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Work Plan

A MEMBER OF THE ENVIRONMENTAL RESOURCES MANAGEMENT GROUP

SITE INVESTIGATION AND REMEDIATION STUDY WORK PLAN

Harmon Railroad Yard

April 1996

Prepared For:

Metro-North Railroad Company
420 Lexington Avenue
New York, New York 10017

Prepared By:

ERM-NORTHEAST
175 Froehlich Farm Boulevard
Woodbury, New York 11797

ERM

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We will fully understand and document our clients' requirements for each assignment.

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1.0 INTRODUCTION

1.1 PURPOSE

ERM-Northeast (ERM), on behalf of Metro-North Railroad Company (Metro-North), has prepared this Site Investigation and Remediation Study (SIRS) Work Plan for the Harmon Railroad Yard in Croton-on-Hudson, New York.

This SIRS Work Plan was prepared to describe the manner in which the recommendations made in the August 1995 Draft Preliminary Site Contamination Study (PSCS) would be implemented. This work is being conducted in accordance with the requirements of Article III Section B of the Stipulation of Discontinuance (the Stipulation) between the New York State Department of Environmental Conservation (NYSDEC) and Metro-North. The PSCS was approved by NYSDEC in a letter dated 19 January 1996, that was received by Metro-North on 25 January 1996.

The Stipulation also limited the area covered by the PSCS, and therefore the SIRS, to that included in former Site 360019, which is essentially the area that was covered by the Harmon Yard Field Investigation conducted by ERM in 1994. This area includes all of the property under Metro-North control between the Croton Bay Outfall and the Electric Substation at the north end of Harmon Yard. It does not include any of the Yard that is designated as Site 360010 which has been remediated under Operable Unit I and Operable Unit II (the lagoon, the old wastewater treatment plant and any releases from the plant into the Hudson River) of the 1992 Record of Decision.

1.2 *REPORT ORGANIZATION*

This report is organized into five sections. Section 1.0 (Introduction) contains introductory information related to Harmon Yard, including a description of the purpose and scope of the Work Plan. Section 2.0 (Areas of Environmental Concern) provides a brief description for each area of environmental concern (AEC) identified in the PSCS. For the sake of completeness, this section covers both AECs for which it was determined that no additional work was needed and AECs for which additional work is needed.

Section 3.0 (Investigative Activities at Anderson's Dump) contains a description of the field activities proposed to further investigate and characterize Anderson's Dump. All of the other AECs for which additional investigative and/or remedial work was recommended have been addressed in the Harmon Yard Remediation Plan. Section 4.0 (Site Investigation and Remediation Study) describes the report to be prepared that will address the results of these additional investigative activities. A schedule for the investigative activities proposed in this Work Plan for Anderson's Dump is provided in Section 5.0 (Schedule). The Health and Safety Plan for the field activities is included as Appendix A.

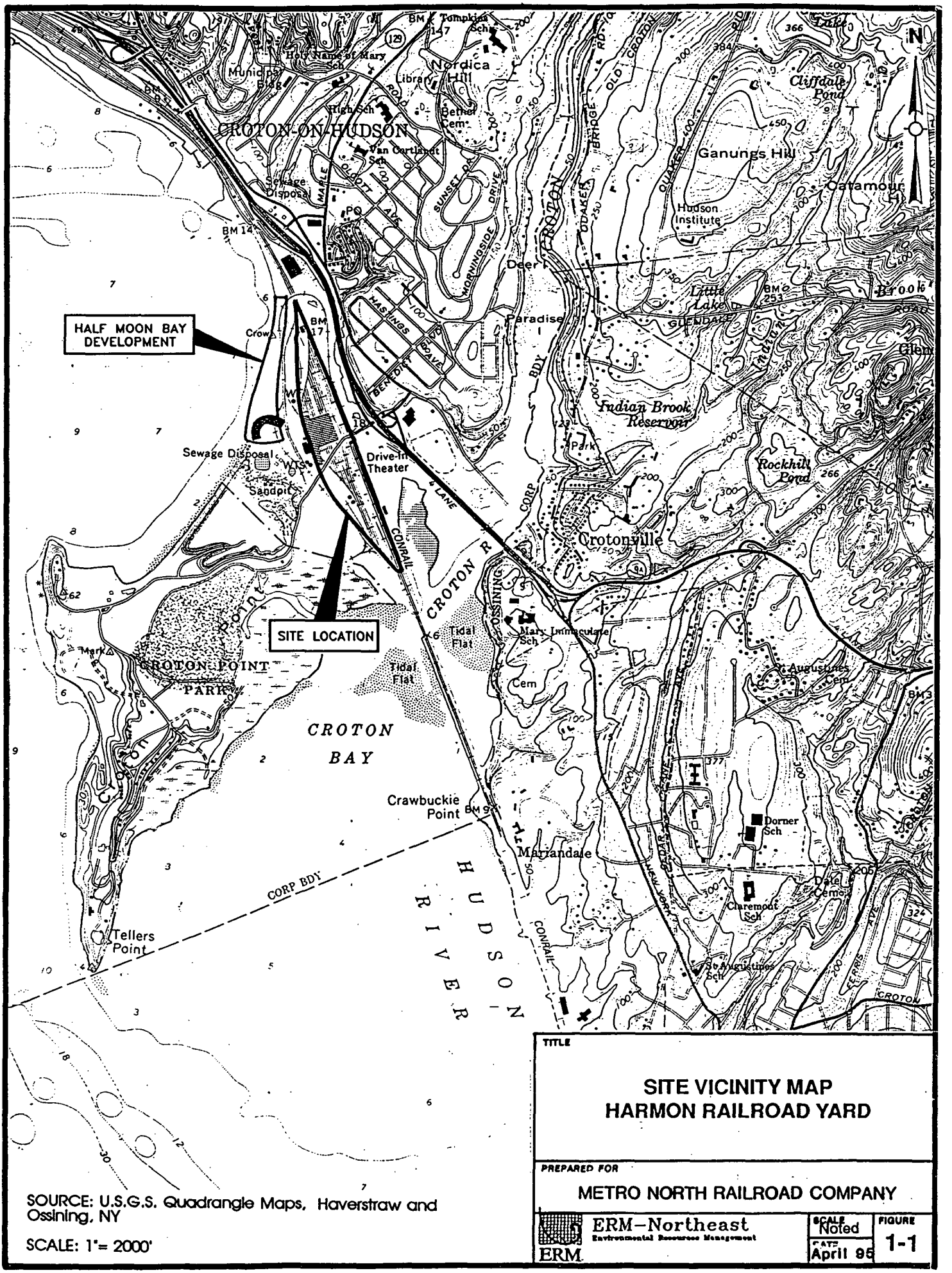
1.3 *SITE DESCRIPTION AND HISTORY*

Harmon Railroad Yard has been an active rail yard for more than 100 years. The Yard has been operated by Metro-North since 1983. In the process of handling large quantities of petroleum, such as fuel oil, diesel fuel, and gasoline in both aboveground and underground storage tanks (USTs), there have been some discharges of petroleum. In addition, there is a history of the storage and use of hazardous materials by Metro-North and predecessor railroads.

The Yard is located in the Village of Croton-on-Hudson, New York, and is bounded by Route 9 to the east and Croton Point Park to the west. The site location is shown on Figure 1-1. A current map of Harmon Yard is shown on Plate 1 (in map pocket).

The 100-acre Yard includes a major shop for maintenance of passenger cars and locomotives, a car wash, a blowshed (where compressed air is used to clean the underside of the cars), a rail car storage yard, a locomotive fueling pad with an aboveground storage tank, a 47,500 square foot warehouse facility, an automotive fueling facility, wastewater treatment facilities, headquarters and shop facilities for various maintenance departments, and approximately 300,000 square feet of outdoor paved storage and parking areas. The majority of these facilities have been constructed since Metro-North was created in 1983. Most of the maintenance operations occur on the northern side of the Yard, in the vicinity of the Maintenance of Equipment Shop and the wastewater treatment plant (WWTP). Refueling activities take place in the central portion of the Yard, and the southern end of the Yard is used primarily for storage of materials and equipment. There are also several office buildings located throughout the Yard.

Harmon Yard was first placed on the NYSDEC registry of Inactive Hazardous Waste Disposal Sites in 1985. At that time, it was classified as 2A, a temporary classification assigned to sites with inadequate and/or insufficient data for inclusion in any other classification. In December 1988, NYSDEC split Harmon Yard into two sites. The old WWTP was designated as site 360010 and was reclassified as a 2, a classification which indicates that the site poses a significant threat to public health or the environment and some action is required. After reclassification, Hart Environmental Management Corporation, on behalf of Metro-North, initiated a Remedial Investigation/ Feasibility Study (RI/FS) project at the lagoon. NYSDEC subsequently issued a Record of Decision in 1992 and



SOURCE: U.S.G.S. Quadrangle Maps, Haverstraw and Ossining, NY

SCALE: 1"= 2000'

TITLE

SITE VICINITY MAP
HARMON RAILROAD YARD

PREPARED FOR

METRO NORTH RAILROAD COMPANY

ERM-Northeast
Environmental Resources Management

SCALE: Noted

DATE: April 95

FIGURE: 1-1

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remedial construction activities are almost complete at the lagoon. According to the Stipulation, the scope of this report does not include any activities related to the investigation or remediation of the lagoon.

The remainder of the Yard was placed into a separate site, designated 360019, and retained a classification of 2A. In 1988, Lawler, Matusky and Skelly (LMS) was contracted by NYSDEC to perform a Phase II investigation and prepare a Hazard Ranking System (HRS) score for the Yard. Based upon the data collected during the Phase II investigation, the Yard received an HRS score of 28.51, which indicated that it did not pose a significant threat to human health. As a result of this score, and the fact that the environmental conditions at the Yard were predominately related to the handling of petroleum non-aqueous phase liquids (NAPLs), the Yard was removed from the NYSDEC Inactive Hazardous Waste Disposal Site registry in October 1992 and placed under the jurisdiction of the Bureau of Spill Prevention and Response at NYSDEC.

In 1992, Metro-North retained ERM to conduct a Field Investigation/ Remediation Plan at Harmon Yard. The purpose of this study was to identify and delineate areas of NAPL at Harmon Yard. The Field Investigation report was submitted in April 1995. NYSDEC approved the report and ERM has recently completed a Remediation Plan that describes the monitoring program and remedial technologies that will be used to address NAPL at Harmon Yard.

2.0 *AREAS OF ENVIRONMENTAL CONCERN*

The PSCS identified a total of 32 AECs, including ground water, at the Yard; their locations are shown on Plate 1 (in map pocket). In the PSCS, concentrations of organic compounds in soil were compared to the NYSDEC Recommended Site Cleanup Objectives (RSCOs), as listed in the 24 January 1994 Technical and Administrative Guidance Memorandum entitled Determination of Soil Cleanup Objectives and Cleanup Levels. Concentrations of metals were compared to background concentrations for New York State or the eastern United States. Based on the data reviewed during preparation of the PSCS, it was determined that no further action was required at 18 of the AECs. These areas are described in Section 2.1.

At 13 of the remaining AECs identified in the PSCS and one additional AEC (Southwest Off-site Area), it was determined that some remediation would be required. The remedial activities proposed for these areas have been presented to NYSDEC in ERM's report entitled "Remediation Plan - Harmon Railroad Yard" (Remediation Plan), which was prepared by ERM. Descriptions of these AECs, including the proposed remediation method, are provided in Section 2.2.

The PSCS concluded that additional investigation was required at one AEC (Anderson's Dump). This area is described in Section 2.3 and 3.0.

2.1 *AREAS OF NO FURTHER ACTION*

2.1.1 *Caustic Wash Pit*

The Caustic Wash Pit was located north of the Maintenance of Equipment Shop (Plate 1), and was approximately ten feet by fifteen feet in size. Boilers from steam locomotives and other mechanical and electrical

equipment were partially submerged in the caustic solution within the pit for cleaning. The spent solution was neutralized and drummed for discharge to the Caustic Wash Dump Pits (see Section 2.1.2).

In 1994, one soil boring was installed in the center of the former Caustic Wash Pit. Soil samples collected from five to seven feet below grade and immediately above the water table showed that there has been no release to the environment at this location and no further work is needed.

2.1.2 *Caustic Wash Dump Pits*

The spent caustic wash solution from the Caustic Wash Pit was disposed within sand-filled pits in this area, located north of the Croton Point Avenue Bridge (Plate 1). The pits, which were approximately 100 feet wide, were located on the western side of a track that ran to the Steam Engine Round House. This track has since been removed, and this area is now a parking lot for Metro-North employees. The sand was reportedly removed from the pits and disposed in the Caustic Wash Surface Dump at the north end of the Yard (see Section 2.1.3).

In 1994, two soil borings were installed within the area of the sand pits. Two soil samples analyzed from each boring, one from two to four feet below grade and one from just above the water table. No PCBs or metals exceeded the RSCOs and only one SVOC marginally exceeded its RSCO. The data confirm that the historical disposal practices in this area have not impacted the soils and no further work is needed.

