Superfund Proposed Plan

Anchor Chemical Superfund Site

Town of Oyster Bay
Nassau County, New York

EPA
Region 2

August 1995

PURPOSE OF PROPOSED PLAN

This Proposed Plan describes the U.S. Environmental Protection Agency's (EPA's) identified no further action remedy for the Anchor Chemical Superfund Site and the rationale for this preference. The Proposed Plan was developed by the EPA, as the lead agency, with support from the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing the Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, and Section 300.430(f) of the National Contingency Plan (NCP). The findings are detailed in the Remedial Investigation (RI) report and the Risk Assessment report which should be consulted for a more detailed description of the Site.

This Proposed Plan is being provided as a supplement to the RI report and Risk Assessment reports to inform the public of EPA's proposed decision to take no further action and to solicit public comments pertaining to this proposed no-action decision.

The decision described in this Proposed Plan is the preferred action for the Site. Changes to the preferred no further action decision may be made if public comments or additional data indicate that such a change will result in a more appropriate action. The final decision will be made after EPA has considered all public comments. We are soliciting public comment on this decision because, based on comments received, EPA and the NYSDEC may select a remedy other than no further action.

COMMUNITY ROLE IN SELECTION PROCESS

EPA and the NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the RI report and Risk Assessment report and supporting documentation have been made available to the public for a public comment period which begins on August 23,1995 and concludes on September 21, 1995.

A public meeting will be held during the public comment period at the Hicksville Library on September 12, 1995 at 7:00 pm to present the conclusions of the RI and Risk Assessment, to elaborate further on the reasons for recommending the preferred no action further decision, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of a Record of Decision (ROD), the document which will formalize the selection of the remedy.

All written comments should be addressed to:

Thomas Taccone, Project Manager
US Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Dates to remember:
MARK YOUR CALENDAR

The public comment period begins on August 23, 1995 and ends on September 21, 1995.

Public comment on RI and Risk Assessment reports, Proposed Plan, and remedies considered.

September 12, 1995 at 7:00 pm
Public meeting in the Community Room at the Hicksville Library, 169 Jerusalem Avenue, Hicksville, L.I.

SCOPE AND ROLE OF ACTION

This Proposed Plan discusses EPA's identification of no further action for the Site. Based on the findings of the Remedial Investigation and EPA's baseline Risk Assessment, the Site is within the EPA's acceptable risk range and therefore does not pose a threat to the public or the environment.

Although the risks posed by the Site contamination are within the acceptable risk range, EPA has determined that four dry wells on Site are contaminated with chromium, lead, 1,1,1 trichloroethane and other volatile compounds (VOCs) and that the contaminated soils and sediments from the dry wells should be removed in order to prevent further groundwater contamination. EPA anticipates that prior to the selection of a remedy, K.B. Company, the owner of the property, and Anchor Lith-Ko and Chessco Industries, a former facility tenant, will be issued administrative orders by the EPA to remove the contaminated sediment and soil from four on-Site dry wells (DWs), designated DW-2, DW-3, DW-6 and DW-8. The excavated materials will be disposed of at a Resource Conservation and Recovery Act (RCRA) approved facility.

SITE BACKGROUND

The Site is located at 500 West John Street in the Village of Hicksville, Town of Oyster Bay, Nassau County, New York (see Figure 1). The surrounding area is predominantly industrial but also has recreational areas.

The Site is bordered to the west by a commercial property, to the south by West John Street and to the Northwest by Cantiague park, a 125 acre recreational facility. A ground-water recharge basin lies to the east of the Site.

The Site is approximately 1.5 acres in size and includes one 28,850 square foot, two-story building. The KoBar Company purchased the Site on September 30, 1964, and in the same year constructed the building for the Anchor Chemical Company. Before the building was constructed, the Site was used for agricultural purposes.

From 1964 to 1978, Anchor Chemical leased the Site from KoBar and began manufacturing, blending and storing chemicals for the graphic arts industry. The company operated two solvent mixing rooms and several container storage areas. In 1964, seventeen (17) underground storage tanks (USTs), which ranged in size from 500 to 4,000 gallons, were installed under the mixing room for Anchor Chemical (see Figure 2). The tanks were used to store chemicals and solvents, such as acetone, 1,1,1-trichloroethane, methylene chloride, 2-butoxyethanol and isopropyl alcohol. The chemicals were also stored in seven above ground tanks, which ranged in size from 550 to 1,500 gallons. The above ground tanks were removed from the Site in 1985.

In addition, there are 9 dry wells and one drain, which are located in the parking lot on Site (see Figure 2). The dry wells and drain were installed to collect rainwater run off and drainage from the building. Most of the Site is paved with asphalt. Liquid which collects in the dry wells infiltrates into the soil. None of the dry wells are connected to a sewer.

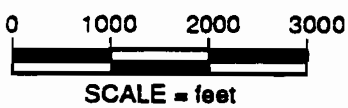
In 1978, Anchor Chemicals was purchased by Chessco Industries and became known as Anchor/Lith Kem-Ko. Company operations were terminated in 1985. Since 1985, the following tenants have occupied the Site: from 1985 to 1988, Emery Worldwide Freight, a shipping company; from 1988 to 1992, J. D. Brauner, a furniture manufacturer; from 1992 to 1994, Distributors of America, a distributer of newspaper inserts; and from 1994 to present, Machinery Values, a machinery resale operation.

Copies of the RI and Risk Assessment reports, Proposed Plan, and supporting documentation are available at the following repositories:

Hicksville Library
Community Room
169 Jerusalem Avenue
Hicksville, L.I. 11801
Tel. (516) 931-1417
Hours:
Mon.-Thurs. 9:00 am - 9:00 pm
Fri.-Sat. 9:00 am - 5:00 pm

U.S. Environmental Protection Agency
Superfund Records Center
290 Broadway, Room 1828
New York, New York 10007-1866
(212) 637-4308
Hours:
Mon.-Fri. 9:00am - 5:00 pm

