policy of seizing properties for nonpayment of taxes when the properties are known to be contaminated. In some instances, the city may be able to recover cleanup costs from the former owner, but if the owner has gone bankrupt, the city may be forced to bear the cost itself, officials say.

PCB's in Ground Water

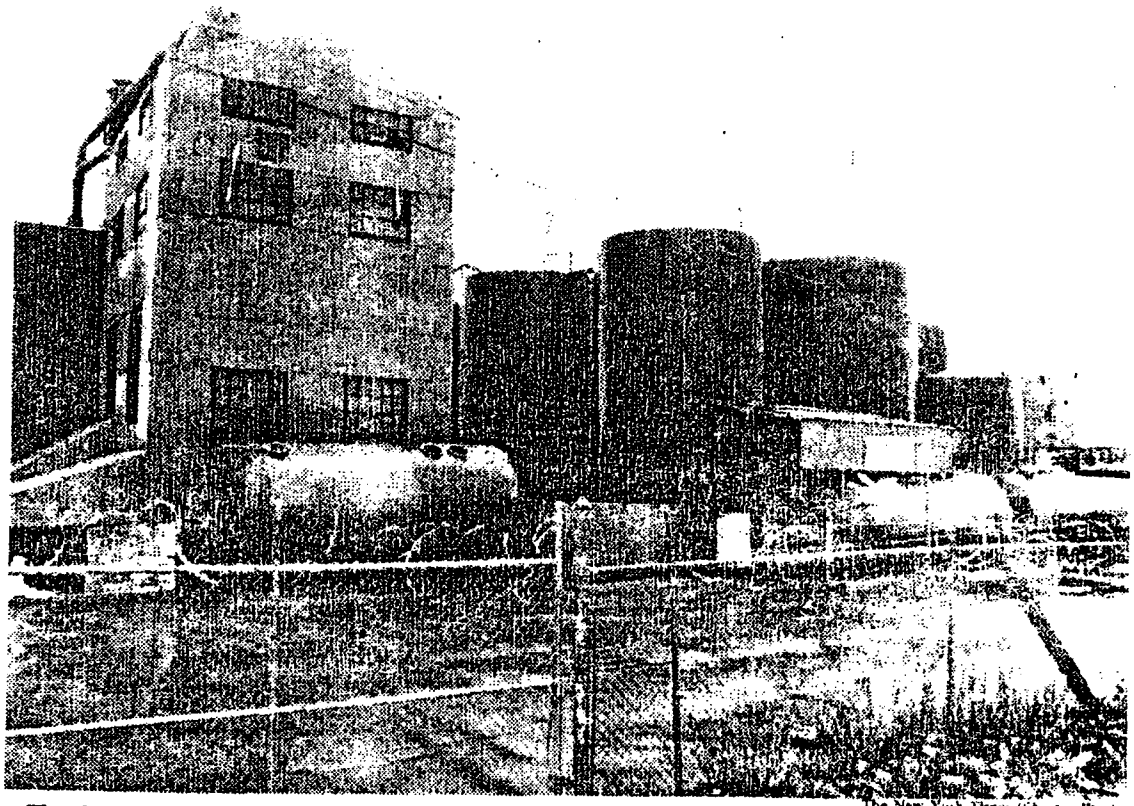
The suit involves the former site of the Quanta Resources Corporation, a waste oil processor. The city spent $2.5 million in 1982 to clear the site at 37-80 Review Avenue in Long Island City, Queens, and city officials say $1 million is needed for additional cleaning.

The site is contaminated with PCB-laden petroleum, some of which has seeped into ground water, according to Carey L. Weiss, director of the Office of Policy Analysis in New York City's Department of Environmental Protection. PCB's, or polychlorinated biphenyls, are considered a powerful carcinogen that often enters the food chain by contaminating fish and other marine life, Miss Weiss said.

The city sued the state last year, asking it to pay for the Quanta cleanup out of a special state superfund created to cover emergency clearing of dangerous toxic sites. But a State Supreme Court justice found that the city had to bear the cost because it cleared the site before the new superfund came into full effect. The city is appealing.

In a separate case, the state is negotiating with the city to close a number of city landfill sites. Two of these are considered significantly contaminated: the Edgemere landfill in Rockaway, Queens, and the Fountain Avenue landfill in Brooklyn. Several hundred thousand gallons of toxic oil are thought to have been illegally dumped at both landfills.

City officials fear that under current



The New York Times/Chester Higgins

The abandoned Quanta Resources plant, in Long Island City, Queens, at which the city cleaned up toxic wastes

pay to clean up these and other waste sites that still have not come to light.

One reason, Miss Weiss said, is that both state and federal financing for clearing toxic wastes are primarily directed at sites where drinking water is affected, a condition that does not apply to most city sites. But the city, as the owner of the sites, can be held responsible for cleaning them, she said, a condition that applies to properties the city seizes for nonpayment of taxes.

The city owns an estimated 20,000 former commercial properties, 90 percent of which have been seized for nonpayment of taxes, according to Terence Moan, deputy commissioner the Department of General Servic

In some cases the city may be abl sue the former owner of a conta nated site to recover at least sc cleanup costs. City officials say was done in the case of Tech Metal former metal plating factory in Bushwick section of Brooklyn.

Civic-Group Leaders Question Times Sq. Pla

By MARTIN GOTTLIEB

Leaders of several New York City civic groups yesterday sharply questioned, and in some cases criticized, the proposed $1.6 billion plan to redevelop Times Square.

The comments were made at a presentation of the plan by its sponsors under the auspices of the Presidents' Council, an association of 11 organizations concerned with planning and design. The questions were raised about the architecture of the proposed office buildings, whether there has been adequate public review of the project and why design guidelines prepared three years ago have been bypassed.

"The guidelines, which I have read with care, are violated almost totally," said Ted Liebman, president of the New York City chapter of the American Institute of Architects. The guidelines, by Cooper, Eckstut Associates, were intended to insure that the project

Mr. Liebman's assertions, as well those of several others, were disputed by officials of the city and of the state's Urban Development Corporation, the sponsors of the plan, who presented it at yesterday's session at the Urban Center at Madison Avenue and 50th Street.

Deviations Are Defended

Peter J. Johnson, the U.D.C.'s vice president for public affairs, said later that the guidelines have been followed at least 80 percent of the time on any part of the project, and that the only deviations were to make the project more marketable.

The project would remove all the sex shops and action movie houses from the block of 42d Street between Seventh and Eighth Avenues. In their place would be four large office buildings designed by Philip Johnson and John Burgee, nine renovated theaters, a 2.4 mil-

Because the project is sponsor part by the U.D.C., it is not requir go through the city's lengthy lanc review. There will be a single U. hearing March 26 and a hearing before the Board of Estimate, w must approve the project.

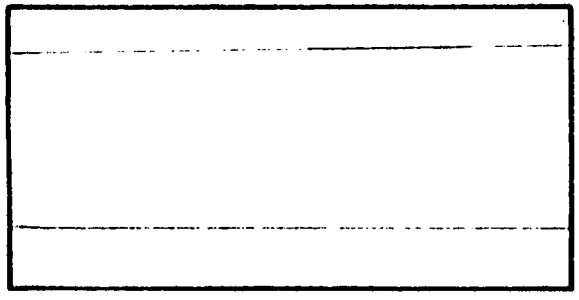
Yesterday, city and U.D.C offi encountered their first criticism their round of briefings of civic community organizations before March 26 hearing. Ada Louise Hu ble, the former architecture critic The New York Times and a memb several of the civic groups, said project was progressing with "a mendous lack of public discussion

"I find myself facing a fait acc pli," she said.