2.1.3 *Caustic Wash Surface Dump*

The sand from the Caustic Wash Dump Pits (described in Section 2.1.2) was reportedly excavated and disposed in this area on the north side of the Yard. In 1994, American Environmental Technologies, Inc. installed

two soil borings in this area, and a soil sample was collected at two to four feet below grade in each boring. The samples were analyzed for semi-volatile organic compounds (SVOCs) and PCBs, and none were detected in either sample. Based on these data, ERM determined that no further work was necessary at this AEC.

2.1.4 *Electrical Substation/Container Storage Area Site 3*

Container Storage Area Site 3 was located on the southern side of the substation located at the north end of the Yard (Plate 1). Eight soil borings were installed in this area, and two samples were collected for analysis from each boring. No volatile organic compounds (VOCs), SVOCs, PCBs, pesticides, or herbicides were detected in any of the samples. Two metals, chromium and mercury, were found to exceed site background in several of the samples. However, these isolated exceedances were not believed to be related to former operations. Therefore, ERM determined that no further action was necessary in this area.

2.1.5 *North Aboveground Tank*

As shown on Plate 1, the tank was located northeast of monitoring well LMS-GW1. It reportedly had a capacity of 2,000 gallons. According to Metro-North personnel, this tank was movable, with no fixed piping, and held kerosene. Two soil samples were collected in 1994 from one boring in this area. Each sample was analyzed for SVOCs, and none were detected. Therefore, no further work is necessary in this area.

2.1.6 *Container Storage Area Site 2*

Container Storage Area Site 2 was located on the west side of the northwest corner of the Maintenance of Equipment Shop (Plate 1). Two

soil samples were collected, at two and four feet below grade, from each of five borings installed in this area. No VOCs, SVOCs, pesticides, herbicides, or PCBs were detected in any of the samples. The concentrations of three metals exceeded site background in one or two of the samples. Based upon these data, ERM determined that no further work was necessary at this AEC.

2.1.7 *Sewer Line from Maintenance of Equipment Shop*

Train car and locomotive maintenance and cleaning has occurred in the Maintenance of Equipment Shop since its construction in approximately 1898. This work was done over drop pits located within the shop. The pits are constructed of concrete and equipped with floor drains, and the floor drains are enclosed in the foundation of the building. The floor drains discharge to a drain trunk line that discharges to the WWTP. Although the sewer line has been cleaned and relined, the integrity of the sewer line has been questioned in the past.

In 1994, one temporary well was installed adjacent to the sewer line and no NAPL was detected. In addition, one soil sample was also collected from each of two borings installed along the sewer line. The analytical results showed some minimal exceedances of one pesticide, two SVOCs, and several metals. In light of the minimal exceedances, it was determined that no further work was necessary in this area.

2.1.8 *Maintenance of Equipment Shop*

As noted in Section 2.1.7, train car and locomotive maintenance has historically occurred (and still occurs) in the Maintenance of Equipment Shop. Because this is one of the oldest buildings at the Yard, it was possible that NAPL had historically been discharged around the shop.

This area was investigated in 1994, and no indications of any petroleum impacts were found in this area. Therefore, no further action is required here.

2.1.9 *LMS Drum Storage Area*

In 1989, two surface soil samples were collected from near a drum storage area located north of the WWTP (Plate 1). ERM's review of the data indicated that, although some SVOCs and metals were found at concentrations exceeding the RSCOs, these compounds were consistent with those found in other parts of the Yard. Therefore, ERM determined that no further work was necessary in this area.

2.1.10 *Container Storage Area Site 4*

This area was located west of the Maintenance of Equipment Shop (Plate 1). In 1992, a total of 22 soil samples were collected from twelve borings for laboratory analysis. No VOCs, SVOCs, pesticides, or herbicides were detected in any of the samples. PCBs were detected in one sample, at a concentration well below the RSCO. Several metals were detected at concentrations that marginally exceeded site background. However, these metals were determined not to be related to site operations. Therefore, no further work is necessary in this area.

2.1.11 *Container Storage Area Site 1*

Container Storage Area Site 1 was located immediately northwest of the Maintenance of Equipment Shop (Plate 1). Fifteen soil samples were collected for analysis from nine borings installed within this area in 1992. No VOCs, SVOCs, pesticides, herbicides, or PCBs were detected in any of the samples. Three metals were found at concentrations that exceeded site background, but only one of the metals exceeded background levels

by as much as an order of magnitude. Based on these data, ERM determined that no additional work was required at this AEC.

2.1.12 *Container Storage Area Site 5*

Container Storage Area Site 5 was located on the western side of the M of E Shop just north of the entranceway (Plate 1). In 1992, ten soil samples were collected for analysis from eight borings installed around this area. No VOCs, SVOCs, pesticides, herbicides, or PCBs were detected in any of the samples. Concentrations of two metals marginally exceeded site background. Therefore, ERM determined that no additional work was required in this area.

2.1.13 *Ash Pit*

The Ash Pit was located west of the Maintenance of Equipment Shop (Plate 1). Coal ash was removed from the fireboxes on the steam locomotives and disposed in pits in this area. The pits were located on the eastern side of a track that ran to the Steam Engine Roundhouse. In 1994, two soil samples were collected from a boring installed in this area. The sampled horizons were zero to two feet below grade and just above the water table. No PCBs or metals were found at concentrations above RSCOs, and only two SVOCs were found at concentrations that exceeded RSCOs. Based on the analytical data, the coal ash has had a negligible impact on this location and no further work will be necessary at this AEC.

2.1.14 *Croton Point Avenue Bridge*

During a geotechnical investigation, conducted in December 1992 and January 1993 as part of the replacement of the Croton Point Avenue Bridge, petroleum odors were noted from some soil samples collected within ten feet of grade. In addition, one foot of NAPL, identified as

diesel fuel, was detected in an existing monitoring well near the existing bridge. This well was presumably part of the monitoring network around the Harmon Shop Storeroom Lot (discussed in Section 2.2.3). In 1993, four composite soil samples were collected for analysis from the upper five feet. In 1994, three temporary wells were installed around the bridge. No NAPL was detected in any of these wells. During these investigations, the area under the bridge was well characterized, and does not show evidence of impact. Therefore, no further work is necessary.

2.1.15 *Container Storage Area Site 6*

Container Storage Area Site 6 was located within the Harmon Shop Storeroom Lot (Plate 1). In 1992, 14 soil samples, collected from 7 borings, were submitted for laboratory analysis. No VOCs, SVOCs, pesticides, herbicides, or PCBs were detected in the samples, and only one metal marginally exceeded the site background. The data confirmed that operations at this location did not impact the soils, and no further work is necessary in this area.

2.1.16 *South Aboveground Waste Oil Tank*

This tank, shown on Plate 1, was located east of the Maintenance-of-Way Building. There is little known about the size of the tank or its contents. In 1994, one boring was installed in this area, with soil samples collected for analysis from two to four feet below grade and just above the water table. The data show that several SVOCs exceeded the RSCOs in the shallow soil sample, but none of the compounds exceeded the RSCOs in the deep sample. Therefore, no further work is necessary in this area.

2.1.17 *Fuel Pad Oil/Water Separator*

As part of the WWTP Improvement Program, a new oil/water separator was installed at the south end of the T&E parking lot (Plate 1). The purpose of this separator is to remove oil from storm water originating at the locomotive fueling pad area before it is pumped to the treatment plant. Before construction, eight soil samples were collected from eight borings in the proposed location of the new separator. The data showed that the soils were non-hazardous, and the excavated soils were disposed at an industrial waste landfill. No further work is required in this area.

2.1.18 *Underground Storage Tank Located Near Platform Extension*

In April 1993, when footings for an extension to the existing station platform were being constructed, Metro-North personnel identified an UST between Tracks 2 and 4. The contents of the tank were pumped out and discharged to the WWTP. The inside of the tank was inspected for sludge. Since a portion of the tank was located under Track 4, NYSDEC approved closure in place by filling with concrete. Soil excavated from the platform footings was found to contain concentrations of four organics that exceeded the TCLP regulatory levels. Consequently, some of the excavated soils were removed from the Yard. However, in view of the location of the area between tracks, the excavation of soils, the emptying of the tank, and the absence of NAPL, it was determined that no further work was necessary in this area.

2.1.19 *LMS Inactive Drum Storage Area*

LMS identified an inactive drum storage area in the southern end of the Yard (Plate 1). According to Metro-North personnel, this site served as a temporary staging area for drums of virgin pentachlorophenol. Analytical results from a surface sample, collected in 1989 adjacent to the

eastern side of the area, did not show any pentachlorophenol in the soils. However, SVOCs and metals were detected at concentrations in excess of the RSCOs or site background. It was thought that the source of these compounds might be coal ash. No further work was recommended for this area since there were no impacts from the temporary drum storage activities at this location.

2.1.20 *Old Oil/Water Separator*

The old concrete oil/water separator is located at the far southern end of the Yard (Plate 1). Stormwater collected from the southern portion of the Yard used to pass through this separator before being pumped to the WWTP. In 1994, all material in the separator tank was removed by a Metro-North contractor, and the separator body was filled with clean material. No additional work is required in this area.

2.2 *AREAS ADDRESSED UNDER THE PRESENT REMEDIATION PLAN*

2.2.1 *Monitoring Well LMS-GW1/Buried Oil Filters*

LMS installed five wells during their Phase II investigation. Well GW-1 was located in the northern portion of the Yard and was originally installed to monitor upgradient conditions. However, NAPL was detected in LMS-GW1 during the course of the LMS investigation. During ERM's 1994 investigation, two temporary wells were installed and six soil samples were collected. No NAPL was detected in the temporary wells and no VOCs, SVOCs, PCBs, or pesticides were detected in the soil samples at concentrations above the RSCOs. Several metals were detected in one or two samples at concentrations that exceeded site background. However, the marginal exceedances were not considered indicative of an impact.

In 1994, due to uncertainties about the installation and specifications of LMS-GW1, this well was abandoned and replaced by well ERM-21. No NAPL has been detected the replacement well.

In 1994, during installation of a water line to the new wheel truing facility on the north end of the Yard, two areas of buried locomotive oil filters were discovered by Metro-North. The approximate locations of these areas are shown on Plate 1. The filters and surrounding visually impacted soil were excavated for proper disposal by Metro-North and its contractors. It is thought that the buried oil filters were the source of the NAPL detected in LMS-GW1.

No further investigation is required in this area. However, the wells in this area have been included in the NAPL monitoring program that has been proposed for Harmon Yard in the Remediation Plan.

2.2.2 *Material Distribution Center*

The Material Distribution Center is located on the former site of a coal-fired power generating plant. In addition, two USTs were located in the southeastern portion of this area. One tank contained unleaded gasoline and the other contained leaded gasoline. The tanks were found to be leaking in 1989 and were removed. In 1994, NAPL (diesel fuel) was detected in well ERM-5, located at the southeast corner of the building. As proposed in the Remediation Plan, NAPL recovery will be performed here. Due to the proximity of ERM-5 to the Harmon Shop Storeroom Lot, the NAPL recovery effort for these two AECs will be combined.

2.2.3 *Harmon Shop Storeroom Lot*

A significant amount of investigation and remediation has been performed within this area since 1990, when petroleum-stained soils were

observed in an excavation from which an underground storage tank had been removed. The presumed source of the petroleum in the tank pit was a leak in a four-inch fuel supply line that ran north-south under this area.

In order to delineate the floating NAPL, a total of 12 monitoring wells were installed. In 1991, a ground water and NAPL recovery system, infiltration gallery, and overflow relief area were installed, to address the NAPL plume within the outdoor storage area. This system includes a 24-inch diameter recovery well, completed at a depth of 27 feet below grade. A large diameter NAPL skimmer was installed in this well. Recovered ground water is treated by air stripping and reinjected into subsurface via the infiltration gallery. The NAPL recovered in the skimmer is discharged to a separate tank for recycling.

The Remediation Plan proposed NAPL recovery for this area. In addition to continued operation of the existing system, automated NAPL-only recovery systems are to be installed in three monitoring wells.

2.2.4 *Maintenance-of-Way Building*

The current location of the Maintenance-of-Way Storage Building is the former location of an outdoor materials storage yard. In addition, Metro-North personnel indicated that there was once a waste oil storage tank in this area. This tank was described in Section 2.1.16.

NAPL was detected in the well ERM-8, located to the east of the Maintenance-of-Way building. The NAPL thicknesses ranged from 0 feet to 0.35 feet. As part of the Remediation Plan, it was proposed that the NAPL in this well be periodically removed using mobile vacuum truck or trailer-mounted vacuum equipment.

2.2.5 *Locomotive Fueling Pad*

The Locomotive Fueling Pad is located in the southeastern portion of the Yard (Plate 1). This area consists of pumps and a platform for fueling locomotives, a fuel pump house, and a fuel supply line for fuel delivery operations. This fuel supply line runs through the tie storage area (described in Section 2.2.6). In addition, there were originally two 200,000-gallon tanks and one 40,000-gallon tank at this location (Plate 1). The southern 200,000-gallon tank and the 40,000- gallon tank were removed in 1990. The remaining 200,000-gallon tank was rehabilitated and currently conforms to bulk storage tank regulations. It formerly supplied fuel oil to the Maintenance of Equipment Shop and the Fuel Pad, and is currently used for storage of diesel fuel for the Fuel Pad.