BASE MAP IS A PORTION OF THE FOLLOWING USGS 7.5' SERIES QUADRANGLE:
HICKSVILLE, NY, 1967; PHOTOREVISED 1979

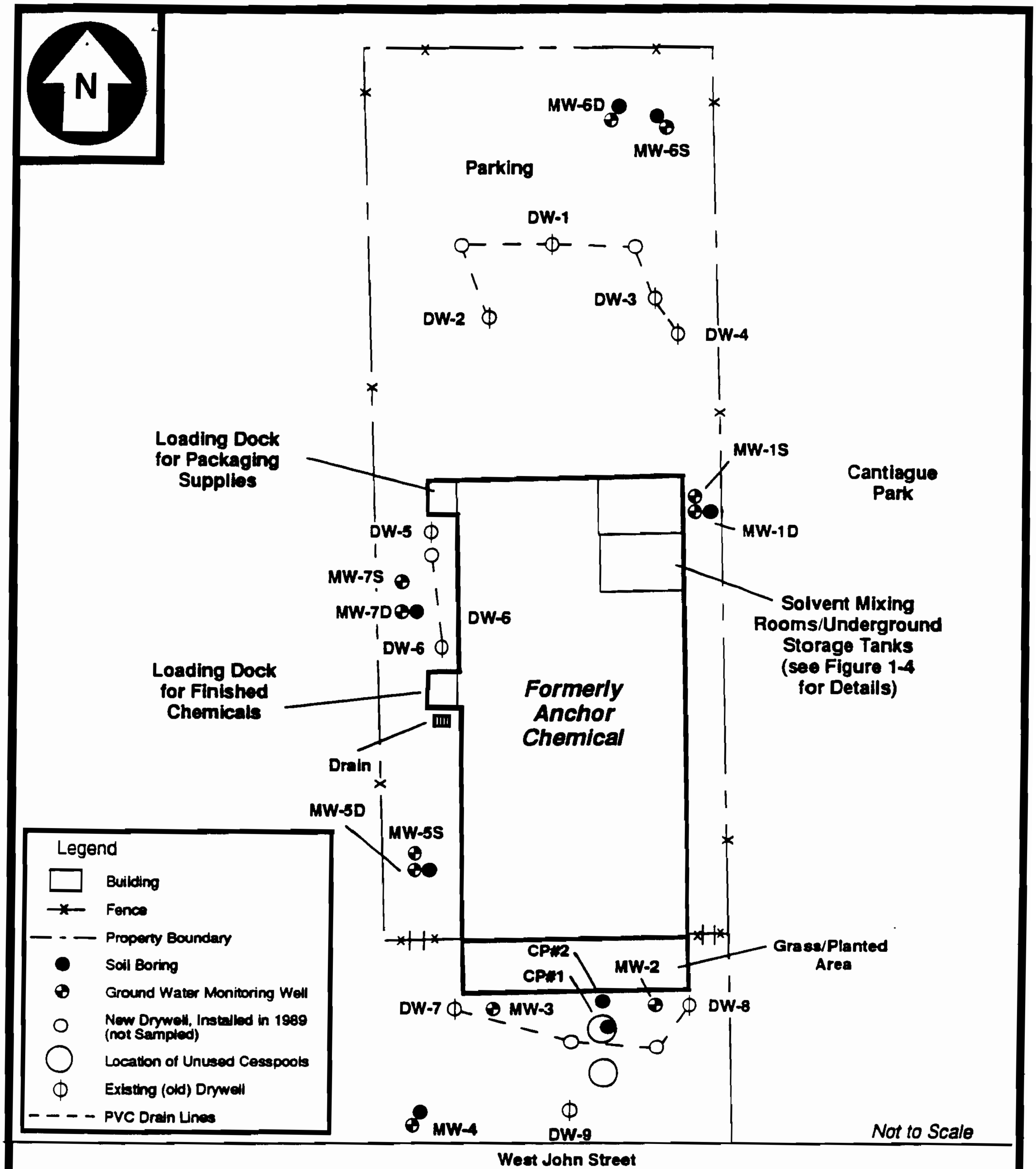


QUADRANGLE LOCATION

LOCATION MAP

ANCHOR CHEMICAL PROPERTY
HICKSVILLE, NEW YORK

Figure 1

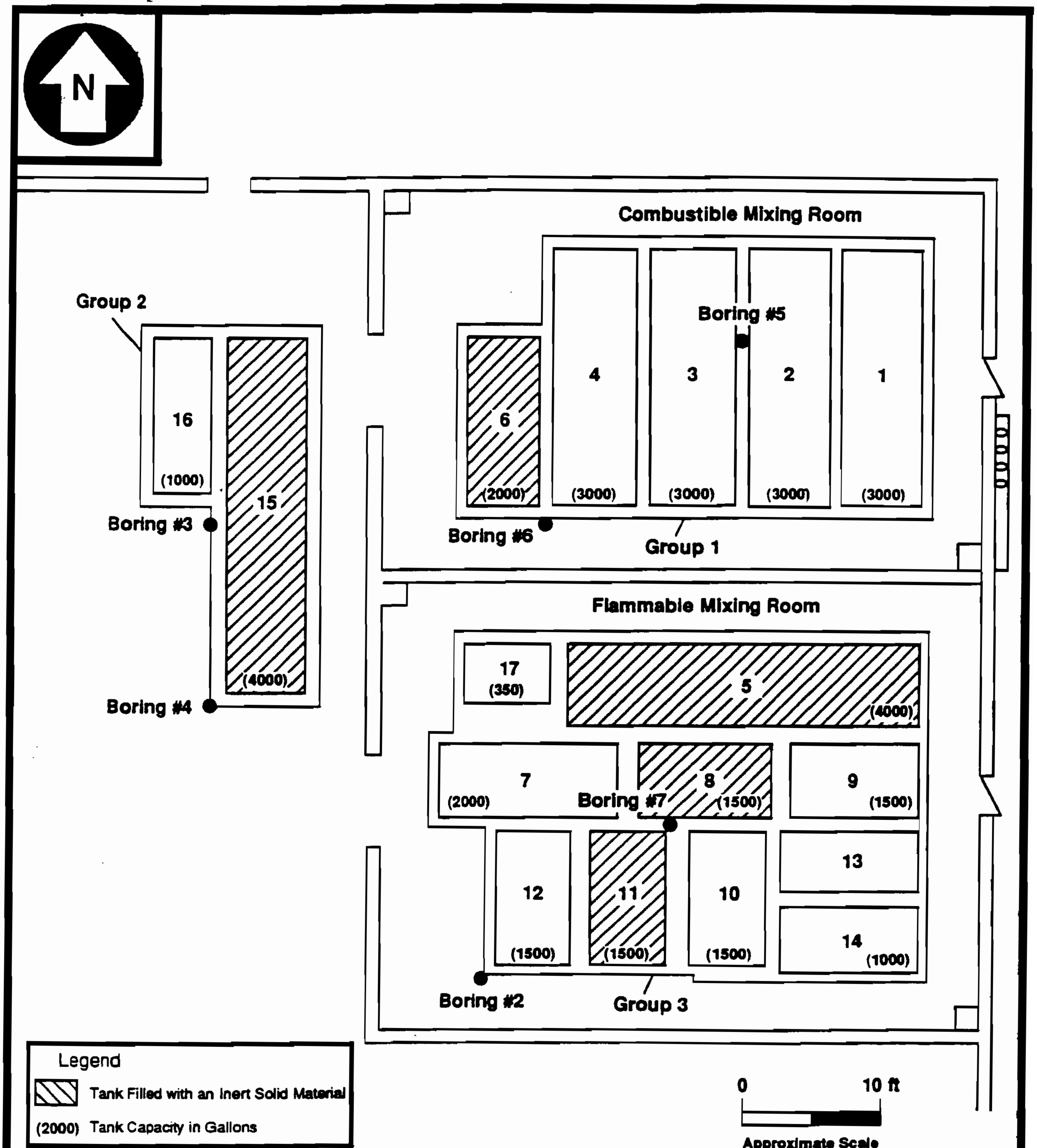


APPROXIMATE GROUND WATER, SOIL, AND SEDIMENT SAMPLING LOCATIONS

ANCHOR CHEMICAL SITE
HICKSVILLE, NEW YORK

Figure 2

MS68/2/02



Source: Anson, 1993

LOCATION OF INDOOR BORINGS AND UNDERGROUND STORAGE TANKS

ANCHOR CHEMICAL SITE
HICKSVILLE, NEW YORK

Figure 3

MS68/2/03

In 1977, the Nassau County Health Department (NCHD) discovered 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE) and tetrachloroethene in liquid samples near DW-1, which is located north of the building in the parking lot (see Figure 2). In response, Anchor Chemical submitted a spill prevention plan to the NCDH.