Mr. Liebman and several other chitects said that, contrary to guidelines, the buildings lack stepped setbacks, reflective skin

APPLICABLE RECORD 7

TANK # J SEP 3



PRODUCT MEASUREMENT	PRODUCT DESCRIPTION	PRODUCT VOLUME (GALLONS)	DATE SAMPLED
.7'	HEAVY BLACK OIL	398	8-13-82
2.8'	AQUEOUS	1,592	8-13-82
1'	BROWN STICKY SLUDGE	569	8-15-82

TANK DIMENSIONS/DESCRIPTION: 9.5'L x 8'W x 4.5' RECTANGULAR SEPERATOR BELOW GROUND

TANK CONDITION: PRODUCT TO THE RIM- OVERFLOW TO RR TRACKS WITH RAIN

TANK CAPACITY: 2,560 GALLONS

TREATMENT PLANT EFFLUENT SUMMARY

DATE	DESCRIPTION	CUMULATIVE VOLUME TREATED	PCB	METALS	USE OR DISPOSAL
1/3	1092 gal to Pool #4 - Filter Sand Carryover Switch [redacted] to Pool #5 - 5018 gal to Pool #5	Pool 4 - 1092 Pool 5 - 5018 Total - 6110			
1/4	3837 gal to Pool #5 - Pool #5 Full, Sampled 5668 gal to Pool #4 6760	Pool 5 - 8855 Pool 4 - [redacted] TOTAL - 15,615			
1/4	Transfer Pool 4 to Pool 3 - 6760 gal	15,615			

Appendix C

Waste Streams and Volumes

DIKE WATER TREATMENT SUMMARY [Q & K Dike]

—	Estimated Total Volume = 135,000 gallons	
8/31/82	10,539 gal to Pool #1	CUMULATIVE VOLUME REMOVED
9/2/82	Treatment Started — 7,675 gal to Pool #1	18,214 gal
9/3/82	7,528 gal. to Pool #1	25,742
9/4/82	14,820 gal to Pool #1	40,562
9/5/82		

I. NON CONTAMINATED OIL

TANK No.	SAMPLE No.	GALLONS
A202A	409	245
A202B	411	155
A202C	413	155
A202D	415	30
A202E	391	37
FIST 1	74	383
FIST 1 SLUDGE	76	144
FIST 2	78	383
H204A	376	50
H204B	378	50
H204D	380	50
H220	368	162
J10	52	2,995
J44	62	1,985
K59	304	17,615
K62	322	12,514
K50	280	1,409
K50 SLUDGE	282	2,349
K51	302	3,993
K51 SLIDGE	306	705
K54	284	5,640
M103	160	36,330
NUG4	01	989
NUG5	03	806
NUG6	11	916
P1	172	880
P1 SLUDGE	174	705
P2	170	10,275
P4A	162	17,615
X4X	118	117
X5X	120	1,468
	TOTAL GALLONS:	121,150

II. OIL CONTAMINATED WITH CHLORINATED SOLVENTS

TANK No.	SAMPLE No.	GALLONS
F206	92	1000
L208	198	6
JFS	33	263
K58	228	2376
M6	124	9327
P1A	176	47175
P3	178	9720
Q102	214	1321
SST3	350	4079
	TOTAL GALLONS:	75,267

III. OIL CONTAMINATED WITH PCB

TANK NO.	SAMPLE NO.	GALLONS
A201	399	1,215
A201 SLUDGE *	405	3,645
A202H	419	180
F205	90	1,250
J42	64	8,930
JSEP3	31	398
J11	41	59
K56	294	1,174
K57	308	1,174
K60*	318	1,410
K60 SLUDGE	320	3,290
K61	220	848
K63	326	1,268
K1F	246	269
K2F	250	269
K3F	268	269
K4F	264	215
K53	286	3,054
K64	216	1,697
K64 SLUDGE*	218	1,697
M25	142	1,427
M31	126	1,184
M33	140	3,629
M211	188	592
P4*	150	169
Q24	358	1,469
Q SEP 1 TOP SLUDGE LAYER	354	10,968
Q SEP 1 BOTTOM SLUDGE LAYER	356	16,817
SST 1*	336	2,360
SST 1 SLUDGE	338	10,895
SST 2	340	292
SST 2 SLUDGE	342	10,741
X1X	112	1,820
X16	104	3,068

TOTAL GALLONS: ~~97,742~~ 117,250

* NON CONTAMINATED, However cannot be segregated from adjoining contaminated layer during transfer operations.

9/5/82 Add: M32 — 7,258 gallons
X SEP 2 — 12,250 gallons } 19,508

IV. PCB OIL

TANK NO.	SAMPLE NO.	GALLONS	
M32	192	~~7,250~~	Delete 9/5/82
X2X	114	2,055	
X3X	116	939	
X SEP 2	100	~~12,250~~	Delete 9/5/82
	TOTAL GALLONS	~~22,502~~	

Revised Total - 2,994 gallons

V. NON CONTAMINATED WATER*

TANK NO.	SAMPLE NOS.	GALLONS
H220	370,372,374	1,427
A202F	385,387,389	1,645
	TOTAL GALLONS	3,072

* NON CONTAMINATED WATER WILL BE PROCESSED THROUGH THE ON-SITE WATER TREATMENT SYSTEM.

VI. WATER CONTAMINATED WITH HEAVY METALS

TANK NO.	SAMPLE NOS.	GALLONS
Q101	230,232,234	200
	TOTAL GALLONS	200

VII. WATER CONTAMINATED WITH VOLATILE ORGANICS

TANK NO.	SAMPLE NOS.	GALLONS
JSEP 3	25,27,29	1,592
JFS	35,37,39	2,832
J17	43,45,47	528
J203	66,68,70	288
F206	94,96,98	2,000
XSEP2	106,108,110	3,267
M31	128,130,132	2,410
M33	134,136,138	979
M25	144,146,148	9,155
P4	154,156,158	1,860
P5	164,166,168,	2,866
NUG-5	05,07,09	183
Q102	208,210,212	9,248
L209	196	26
K55	202,204,206	679
K61	222,242,226	1,697
K1F	240,242,244	2,370
K2F	252,254,256	3,770
K52 DIKE	272,274,276 }	135,000*
K55 DIKE	258,260,262 }	
K53	288,290,292	3,525
K57	310,312,316	2,820
K63	328,330,334	8,878
SST 2	344,346,348	2,222
A202 E	393,395,397	1,460
A215-216	427,429,431	9,566
X-14	102	2,191

TOTAL GALLONS: 211,412

* GALLONAGE FIGURE REPRESENTS WATER CONTAINED BY ALL DIKE AREAS.