NAPL has consistently been detected in several of the wells in this area. Metro-North is planning to construct a new fueling pad in this area within the next year, and a significant amount of demolition and construction will be part of this project. In the short term, NAPL encountered during construction will be recovered as part of the dewatering activities. The water/NAPL mixture will be discharged to the Locomotive Fueling Pad Oil/water Separator for treatment. The Remediation Plan proposed additional characterization of this area, if necessary, after completion of the NAPL recovery associated with the construction project. Periodic removal of NAPL from monitoring wells, using a mobile truck or trailer-mounted vacuum equipment, was also proposed for this area.

2.2.6 *Tie Storage Area/Fuel Line*

In September 1987, during installation of a fire protection water line, a fuel supply line was ruptured in this area. This line was located on the west side of the fuel pump house and extended westward through the

area now known as the Tie Storage Area (Plate 1). NAPL has occasionally been detected in wells within this area, at a maximum thickness of 0.01 feet. Due to the proximity of this area to the Locomotive Fueling Pad, the wells in the Tie Storage Area (SMW-1, SMW-2, ERM-26) have been included in the NAPL monitoring program proposed for the Locomotive Fueling Pad.

2.2.7 *Former Million Gallon Tank*

This tank, located in what is now a storage yard, was used to store diesel fuel. It was constructed of steel and rested directly on the ground within an earthen berm. The tank was removed in 1989. Although there are no records of leaks or spills in this area, a review of the aerial photographs suggests that the tank may have floated off its base. Therefore, two wells (ERM-9, ERM-10) were installed in this area 1994.

NAPL has been detected in both ERM-9 and ERM-10. The Remediation Plan proposes to periodically recover NAPL from these wells, using a mobile truck or trailer-mounted vacuum equipment.

2.2.8 *Osborn Pond*

This area is located on the southeastern side of the Yard and is a low area formed by a natural depression between the mainline and Yard tracks. Osborn Pond floods after a heavy rain or during prolonged periods of rain, as a result of poor drainage. The surface of Osborn Pond is heavily stained and NAPL was consistently detected in several wells within this area during ERM's 1994 Field Investigation. In the Remediation Plan, the installation of a NAPL recovery system was proposed for Osborn Pond. Metro-North also proposed the NYSDEC Water Division that Osborn Pond be paved to prevent further effect on ground water. The NAPL recovery system will consist of six wells, four of which must be installed,

that are equipped with NAPL-only recovery systems. The NAPL will be discharged to an aboveground storage tank to be installed in this AEC. As a result of the pavement, additional run-off will be generated at this location; a run-off discharge location will be identified.

2.2.9 *Monitoring Well LMS-GW5*

Monitoring well LMS-GW5 was located immediately west of the southern end of Osborn Pond. NAPL, reportedly resembling kerosene, was detected in this well by LMS in 1989. In 1994, LMS-GW5 was abandoned because of uncertainties about is construction, and replaced by well ERM-20. No NAPL has been detected in the replacement well. ERM also collected soil samples in this area, and concentrations of some SVOCs and metals marginally exceeded RSCOs or site background. In light of the fact that NAPL has not accumulated in the new well in this AEC, no further investigation is required in this area. However, the wells in this area have been included in the Yard's NAPL monitoring program.

2.2.10 *Outfall/Croton Bay Seepage*

Adjacent to the former oil/water separator tank is a 54-inch diameter outfall pipe that discharges stormwater into Croton Bay. A sheen has regularly been observed at the outfall. The source of the sheen has not been definitively determined. In addition, petroleum hydrocarbon seeps have been observed in Croton Bay in the area immediately adjacent to the outfall. The outfall and the Croton Bay seeps are the focus of a phased remediation effort. As described in the Remediation Plan, the three phases are:

Phase 1: improved surface water containment of seeps;
Phase 2: mitigation of seeps into Croton Bay;
Phase 3: removal of suspected seep sources.

A detailed description of each of these phases is provided in the Remediation Plan.

2.2.11 *Southwest Off-Site Area*

In 1994, NAPL was detected in two temporary wells that were located at the southern end of the Yard, just beyond the property boundary on Westchester County property. The locations of these wells (OF-B1, OF-B2) are shown on Plate 1. It has been proposed in the Remediation Plan that additional investigation be performed in this area to delineate the extent of NAPL and determine whether NAPL recovery is necessary and/or feasible. A detailed description of the activities to be undertaken in this AEC is provided in the Remediation Plan.

2.2.12 *Ground Water*

The two rounds of comprehensive ground water sampling performed in 1994, show that, in general, neither Yard operations nor the NAPL present in several areas have had a significant impact on ground water. However, in order to track any changes in ground water quality and to evaluate the effectiveness of the NAPL recovery operations, a ground water monitoring program has been included in the Remediation Plan. The proposed program includes installation of five additional wells, and periodic gauging and sampling of a selected suite of monitoring wells at the Harmon Yard. A detailed description of the well installation and monitoring program is provided in the Remediation Plan.

2.3 *AREA TO BE ADDRESSED UNDER THE SITE INVESTIGATION AND REMEDIATION STUDY*

2.3.1 *Anderson's Dump*

In November 1993, Metro-North was informed by a former railroad employee that there may have been several areas of the Yard where predecessor railroads had historically disposed materials. One of the locations identified by the employee is an area known as Anderson's Dump.

According to the former employee, Anderson's Dump was located at the southern end of the Yard, and may have extended as far north as the Croton Point Avenue Bridge. The area delineated by the former employee is shown on Plate 1. The period of time during which this area was used for disposal is not known.

Anderson's Dump was reportedly the location where used railroad ties and ballast, as well as other miscellaneous trash (e.g., material that collected at storm sewer inlets) were deposited from railroad cars. After placement, the material was graded by bulldozer. This area is currently used by the Metro-North Police for training of dogs and by various departments for staging of equipment and materials. A summary of the previous sampling results and a description of the investigation to be performed in this area is provided in Section 3.0.

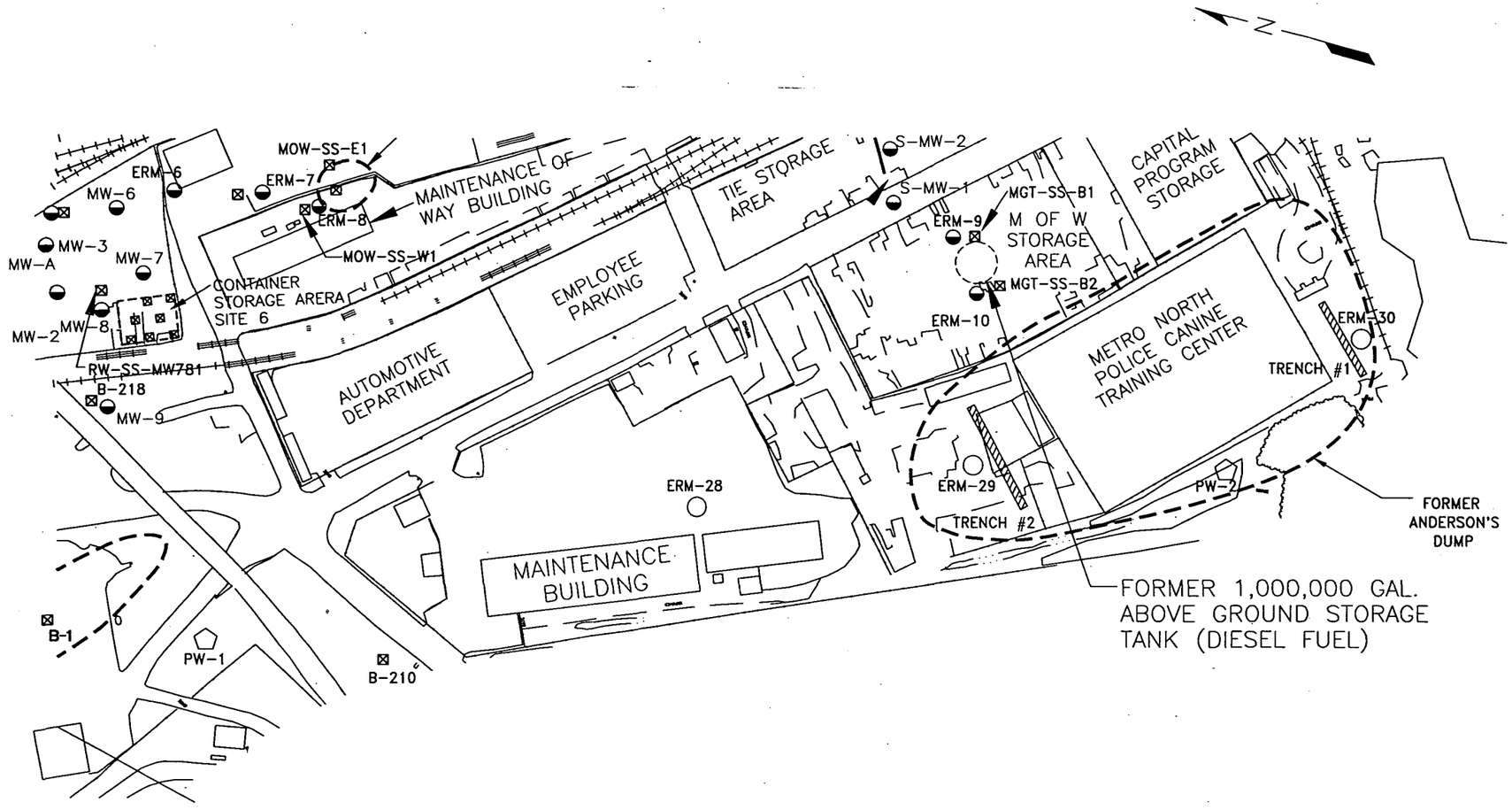
3.0 *INVESTIGATIVE ACTIVITIES AT ANDERSON'S DUMP*

3.1 *SUMMARY OF BACKGROUND DATA*

As described in the PSCS, two trenches were excavated within this area by AET in 1994, to evaluate the nature of material allegedly placed here. As shown on Figure 3-1, one trench was located south of the dog training area (Trench #1) and the other was located north of the dog training area (Trench #2). Two soil samples were collected from each trench. However, the exact locations from which AET collected the samples could not be verified. Each sample was analyzed for volatile organic compounds (VOCs), SVOCs, PCBs, and metals. The analytical results are summarized in Table 3-1.

PCBs were not detected in any of the samples. No VOCs were detected at levels above their NYSDEC Recommended Site Cleanup Objectives (RSCOs) in any sample. The RSCOs for benzo(a) anthracene, chrysene, benzo(b)fluoranthene, and benzo(a)pyrene were exceeded in all four samples. Three of the four samples also contained concentrations of benzo(k)fluoranthene that exceeded the RSCO, and the RSCO for indeno(1,2,3-cd)pyrene was exceeded in one sample from Trench #2. In addition, the concentrations of cadmium and chromium in each of the four samples, and the concentration of lead in one sample from Trench #1, were above the regional background.

The SVOCs detected in the trench samples were somewhat different from those found in other areas of the Yard. At most areas of the Yard that were impacted by fuel oil, the SVOCs detected in the soils were naphthalene and 2-methylnaphthalene. At Anderson's Dump, the SVOCs detected most frequently were benzo(a) anthracene, chrysene, benzo(b)fluoranthene, and benzo(a)pyrene. These compounds were found in other areas of the Yard, but typically at lower concentrations.



LEGEND

- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL (SIRS WORK PLAN)
- PROPOSED MONITORING WELL (REMEDIATION PLAN)
- TRENCH
- SOIL SAMPLE LOCATION

LOCATIONS APPROXIMATE

TITLE

PROPOSED WELL LOCATIONS FORMER ANDERSON'S DUMP

PREPARED FOR

METRO-NORTH COMMUTER RAILROAD

ERM-Northeast
Environmental Resources Management

SCALE	FIGURE
1" = 150'	3-1

DRAWN	JOB NO.	FILE NAME	DATE
E.M.F./S.P.	680.004.12	ANDEDUMP	4/8/96

TABLE 3-1
COMPOUNDS DETECTED IN ANDERSON'S DUMP SAMPLES
METRO-NORTH HARMON YARD, CROTON-ON-HUDSON, NEW YORK

	COMPARISON VALUE	Trench #1		Trench #2	
Volatile Organics, in ug/kg					
Toluene	1,500			5	8
Total Xylenes	1,200			10	15
Semi-Volatiles, in ug/kg					
Naphthalene	13,000		340	8,380	
2-Methylnaphthalene	36,400		340	6,460	
Dimethylphthalate	2,000				1,140
Acenaphthylene	41,000		560	4,310	440
Acenaphthene	50,000			1,820	
Dibenzofuran	6,200			3,360	
Fluorene	50,000	390	350	6,220	680
Anthracene	50,000	1,500	1,030	10,700	1,400
Phenanthrene	50,000	3,170	1,610	24,200	3,770
Fluoranthene	50,000	2,340	3,100	28,500	3,320
Pyrene	50,000	3,990	5,350	45,700	4,930
Benzo(a)anthracene	224	1,200	1,700	16,500	1,720
Chrysene	400	1,740	2,720	19,100	2,630
Benzo(b)fluoranthene	1,100	1,210	4,100	23,800	4,000
Benzo(k)fluoranthene	1,100	350	1,400	10,400	2,050
Benzo(a)pyrene	61	820	340	16,500	2,700
Indeno(1,2,3-cd)pyrene	3,200		690	3,280	330
Metals, in mg/kg					
Barium	300	101	54	48	47
Chromium	50	74	74	53	65
Lead	700	987	225	91.3	115
Cadmium	2	2.04	3.00	3.03	2.04
Silver	Site background	4.2			

NOTES:

Only detected compounds reported.

ug/kg: Micrograms per kilogram.

mg/kg: Milligrams per kilogram.