In May 1981, the Nassau County Fire Marshall notified Anchor/Lith Kem-Ko that the 17 USTs on Site had not been registered with the Fire Marshall or tested for leaks. In subsequent testing of 14 of the 17 USTs, 5 tanks failed air over product tank tightness tests. The five tanks were decommissioned in 1983. The three remaining tanks, which were not tested in 1991, were tightness tested from 1982 and 1983 and one of these failed the test. In 1982, the NCDH requested Anchor/Lith Kem-Ko to investigate the possibility of groundwater and soil contamination at the Site.

Three groundwater monitoring wells were installed in September 1982. Groundwater samples taken from the wells contained 24,000 parts per billion (ppb) of 1,1,1-TCA, 1,100 ppb of tetrachloroethene, 350 ppb of dichloroethane, 170 ppb of chlorodibromomethane, 41 ppb of methylene chloride and 55 ppb of TCE. Soil samples, which were taken during the installation of one well (well number 1), revealed 490 ppb of methylene chloride and 22 ppb of 1,1,1-TCA.

In January 1983, the Site was included on the NYSDEC's list of hazardous waste sites in Nassau County. On June 10, 1986, the Site was added to the federal National Priorities List (NPL).

Subsequent monitoring of the Site by the PRP through 1991 indicated a decrease in the concentration of contaminants in the groundwater.

On June 2, 1989, EPA issued an Administrative Order on Consent to the K.B. Company, the owner of the property and successor to Kobar, to undertake a remedial investigation/feasibility study (RI/FS) at the Site to determine the nature and extent of contamination at the Site and to evaluate options for cleanup. On August 3, 1989, EPA issued an Administrative Order to Chessco industries, which required it to participate and cooperate with K.B. Company. EPA issued an Administrative Order to Anchor Lith-Kem Ko on March 31, 1992, which also required it to participate and cooperate in the performance of the RI/FS. RI field work was completed in February 1995 and the RI report was compiled by the PRPs and submitted to the EPA in March 1995. The Risk Assessment was finalized by the EPA on June 2, 1995.

REMEDIAL INVESTIGATION SUMMARY

The Remedial Investigation included: 1) inspection and closure of 12 USTs; 2) installation of four shallow and four deep groundwater monitoring wells; 3) three rounds of groundwater samples; 4) two rounds of soil samples from under the USTs; and, 5) one round of sediment samples from nine dry wells and two cesspools.

Inspection and Closure of the Underground Storage Tanks

Figure 3 shows the arrangement of the tanks at the Site. As mentioned above, five of the 17 USTs on-Site (UST numbers 5, 6, 8, 11 and 15) were closed in 1983. Tank closure was performed by filling the USTs with concrete. In June 1991, as part of the RI, the remaining 12 USTs were also filled with concrete.

Groundwater

Eleven on-Site monitoring wells (MW) were sampled in April and November 1992. Two monitoring wells, MW-4 and 5S, were re-sampled in February 1995.

All of the wells sampled are screened in the Upper Glacial Aquifer. Monitoring wells MW-4, 5S, 6S and 7S are screened at 70 to 80 feet below land surface (BLS); the deeper wells, MWs-1D, 5D, 6D and 7D, are screened 100 to 120 feet BLS. Figure 2 shows the well locations.

The direction of groundwater flow is to the southwest. This was determined by the NCDH in 1986 and confirmed during field testing in March and October 1992.

Organic contaminants were detected in each of the three sample rounds. 1,1,1-TCA was detected in MW-3 (8 ppb, April 1992), in MW-4 (3 ppb, November 1992) and in MW-5S (29 ppb, February 1995). Bis(2-ethylhexyl) phthalate was detected in MW-5S (65 ppb, April 1992) and MW-7S (160 ppb, November 1992). A number of unspecified organic compounds also were detected in groundwater samples from each of the monitoring wells.

Inorganic contamination was found in higher concentrations. Lead and chromium were detected in the groundwater at levels which exceeded both federal and state maximum contaminant levels (MCL) for drinking water. Samples taken in April 1992 revealed chromium at 317 ppb and 227 ppb in shallow wells MW-2 and 3, respectively, and 132 ppb in deep well MW-1D. The November sample round revealed chromium at 1440 ppb in well MW-2 and 1150 ppb in well MW-3.

Lead was detected in shallow wells MW-2 and 3 at 74.7 ppb and 30.2 ppb, respectively, for the first round and 240 ppb and 71.5 ppb, respectively, for the second round. MW-5D revealed lead at 31.4 ppb and 40.4 ppb for the first and second rounds.

EPA and New York State MCL and action level concentrations exist for lead, chromium, 1,1,1-TCA and the total concentration of unspecified compounds. Water which has concentrations of lead, chromium and unspecified organic compounds which exceed MCL concentrations may not be safe for consumption. New York State MCLs for the contaminants detected in the groundwater are as follows: chromium - 50 ppb, 1,1,1-TCA - 5 ppb, bis(2-ethylhexyl)-phthalate - 50 ppb and the total concentration of unspecified organic compounds - 100 ppb. The federal EPA MCLs are 200 ppb for 1,1,1-TCA and 100 ppb for chromium. No federal MCL has been established for unspecified compounds. For lead, EPA has established an action level of 15 ppb.

EPA believes that the elevated levels of lead, chromium, 1,1,1 TCA and unspecified organic compounds, which were detected in the groundwater, will decrease once the sediments from drywells 2, 3, 6, and 8 are removed. As indicated below, analysis of samples collected from sediments in these dry wells revealed high levels of lead and chromium.

Soil and Sediments

Minimal concentrations of organic chemical contamination were detected in the soil samples that were obtained from below the underground storage tanks.

Elevated levels of the following contaminants, however, were found in the sediment sample from DW 2: 1,1-DCA (1,600 ppb), 1,1,1-TCA (3,300 ppb), toluene (4,800 ppb), xylene (67,000 ppb) and bis(2-ethylhexyl) phthalate (27,000 ppb). Chromium (Cr) and lead (Pb) contamination were also detected in the sediment samples from DWs 2, 3, 6 and 8 at the following levels: DW 2 - Cr 463 ppm, Pb - 1,210 ppm; DW 3 - Cr 101 ppm, Pb 607 ppm; DW 6 - Cr 240 ppm, Pb 1,120 ppm; and, DW 8 - Cr 198 ppm, Pb 1,620 ppm. Finally, various unspecified organic compounds were detected in the sediments. The following levels (total concentrations) were detected: DW 2- 1,684.2 ppm, DW 3 - 333.5 ppm, DW 6 - 26 ppm and DW 8 - 158.4 ppm.