VIII. WATER CONTAMINATED WITH PCBs

TANK NO.	SAMPLE NOS.	GALLONS
NUG 1-3	13,15,17	2,805
J42 JR	19,21,23	9,383
FIST 3	80,82,84	512
P5A	180,182,184	587
K56	296,298,300	3,993
A201	401,403,407	7,290

TOTAL GALLONS: 24,570

IX. CAUSTIC

TANK NO.	SAMPLE NOS.	GALLONS
J44	56,58,60	17,911
Q24	360,362,364	11,970

TOTAL GALLONS: 29,881

X. NON CONTAMINATED SLUDGE

TANK NO.	SAMPLE NO.	GALLONS	Cu. YD.
J42 JR	86	2,157	11
J43	54	7,640	38
P5A	186	939	5
Q101	236	9,248	46
P210	366	1,777	9
A215-216	433	10,630	53

TOTAL GALLONS: 32,391
TOTAL CUBIC YARDS: 162

XII. PCB CONTAMINATED SLUDGE

TANK	SAMPLE	GALLONS	CU YDS.
K3F	270	4,039	20
K57	314	2,350	12
K63	332	3,382	17
A202 G	417	420	3
M33*	194	5,912*	30
P4	152	2,198	11
M211*	190	1,481*	8
J SEP 3*	88	569	3
X SEP 2*	122	4,900	25
K1F*	248	1,670	9
K4F*	266	4,093	21
K2F*	435	269	2

TOTAL GALLONS: 31,283
TOTAL CUBIC YARDS: 161

XI. SLUDGE, FLAMMABLE

TANK NO.	SAMPLE NO.	GALLONS	CU. YD.
J203	72	144	1
K62	324	1,015	5
SST 3	352	8,563	43

TOTAL GALLONS: 9,722
TOTAL CUBIC YARDS: 49

XIII. SOLID NON CONTAMINATED

TANK	SAMPLE #	CU YD.
M213	200	4
FULLER'S EARTH	421	8
AFH 2	423	1
CRACKER	425	5

TOTAL CUBIC YARDS: 18

XIV. SOLID TOXIC

TANK	SAMPLE #	CU YDS
K52	238	5

TOTAL CUBIC YARDS: 5

Appendix D

Analytical Results

APPLICABLE RECORD 8

From Field Notebook #4
Robert Davis.

[illegible]

A call from Craig Vinson, CHEM HILL laboratory, reported the PCB level in the oil from well #4 equals 17 ppm. PCB level per OHM, 143 & 133 ppm; per NYCDEP, 46 ppm.

Bob Davis & OHM view checked levels of material in wells.

#4 - Static Level = 12.7 feet below grade
Liquid = All Oil
Total Well Depth = 20.09 feet

#3 - Static Level = 17.8 feet below grade
Liquid = All Water
Total Well Depth = 25.24 feet

#2 - Static Level = 14.59 feet below grade
Liquid = All Oil
Total Well Depth = 19.88 feet

#1 - Static Level = 23.60 ft below grade
Liquid = 1'-0"± Water
= 4.95 feet Oil
Total Well Depth = 29.55 feet

Robert Davis

Telephone discussion with John Iannotti NYS DEC and Cary Weiss CDEP confirmed that both NYS DEC and Com Mendes office approved movement of non hazardous waste to BFI, MD. Accordingly, remaining loads of non hazardous waste will be sent to BFI, the low cost holder.

[illegible signature] NOV 17, 82

APPLICABLE RECORD 9

Z 005295

SUMMARY REPORT OF THE SURVEY OF THE QUANTA RESOURCES CORP. SITE

FIELD RECORD

NYC DEP - Gary Ott

Submitted to:

New York City
Department of Environmental Protection

O.H. Materials Co.

James N. Sparks II

September 2, 1982

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

On August 11, 1982, the O.H. Materials Co. was authorized by the N.Y.C.D.E.P. through a letter of intent to perform a survey of the Quanta Resources Corp. site in Long Island City, N.Y. The survey of the site was to include:

1.) Location, measurements, and volume levels of all tanks;
2.) Sampling of all products contained in the tanks;
3.) Analysis of tank products to provide waste characterization for disposal.

O.H. Materials began mobilization of equipment and personnel to the Quanta site on August 11, 1982. Equipment mobilized and setup at the site included a mobile analytical laboratory, decontamination unit, backhoe, office trailer, crew trailer, and a vacuum skid unit. On August 13, 1982, the survey of the Quanta site was initiated.

1.2 SCOPE OF WORK

1.2.1 SITE SURVEY AND SAMPLING

- All tanks were inspected for leaks, spills, and potential hazards.
- Product layering and volumes within tanks were determined.
- All product layers within tanks were sampled for disposal analysis. All samples obtained were split with the N.Y.C.D.E.P.
- A site plan was drafted to scale locating all tanks.

1.2.2 ANALYTICAL WORK

- Extraction and sample preparation was performed in the O.H.M. on-site analytical unit.
- All samples obtained were analyzed in the on-site analytical unit. Parameters measured followed the guidelines listed in the N.Y.C.D.E.P. letter of intent, Task III.
- Twelve hour ambient air scans were performed daily using a mobile infrared analyzer (MIRAN) and a photoionization detector (PID).

1.2.3 SAFETY

- Product leaking from tanks were contained using sorbent materials.
- The aqueous product in J SEP 3 was transferred to tank J 17 to prevent product from overflowing onto the railroad tracks.

2.0 SITE SURVEY & SAMPLING

2.1 SAFETY

2.1.1 PROTECTIVE CLOTHING

A 'Hot' (contaminated) zone was established at the beginning of the project, encompassing the storage tank areas. Minimal protection equipment for all persons entering this zone included hardhats with faceshields, respirators with R-563 filter cartridges, tyvek suits, Robar boots, and hand protection.

Saran coated tyvek suits and hoods were worn by personnel during tank inspection and sampling operations. Self contained breathing air was worn by the sample team when opening hatches and obtaining samples.

2.1.2 SAFETY EQUIPMENT

The ambient air on site was monitored daily with a mobile infrared air analyzer (MIRAN) and a photoionization detector (PID) in both the 'Hot' zone and the 'Clean' areas. Additional air monitoring with a PID and an explosimeter was performed on the air inside of the tanks immediately prior to sample acquisition from each tank.

Brass tools were used to open hatches that could not be opened by hand. Fire extinguishers were stationed near the sample team at the sampling locations. Other safety equipment included emergency showers, portable eye wash stations, and an emergency oxygen unit.

All stairways, catwalks and access paths were inspected prior to sampling to insure personnel safety.

2.2 SITE SURVEY

An initial survey was made of the site prior to the sampling of product in the storage tanks. The survey was performed to locate and inventory existing storage tanks on site, as well as for tank inspection, tank measurements, and the determination of product volumes within the tanks. Results of the site survey can be found in Appendix B.

2.2.1 TANK INVENTORY AND INSPECTION

The Quanta site was surveyed section by section to locate and inventory existing tanks. Emphasis was placed on the search for "hidden" or buried storage tanks that have previously escaped detection. A magnetic locating instrument was used to scan for uninventoried buried tanks in suspect areas. Because the congestion of metal structures and appurtenances interfered with the magnetic scan, excavation would be necessary to prove or disprove the existence of these tanks. A total of 106 tanks were inventoried on site, including tank H-220 which was discovered by the survey team at the south wall of Building H.

OHM technicians inspected each tank, checking for leaks, spilled product, and possible safety hazards. Tanks J10 and J44 have slow leaks in the plumbing and fittings, accounting for the spilled product found under these tanks. Sorbent material was previously spread on the ground to collect the spilled material. Spilled product was also found on the ground near tanks J42, X14, and X16, however, no leaks were observed at these tanks.

JSEP3 was found to be completely full of aqueous material, with approximately six inches of oil on top. This open-topped separation tank had apparently overflowed, spilling product towards the railroad tracks during rainy periods. To prevent further overflow from this tank, OHM technicians pumped the aqueous product from JSEP3 and transferred it into tank J17. Sorbent material was spread onto the spill area to absorb the product.