Comparison values, developed as part of the August 1995 "Preliminary Site Contamination Study", represent NYSDEC Recommended Soil Cleanup Objectives for volatile and semi-volatile organics, and New York State or regional background levels for metals.

Highlighted cells indicate concentrations which exceed comparison values.

Therefore, not only are the SVOCs generally different, but the concentrations at which they were detected at Anderson's Dump are higher than the concentrations of these compounds in other areas of the Yard. Consequently, it was concluded that additional investigation was warranted at Anderson's Dump, to determine if the presence of these compounds is having an impact on ground water quality at Harmon Yard.

3.2 *AERIAL PHOTOGRAPH ANALYSIS*

In order to try to establish the boundaries of Anderson's Dump, a series of aerial photographs was reviewed. The photographs were taken in 1953, 1961-1962, 1969-1970, 1976, 1980, and 1986.

In each photograph, automobiles are parked in the area south of the Croton Point Avenue Bridge, in the area currently occupied by the northern portion of the Maintenance Building and its parking lot (see Plate 1). It is therefore unlikely that Anderson's Dump extended as far north as the Bridge.

The 1953 photograph shows railroad tracks running through the area identified as Anderson's Dump. These tracks apparently extend north to the southern portion of the current Maintenance Building. There was no obviously disturbed area in the vicinity of Anderson's Dump that suggested disposal was occurring in 1953.

By the time of the 1961-1962 photograph, the tracks seen on the 1953 photograph have apparently been removed. No areas of obviously disturbed soil are visible around the area of Anderson's Dump in the photograph. The same is true in the 1969-1970, 1976, and 1980 photographs. By 1986, the area identified as Anderson's Dump was in use as the police dog training area.

3.3 *PROPOSED FIELD ACTIVITIES*

The field activities proposed for the investigation of the area of Anderson's Dump include installation and sampling of soil borings, collection of water level measurements, and installation and sampling of monitoring wells. Each of these activities is described in the sections below. All activities will be performed in accordance with the Health and Safety Plan included as Appendix A of this report.

3.3.1 *Monitoring Well Installation*

ERM proposes to install and sample three soil borings, which will subsequently be converted into monitoring wells, at Anderson's Dump. The proposed locations for the borings and wells (ERM-28 through ERM-30) are shown on Figure 3-1. Note that the most downgradient proposed well, ERM-30, may coincide with perimeter well PW-2, which will be installed as part of the ground water monitoring program proposed in the Remediation Plan.

The borings/wells will be installed using the hollow stem auger drilling method. In order to evaluate soil quality, split spoon samples will be collected continuously from grade to the water table. It is expected that the water table will be encountered at approximately eight feet below grade. To ensure sufficient recovery, three-inch diameter split spoons will be used. After each split spoon is opened, total VOCs will be measured using an organic vapor analyzer equipped with a photoionization detector (PID). The sample will then be described in a bound field notebook. The split spoons and augers will be decontaminated between sample locations with steam.

The sample from each boring showing the highest PID reading, or the most staining, will be submitted for laboratory analysis. If the PID readings cannot be used to select a sample, then a sample from the middle of the stratigraphic section will be analyzed. The samples will be transferred directly to laboratory-supplied bottles using dedicated teaspoons. Once filled, bottles will be placed into an iced cooler for overnight shipment under chain-of-custody procedures to Mitkem Corporation. Mitkem is part of the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program and has been approved by NYSDOH for analysis of soil and ground water samples via NYSDEC approved Analytical Services Program (ASP) protocols.

The three samples will each be analyzed for Target Compound List/ Target Analyte List (TCL/TAL) parameters, using the 1991 ASP analytical protocols. The TCL/TAL analytical parameters are shown in Table 3-2. Appropriate Quality Assurance/Quality Control (QA/QC) samples, including field blanks, trip blanks, blind duplicates, matrix spikes, and matrix spike duplicates, will also be collected. A summary of the soil samples to be collected is included in Table 3-3.

A Level B Deliverables package will be prepared by the laboratory for these analyses. When received, the data package will be audited by an ERM data validator.

After the soil sampling has been completed, each boring will be converted into a permanent monitoring well. Each well will be constructed of ten feet of four-inch diameter, PVC well screen, installed across the water table, and PVC riser. A sand pack will be installed in the annulus around, and at least one foot above, the screen. A one-foot bentonite seal will then be placed above the sand pack. Any remaining annular space will be filled with drill cuttings or a bentonite-cement slurry. The wells will

TABLE 3-2
ANALYTICAL PARAMETERS FOR SOIL AND GROUND WATER SAMPLES
METRO-NORTH HARMON YARD, CROTON-ON-HUDSON, NEW YORK

Volatile Organics			
Chloromethane	trans 1,2-Dichloroethene	cis 1,3-Dichloropropene	2-Hexanone
Bromomethane	Chloroform	Trichloroethene	Tetrachloroethene
Vinyl chloride	1,2-Dichloroethane	Dibromochloromethane	1,1,2,2-Tetrachloroethane
Chloroethane	2-Butanone	1,1,2-Trichloroethane	Toluene
Methylene chloride	1,1,1-Trichloroethane	Benzene	Chlorobenzene
Acetone	Carbon tetrachloride	trans 1,3-Dichloropropene	Ethylbenzene
Carbon disulfide	Bromodichloromethane	Bromoform	Styrene
1,1-Dichloroethene	1,2-Dichloropropane	4-Methyl-2-pentanone	Total Xylenes
1,1-Dichloroethane			

Semi-volatile Organics			
Phenol	2,4-Dichlorophenol	Acenaphthene	Carbazole
bis(2-chloroethyl)ether	1,2,4-Trichlorobenzene	2,4-Dinitrophenol	Di-n-butylphthalate
2-chlorophenol	Naphthalene	4-Nitrophenol	Fluoranthene
1,3-Dichlorobenzene	4-Chloroaniline	Dibenzofuran	Pyrene
1,4-Dichlorobenzene	Hexachlorobutadiene	2,4-Dinitrotoluene	Butylbenzylphthalate
1,2-Dichlorobenzene	4-Chloro-3-methylphenol	Diethylphthalate	3,3'-Dichlorobenzidine
2-Methylphenol	2-Methylnaphthalene	4-Chlorophenyl-phenylether	Benzo(a)anthracene
bis(2-chloroisopropyl) ether	Hexachlorocyclopentadiene	Fluorene	Chrysene
4-Methylphenol	2,4,6-Trichlorophenol	4-Nitroaniline	bis(2-Ethylhexyl)phthalate
N-Nitroso-di-n-propylamine	2,4,5-Trichlorophenol	4,6-Dinitro-2-methylphenol	Di-n-octylphthalate
Hexachloroethane	2-Chloronaphthalene	N-Nitrosodiphenylamine	Benzo(b)fluoranthene
Nitrobenzene	2-Nitroaniline	4-Bromophenyl-phenylether	Benzo(k)fluoranthene
Isophorone	Dimethylphthalate	Hexachlorobenzene	Benzo(a)pyrene
2-Nitrophenol	Acenaphthylene	Pentachlorophenol	Indeno(1,2,3-cd)pyrene
2,4-Dimethylphenol	2,6-Dinitrotoluene	Phenanthrene	Dibenz(a,h)anthracene
bis(2-chloroethoxy)methane	3-Nitroanailine	Anthracene	Benzo(g,h,i)perylene

Pesticides			
Alpha-BHC	Heptachlor Epoxide	Endosulfan II	Endrin ketone
Beta-BHC	Endosulfan I	4,4'-DDD	Endrin aldehyde
Delta-BHC	Dieldrin	Endosulfan sulfate	Alpha-chlordane
Gamma-BHC	4,4'-DDE	4,4'-DDT	Gamma-chlordane
Heptachlor	Endrin	Methoxychlor	Toxaphene
Aldrin			

PCBs			
Arochlor 1016	Arochlor 1232	Arochlor 1248	Arochlor 1260
Arochlor 1221	Arochlor 1242	Arochlor 1254	

Metals			
Aluminum	Calcium	Magnesium	Silver
Antimony	Chromium	Manganese	Sodium
Arsenic	Cobalt	Mercury	Thallium
Barium	Copper	Nickel	Vanadium
Beryllium	Iron	Potassium	Zinc
Cadmium	Lead	Selenium	Cyanide

TABLE 3-3

SUMMARY OF SOIL AND GROUND WATER SAMPLES TO BE COLLECTED AT ANDERSON'S DUMP METRO-NORTH HARMON YARD, CROTON-ON-HUDSON, NEW YORK

MEDIUM	NUMBER OF ROUNDS	SAMPLES PER ROUND	QA/QC SAMPLES (per round)	TOTAL SAMPLES	ANALYTICAL PARAMETERS
SOIL	1	3	4	7	TCL VOCs, TCL SVOCs, TCL Pesticides, TCL PCBs, TAL Metals
GROUND WATER	2	6	5	22	TCL VOCs, TCL SVOCs, TCL Pesticides, TCL PCBs, TAL Metals

NOTES:

TCL: Target Compound List.

TAL: Target Analyte List.

VOCs: Volatile organic compounds.

SVOCs: Semi-volatile organic compounds.

For soils, QA/QC samples include 1 duplicate, 1 field blank, 1 matrix spike, and 1 matrix spike duplicate. For ground water samples, 1 trip blank is added.

completed at the surface with either a locking compression cap and flush-mounted manhole or a compression cap and locking standpipe.

Drill cuttings will be monitored using a PID. Cuttings from wells installed in paved areas will be drummed. In unpaved areas, cuttings that are stained, are odorous, or show PID reading greater than five parts per million above background will also be drummed. Drums of cuttings will be labeled and moved by Metro-North personnel to a secure storage area at the Yard, for characterization and disposal. Cuttings that are not drummed will be graded into the ground surface near the well from which they were generated.

After installation, the wells will be developed, using a gasoline-powered centrifugal pump and dedicated polypropylene hose, to ensure the removal of fine material and to restore the hydraulic properties of the surrounding water-bearing zone. Whenever possible, the wells will be developed until the turbidity of the water is less than 50 Nephelometric Turbidity Units (NTUs). Within unpaved areas, development water will be discharged to the ground surface near the well. In paved areas, the development water will be discharged to the WWTP via the Yard's sanitary sewer system.

The horizontal and vertical locations of the wells will be surveyed and tied into the existing monitoring network at the Yard. Surveying will be performed by Larsen Engineers, Inc.

3.3.2 *Ground Water Level Measurements*

After the newly installed monitoring wells have been allowed to equilibrate with the surrounding formation for at least two weeks, the depth to NAPL (if present) and the depth to water will be measured in all of the monitoring wells at Harmon Yard. Water level measurements will

be collected from all wells on the same day that ground water sampling will occur (ground water sampling is described in Section 3.3.3). These data will be converted into water table elevation values, which will be used to evaluate ground water flow directions at the Yard. Note that wells installed as part of the lagoon investigation (Operable Units I and II) are not included in these activities.

3.3.3 *Ground Water Sampling and Analysis*

Two rounds of ground water samples will be collected from the three new wells and perimeter well PW-2 (to be installed as part of the Remediation Plan). The proposed locations of these wells are shown on Figure 3-1. In addition, background conditions will be determined be collecting samples from monitoring wells ERM-22 (located at the north end of the Yard, as shown on Plate 1) and perimeter well PW-1 (to be installed north of the Croton Point Avenue Bridge as part of the Remediation Plan, as shown on Figure 3-1), during each sampling event. The second round of sampling will be performed after the results from the initial round have been received, validated (data validation is described in Section 3.3.4), and reviewed. It is expected that the second round of ground water sampling will therefore occur approximately two to three months after the first round.

Before sampling, the wells will be checked for NAPL and the depth to water and depth to bottom will be measured. There is no evidence to suggest that NAPL is present in this area of the Yard. However, any well found to contain NAPL will not be sampled. These values will be used to calculate the volume of standing water in the well. At least three volumes of water will be purged from the well before sampling, using a gasoline-powered centrifugal pump and dedicated polypropylene hose. If a well is pumped dry before three volumes are removed, then purging will be considered complete and the well will be sampled after recovery. Every

effort will be made to prevent purging a well to dryness. In unpaved areas, purged water will be discharged to the ground surface near the well. Purged water from wells in paved areas will be discharged to the WWTP via the Yard's storm sewer system.

Samples will be collected using dedicated, high-density polypropylene bailers and polypropylene rope. Samples will be poured directly from the bailer into laboratory-supplied bottles. The turbidity of the water will be measured after purging, and before the samples are collected.