Removal of soil and sediments from these dry wells should reduce the concentrations of chromium, lead, 1,1,1-TCA, bis(2-ethylhexyl)phthalate, and the total concentration of unspecified organic compounds in the groundwater. One round of groundwater samples will be collected at the Site and analyzed to assess the effectiveness of the removal action.

Sediment samples from dry wells 1, 4, 5, 7 and 9 and the drain revealed levels which ranged from 81.3 ppm to 216 ppm for lead and 17.4 ppm to 71 ppm for chromium. These levels are not considered high enough by the EPA and the NYSDEC to have an adverse impact on the groundwater. Therefore, no excavation of the sediments from these dry wells or the drain will be required.

Finally, two cesspools (see Figure 2), which were abandoned in 1982, were sampled. One soil sample was collected from each cesspool. Trace levels of methylene chloride and two pesticides, dieldrin and methoxychlor, were detected.

SUMMARY OF SITE RISKS

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with current and future Site conditions. The baseline risk assessment estimates the potential human health and ecological risks which could result from contamination at the Site if no remedial action were taken.

<u>Human Health Risk Assessment</u>

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment*--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. *Toxicity Assessment*--determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization*--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of Site risks. These contaminants included organic compounds such as 1,1,1-trichloroethane, ethylbenzene, toluene and xylene.

The baseline risk assessment evaluated the health effects which could result from exposure to contamination. Cancer risks were calculated for groundwater and soil ingestion. The total cancer risk associated with inhalation of contaminants from groundwater could not be determined because of the lack of appropriate toxicity values for the groundwater contaminants found at the Site. Risks from this pathway are expected to be less significant than ingestion because few volatile organic compounds were detected. Noncancer risks were calculated for groundwater ingestion and inhalation, and soil/sediment ingestion and dermal contact. Calculations were done for present and future residential and construction worker exposure scenarios.

Currently, ground water at the Site is not used for consumption, so present scenarios were not assessed. In addition, although risks were calculated for future residential development, the Site is zoned for light industry and is not expected to change.

The carcinogenic risk associated with a future Site resident ingesting groundwater was estimated to be 8×10^{-5}, which represents a probability of 8 people in 100,000 developing cancer as a result of consuming 2 liters of untreated groundwater from the Site for 350 days per year for 30 years. The carcinogenic risk for excavation workers ingesting subsurface soils and sediments was estimated to be 3×10^{-7}. EPA's acceptable cancer risk range is 10^{-4} to 10^{-6}. This represents a one-in-ten-thousand to one-in-a-million increased probability that an individual will develop cancer under the Site specific exposure conditions over a lifetime.

The health effects of non-carcinogens are assessed by comparing the chronic daily intake (CDI) of a contaminant to its reference dose (RfD); the RfD is the bench mark for safety by virtue of its being on the contaminant's threshold for causing adverse health effects, to which multiple safety factors are added. The ratio of the chronic daily intake to the reference dose (CDI/RfD) is referred to as the Hazard Quotient (HQ). A HQ of greater than one may be associated with adverse health effects. To assess the overall potential for noncarcinogenic effects posed by simultaneous exposure to multiple contaminants, EPA has developed the Hazard Index (HI), which is the sum of all HQs within a particular exposure pathway. In the event that the sum of multiple subthreshold HQs (*i.e.*, a number of HQs of less than 1) exceeds an HI of 1, adverse health effects may result if the individual contaminants are believed to share a similar mechanism of action or toxic endpoint.

The results of the risk evaluation for the Site indicated a non-cancer risk for the ingestion of groundwater exposure scenario for future residents to be a Hazard Index (HI) of 3. The HI resulted from the presence of four metals: aluminum (HQ of 0.8), arsenic (HQ of 0.3), iron (HQ of 0.8) and manganese (HQ of 0.8). However, each of these metals effects a different target organ. Because the toxicologic effects of the metals are non additive, i.e. their toxic end-points are different, the actual risk for the Site is probably less than an HI of 3. The HI for ingestion or dermal contact with subsurface soils by excavation workers is less than one.

The risk evaluation for the Site indicated that the human health risks associated with the Site were within EPA's acceptable risk range. However, removal of the contaminated soil and sediments from dry wells 2, 3, 6 and 8 should further reduce the potential for future risks as a result of groundwater ingestion by future Site residents because elevated levels of aluminum, arsenic and manganese were detected in the dry wells and are a probable source of contamination to the groundwater. Further, although lead and chromium did not contribute to the calculated risks, they were also detected at elevated concentrations in the sediments of the four dry wells and in groundwater samples above drinking water standards from monitoring wells MW-2, 3 and 5S.

Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation*-- a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment*-- a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. *Ecological Effects Assessment*--literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. *Risk Characterization*-- measurement or estimation of both current and future adverse effects.

The Site is located in a primarily urban industrialized area. Except for a narrow strip of lawn and plantings, the Site is entirely covered by the existing building or asphalt. There are no significant habitats present at the Site which could potentially support indigenous wildlife receptor species. The Site may however provide a habitat for various non-native species which have adapted to highly urbanized areas (e.g. rats, starlings and pigeons).

Aquatic habitats or wetlands are not present within the vicinity of the Site. Although ecologically significant areas are not known to be located in the vicinity of the Site, potential habitats include cemeteries, school grounds, and Cantiague Park. The 125 acre Cantiague Park includes a golf course and is likely to provide for a variety of wildlife species. However, because of the extensive development and lack of suitable vegetated habitats at the Site, potential receptor species which may inhabit the adjacent Cantiague Park (e.g. various songbirds and small animals) are not expected to frequent the Site. Therefore, the Site poses no ecological risk.

State Acceptance

The New York State Department of Environmental Conservation concurs with the no further action decision pending the successful completion of the removal action at the dry wells.

Community Acceptance

Community acceptance of the preferred alternative will be assessed in the ROD following review of the public comments received on the RI/FS report and the Proposed Plan.

PREFERRED ALTERNATIVE

An evaluation of all available data, the findings of the RI conducted at the Site, EPA's Risk Assessment, and other supporting data and documentation indicate that the Site risks are within EPA's acceptable risk range and that a no further action decision is protective of human health and the environment.

The baseline Risk Assessment indicates that the levels of contaminants present a continuing source of contamination to the groundwater. In addition, groundwater samples taken from wells onsite indicate that concentrations of lead and chromium exceed drinking water MCLs. However, the Site is zoned for light industry and is not expected to change. In addition, Site ground water is not currently used for drinking purposes. The distribution of these contaminants indicate either off-Site sources or localized on-Site contamination, *i.e.*, the dry wells. The possibility of off-Site contamination is suggested by elevated (above MCL) levels of lead, chromium and unspecified organic compounds in the groundwater samples collected from upgradient wells MW 6S and 6D.

Contaminated sediments and soils from dry well numbers 2, 3, 6 and 8 will be removed through a removal action. This removal action will ensure that these soils and sediments will not continue to be a source of contamination to the ground water. One round of groundwater samples will be collected at the Site and analyzed to determine the effectiveness of the removal action.