2.2.2 TANK DIMENSIONS AND PRODUCT VOLUMES

The dimensions of the storage tanks at the Quanta site were measured by the survey team to determine each tank's holding capacity and to facilitate the assessment of product volumes within the tanks. A bacon bomb sampler was used to determine product layering in each tank. Measurements of the product phases were taken at this time.

2.3 SAMPLING PROCEDURES

2.3.1 VINYL SAMPLE GLOVES

Disposable vinyl sample gloves were used by OHM technicians when obtaining samples. Fresh sample gloves were worn for each sample obtained to prevent cross contamination.

2.3.2 BACON BOMB SAMPLES

The bacon bomb sampler was used to obtain representative samples of specific product layers encountered within the storage tanks at the Quanta site. With the plunger seated, sealing off the sample chamber, the bacon bomb can be lowered through product layers in tanks to obtain a sample in a particular layer. When the bacon bomb is lowered to the predetermined depth, the plunger is raised, allowing the chamber to fill with product. Lowering the plunger seals the product within the chamber. In this manner, the sample can be retrieved minimizing cross contamination between various product layers.

2.3.3 DIP SAMPLES

When product layering was not encountered, samples were frequently retrieved using a dip method. A clean quart jar was lowered into the product and retrieved using clean nylon string.

2.3.4 SLUDGE SAMPLE

When sludge samples could not be obtained by the bacon bomb sampler, a sludge sampler was utilized. The all aluminum sludge sampler consists of a two liter hatched scoop connected to extension poles. With the chamber hatch closed, the sampler is lowered into the sludge layer. The hatch extension can be raised, opening the chamber, enabling sludge to be scooped inside. The hatch is then lowered, encasing the sludge in the chamber. In this manner, the sludge can be retrieved, minimizing cross contamination between product layers.

2.3.5 EQUIPMENT DECONTAMINATION

Sampling equipment, ie bacon bomb sampler, was decontaminated between samples to prevent cross-contamination. The equipment was scrubbed clean using reagent grade hexane. When cleaned thoroughly, the equipment was given an acetone rinse, and dried.

2.3.6 SAMPLE CONTAINERS

Oil Samples - When an oil layer was encountered in a tank, one quart of product was retrieved from the tank and split between two clean glass quart containers (one quart for NYCDEP, one quart for OHM). The containers were sealed with a teflon lined cap.

2.3.6 continued

Aqueous Samples - When an aqueous layer was encountered, two quarts of aqueous product were retrieved and split into two clean glass quart containers for PCB analysis (one quart for NYCDEP, the other for OHM). Two more quarts of aqueous product were retrieved and split in the same manner for RCRA metals analysis. Additionally, one quart of aqueous product was retrieved from the tank and split between two 40 ml amber vials (one vial for NYCDEP, one vial for OHM). The vials were sealed with teflon lined silicone septums and screw on caps, allowing zero head space.

Sludge Samples - When sludge was encountered at the bottom of a tank, one quart of the product was retrieved and split between two clean glass quart containers (one quart for NYCDEP, one for OHM). The containers were sealed with teflon lined screw on caps.

2.3.7 LABELS

All samples were labeled immediately following sample acquisition. Information provided on the labels included tank number, state of contents (oil, aqueous*, sludge, or solid), time and date of sampling, and personnel who obtained sample. Because all samples obtained were split with the NYCDEP, whether a sample was for NYCDEP or OHM was also noted on each sample label.

* Aqueous samples were identified by type of analysis to be performed:
PCB, EP (RCRA Metals), VOLATILES.

2.4 DOCUMENTATION

2.4.1 FIELD NOTES

Survey field notes were recorded on tank inspection forms. Information documented included tank identification number, tank location, tank dimensions, tank description, and tank condition. Leaking tanks, spilled product, and possible hazards were also noted as encountered. All tank inspection forms were dated and signed by the personnel performing the inspection.

The sampling teams recorded field notes in hard bound books with numbered pages. The purpose of these notes is to provide thorough documentation of samples obtained. Included in these notes are times and dates of tank sampling, product descriptions, product measurements, as well as method of sample collection. The explosimeter and PID reading taken inside each tank were immediately recorded on air monitoring log forms.

2.4.2 LABORATORY SAMPLE LOG & CHAIN - OF - CUSTODY

All samples obtained were relinquished by sampling personnel at the OHM on-site analytical laboratory. Each sample was entered in to a hard bound laboratory sample log book and assigned a sample number. Information recorded in the log book for each sample included sample number, date and time of sample collection, sample description, sample volume, and personnel who collected the sample. Chain-of-custody documentation is also provided in the sample log book. Each sample was signed over to the on-site laboratory by sampling personnel.

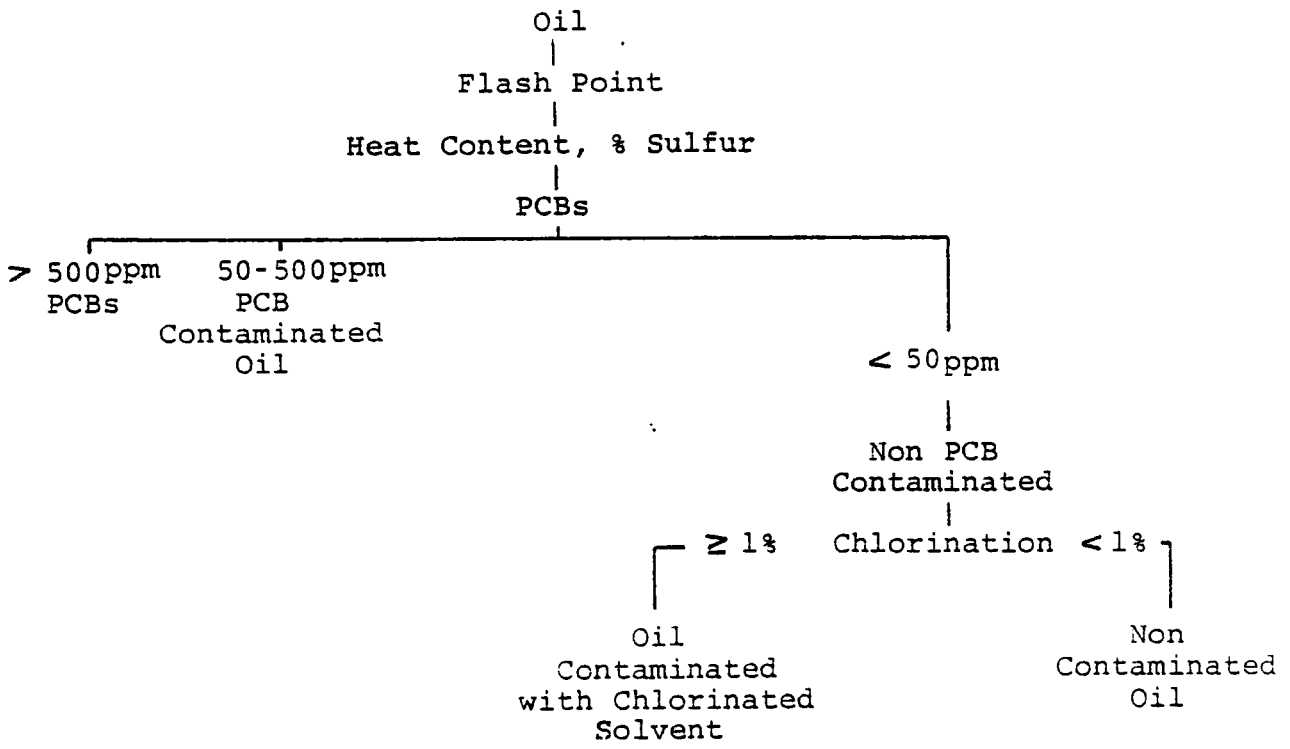
All NYCDEP samples were relinquished to the NYCDEP from the OHM on-site laboratory using standard chain-of-custody forms. All samples received from OHM were inspected by a NYCDEP representative prior to acceptance. The original and three carbon copies of the chain-of-custody form accompanied the samples transferred to NYCDEP from OHM.