Samples to be analyzed for VOCs, SVOCs, pesticides, and PCBs will be collected immediately after purging. During previous ground water sampling events, the turbidity of some of the wells was found to be above 50 NTUs after purging. If this is the case, the wells with high levels of turbidity will be sampled several hours after purging. By waiting several hours after purging, some of the suspended silt will be allowed to settle out of the water column, thereby reducing the turbidity of the sample. Turbidity will again be measured before sample collection.

When filled, the sample bottles will be placed into an iced cooler for overnight shipment under chain-of-custody procedures to Mitkem for analysis. Appropriate QA/QC samples, including field blanks, trip blanks, blind duplicates, matrix spikes, and matrix spike duplicates, will be collected. All samples will be analyzed for the TCL/TAL parameters (shown in Table 3-2), with a NYSDEC ASP Level B Deliverables package. A summary of the ground water samples to be collected is included in Table 3-3.

3.3.4 *Data Validation*

The soil and ground water data packages will be evaluated by an experience ERM data validator. The purpose of the audit will be to

determine whether or not the data are accurate and representative and whether there are noticeable trends or grossly divergent results. Any modifications (or flags) recommended by the data validator will be included in the data tables and in the discussion of the data. The data validation reports will be included in the Site Investigation and Remediation Study report to be prepared at the completion of the field activities.

4.0 *SITE INVESTIGATION AND REMEDIATION STUDY*

The August 1995 Preliminary Site Contamination Study, approved by NYSDEC in a letter dated 19 January 1996, concluded that only one AEC at the Harmon Railroad Yard (Anderson's Dump) required additional investigation. As required by the Stipulation, this Work Plan has been prepared to propose the investigative activities to be performed in this area. When these activities have been completed, a Site Investigation and Remediation Study (SIRS) report will be prepared, as required by the Stipulation. This report will, at a minimum, include a description of the investigative activities and analysis of the validated laboratory results from the soil and ground water samples. The SIRS report should also describe any short-term or long-term corrective actions and/or remedial measures needed to bring conditions at Anderson's Dump into conformance with relevant and appropriate rules, regulations, standards, criteria, or guidelines. Accordingly, this section contains a brief description of the SIRS report. The Harmon Yard SIRS will be submitted nine months from the date that the Work Plan is approved.

4.1 *SUMMARY OF SOIL SAMPLING DATA*

Upon completion of the field activities, all of the field notes will be assembled and boring logs will be prepared. The field notes will be used to prepare a description of the sampling activities. After the data validation is complete, the validated data shall be reviewed, analyzed, and summarized. The data will be tabulated, and, if appropriate, plotted on a map for ease of use.

4.2 *SUMMARY OF GROUND WATER SAMPLING DATA*

Ground water level measurements and NAPL thickness measurements will be tabulated and a ground water flow map and a map showing the

distribution of NAPL will be prepared. The validated ground water sampling data and the NAPL thickness data will be compared to historical data to determine whether there have been any changes with time.

4.3 *RECOMMENDATIONS FOR SHORT AND LONG TERM CORRECTIVE ACTIONS FOR SURFACE SOILS AND/OR GROUND WATER*

The soils and ground water data will be reviewed to determine whether any short term or long term corrective action is required. The soil and ground water data will be evaluated using the procedures outlined in ASTM E 1739-95, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites.* In the event that some corrective action is deemed necessary, a schedule for the work will also be included in the SIRS report.

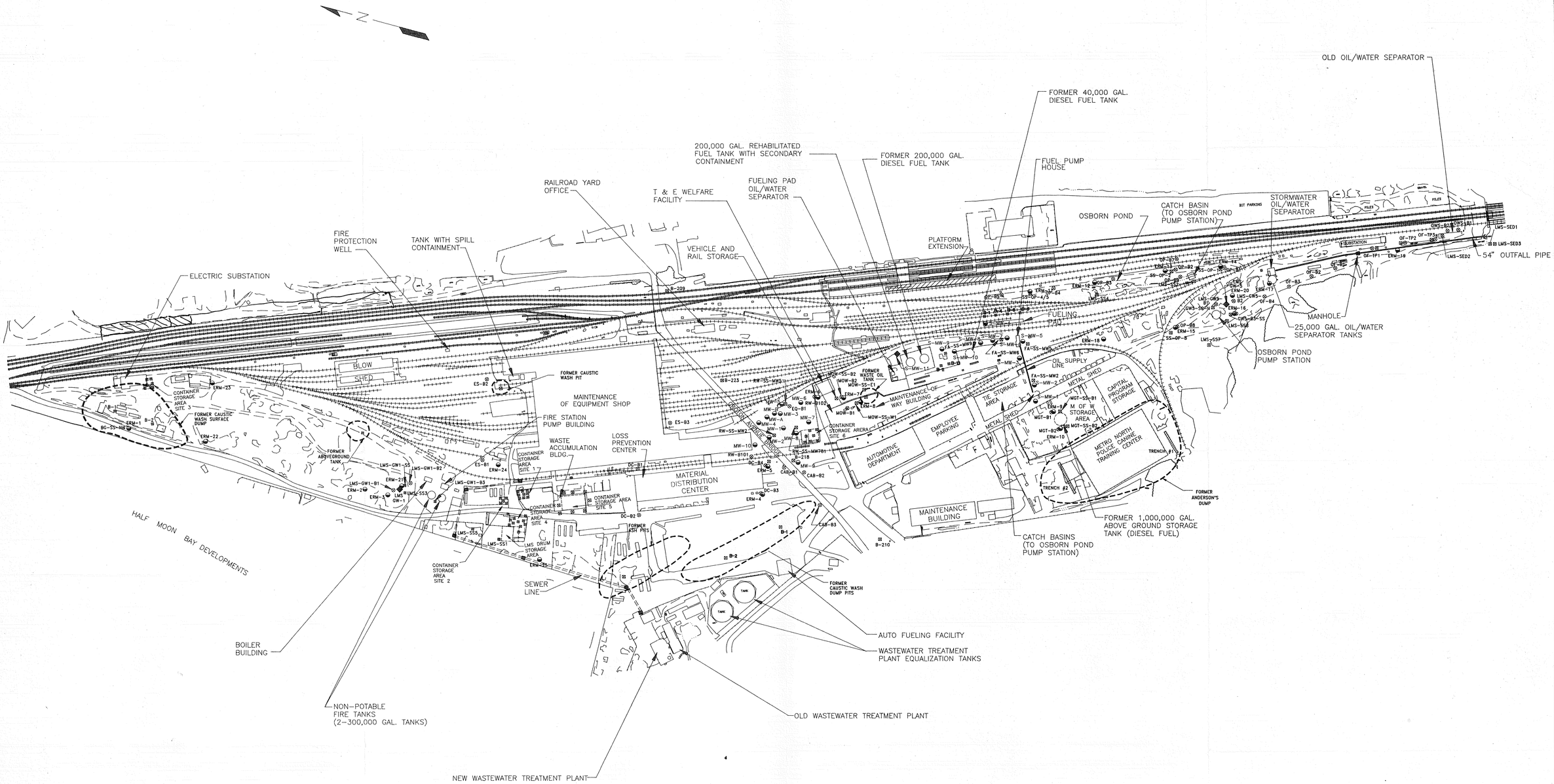
5.0 *SCHEDULE*

A proposed schedule for the activities outlined in this Work Plan is shown on Figure 5-1. In accordance with the Stipulation, the overall schedule for the work is estimated to be nine months.

FIGURE 5-1
SCHEDULE FOR SITE INVESTIGATION AND REMEDIATION STUDY
METRO-NORTH HARMON YARD, CROTON-ON-HUDSON, NEW YORK

TASK	Month 1		Month 2		Month 3		Month 4		Month 5		Month 6		Month 7		Month 8		Month 9	
Mobilization																		
Soil sampling/well installation																		
Laboratory analysis (soil)																		
Data validation (soil)																		
Water/NAPL level measurements																		
Ground water sampling																		
Laboratory analysis (water)																		
Data validation (water)																		
Water/NAPL level measurements																		
Ground water sampling																		
Laboratory analysis (water)																		
Data validation (water)																		
Report preparation																		

NOTE: Schedule starts with approval of SIRS Work Plan.



LEGEND

- ⊗ TEMPORARY MONITORING POINT
- ◒ EXISTING MONITORING WELL
- ◆ ABANDONED MONITORING WELL
- ⊠ SOIL SAMPLE LOCATION

LOCATIONS APPROXIMATE

NO.	DATE	APPR.	REVISION

NO.	DATE	APPR.	REVISION

METRO-NORTH COMMUTER RAILROAD

HARMON RAILROAD YARD

ERM-Northeast
Environmental Resources Management

	DATE
CHECKED	
DESIGN ENGINEER	
PROJECT ENGINEER	
PROJECT MANAGER	
APPROVED	
APPROVED	

SITE LAYOUT AND HISTORIC SOIL SAMPLE LOCATIONS

DRAWN	DATE	REVISED DATE
MN/E.M.F.	MAR. 19, 1996	
SCALE	JOB NO.	FILE NAME
1"=150'	680.001.8	STLAYHT

DRAWING NO. PLATE 1

REV. NO.

SHEET OF

APPENDIX A:

Health and Safety Plan

HEALTH AND SAFETY PLAN FOR THE SITE INVESTIGATION AND REMEDIATION STUDY AT HARMON RAILROAD YARD

March 1996

Prepared For:

Metro-North Railroad Company
420 Lexington Avenue
New York, New York 10017

Prepared By:

ERM-NORTHEAST
175 Froehlich Farm Boulevard
Woodbury, New York 11797

68000406.572

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LIST OF EXHIBITS

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EXHIBIT 2: Contractor Occupational Safety and Health Certification

EXHIBIT 3: Field Medical Data Sheet

1.0 *INTRODUCTION*

This Health and Safety Plan (HASP) has been developed by ERM-Northeast, Inc. (ERM) for the performance of field activities associated with the Site Investigation and Remediation Study (SIRS) at Harmon Railroad Yard. The scope of work includes the installation and sampling of soil borings and monitoring wells at the area known as Anderson's Dump. These activities will involve invasive investigative techniques including subsurface drilling. This HASP will designate health and safety procedures for all ERM personnel involved with on-site project activities.

Note that the procedures included herein are only for activities associated with the investigation and remediation of Anderson's Dump and do not include activities performed by other people. The procedures set forth in this HASP are designed to reduce the risk of exposure to chemical substances and physical or other hazards which may be present. The procedures described herein were developed in accordance with the provisions of 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response and in accordance with ERM's experience in similar activities.

The recommended health and safety guidelines within this HASP may be modified if future information changes the activities to be performed or the characterization of the area in which work is to be performed.

1.1 *IMPLEMENTATION*

A copy of this HASP will be given to all ERM employees prior to their work at Anderson's Dump. They will be required to review this plan and attend Metro-North's safety training class before the start of any site

activities. Should ERM personnel be required to enter confined spaces or other areas with a different potential for chemical exposure, an addendum to this plan will be prepared.

1.2 *FACILITY DESCRIPTION*

Harmon Yard is the largest facility operated by Metro-North. It is located in the Village of Croton-on-Hudson in Westchester County. The yard is approximately 100 acres in size and has functioned as the primary diesel and electrical maintenance and marshaling yard for over 100 years. The present Maintenance of Equipment shop, constructed at the turn of the century, replaced several other roundhouses and service facilities. In addition to the main shop building, the yard also includes fuel storage tanks, a locomotive fuel pad, storage yards for equipment, wastewater treatment facilities, and materials distribution facilities.

The area known as Anderson's Dump was identified by a former railroad employee in November 1993 as area where predecessor railroads had historically disposed materials. According to former employees, Anderson's Dump was located at the southern end of Harmon Yard, and may have extended as far north as Croton Point Avenue Bridge. It was reportedly the location where used railroad ties and ballast, as well as other miscellaneous trash (e.g., material that collected at storm sewer inlets) were deposited. After placement, the material was graded by bulldozer. This area is currently used by the Metro-North Police for training of dogs and by the Maintenance of Way Building for staging. The area was investigated by AET in 1994 and the results of that work were reported in The Preliminary Site Contamination Study dated August 1995. The results of the investigation are assessed in the following section.

1.3 *CHEMICAL AND PHYSICAL HAZARDS*

1.3.1 *Chemical Hazards*

Table 1-1 lists the chemicals which may be encountered during the SIRS field activities. This data was collected from two trenches, one to the south of the dog training area (Trench #1) and one to the north of the dog training area (Trench #2). Two samples were collected from each trench and analyzed for VOCs, SVOCs, PCBs, and metals. Analytical results were compared to NYSDEC Recommended Soil Cleanup Objectives (RSCOs) for evaluation. No VOCs or PCBs were detected at levels above the RSCOs in any of the samples. As indicated on the table, the primary constituents of concern are polycyclic aromatic hydrocarbons (PAHs) and several metals.

A summary of the exposure limits and physical properties of the chemicals of concern is shown in Table 1-2. The potential pathways of chemical exposure may be through inhalation, ingestion and skin contact. This information was used to develop action levels for the field investigation team. Although several of the chemicals detected on-site are a potential health concern, measures can be taken to minimize exposure by standing upwind of intrusive activities and minimizing the generation of dust. The chemicals found in soil samples would only pose a potential health hazard through continuous long-term exposure at the levels identified. Long-term exposure will not occur during this study, since potential exposures can be mitigated through appropriate investigative procedures. In addition, any potential exposure will be of short duration of no more than three weeks.