GLOSSARY
Of Terms Used In the Proposed Plan

This glossary defines the technical terms used in this Proposed Plan. The terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management, and apply specifically to work performed under the Superfund program. Therefore, these terms may have other meanings when used in a different context.

Administrative Order: A legally binding document issued by EPA directing the potentially responsible parties to perform site cleanups or studies.

Aquifer: An underground layer of rock, sand, or gravel capable of storing water within cracks and pore spaces, or between grains. When water contained within an aquifer is of sufficient quantity and quality, it can be tapped and used for drinking or other purposes. The water contained in the aquifer is called groundwater.

Backfill: To refill an excavated area with removed earth; or the material itself that is used to refill an excavated area.

Bioaccumulate: The process by which some contaminants or toxic chemicals gradually collect and increase in concentration in living tissue, such as in plants, animals, or humans as they breathe contaminated air, drink contaminated water, or eat contaminated food.

Borehole: A hole drilled into the ground used to sample soil and groundwater.

Consent Order: A legal and enforceable agreement between EPA and the potentially responsible parties (PRPs). Under the terms of the Order, the PRPs agree to perform or pay for site studies or cleanup work. It also describes the oversight rules, responsibilities and enforcement options that the government may exercise in the event of non-compliance by the PRPs. This Order is signed by the PRPs and the government; it does not require approval by a judge.

Decommission: To revoke a license to operate and take out of service.

Downgradient/downslope: A downward hydrologic slope that causes groundwater to move toward lower elevations. Therefore, wells downgradient of a contaminated groundwater source are prone to receiving pollutants.

Hydrogeology: The geology of groundwater, with particular emphasis on the chemistry and movement of water.

Migration: The movement of contaminants, water, or other liquids through porous and permeable rock.

Mitigation: Actions taken to improve site conditions by limiting, reducing, or controlling toxicity and contamination sources.

Potentially Responsibilities Parties (PRPs): Parties, including owners, who may have contributed to the contamination at a Superfund site and may be liable for costs of response actions. Parties are considered PRPs until they admit liability or a court makes a determination of liability. This means that PRPs may sign a consent decree or administrative order on consent (see consent decree and Administrative Order on Consent) to participate in site cleanup activity without admitting liability.

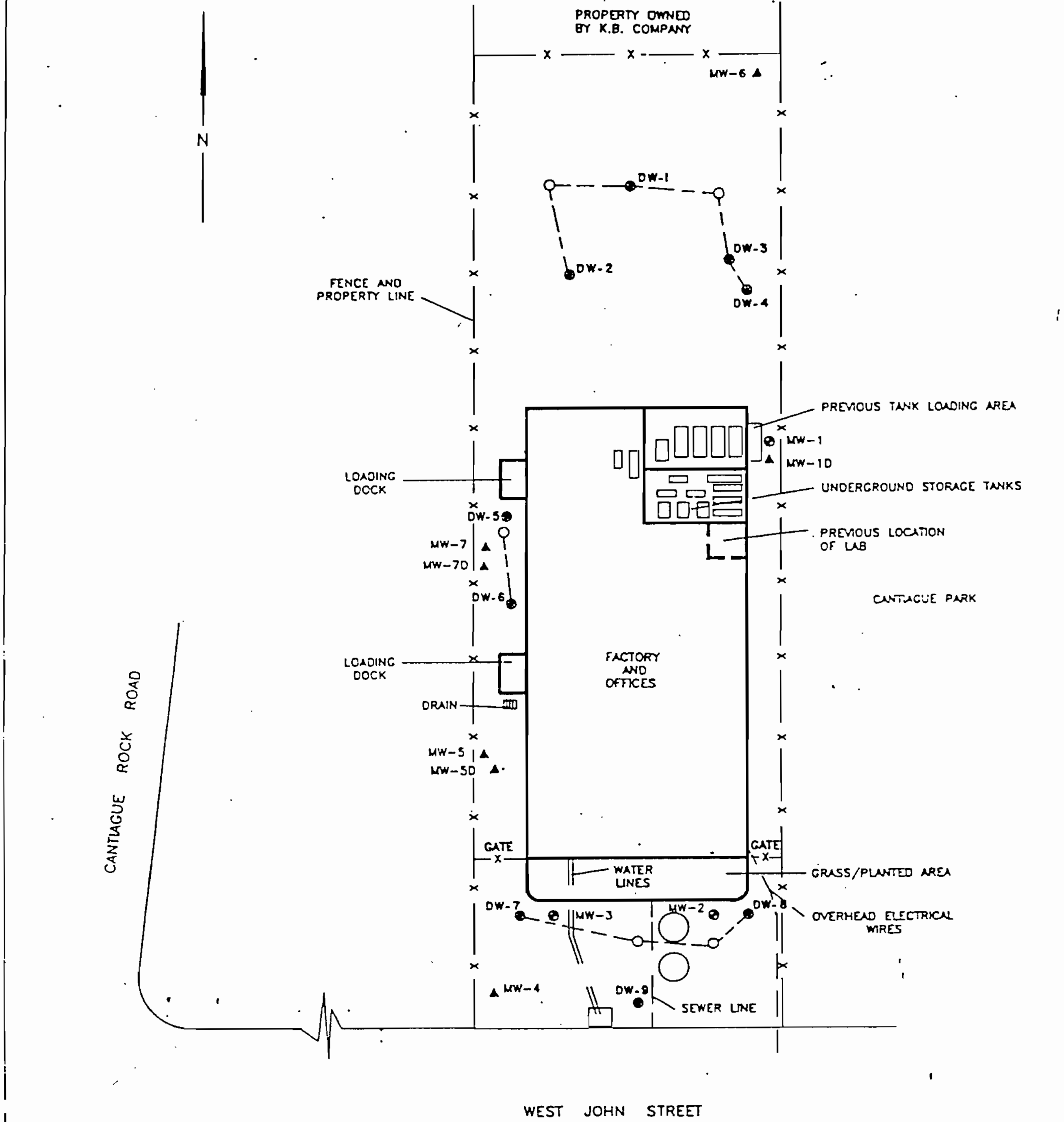
Remedial: A course of study combined with actions to correct site contamination problems through identifying the nature and extent of cleanup strategies under the Superfund program.

Sediment: The layer of soil, and minerals at the bottom of surface waters, such as streams, lakes, and rivers that absorb contaminants.

Upgradient/Upslope: Upstream; an upward slope. Demarks areas that are higher than contaminated areas and, therefore, are not prone to contamination by the movement of polluted groundwater.

Volatile Organic Compounds (VOCs): VOCs are made as secondary petrochemicals. They include light alcohols, acetone, trichloroethylene, perchloroethylene, dichloroethylene, benzene, vinyl chloride, toluene, and methylene chloride. These potentially toxic chemicals are used as solvents, degreasers, paints, thinners, and fuels. Because of their volatile nature, they readily evaporate into the air, increasing the potential exposure to humans. Due to their low water solubility, environmental persistence, and widespread industrial use, they are commonly found in soil and groundwater.