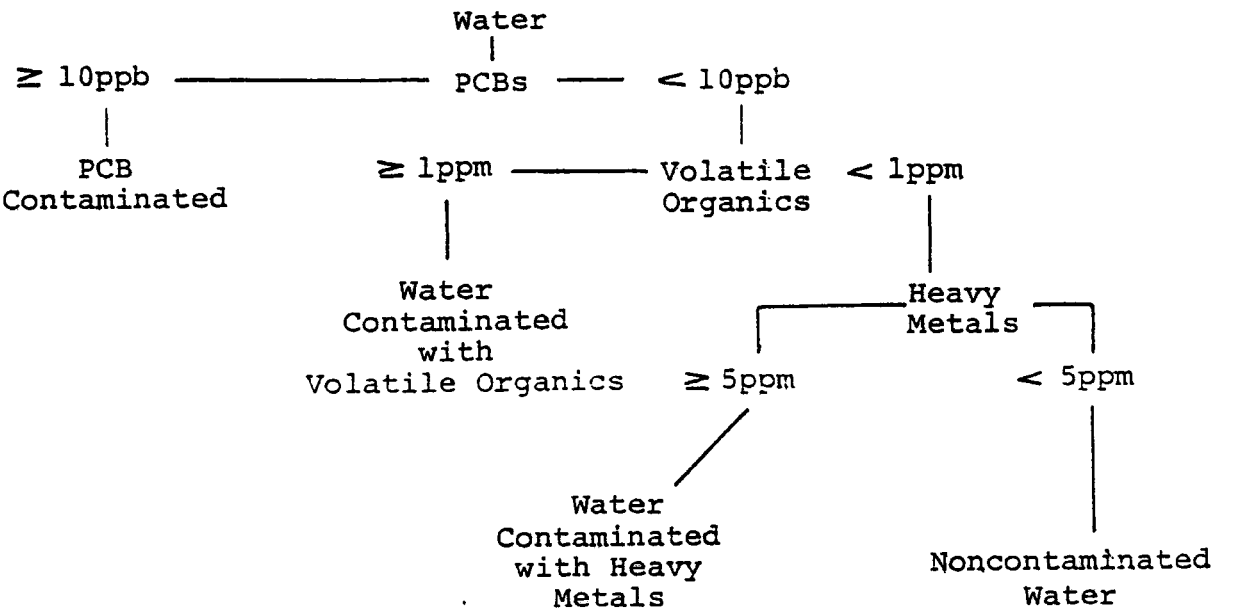
3.0 ANALYTICAL

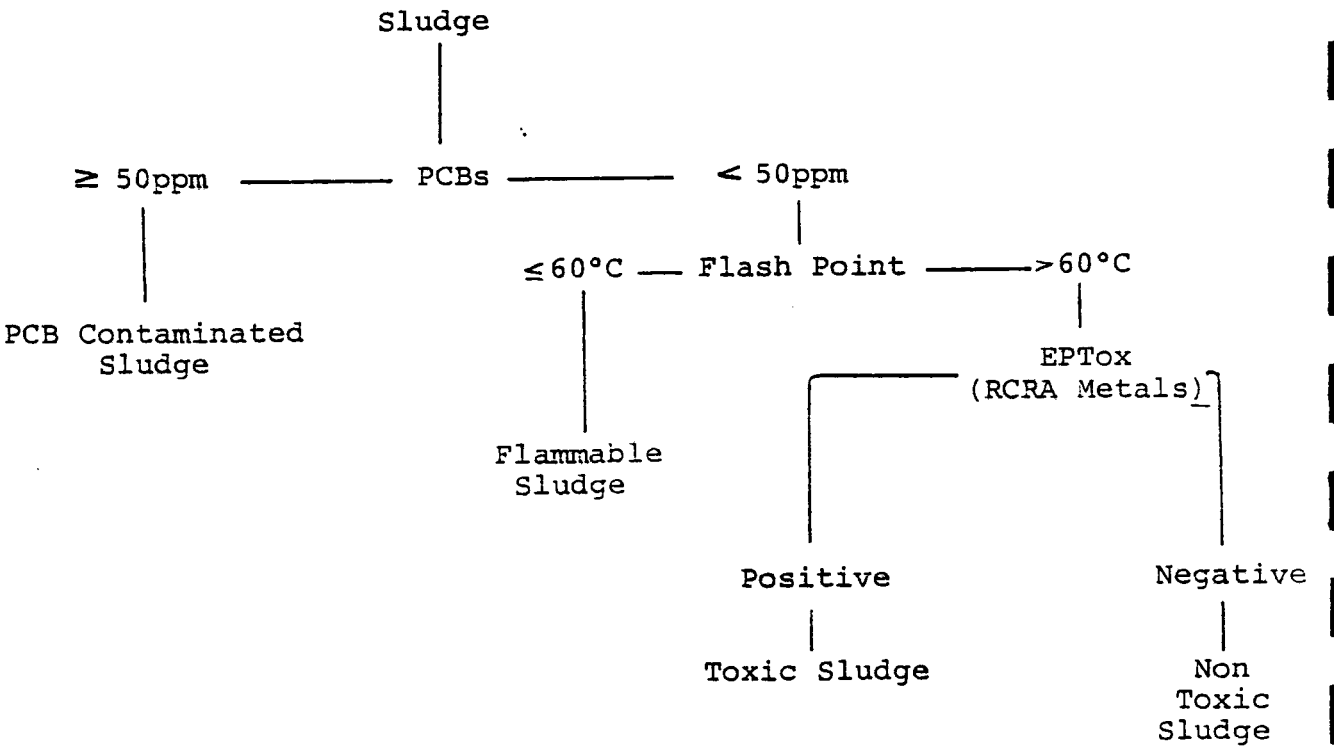
3.1 INTRODUCTION

The text of this section concerns the analytical methodology and classification of the various waste streams found at the Quanta Resources site in Queen, New York.

Three basic matrices were found to be contained in the tanks and diked areas on the Quanta Resources site. These basic matrices were oil, water and sludge. The major suspected contaminants of these basic matrices were PCB, chlorinated solvent, flammable solvents and heavy metals. An analytical scheme for each of these matrices was designed to define specific type of waste steams, so arrangement could be secured for disposal. The analytical scheme for each of these matrices are as follows:




Water
PCBs
≥ 10ppb
< 10ppb
PCB Contaminated
≥ 1ppm
Volatile Organics
< 1ppm
Water Contaminated with Volatile Organics
Heavy Metals
≥ 5ppm
< 5ppm
Water Contaminated with Heavy Metals
Noncontaminated Water


Sludge
PCBs
≥ 50ppm
< 50ppm
PCB Contaminated Sludge
≤60°C
Flash Point
>60°C
Flammable Sludge
EPTox (RCRA Metals)
Positive
Negative
Toxic Sludge
Non Toxic Sludge

3.2 SUMMARY OF RESULTS

The analytical testing schemes used at the Quanta Resources site revealed the following waste streams:

CLASSIFICATION

1. Oil
2. Oil contaminated with PCB's
3. Oil contaminated with chlorinated solvents
4. Uncontaminated water
5. Water contaminated with PCBs
6. Water " " volatile organics
7. Water " " heavy metals
8. Uncontaminated Sludge
9. Sludge contaminated with PCBs
10. Flammable sludges
11. Sludge contaminated with heavy metals
12. Uncontaminated Solids
13. Solids contaminated with heavy metals

The water testing program also revealed tanks Q-24 & J44 contains 3,454 gallons of caustic.