TABLE 1-1
COMPOUNDS DETECTED IN ANDERSON'S DUMP SAMPLES
METRO-NORTH HARMON YARD, CROTON-ON-HUDSON, NEW YORK

LOCATION	Trench #1		Trench #2	
COLLECTED BY	AET	AET	AET	AET
AREA OF CONCERN	Anderson's Dump	Anderson's Dump	Anderson's Dump	Anderson's Dump
Volatile Organics, in ug/kg				
Toluene			5	8
Total Xylenes			10	15
Semi-Volatiles, in ug/kg				
Naphthalene		340	8,380	
2-Methylnaphthalene		340	6,460	
Dimethylphthalate				1,140
Acenaphthylene		560	4,310	440
Acenaphthene			1,820	
Dibenzofuran			3,360	
Fluorene	390	350	6,220	680
Anthracene	1,500	1,030	10,700	1,400
Phenanthrene	3,170	1,610	24,200	3,770
Fluoranthene	2,340	3,100	28,500	3,320
Pyrene	3,990	5,350	45,700	4,930
Benzo(a)anthracene	1,200	1,700	16,500	1,720
Chrysene	1,740	2,720	19,100	2,630
Benzo(b)fluoranthene	1,210	4,100	23,800	4,000
Benzo(k)fluoranthene	350	1,400	10,400	2,050
Benzo(a)pyrene	820	340	16,500	2,700
Indeno(1,2,3-cd)pyrene		690	3,280	330
Metals, in mg/kg				
Barium	101	54	48	47
Chromium	74	74	53	65
Lead	987	225	91.3	115
Cadmium	2.04	3.00	3.03	2.04
Silver	4.2			

NOTES:

Only detected compounds reported.

ug/kg: Micrograms per kilogram.

mg/kg: Milligrams per kilogram.

Highlighted cells indicate concentrations which exceed reference values (listed in Table 6-1).

Table 1-2 Exposure Limits and Physical Properties of Compounds of Potential Concern

Compound	Exposure Limits	IDHL Level	Physical Description	Chemical and Physical Properties	
Coal Tar Pitch Volatiles (pyrene, phenanthrene, acridine, chrysene, anthracene & benzo(a)pyrene	PEL: 0.2 mg/m^3 REL: 0.1 mg/m^3 TLV: 0.2 mg/m^3	Ca [80 mg/m^3]	Black or dark brown amorphous residue	Properties vary depending upon the specific compound	UEL: NA LEL: NA
Barium (Barium nitrate/ Barium chloride)	PEL: 0.5 mg/m^3 REL: 0.5 mg/m^3 TLV: 0.5 mg/m^3	50 mg/m^3	Both are white odorless solids	MW: 261.4/233.4 BP: Decomposes/ 2840°F Sol: 9/0.0002% FL.P.: NAR	UEL: NA LEL: NA
Cadmium (dust)	PEL: 0..005 mg/m^3 REL: LPC TLV: 0.01 mg/m^3	Ca [9 g/m^3]	Metal: silver-white, blue-tinged, lustrous, odorless solid. Considered a probable carcinogen by NIOSH and ACGIH.	MW: 112.4 BP: 1409°F Sol: Insoluble FL.P.: NA	UEL: NA LEL: NA
Chromium (111)	PEL: 0.5 mg/m^3 REL: 0.5 mg/m^3 TLV: 0.5 mg/m^3	25 mg/m^3	Blue-white to steel gray, lustrous, brittle, hard solid	MW: 52.0 BP: 4788°F Sol: Insoluble FL.P.: NA	UEL: NA LEL: NA
Lead	PEL: 0.050 mg/m^3 REL: 0.100 mg/m^3 TLV:0.050 mg/m^3	100 mg/m^3	Metal: Heavy, ductile, soft gray solid	MW: 207.2 BP: 3164°F Sol: Insoluble FL.P.: NA	UEL: NA LEL: NA
Silver (Metal)	PEL: 0.01 mg/m^3 REL: 0.01 mg/m^3 TLV: 0.1 mg/m^3	10 mg/m^3	Metal: White , lustrous solid.	MW: 107.9 BP: 3632°F Sol: Insoluble FL.P.: NA VEL: NA LEL: NA	UEL: NA LEL: NA

Notes:
PEL - OSHA Permissible Exposure Limit, based on June 1994 limits in 29 CFR 1910.100.
REL - NIOSH Recommended Exposure Limit
TLV - ACGIH Threshold Limit Value (Listed only when it is more restrictive than the PEL or REL)
ppm - parts per million
mg/m^3 - milligrams per cubic meter
ug/m^3 - micrograms per cubic meter
Ca - Potential Occupational Carcinogen
NA - Not Available
NE - None Established
LPC - Carcinogen - Reduce exposure to Lowest Possible Concentration
(C) - Ceiling Value: An airborne concentration which is not to be exceeded at anytime throughout the work shift.

(a) Proposed Final Rule Permissible Exposure Limit
(b) No REL established; NIOSH questions whether the PEL for this substance is adequate to protect workers from recognized health hazards.

References:
American Conference of Governmental Industrial Hygienists, 1995-1996. Threshold Limit Values and Biological Exposure Indices for 1995-1996.
U.S. Department of Health and Human Services, 1994. NIOSH Pocket Guide to Chemical Hazards. June 1994.
Montgomery, John H., and Welkom, Linda M., 1990. Groundwater Chemicals Desk Reference.
Sax, N. Irving, 1984. Dangerous Properties of Industrial Materials.

1.3.2 *Physical Hazards*

Table 1-3 contains a summary of potential physical hazards that may be encountered at the site. Additional physical hazards specific to working in railroad yards are provided in Section 5.5.

TABLE 1-3
PHYSICAL SAFETY CONCERNS

HAZARD	DESCRIPTION	LOCATION	PROCEDURES USED TO MONITOR/REDUCE HAZARD
Trains	Both moving and stationary	Throughout site	See Special Instructions - Section 5.5
Third Rail	Electrically energized rail used for train power	Throughout site	See Special Instructions - Section 5.5
Heavy equipment	Excavation and earth moving equipment	Used throughout Site	Personnel maintain eye contact with operators; hard hats and safety glasses worn during equipment operation when required.
Existing Underground Utilities	Storm water, sewer, electrical	Verify with Railroad. Refer to Contract Drawings.	Verify number and location of utilities prior to Site operations. Locate prior to subsequent excavation activities.
Water	Surface and ground water	Lagoon and pond	At least two workers present; safety fencing and barricade tape; safety rigging; life jackets, if required.
Power lines	Above ground	Site and Site perimeter. Refer to Contract Drawings	Maintain at least 10 feet of total clearance for lines 50 KV or less during Work activities
Noise	During Site activities	Throughout Site	Hearing protectors with proper noise reduction rating
Temperature extremes	Hot weather activities. Cold weather activities.	Throughout Site	Protection as designated by Site Safety Officer

2.0 *PERSONNEL RESPONSIBILITIES*

The following responsibilities and authorities have been or will be assigned to ERM's personnel during field activities.

Yard Team Leader

The Yard Team Leader at each yard has been appointed by ERM to act in a supervisory capacity over all ERM employees and activities. The Yard Team Leader will be responsible for ensuring that health and safety responsibilities are carried out in conjunction with this HASP.

Site Safety Officer

The site safety officer is the person or persons appointed by ERM, and under the supervision of the Yard Team Leader, to implement this HASP. The Site Safety Officer will ensure that appropriate health and safety measures are implemented during the investigation and remediation study. During the investigation activities, the Site Safety Officer (SSO) will assume:

- responsibility for implementation, evaluation, and any necessary on-site modification of this HASP;
- authority to suspend any activity at the Site due to any ineffectiveness of this HASP; and
- responsibility to maintain compliance with all applicable federal, state, client, and municipal regulations.

All health and safety communications between ERM and Metro-North will be handled exclusively by the SSO. The SSO will be assigned prior to the start of field activities.

3.0 *MEDICAL MONITORING AND PERSONNEL TRAINING REQUIREMENTS*

The Occupational Safety and Health Administration (OSHA) has established requirements for a medical surveillance program designed to monitor and reduce health risks for employees who may potentially be exposed to hazardous materials. This program has been designed to provide baseline medical data for each employee involved in hazardous waste operations. Each employee must undergo testing and training, and a determination of his/her ability to wear personal protective equipment. The medical examinations must be administered on a pre-employment, annual basis and as warranted for chemicals for which the employee may have been exposed. These examinations shall be provided by employers without cost or loss of pay to the employee.

3.1 *MEDICAL MONITORING*

Due to potential exposure to hazardous materials, all ERM personnel involved in the environmental studies must participate in a medical monitoring program meeting specifications of 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER). The examining physician is required to provide a written report to the employer of any medical condition which would place employees at increased risk of wearing a respirator or other personal protective equipment. A physician will specify respiratory protection clearance, or the user's ability to wear a respirator of any type for a Work shift. Each subcontractor involved in the environmental studies shall assume the responsibility of maintaining a medical surveillance program as well as maintaining Site personnel medical records as regulated by 29 CFR 1910.20, Medical and Exposure Records.

A medical examination program is required for all those employees who wear or may wear respiratory protection as specified by 29 CFR 1910.134, Respiratory Protection and 29 CFR 1910.120 (HAZWOPER). Disposable dust type respirators are included under these regulations. This program must determine an individual's ability to wear respiratory protection while performing designated duties. All elements of 29 CFR 1910.134, Respiratory Protection, must be complied with, and will be verified by the SSO. This verification includes review of the required written respiratory protection program regarding the selection, care, employee training requirements, use and maintenance of respirators.

3.2 *PERSONNEL TRAINING*

All ERM personnel associated with potentially hazardous field activities must have participated in a health and safety training program that complies with OSHA 29 CFR 1910.120, HAZWOPER, prior to mobilization at the Site. This program must instruct employees on the intent of the standard, health and safety principles and procedures, proper operation of monitoring instruments, use of personal protective equipment, decontamination, and Site specific emergency plans. Any chemical specific training that may be required will be based upon compliance with 29 CFR 1910.1200, Hazard Communication.

In addition, ERM employees will be required to participate in Metro-North's safety training class prior to the start-up of any given task. This training will be performed and documented by Metro-North and the SSO. Metro-North's safety training will address potential training hazards and associated risks. Specialized training will be provided for activities such as working around trains and energized railroad tracks. ERM employees involved in these type of activities will be given instruction by Metro-

North and the SSO regarding the potential hazards involved with Site activities and the appropriate health and safety procedures to be followed.

A copy of this HASP will also be made available to all ERM personnel for review. All employees will complete a Health and Safety Plan review form to verify they have reviewed this plan and a copy of the form is shown in Exhibit 1. Any subcontractors involved in the field activities are required to certify that their employees have received medical exams, training and are capable of respirator usage. The Contractor Occupational Safety and Health Certification form is attached as exhibit 2. All employees and subcontractors will also be required to fill out a field medical data sheet (exhibit 3) prior to starting work at the yard.

4.0 *SITE MONITORING AND PERSONAL PROTECTIVE EQUIPMENT*

4.1 *SITE MONITORING*

Based upon the scope of work for this project, monitoring will be performed utilizing direct reading instruments. All intrusive activities will be monitored with an organic vapor analyzer (OVA) or Photoionization detector (PID). Visible dust will be closely observed to determine if particulate monitoring is appropriate. Any observed dust releases will require implementation of dust monitoring with a digital dust indicator.

4.2 *ACTION LEVELS*

Since the installation of borings and monitoring wells may disturb potentially contaminated materials, action levels to suspend on-site activities have been set. ERM does not foresee any conditions that would impact the public in the surrounding area of the site.

- Should monitoring data for total organic vapors exceed 5 ppm in the breathing zone, or visible dust be emitted from the work area, work will be stopped and the need for additional respiratory protection and/or dust suppression techniques evaluated. Downwind monitoring at the area of intrusive activity will be performed to determine whether off-site migration of vapors is occurring.

- Upon detection of 100 ppm organic vapors in the breathing zone, workers will leave the work area. A review of work procedures, air monitoring needs and the use of upgraded levels of respiratory protection will be performed. In addition, downwind monitoring at the site perimeter will be performed to determine whether off-site migration of vapors is occurring. Work will proceed only after review and approval of the SSO and the appropriate corrective action is taken or protection level implemented.

- Continued work will consider protection of the general public health and safety.

4.3 *PERSONAL PROTECTIVE EQUIPMENT*

ERM will follow Metro-North's requirements for safety clothing while on-site conducting the SIRS field activities. These requirements are provided in Section 5.5.3. All field activities will be initiated in Level D personal protective equipment and upgraded as appropriate based upon the comparison of monitoring results to the action levels set in Section 4.2.

5.0 *EMERGENCY RESPONSE*

5.1 *NOTIFICATION OF SITE EMERGENCIES*

Metro-North will be immediately notified of the nature and extent of any emergency situation. Additionally, Subcontractors shall provide to the SSO a daily list of names of Subcontractors who are working at the Yard. In the event of Site evacuation, this list will be used to account for all personnel on Site.