Wetland: An area that is regularly saturated by surface or groundwater and, under normal circumstances, capable of supporting vegetation typically adapted for life in saturated soil conditions. Wetlands are critical to sustaining many species of fish and wildlife. Wetlands generally include swamps, marshes, and bogs. Wetlands may be either coastal or inland. Coastal wetlands have salt or brackish (a mixture of salt and fresh) water, and most have tides, while inland wetlands are non-tidal and freshwater. Coastal wetlands are an integral component of estuaries.



EXPLANATION

○	NEW DRYWELL, INSTALLED IN 1989 (NOT TO BE SAMPLED)
◯	LOCATION OF UNUSED CESSPOOLS
MW-3	EXISTING WELL LOCATION AND DESIGNATION
MW-4 ▲	PROPOSED WELL LOCATION AND DESIGNATION
DW-1 ●	EXISTING (OLD) DRYWELL PROPOSED FOR SEDIMENT SAMPLE
– – – –	PVC DRAIN LINES

0 50 100 FT

PROPOSED LOCATIONS OF
WELLS AND BORINGS AT
ANCHOR CHEMICAL SITE
HICKVILLE, NEW YORK

SPIEGEL ASSOCIATES

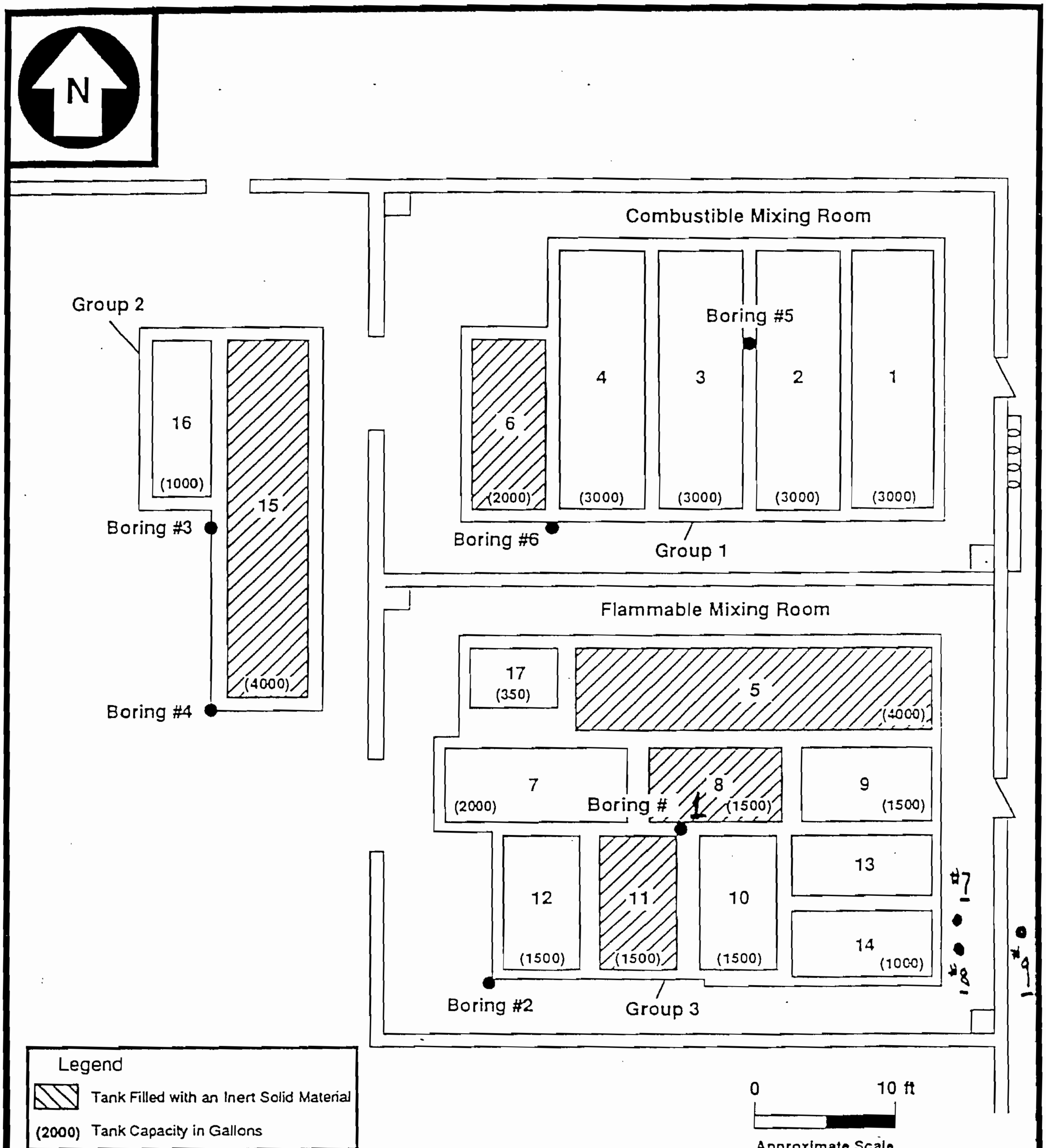
ROUX
ROUX ASSOCIATES INC

Prepared by C L
Date 10/90
Scale SHOWN
Revision 0
1160315

Underground Storage Tank Data, Anchor Chemical, Hicksville, New York.

Tank Number	Capacity (gallons)	Construction	Product(s)	Date Installed	Date Tested	Test Results	Abandoned/ Decommissioned
1	3,000	steel	Napthol Spirits (1)	1964	1981	passed	
2	3,000	steel	Mineral Spirits (2) Aromatic 100 (3)	1964	1981	passed	
3	3,000	steel	Methylene Chloride	1964	1982	failed	
4	3,000	steel	Textile Spirits (Hexane)	1964	1981	passed	
5	4,000	steel	Napthol Spirits	1964	1981	failed	1983
6	2,000	steel	Acetone Solvatone	1964	1981	failed	1983
7	2,000	steel	Cellosolve (2-Ethoxyethanol)	1964	1981	passed	
8	1,500	steel	1,1,1-Trichloroethane Mineral Spirits	1964	1981	failed	1983
9	1,500	steel	Diethyl Glycol	1964	1983	passed	
10	1,500	steel	Mineral Spirits 66 Cellosolve	1964	1981	passed	
11	1,500	steel	Isopropyl alcohol	1964	1981	failed	1983
12	1,500	steel	1,1,1-Trichloroethane	1964	1983	passed	
13	1,500	steel	Ethyl acetate Isopropanol	1964	1981	passed	
14	1,000	steel	Butyl cellosolve (2-Butoxyethanol)	1964	1981	passed	
15	4,000	steel	Textile Spirits	1964	1981	failed	1983
16	1,000	steel	VM&P Naptha (2)	1964	1981	passed	
17	550	steel	Acetone	1964	1981	passed	

(1) Hydrocarbon mixture; also called petroleum naphtha
(2) Mix of hydrocarbons of the methane series, also called VM&P Naptha
(3) Mix of aromatic hydrocarbons, C8-C10



Source: Anson, 1993

LOCATION OF INDOOR BORINGS AND UNDERGROUND STORAGE TANKS

ANCHOR CHEMICAL SITE
HICKSVILLE, NEW YORK

MS68/2/03

Volatile Organic Compounds Detected at Quantifiable Concentrations in Ground-Water Samples at the Anchor Chemical Site by Lockwood, Kessler & Bartlett, Inc.