Appendix C summarizes the tanks and volumes of each of the above waste streams

Appendix D summarizes the results of the analyses performed on each of the tanks at Quanta Resources.

3.3 ANALYTICAL METHODOLOGY

The analytical protocols used in the three analytical schemes were performed in accordance to EPA procedures. Those analyses which are not covered by EPA procedures were performed in accordance with either ASTM or NIOSH methods.

3.3.1 OIL ANALYSES

The oil fraction samples were analyzed for PCBs, Heat Content, flashpoint and percent chlorination.

3.3.1.1 PCB ANALYSES

PCB analyses were performed in accordance to USEPA Interim Method, EMSL, 6/24/80. Analyses were performed on a Tracor 560 Gas Chromatograph with a 6' 3% OV-1 on Supelcoport glass column using Hall electrolytic conductivity, halogen specific, detection. The gas chromatograph parameters were as follows:

Initial Temperature	160°C for 3 minutes
Final Temperature	220°C for 5 minutes
Program Rate	5°C/minute
Injection Port Temperature	250°C
Detector Temperature	300°C

Calibration was obtained using Supelco and Chemserv Arochlor standards. Daily calibration with Arochlor 1260 was performed with calibration of other Arochlors occuring as they were detected.

3.3.1.2 FLASH POINT

The flash point of the oils was performed using a Seta-flash flash point tester set at 60°C, as found in ASTM Standard D-3278-78.

3.3.1.3 HEAT CONTENT

Heat content of the oils was determined in accordance to ASTM D240-76. A 1241 Parr bomb calorimeter calibrated on primary grade Benzoic acid was used for determining the BTUs.

3.3.1.4 PERCENT CHLORINATION

The percent chlorinated hydrocarbon in the oil was determined in accordance to ASTM method 808-63. The percent chlorination was determined by titrating the washing from the heat content determination with silver nitrate using potassium chromate indicator.

3.3.1.5 PERCENT SULFUR

Percent sulfur in oil was determined in accordance to Standard Methods 427C. Percent sulfur was determined turbidimetrically from the bomb calorimeter washings.

3.3.2 WATER ANALYSES

The water fraction was tested for PCBs, volatile organics and RCRA metals (also copper, nickel and zinc).

3.3.2.1 PCBs

Analysis of water samples for PCBs was performed in accordance with EPA method 608, Federal Register 44(223): 69501-69510, Dec. 3, 1979. A Tracor 560 Gas Chromatograph as described in section 3.3.1.1 was used for the analyses.

3.3.2.2 VOLATILE ORGANICS

Analysis of the water fraction for volatile organics was performed in accordance to Test Methods for Evaluating Solid Wastes, SW-846 Method 8.82. A Tracor 560 Gas Chromatograph with a 6' 1% SP 1000 on carbopack-B glass column using flame ionization detection and a Perkin-Elmer HS-6 headspace injection system was used for the volatile organic analyses. The gas chromatography parameters were as follows:

Initial Temperature	70°C for 5 minutes
Final Temperature	200°C for 3 minutes
Program Rate	6°C/minute
Injection Port Temperature	250°C
Detector Temperature	275°C

This method of analysis involves single column separation of the headspace sample and allows for semi-quantitation of volatile organic compounds.
The volatile organic semi-quantitated were:

Methylene chloride
1,1-Dichloroethylene
1,1-Dichloroethane
Chloroform
Carbon tetrachloride
1,2-Dichloropropane
Trichloroethylene
1,1,2-Trichloroethane
Tetrachloroethylene
Chlorobenzene

3.3.2.3 METAL ANALYSIS

The metals analyses were performed in accordance to EPA method 8.49. An Instrumentation Laboratory single beam atomic absorption spectrophotometer model 451 was used to determine the metal content in the water fraction.

3.3.2.3 (continued)

The metals analyzed in the water fraction were:

Arsenic
Barium
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Selenium
Silver
Zinc

3.3.2.4 pH

The pH of the water fraction was determined in accordance with EPA method STORET 00400. An Orion 901 pH/specific ion meter was used.

3.3.3 SLUDGE

The sludge fraction in the tanks were tested for PCB and EP Toxicity - RCRA metals.

3.3.3.1 PCBs

The sludge fraction was tested for PCB in accordance to Recommended Sediment and Sludge Sample Collection Procedures for Priority Pollutant Analysis, Bob Horne, Water Monitoring Branch, Washington, D.C. using a Tracor 560 gas chromatograph set at the same condition as listed in section 3.3.1.1 of this report. PCBs were extracted from the sludge using 50% hexane/ acetone mixed solvent with a soxhlet extraction apparatus.

3.3.3.2 EP TOXICITY EXTRACTION

The sludge fraction which was judged to be non-pumpable was extracted in accordance to the EPA method 40 CFR 261.24.

3.3.3.3 METALS

The extract from the EP Toxicity extractor was used for the RCRA metal analyses. The analyses were performed in accordance to EPA method 8.49. The metals analyzed for were:

Arsenic	Chromium	Selenium
Barium	Lead	Silver
Cadmium	Mercury	

3.4 QUALITY CONTROL

The Quality Control Program followed in the analytical program consisted of field blanks, method blanks, solvent blanks, spiked sample, and QC samples submitted by the City of New York.

3.4.1 FIELD BLANKS

Field blank samples consisted of dionized water samples carried throughout the day by the sampling crew. Two sets of field blanks were taken and the results were as follows:

SAMPLE NO.	49	278
PCBs	10ppb	10ppb
Volatile Organics	BDL*	BDL
Metals	BDL	BDL

*Below detection limits

3.4.2 METHOD BLANK

Method blanks were performed whenever a change of solvent manufacturer or lot number occurred.

3.4.3 SOLVENT BLANKS

Solvent blanks were performed with every five samples.

3.4.4 SPIKED SAMPLES

Samples were spiked with calibration samples and analyzed along with the normal work load.

3.4.5 QUALITY CONTROL SAMPLES

Quality control samples were received from the City of New York and analyzed along with the normal workload. The results of these analyses are as follows:

SAMPLE I.D.	RESULTS PARAMETER
QC 25	46 mg/kg Pb
QC 116	390 mg/kg Pb
QC 152	1075 mg/liter PCBs
QC 10616	50 ppm PCBs
QC 25	.34 % Cl
QC 116	.2 % Cl
QC 53*	
QC 102*	

* Volatile organic analyses to be performed on water. These samples contained insufficient water to perform the analyses.

3.4.6 CALIBRATION STANDARDS

3.4.6.1 PCB ANALYSES

Calibration standards were prepared by diluting Supelco and Chemserv Arochlor standards in hexane. These standards were prepared weekly.

3.4.6.2 VOLATILE ORGANIC

Calibration standards for volatile organics were prepared daily by diluting Supelco mix purgeable standards in deionized water.

3.4.6.3 METAL ANALYSIS

The calibraion standards for metal analyses were prepared daily from 1000 ppm NBS standard stock solution.