5.2 *RESPONSIBILITIES*

The SSO will be responsible for responding to all emergencies, and will:

- Notify appropriate Metro-North personnel and/or health care facilities of the emergency. Table 5-1 provides emergency telephone numbers that will be posted within the support zone.

5.3 *ACCIDENTS AND INJURIES*

Prevention of injury is paramount to ERM and Metro-North. Any worker recognizing a potential safety hazard shall correct the hazard if possible or bring the hazard to the attention of the SSO or supervisor.

In the event of a safety or health emergency at the Site, appropriate emergency measures must immediately be taken to assist those who have been injured or exposed, and to protect others from hazards. The SSO shall be immediately notified and will respond according to the seriousness of the injury. The injured employee's supervisor is responsible for completing a Record of Injury and Illness Form (OSHA 101 or equivalent), and an accident/injury report for Metro-North.

TABLE 5-1

EMERGENCY CONTACTS

For Emergencies:	
Fire/Police/Medical Emergency	(212) 340-2723
Assistant Chief Rail Traffic Controller	(212) 340-2050
Metro-North Safety Department	(212) 340-2358
ERM Health and Safety Manager (Brian Heneveld)	(516) 921-4300 (O) (516) 935-2686 (H)
Project Contacts:	
Christopher Bennett (office)	(212) 490-4420
Lazelle Williams (office)	(212) 490-4414
Geoffrey Dopsch (office)	(212) 490-4418
Geoffrey Dopsch (home)	(914) 674-9486
Howie Wiseman (office)	(516) 921-4300
Laura Truettner (office)	(212) 447-1900
Laura Truettner (home)	(212) 749-2900

Hospital Routes:

Harmon Yard

Phelps Memorial Hospital
North Broadway
North Tarrytown, NY 10591

Take Route 9 South through the town of Ossining past the Sleepy Hollow Country Club, continue to the junction of Route 117. Hospital is on right side after Route 117 junction.

5.3.1 *First Aid*

If the emergency involves personnel injuries, the local rescue squad or Emergency Medical Service (EMS) will be contacted immediately. If designated, individuals trained in first aid and or CPR who are currently certified may perform first aid treatment until the rescue squad arrives. The SSO designee should be prepared to provide the following information:

- Exact location of the emergency;
- Phone number he/she is calling from;
- Type of injury(ies);
- How many persons have been injured; and
- What assistance or first aid is being given to the injured person(s).

Do NOT hang up unless told to do so. In most cases, the emergency dispatcher will require the caller to stay on the phone.

When emergency response authorities arrive, Site personnel shall immediately inform them of the details of the situation and what type of chemicals and hazards may be encountered on the Site. If available, Material Safety Data Sheets should be given to the responders.

Individuals performing or expecting to perform first aid shall receive blood-borne pathogens training. Areas contaminated with blood shall be appropriately disinfected with approved agents. First aid kits stored on Site shall be approved by a licensed physician. The following basic procedures should be followed for assisting an injured person.

- Be calm and quickly evaluate the emergency.
- Contact EMS.

- Do not move the injured person unless necessary or instructed to do so.
- If possible, move any physical and chemical hazards away from the area of the injured person.
- Take care of the most serious injuries first; bleeding must be stopped, breathing must be restored, etc.
- Cover injured person to keep warm.

The SSO will observe and document any and all recognized symptoms of injury or illness. Table 5-2 can be utilized for reference of common symptoms that might be encountered during the field activities.

5.3.2 *Fire/Non-Medical Emergency*

Prior to the start of the field activities, Metro-North shall designate an assembly area for use by ERM and its subcontractors. Safe evacuation routes shall be designated as well and shall lead to the assembly area.

ERM and Metro-North shall designate individuals to respond to fire or other non-medical emergencies with the appropriate fire extinguishing equipment.

In the event of a fire or other non-medical emergency; two ten second blasts from a vehicle or air horn shall signal a fire or other non-medical emergency.

If an evacuation of the yard is called for, those individuals not involved in medical, fire, or other emergencies shall leave the yard through the designated evacuation routes to the designated assembly area. All ERM and Railroad supervisory personnel must account for those employees for

TABLE 5-2
REFERENCE OF COMMON SYMPTOMS

Type of Injury or Exposure	Symptom
Chemical Exposure, Ingestion or Inhalation	Symptoms of chemical exposure, ingestion or inhalation may include one or more of the following: Abnormal Pulse Behavioral changes Breathing difficulties or abnormal breathing Changes in complexion or skin color Convulsions Coordination difficulties Coughing Dizziness or drowsiness Drooling Fatigue and/or weakness Irritation of eyes, nose, respiratory tract, skin, throat, mouth, or lips Headache Itching Light-headedness Nausea/vomiting Skin irritation or rash Sneezing Sweating Tearing Tightness in the chest Unconsciousness
Heat Stroke	Signs and symptoms of heat stroke are hot, red skin; very small pupils; and very high body temperature - sometimes as high as 105 degrees. If the victim was sweating from heavy Work or exercise, his or her skin may be wet; otherwise, it will feel dry.
Heat Exhaustion	The usual signs and symptoms of heat exhaustion are cool, pale, and moist skin; heavy sweating; dilated pupils, headache, nausea; dizziness; and vomiting. Body temperature will be nearly normal.

which they are responsible. Missing employees shall be reported to the ERM's Yard Team Leader or SSO immediately.

Following any emergency incident, the Engineer's Project Manager will critique the response and follow up on any deficiencies noted in the critique.

5.4 *SITE COMMUNICATIONS*

Public telephones, railroad phones or mobile phones will be used as the primary means to provide on-Site to off-Site communications.

All emergency telephone numbers will be posted in vehicles used at the yards.

5.5 *SPECIAL INSTRUCTIONS FOR WORKING ON METRO-NORTH PROPERTY*

The following rules and instructions are to assist ERM-Northeast in thoroughly understanding the inherent dangers of the railroad environment. Failure to follow these safety instructions could result in equipment or property damage, serious injury, or death.

All ERM-Northeast employees will receive Metro-North's training class prior to working on Metro-North property. The SSO will be responsible at all work locations to insure compliance with the Railroad Safety Rules.

5.5.1 *Glossary*

The list below defines railroad terminology that should be studied and understood. These terms may be used in training prior to conducting work in the field.

- Track - The space between rails plus not less than 4 feet outside each rail.
- Horizontal Clearance Point - A point 10 feet from the centerline of adjacent track.
- Vertical Clearance Point - A point 22 feet and 6 inches above the top of a running rail unless otherwise authorized by Metro-North.
- Traffic envelope - The area encompassed by the vertical and horizontal clearance points.
- Obstruction - An entering of the traffic envelope, also referred as fouling.
- Occupancy - Any use of track other than direct crossing.
- Operating (LIVE) Track - Any track is to be considered an operating (LIVE) track unless notified by qualified Railroad employee.
- Right-of Way - The limits of railroad property ownership on either side of tracks.
- Use-of-Track - Obtaining permission from the proper authority at Metro-North for track occupancy.
- Conductor/Flagman - A Metro-North employee qualified on Rules of the Operating Department and qualified on the physical characteristics of the portion of the railroad involved. He is the employee qualified to protect contractor employees against the movement of trains and obtain the use of track. Each flagman will have the proper flagging equipment, up-to-date Metro-North Book of Rules, and Metro-North timetables.
- Groundman - Class "A" Employee of Metro-North's Power Department authorized to de-energize/re-energize the ground high tension power lines.

- 3rd Railman - An employee of Metro-North Power Department authorized to de-energize 3rd rail power.

- Qualified Metro-North Employees - For the purpose of these instructions, a qualified employee is a Metro-North employee (M/W foreman, conductor/flagman. etc.), qualified to remove track or tracks from service.

5.5.2 *Personal Protection Equipment*

To safely perform their duties, ERM employees will wear suitable clothing and footwear. Shoes will be of sturdy construction and proper height (minimum of six inch top preferred with a defined heel section.)

- Approved hard hats must be worn by all ERM employees while on right-of-way, in yard, shop facilities, and construction and/or work sites. Approved safety eyewear must be worn by all ERM employees while on right-of-way, in yard, shop facilities, and construction and/or work sites and in the operating control cab of a moving locomotive or train. An exclusion must be jointly approved by department head and Director of Safety.

- Metro-North Safety Department approved reflectorized vest or clothing must be worn by all ERM employees while on or about tracks and right-of-way, and in yards.

Other protective equipment such as goggles, face shields, safety belts, floatation vests, gloves and respirators shall be issued by ERM when required. Protection devices for hearing conservation may be used when determined necessary and safe to do so.

(**Note:** In addition, all ERM personnel working on Metro-North property shall comply with all regulatory standards and mandates, i.e., OSHA, NIOSH, DOL, NFPA, EPA, FRA, etc.)

5.5.3 *Possession or Use of Drinking Intoxicants and Narcotics*

- The use of intoxicants, narcotics, marijuana, amphetamines or hallucinogens or other controlled substance by ERM employees subject to duty, or their possession or use while on duty, is prohibited and is sufficient cause for dismissal. ERM employees under medication before or while on duty, must be certain that such use will not affect the safe performance of their duties.

5.5.4 *Surveying Equipment*

- Measuring tape must be non-metallic to avoid shunting the signal system electric circuits. This will occur when a metallic object is laid across the top of two rails of any track.

- Electrically rated fiber glass elevation rods are to be used to avoid injury in the event contact is made with energized catenary or signal/communication lines. Elevations of catenary wires must be obtained by, or under direct supervision of, a qualified Metro-North Class "A" groundman.

5.5.5 *Horseplay or Fighting*

- ERM employees must not engage in scuffling, horseplay or practical jokes, either on or off duty on Metro-North property.

5.5.6 *Protection Against Moving Trains*

Prior to the beginning of work, it must be determined by an authorized Metro-North personnel whether the tracks near the area of work must be taken out of service.

The following conditions normally require track to be taken out-of-service:

- Work requiring that any machinery, equipment, or personnel would foul any track.

- Any machinery, equipment, or personnel which occupies the traffic envelope or is standing within 10 feet of the centerline of an adjacent track.

- Any unsecured materials stored closer than 20 feet of the centerline of any track.

- Boom-equipped construction machinery where the boom, loads, leads for pile driving, etc. may be accidentally swung into the track area or affect electrical transmission systems, electrification wires, signal-systems power lines, electrical equipment, or communication wires.

- Excavations under or adjacent to operating tracks, where in the opinion of a qualified Metro-North employee, the stability of tracks may be affected. Excavations shall be fenced, shored up, illuminated, or otherwise protected as directed by a qualified Metro-North representative.

- Any other conditions, circumstances, or situation that may present in the opinion of a qualified Metro-North employee danger to the safe movement of trains.

5.5.7 *Walking*

- When going to or from work locations ERM employees must walk, not run, keeping hands out of pockets and using established paths or routes. They must be alert to avoid tripping and slipping hazards and walk around, not jump across, excavations, holes, or open pits. If practicable, remove tripping or slipping hazard from path, walkway, platform, or work area; otherwise, promptly inform immediate supervisor of its nature and location.

- ERM employees must use designated route, path, or cross-walk to or from yard office, parking lot, station, shop, or other work location.

- While walking or working in poorly lit area (tunnel, etc.) have sufficient light to permit moving about and performing work safely.

- If necessary to look away from direction in which walking, stop while doing so.

- ERM employees must use a plastic flashlight or lantern when conditions, such as passing through tunnels or poorly lit areas exist.

The use of a flashlight or lantern with metal case is prohibited when working near electricity.

- If necessary to use surface made slippery by weather or other conditions, clean, if practicable, and/or scatter salt, sand, calcium chloride, or other suitable material.

5.5.8 *On or About Track*

- Only walk on tracks or cross tracks when necessary, and when accompanied by or with permission from a qualified Metro-North employee.
- ERM employees must not enter track unless it is necessary in performance of their duty.
- The possession of an umbrella on or about tracks is prohibited.
- In tunnel where side clearance is limited and no manholes or other places of safety are provided, arrangements for use of track and protection against approaching trains must be made.
- Keep clear of standing train, self-propelled vehicles and machinery, or other wheeled equipment.
- ERM employees must not cross tracks at a point less than 15 feet from standing locomotives and cars.
- Never pass under, over or between standing train or standing self-propelled equipment.
- ERM employees are prohibited from sitting, stepping, standing, or walking on rail, frog, switch, interlocking machinery, 3rd rail, or other such parts of track structure unless specifically required to do so in the performance of their duties.
- Keep as far as practicable from passing trains. If in confined place, secure loose clothing, large or long coat, and if possible, maintain handhold until train has passed.
- Do not rest any object on shoulder while close to moving train.

- Expect equipment to move on any track, in either direction, at any time. ERM employees must look in both directions and have permission from a qualified Metro-North employee before:

  - Fouling track.
  - Crossing track.
  - Going between or around the end of equipment or structure.
  - Moving out from between or under equipment or structure.
  - Getting on or off equipment.
  - Performing any other applicable operation.