Parameter (Concentrations in ug/L) — Date Sampled:	12/14/82	6/15/83	1/30/84	7/10/84	11/1/84	2/28/85
<u>Well No. 1</u>						
Methylene chloride	9	<5	<5	<5	<2	<2
1,1-Dichloroethane	12	<5	8	<5	4	<2
1,1,1-Trichloroethane	800	180	1000	400	65	26
Trichloroethylene	19	2	3	<1	<1	<1
Tetrachloroethylene	48	5	2	<1	<1	<1
Chloroform	<1	<1	<1	10	<1	<1
<u>Well No. 2</u>						
1,1,1-Trichloroethane	6	<1	3	<1	<1	<1
<u>Well No. 3</u>						
Methylene chloride	<5	<5	<1	<5	<2	<2
1,1-Dichloroethylene	800	250	*	*	*	*
1,1-Dichloroethane	350	50	5	<5	<2	<2
1,1,1-Trichloroethane	24000	7000	80	60	7	4
Trichloroethylene	55	10	<1	<1	<1	<1
Tetrachloroethylene	1100	410	3	<1	<1	<1
Chlorodibromomethane	170	9	<1	<1	<1	<1
1,2-Dichloroethylene	100	17	<5	<5	<2	<2
Chloroform	12	2	<1	<1	<1	<1
1,2-Dichloroethane	31	<5	<5	<5	<2	<2
Benzene	*	3	<1	<1	<1	<1
Toluene	*	2	<2	<2	<2	<2
Acetone	*	110	<20	<10	<10	<10

* Not analyzed for

The less than symbol (<) indicates that the parameter of interest is present at a concentration less than the stated value and possibly not present at all. The value is a function of the limitations of the analytical instrumentation and the physical and chemical testing procedures.

ORGANICS IN THE GROUNDWATER
APRIL 1992

MONITORING WELL	1,1,1-TCA (ug/L)
MW-3	8
MW-4	3

1,1,1-TCA: 1,1,1 TRICHLOROETHANE

ORGANICS IN THE GROUNDWATER
FEBRUARY 1995

MONITORING WELL	1,1,1–TCA (ug/L)	1,1–DCA (ug/L)
MW–4	–	–
MW–5S	29	3

1,1,1–TCA – 1,1,1 TRICHLOROETHANE

1,1 DCA – 1,1 DICHLOROETHANE

INORGANICS AND TICs IN THE GROUNDWATER
APRIL 1992

MONITORING WELL	CHROMIUM (ug/l)	LEAD (ug/l)	TICs (ug/l)
MW-1D	132	29.4	356
MW-1S	11	22	314
MW-2	317	74.7	—
MW-3	227	30.2	110
MW-4	14	15.6	580
MW-5D	48	31.4	524
MW-5S	137	44.4	48
MW-6D	33	10.5	258
MW-6S	13	18.2	142
MW-7D	18	27.9	452
MW-7S	33	27.9	606

TICs – TENTATIVELY IDENTIFIED COMPOUNDS

MCLs	
Cr	50 ug/l
Pb	15 ug/l
TICs	100 ug/l

INORGANICS AND TICS IN THE GROUNDWATER
NOVEMBER 1992

MONITORING WELL	CHROMIUM (ug/l)	LEAD (ug/l)	TICs (ug/l)
MW-1D	19.7	17.2	43
MW-1S	353	87	222
MW-2	1440	240	283
MW-3	1150	71.5	41
MW-4	15.5	10.2	250
MW-5D	101	40.4	194
MW-5S	131	33.6	210
MW-6D	45.6	25.2	13
MW-6S	54.4	29.4	240
MW-7D	47.2	25.8	25
MW-7S	19.6	27	73