3.4.6.4 BTU ANALYSES

The bomb calorimeter was calibrated every other day with primary standard grade benzoic acid.

3.4.6.5 CHLORINATION ANALYSES

The silver nitrate solution was calibrated daily with a primary standard stock solution of sodium chloride.

3.4.6.6 SULFUR ANALYSES

A standard curve was prepared prior to analysis and checked periodically with the middle standard.

3.5 CALIBRATION

Each instrument was calibrated with calibration standards at the beginning of each shift or change of analyst. Calibration standards were run prior to analysis of a sample set, after every 10 samples and at the completion of a sample set.

4.0 AIR MONITORING

INTRODUCTION

The purpose of OH Material's air monitoring program at the Quanta Resources waste site in Queens, N.Y. is fourfold. The first purpose is to establish a clean area on site where the workers may remove their gear and clean up, where analytical and administrative work may be done, where meals and breaks can be taken, and where breathing air bottles may be filled. The second purpose is to examine air quality at the perimeters of the site in order to establish background readings and to determine if there is any threat to public safety due to emmisions of airborne chemicals from the site. Thirdly, the program is intended to determine general air quality on site and to locate areas of greater contamination. The fourth purpose is to determine the explosion and air contamination dangers during the transfer and treatment of the wastes and decontamination of the tanks on site.

4.1 METHODS

The instruments used in determining above mentioned goals were the Miran, a single beam infrared spectrophotometer, the PID, a photoionizing organic vapor detector, and the Explosimeter, which detects how close to the lower explosive limit (LEL) a mixture of gases found in a tank.

4.1.1 The Mirans were used both for ambient air scans (which give qualitative results) and for specific vapor analysis. Two Mirans, with chart recorders, were used for monitoring: one, 2M17, was calibrated on 8/13/82 for trichloroethylene (TCE); the other, 2M14, was calibrated on 8/17/82 for tetrachloroethylene (PCE). The OSHA limit for exposure to both TCE and PCE is a ceiling value of 100 parts per million (ppm), while the lower detectable limit (LDL) of the Miran calibrations for TCE and PCE performed on site is four parts per millions, (one twenty-fifth of the OSHA limit.)

The procedure for specific vapor (TCE and PCE) analysis was as follows: After the instrument has warmed up, the cell of the instrument is flushed out with clean air drawn through a charcoal filter, and the zero is set. The chart recorder is calibrated to read the same as the Miran. The chart shows absorbance which can be converted to concentration with the calibration chart.The readings are transferred from the Miran chart to a logbook. The charts are then filed.

To perform an ambient air scan, the Miran scans the infrared spectrum between 2.5 m and 14.5 m. First, a scan of clean air, drawn through a charcoal filter, is made. This produces a curve, the height of which represents percent transmission. Next, a sample scan is made of air drawn through adust filter. The sample scan is compared to the clean scan. If the sample scan shows less transmission in any part than the clean air scan, it indicates the presence of some contaminant that was absorbed by the charcoal filter during the clean scan.

Specific chemical bonds, such as carbon-hydrogen, carbon-chlorine, and carbon-carbon, absorb infrared radiation at unique wavelengths. This permits contaminants to be characterized by their bonds into categories such as mercaptan, chlorinated hydrocarbon, aromatic or aliphatic hydrocarbon, and so on. Thus, qualitative, although nonquantitative, results may be obtained.

4.1.2 The PID (photionization detector) is a general organic vapor analyzer that uses ultraviolet light to selectively ionize organic molecules. It then detects the amount of ionization produced. The PIDs used were calibrated in Findlay for benzene, but they are sensitive to most organic vapors. Two different detectors were used: A 10.2 electron-volt detector, which is more general, and an 11.7 electron-volt detector, which is more specific. Three PIDs were used on the Quanta Resources site: One for ambient monitoring, one for tank monitoring, and one for a backup.

4.1.3 The Explosimeter, (a combustible gas indicator) was used to measure the explosive potential of the vapors inside the tanks. Two Explosimeters were used by the sampling crews. Results were recorded on field data sheets and transferred to the air monitoring log book.

4.2 PATTERNS OF MONITORING

On 8/12/82, an initial PID survey was carried out. The results may be seen on the PID Ambient Air Monitoring Results Summary which accompany this report. The next day, 8/13/82, an air monitoring grid consisting of 35 points was laid out (see map appended to this report) and the monitoring locations spray painted on the cement. The points were to be monitored at least once daily. Of these points, thirteen are in the designated clean area, and twenty-two in the area where protective clothing is worn.

Other areas were monitored from time to time, depending on conditions. These include the cascade area by the south end of the decontamination trailer, the bottle filling area (at the Haskel pump) near the north end of the decontamination trailer, the Portajohn area in the building A filter room, and the inside of the lab trailer.

The sample crew monitored the air in each tank with PID and Explosimeter immediately upon opening it.

The two Mirans were mounted on carts with their chart recorders to make them more mobile. The Miran calibrated for TCE was used on 8/13 and 8/14 to monitor, simoultaneously with the PID, as many of the PID monitoring points were accessible to it. The Mirans were mainly used downwind of sampling activity, to check out suspected "hot spots", and in the clean area when it was downwind of the tanks.

4.3 RESULTS

In general air quality on site was good. Organic contaminants were at background, or slightly above back-ground levels over almost all of the site. Summary results are appended to this report.

There were two areas of relative contamination on site: near the hood in the building C laboratory, at the tank J44 where a viscous brown liquid had been spilled. The vapors near the building C laboratory hood disperse quickly and are no danger. The liquid under J44 unknown. It is not detected in the air by the PID. However Miran scans show the absorbance in chlorinated organic absorption range. This is a hazard in the immediate area but appears to disperse quickly.

4.4 CONCLUSIONS

In conclusion the air quality on the Quanta Resources site was found to be slightly over background even during the sampling operation. The highest PID reading obtained was in tank K-62 (400ppm).

Explosionmeter readings were found in tanks J-203, M-6, P-3, P,4N, K-51, K-59 and K-63. The highest reading was in tank P-3 (17% of LEL). These tanks should be monitored during the transfer operations to assure safety of operational personnel.

The results of this air monitoring program indicates that emmision from the Quanta Resourse site are low and propose little threat to public safety.

5.0 CONCLUSIONS

5.1 The site survey and sampling program was completed nine days after initiation. It was determined that the majority of the storage tanks on site are in average to good condition. Only two tanks, J 10 and J 44, showed signs of leaking. Product spilled from the slow leaks in the piping from these tanks has been contained with sorbent material.

All tanks on the site were located and measured for holding capacity. Many of the tanks were found to contain several product phases. All product matrixes were measured for volume, and sampled for analyses.

5.2 Analyses of samples obtained from the storage tanks at the Quanta site were performed at the OHM on-site analytical unit. The waste stream categorizations included in this report are based on these analyses.

Analyses indicate several of the storage tanks on-site contain both uncontaminated and PCB contaminated product phases. Many of the uncontaminated layers in these tanks have been categorized as contaminated because complete segregation of product phases can not be maintained during transfer operations.

5.3 Analyses of aqueous samples obtained from the storage tanks and containment areas indicate contamination levels that exceed discharge criterias. These wastewaters can be processed on site for the effective removal of RCRA metals, volatile organics, and PCBs.

Appendix A

Contingency Plans

O. H. Materials Co.

Oil and Hazardous Material Spill Containment and Clean-up

Regional Offices:
Ottawa, Illinois
Atlanta, Georgia
Washington, D.C.