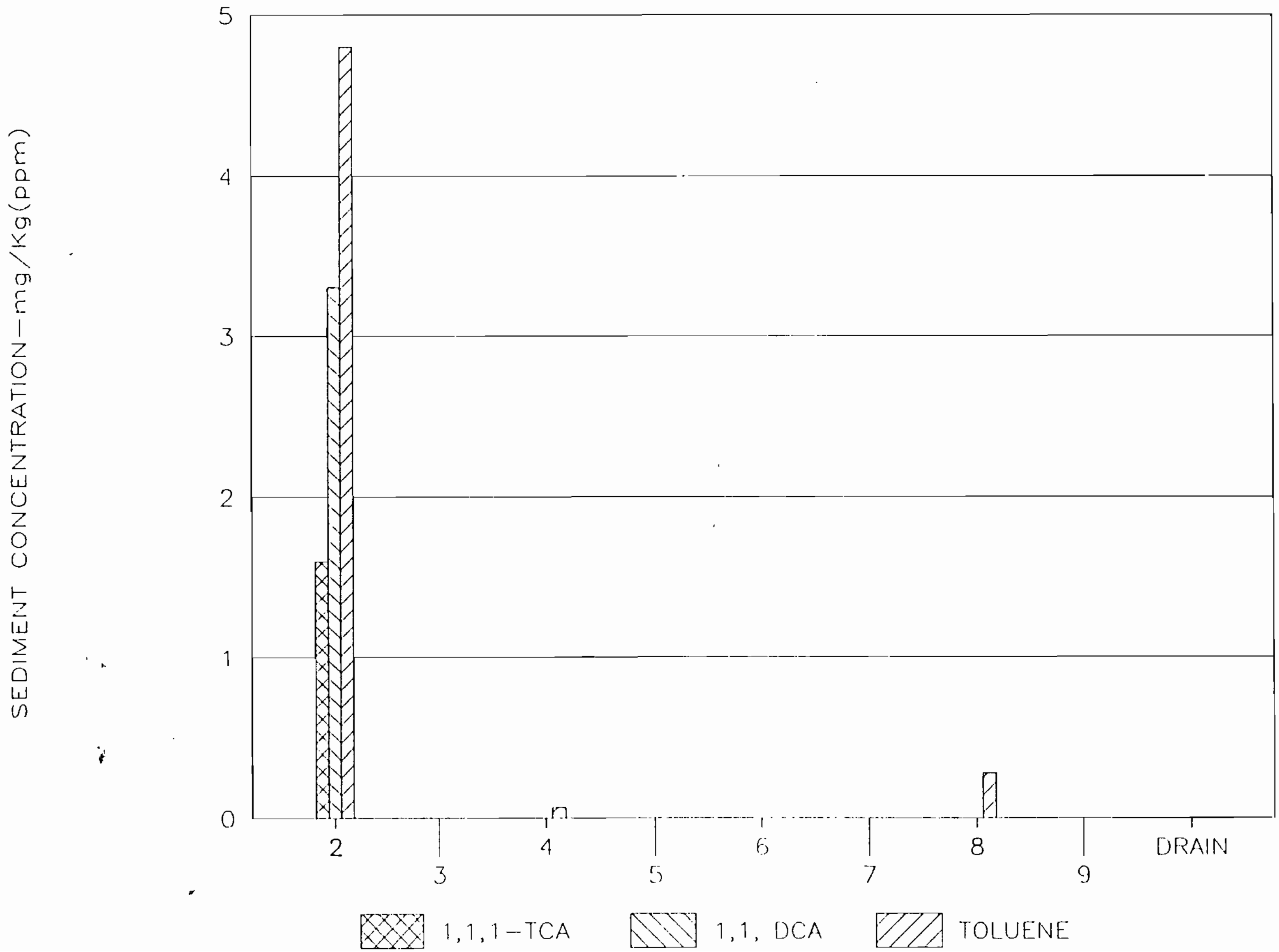
TICs – TENTATIVELY IDENTIFIED COMPOUNDS

MCLs	
Cr	50 ug/l
Pb	15 ug/l
TICs	100ug/l

ORGANICS IN DRYWELL SEDIMENTS

DRYWELL #	1,1 – DCA (ug/kg)	1,1,1 – TCA (ug/kg)	TOLUENE (ug/kg)	XYLENES (ug/kg)
1	–	–	–	–
2	1600	3300	4800	67000
3	–	–	–	–
4	–	–	64	–
5	–	–	–	–
6	–	–	–	–
7	–	–	–	–
8	–	–	280	–
9	–	–	–	–
DRAIN	–	–	–	–

ORGANICS IN THE DRYWELLS

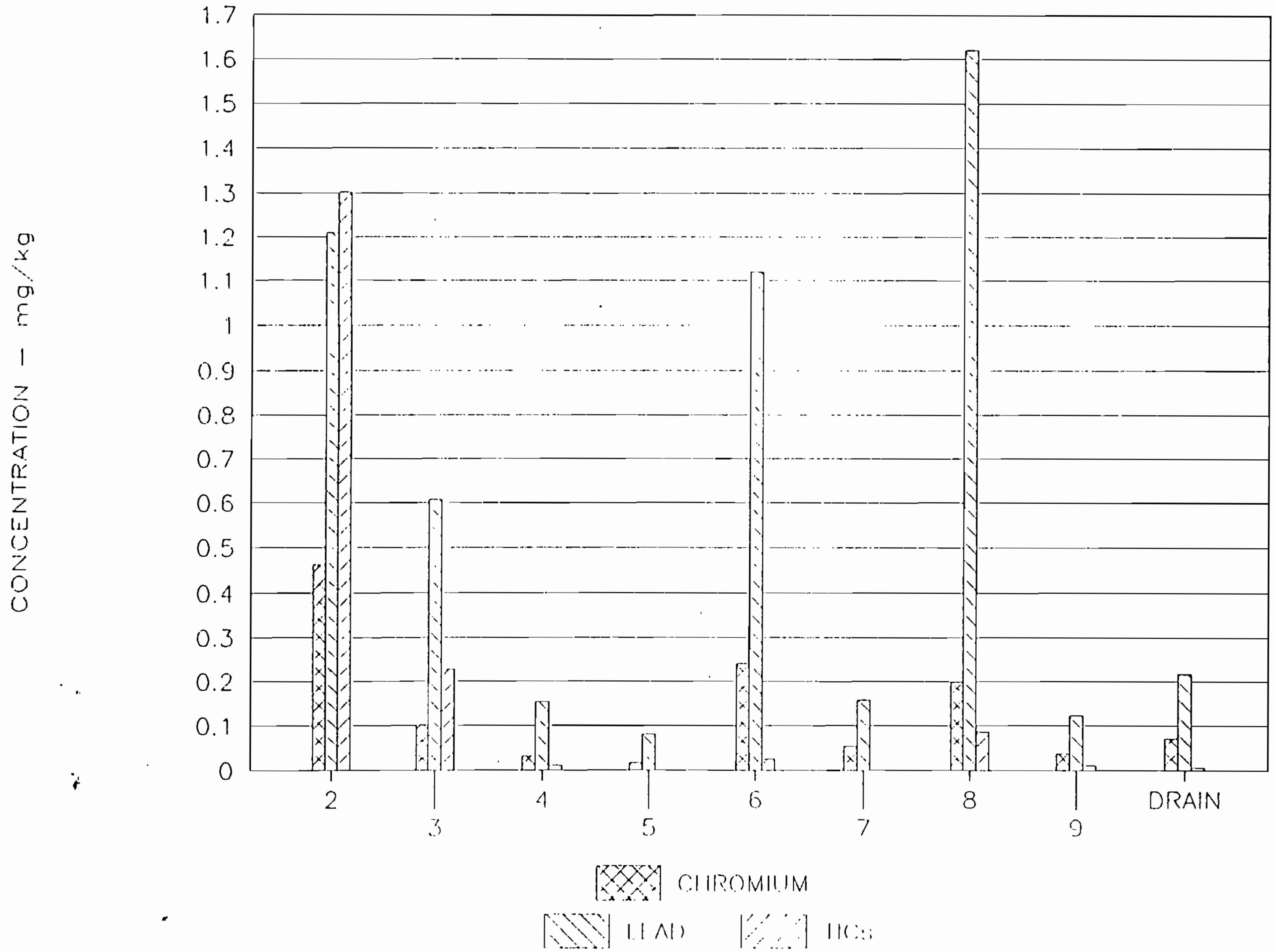


INORGANICS IN DRYWELL SEDIMENTS

DRYWELL #	CHROMIUM (mg/kg)	LEAD (mg/kg)	TICs (mg/kg)
1	36.1	124	26.7
2	463	1210	1302.5
3	101	607	226.2
4	31.7	154	10.64
5	17.4	81.3	4.52
6	240	1120	26
7	54.2	157	0.91
8	198	1620	85.3
9	37.4	122	11.69
DRAIN	71	216	6.73

TICs – TENTATIVELY IDENTIFIED COMPOUNDS

INORGANICS & TICs IN THE DW SEDIMENTS



PROPOSED REMEDY

ANCHOR CHEMICAL SUPERFUND SITE

REMOVAL OF THE CONTAMINATED SEDIMENTS AND SOILS FROM DRY WELLS

2, 3 6, AND 8

SITE CANCER RISKS

EXPOSURE SCENARIO	RISKS
GROUNDWATER INGESTION	8 IN 100,000
EXCAVATION WORKERS INGESTING SOIL	3 IN 10,000,000

CANCER RISK RANGE ALLOWABLE BY EPA

1 PERSON IN 10,000

TO

1 PERSON IN 1,000,000

NONCANCER HEALTH RISKS FROM SITE

EXPOSURE SCENARIO	HAZARD INDEX
GROUNDWATER INGESTION	3
GROUNDWATER INHALATION	< 1
EXCAVATION WORKERS INGESTING SOIL	< 1
EXCAVATION WORKERS DERMAL CONTACT	< 1

ACCEPTABLE NONCANCER HEALTH RISKS

HI LESS THAN 1