P.O. Box 1022
Findlay, Ohio 45840
Telephone (419) 423-3526
1-800-537-9540

I EMERGENCY RESPONSE NUMBERS

List of Emergency Coordinators

Gary Ott	NYDEP
Amy Vickers	NYDEP
Jim Sparks	O.H. Materials Co. site
Jack Herzig	O.H. Materials Co. site
Joe R. Kirk	O.H. Materials Co. - Findlay, Ohio
Bill Warner	O.H. Materials Co. - Findlay, Ohio

APPLICABLE RECORD 10

DOCUMENTATION OF
OTHER OIL SPILLS

pleasant

Data

sales limit.
: Stations will be
d basis, with $10

ome stations will
pen will stagger
rchases to $10.

Numbers

VAYS
ne: (800) 922-8265.
Police: (203) 566-

way Police: (914)

Parkway Police:

e: (201) 247-3333.
way: (201) 442-8600.
(609) 465-2111.
ation Bureau: (717)

(800) 292-8616.
nsit Authority: 330-

AINS
d Rail Road

742-4600.
folk (516)694-4600 or

folk (516) 273-4300 or

folk (516) 369-1666.
ay, 739-4200.
rail

ity, 532-4900.
761-9223.
914) 271-6256.
-1616.
34-5052.

S LINES
urban Bus Authority:

000.
0.
York: 267-2035.

chways: 594-1715.
36-1640.
s Terminal:
1.
on Bridge: 564-1114.
s: BR9 6526.
0).
Jersey: 563-7040.

High-Sulfur Fuel

Federal officials have agreed to let Consolidated Edison burn 40 billion cubic feet of surplus, high-sulfur natural gas -- a move that would save its customers more than $11 million, according to company estimates.

The decision by the Federal Energy Regulatory Commission, which allows the utility to burn higher sulfur-content oil during a three-month period beginning in July, will prevent new price increases that would have been passed along to customers if expensive low-sulfur oil had had to be burned, the spokesman said. The decision, which allows Con Ed to burn the gas was praised as "minivictory" by Con Ed officials. In April, the utility had applied to burn the cheaper fuel starting in June, but later amended its request.

Arraignment Today In S.I. Holdup

A 44-year-old Staten Island man arrested in the $2.2 million holdup of a Wells Fargo armored truck there last Dec. 19 will be arraigned in Federal

Tr[illegible]ter, was being held at the Met[illegible]al Correction Center, at For[illegible]ate. He was charged with han[illegible]ery, interfering with interstate [illegible]ommerce, conspiracy and possession of stolen property.

Caller Alleges Morales Had Help

In an anonymous telephone call, a man with a slight Spanish accent told The New York News that William Morales, the alleged Puerto Rican terrorist, was able to escape from the Bellevue Hospital prison ward last Tuesday because a city corrections guard was bribed.

The caller also said, as did a man who called The New York Post last week, that Mr. Morales had been flown out of the country in a private plane from a small upstate airport. He also said, according to The News, that the purpose of his call was to take pressure off Mr. Morales's wife, Dylcia Pagan, who has refused to cooperate with the Federal grand jury investigating his escape. He also was reported to have said that the escape had been planned in April by about 30 members of a Puerto Rican separatist group.

energy [illegible] protecting these types of crimes," said Robert D. Ford, chief of the economic crime section of the State Attorney General's office, "but they are well hidden and very tough."

Money Is Recovered

New Jersey's largest utility, the Public Service Electric and Gas Company verifies about 200 cases a year of electric and gas thefts. It recovers money in two-thirds of the cases, according to James McAlpine, division manager for commercial and consumer affairs.

Last year, he said, the company sent out $400,000 in bills for unauthorized tampering. But Mr. McAlpine said he had the "feeling" that energy thefts were "somewhere in the area of $1 million to $8 million a year," even though an intensive antitheft program was started in 1977.

Not only are gas and electricity thefts costly to the utilities (which pass along some of the costs to their other customers) but they are also dangerous.

One man who tampered with an electric meter had it blow up in his face, and suffered injuries from flying glass that could have destroyed his eyesight, according to Robert B. Stevens, assistant vice president of customer services for Consolidated Edison.

P. 83 NY TIMES MAY 28, 1979

Greenpoint Uneasy Atop 17-Million-Gallon Oil Leak

By LEE A. DANIELS

They struck oil in the Greenpoint section of Brooklyn last fall — a vast underground reservoir of 17 million gallons spread over nearly 55 acres.

But the oil, apparently a mixture of partly refined petroleum products, did not get there naturally. It leaked, probably over a period of years, from the refineries that once were active in the heavily industrial neighborhood, and will probably cost millions of dollars to remove.

The discovery has caused some residents of the working-class neighborhood to fear that the backup of oil could cause an explosion. And it has cost the Coast Guard more than $100,000 thus far to pump about 94,000 gallons from beneath the area's grimy industrial section along Newtown Creek, which flows between Brooklyn and Queens. The Coast Guard expects to receive shortly a consultant's report on the probable sources of the leak and whether any more seepage is expected, the precise boundaries of the accumulation and the best method and probable cost of its removal.

Much of the retrieved oil is sold to independent refiners, the Coast Guard said, but the income from these sales is hardly enough to offset the cleanup costs.

Oil Leak at Kennedy

Soon after the discovery in Greenpoint, oil was found leaking from storage tanks at Kennedy International Airport in Queens. Port Authority officials said that leak, which was unrelated to the leak in Brooklyn, created a five-million-gallon pool beneath the airport's tank farm and was spreading into the Bergen Basin area of Jamaica Bay. A Port Authority spokesman said the authority had stopped the leak, contained the oil and, through the construction of a containing wall and a change in oil-transfer procedures, prevented the situation from recurring.

Officials of the Federal Environmental Protection Agency said they had received no reports of similar situations elsewhere in the nation, but added that such pools could exist because little attention had been paid to the possibility of oil-tank leaks.

The underground pool in Greenpoint, discovered after a Coast Guard helicopter spotted oil oozing into the creek, was initially thought to contain only about a million gallons; later test borings revealed its extent.

Capt. James Fleishel of the Coast Guard said it lay at a depth of from 10 to 50 feet and its thickness ranged from a few inches to 8 to 10 feet. Because the Greenpoint refineries stopped operating 15 years ago, the source of the leak and liability for the cleanup costs will probably never be determined.

Captain Fleishel said he could not estimate the removal cost, but he acknowledged that it would be "in the millions and millions of dollars." In a recent report to Mayor Koch, Fire Department officials estimated the cost at $4 million.

Residents Are Uneasy

Since the spill's discovery, the Coast Guard's work has been aided and monitored by a loose-knit advisory committee of Greenpoint community groups; city, state, and Federal agencies, and oil companies. Most authorities, including city fire officials, agreed with Captain Fleishel that the oil presented no danger to the community, but many residents have become uneasy.

Terry King, a neighborhood resident and former president of the Brooklyn Federation of Block Associations, said there had been "a lot of rumors and a lot of concern" because the neighborhood has a history of poor sewer drainage and flooding problems during heavy rains. Residents fear that the oil could seep into sewers or back up into their basements.

Marie Finley, a community planning board member, said, "The Coast Guard seems to know their business. They claim they've controlled it

"But we're surrounded with oil and gas," she added, referring to the oil and liquefied-natural-gas facilities in the area "We have a right to be uneasy about something that big under us."

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