- When crossing tracks have permission from a qualified Metro-North employee. Always use approved walkway when available; otherwise take the shortest safe route after looking in both directions. If more than one track is to be crossed, stop and look before crossing each track.

- Jumping from truck, car platform, or other elevated location is prohibited. If necessary to descend without the use of ladder or steps:

  - Observe ground or floor conditions.
  - Avoid holes, slippery spots, or obstructions.
  - When possible, maintain handhold.

  - Where ladder, scaffold, trestle, or other such work facility is located where it is likely to collide with persons, self-propelled or other equipment or machinery, or highway vehicle, it must be protected by:

    - Surrounding with suitable guard at least 10 feet from such obstruction, properly marked and, if necessary, illuminated.

    - Stationing an ERM employee at the site equipped with appropriate warning means.

      NOTE: <u>REMEMBER:</u> WHEN IT CAN BE AVOIDED ERM EMPLOYEES MUST NOT RELY ON THE WATCHFULNESS OF OTHERS; THEY MUST PROVIDE FOR THEIR OWN SAFETY.

    - Walk through steam, smoke or other such vapor or substance only when it does not obscure the view of the walking area.

- **When required by a conductor/flagman or other qualified Metro-North employee to vacate tracks, ERM employees must comply immediately.**

5.5.9 *Third (3rd) Rail Electric Systems*

- The 3rd rail is divided into sections and the power supply is controlled by circuit breakers and sectionalize switches. Third (3rd) rail is normally energized, (live) at 750 volts dc.

- Avoid stepping, sitting or walking upon or brushing against the 3rd rail. While the energized rail is protected by a cover their is always a chance of shocks because of the presence of water, brake shoe dust, derangement or imperfection of the cover.

- When a section of 3rd rail has been de-energized the Power Supervisor must confer with the Train Dispatcher, Mechanical Supervisor or Yardmaster so that proper orders or instructions may be issued. To avoid bridging, electric traction equipment may not run into or out of such de-energized sections.

5.5.10 *Working in Electrified Territory*

- When used on or near tracks equipped with 3rd rail, the following tools must be insulated with approved material: claw bar, lining bar, jack bar, tie, timber, rail tongs, speed and track wrenches, and rail fork. Insulation should be inspected before each use to insure it is not cut, gouged, split, or otherwise ineffective.

- NOTE: This rule also includes any ERM tools used on or near tracks equipped with 3rd rail.

- Before any work is started, the 3rd railman must indicate to ERM, the structure or portion of the structure on which work may be performed.

regulatory programs for underground storage tanks containing "regulated substances." Regulated substances are defined under RCRA section 9001(2) as (1) petroleum and (2) hazardous substances listed under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), excluding hazardous wastes regulated under subtitle C of RCRA.

Except as discussed below, today's action will change the regulatory status of TC wastes that were previously subject to RCRA subtitle I. Because these wastes will be RCRA hazardous wastes, they are excluded from regulation under subtitle I (see 40 CFR part 280.10(b)(1)). For this reason, underground storage tanks that contain TC wastes will be subject to the subtitle C tank requirements rather than those promulgated under subtitle I.

b. Deferral for Petroleum-Contaminated Media and Debris Subject to Part 280 Corrective Action Requirements. As part of its underground storage tank (UST) program, the Agency has recently promulgated regulations which address releases from USTs containing petroleum (see 53 FR 37082, September 23, 1988 and 53 FR 43322, October 26, 1988). Among other requirements, these rules require petroleum UST owners and operators to install leak detection, to report leaks from their tanks and piping, to undertake corrective action to address such releases, and to demonstrate financial assurance for corrective action and third party liability resulting from such releases. These requirements started going into effect in December, 1988, and the Agency estimates that over the next few years more than 300,000 petroleum UST releases will be discovered and be subject to the subtitle I corrective action requirements. In addition, the Agency has, through cooperative agreements, provided funding to states from the Leaking Underground Storage Tank (LUST) Trust Fund under RCRA to undertake the necessary response actions where petroleum UST owners and operators are unable or unwilling to do so. Hundreds of petroleum UST cleanups have been initiated to date under this program.

As noted in the preamble to the final UST rules, due to the large regulated community affected by the UST regulations, the UST program is based on self-implementing requirements and is highly dependent upon voluntary compliance to attain the environmental performance objectives of the program. However, because petroleum contains several of the hazardous constituents for which regulatory levels are being established today (e.g., benzene) some of the petroleum-contaminated media and debris may exhibit the Toxicity Characteristic under today's rule. While the amount and type of media and debris that may exhibit the characteristic at any particular UST site will depend upon the petroleum product, soil type, and the size of the release, it is likely that many sites where petroleum UST releases have occurred will contain some media that exhibits the Toxicity Characteristic. The management of any such media and debris would be subject to subtitle C requirements for hazardous waste management.

The Agency has insufficient information concerning the full impact of this rule on UST cleanups, but the information available to date suggests that the impact may be severe in terms of the administrative feasibility of both the subtitle C and subtitle I programs. Thus, the Agency has decided to defer a final decision on the application of the TC to media and debris contaminated with petroleum from USTs subject to the part 280 requirements. The application of today's rule to these cleanups will be delayed while the Agency evaluates the extent and nature of this impact and alternative administrative mechanisms for implementing the UST cleanups in accordance with subtitle C requirements. The Agency believes that the UST regulations governing cleanups at these sites will be adequate in the interim to protect human health and the environment.

The deferral of a final decision concerning application of this rule to UST cleanups is necessary for several reasons. First, while the actual number of sites and amount of media and debris at each site that would exhibit the toxicity characteristic under today's rule is unclear, based on a preliminary assessment, the number and amount could be extremely high. As noted above, EPA expects hundreds of thousands of UST releases to be uncovered in the next few years. Subjecting each of these sites to subtitle C requirements could overwhelm the hazardous waste permitting program and the capacity of existing hazardous waste treatment, storage, and disposal facilities. Imposition of the subtitle C requirements is also likely to delay cleanups significantly and severely discourage the self-monitoring and voluntary reporting essential to implementation of the UST program. Moreover, the UST cleanup activities involving the most contaminated media and debris are also likely to involve free product recovery. Free product recovery would not be subject to subtitle C requirements because the material being recovered is not a waste.

Because of the uncertainties of the impacts on the UST cleanups as a result of this rule, including the amount of contaminated media that would become hazardous waste and the type of management feasible and appropriate for such waste (i.e., on-site treatment, off-site disposal), EPA cannot determine whether the application of this rule to these cleanups will have the severe consequences on implementation of these RCRA programs that preliminary information suggests. Also, because this issue did not come to the Agency's attention until late in the development of this rulemaking, the Agency has not had an opportunity to obtain public input on this issue, the implications of the subtitle C requirements when applied to UST cleanups, or any alternative regulatory mechanisms to make feasible the implementation of UST cleanups while meeting subtitle C hazardous waste requirements. Thus, the Agency believes that further evaluation of the impacts of applying the TC to soils and ground water contaminated by petroleum from USTs and subject to the subtitle I program is necessary in order to determine whether an exemption for such materials is warranted or whether additional regulatory or administrative changes can or should be made in order to make the application of the TC to UST cleanups feasible.

In order to make a final decision concerning the applicability of this rule to UST sites, the Agency intends to undertake several activities. First, the Agency will attempt to more specifically define the impact of the TC through studies of petroleum UST sites, focusing upon the potential hazard from these sites. More specifically, the Agency will study the characteristics of UST sites (number of UST sites by media type, volumes of media and debris typically removed, fraction of this media and debris that exhibits the TC, if any, etc.), current practices and requirements for management of these media and debris, and how contaminated media and debris from these sites are managed under the new subtitle I state programs. As currently envisioned, these studies will include: (1) A survey of tank vendors, contractors, and others knowledgeable about UST site characteristics and contaminated media and debris management practices; (2) a survey of current state and local programs; and (3) a sampling program conducted in conjunction with one or

New York State Department of Environmental Conservation
Division of Spills Management
50 Wolf Road
Albany, New York 12233-3750
Telephone: (518) 457-9412
FAX: (518) 457-9210

EARTH DAY 25 1995 ENVIRONMENTAL PARTNERS

MICHAEL ZAGATA
COMMISSIONER

DIVISION OF SPILLS MANAGEMENT

TO: AL KLaus

FROM: FRANK PEDUTO

DATE: 11/1

NUMBER OF PAGES: 1 + cover sheet

MESSAGE:

FOR VERIFICATION
OR PROBLEMS CALL: _____ At (518) 457-_____

Our receiving telecopier for the Division of Spills Management is (518) 457-9210.

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
21 South Putt Corners Road, New Paltz, NY 12561-1696
(914) 256-3136 FAX (914) 255-3414

12/1/95 ar

Michael D. Zagata
Commissioner

MEMORANDUM

To: Norman Nosenchuck, Director, Division of Solid and Hazardous Materials
From: Rod Aldrich, Regional Hazardous Materials Engineer

Re: TCLP and STARS

Date: November 24, 1995

As requested by you during the Bi-weekly Teleconference - November 21, 1995, I suggest that you contact the Division of Spills Management, or its current incarnation, regarding their STARS Memo #1 that was published in August 1992. In the last paragraph of page 3 of Appendix A, the Memo states that "Until the DEC adopts the TC Rule, waste generators must comply with both the EPA and DEC waste regulations." Of course you know that the TC rule has been adopted by the Department.

Also, I request that your staff comment on the following related issues:

- When a petroleum contaminated soil which is a potential hazardous waste (any such soil excavated from a site **not** subject to 40 CFR Part 280) is excavated after a spill, do the hazardous waste regulations allow the soil be placed over plastic sheets on the ground and covered by plastic sheets, before sampling, analysis, and a waste determination has been done?

- How soon should sampling be done of a petroleum contaminated soil in order to make a hazardous waste determination?

- Can the benzene in petroleum contaminated soil volatilize rapidly enough, that during the excavation, filling of roll-off boxes or other containers, and transportation of the covered containers, the soil may be non-hazardous by the time it reaches the disposal or treatment facility? If so, will this cause resentment in responsible parties who have to ship a contaminated soil for hazardous waste treatment and disposal when it may not really be needed?

Call me at 914-256-3136, if you have any questions.

RLA/rla

cc: C. Manfredi
A. Klauss
P. Doshna
Captain D. Egelston
Lt. W. Griesbeck

C:\OFFICE\WPWIN\WPDOCS\MISC\STARS.WPD

FAXED 11/29/95 3:00 pm

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York 12233-7251
Division of Solid & Hazardous Materials
Bureau of Material Storage, Combustion & Regulation
(518) 457-9696 FAX: (518) 485-8769

Michael O. Zagata
Commissioner

M E M O R A N D U M

TO: Rod Aldrich, Region 3

FROM: William A. Yeman, Technical Determination Section

SUBJECT: Spilled Petroleum Products

DATE: OCT 3 1 1995

Your memo of October 30 asked whether we had sufficient knowledge of petroleum products to establish, without testing, that soils contaminated with some of those products are non-hazardous.

Unfortunately, we do not have this knowledge for petroleum products, and must rely on the product manufacturers to provide this information (benzene content is the principal issue) as a service to their customers. Such information is sometimes included on the MSDS. (Except for some of the more obvious petroleum products such as motor oil, even if we had such knowledge we would be reluctant to make "across-the-board" determinations that a particular petroleum product is non-hazardous (when spilled) because its character might vary from one production run to the next or from one crude oil source to another. It's best to leave the burden on the generator so that he/she is held accountable for the determination, not DEC.)

On the related issue raised in your memo of when a generator can use knowledge to make the required 372.2(a)(2)(iii) hazardous waste determination for the petroleum spill wastes, a generator can always use knowledge in lieu of testing and doesn't need to meet some sort of "sufficiency test," although there has to be some basis for that knowledge. The violations for a generator determining that a hazardous waste is non-hazardous come about from not having managed it properly (i.e., improper label, no manifest, etc etc). If there were a sufficiency test to determine if the generator had adequate knowledge to make a 372.2(a)(2)(iii)(b) hazardous waste determination, a generator not having a waste that was hazardous could nonetheless be in violation of the hazardous waste regulations simply because his

knowledge was deemed to be "insufficient." I recognize that DEC does not have adequate funds to test very many waste streams and that we therefore need to rely on lab results paid for by the generator or the generator's "knowledge." However, this shortage of funds must not cause us to find "sufficiency" requirements in 372.2(a)(2)(iii) or 262.11(c) that aren't there.

One other item mentioned in your memo needs to be addressed. Contaminated soil becomes subject to the hazardous waste regulations when it is excavated. If the soil is hazardous *at the time of excavation*, its placement in waste piles (whether on plastic or not) is a violation of the LDRs[1]. Also, unless the "immediate response" exemption of 373-1.1(d)(1)(xiii) applies, a permit would be needed for storing/treating in a waste pile. As discussed, 371.1(e)(2)(x) [known as the "UST exemption"] excludes some contaminated soils from the definition of hazardous waste but certainly does not exclude all contaminated soils.

[1]The issue of waste piles and LDR compliance was addressed at length in an April 26 meeting we had here with Al Klauss and Al Fuchs (and others).

New York State Department of Environmental Conservation
Division of Hazardous Substances Regulation, Region 3
21 South Putt Corners Road, New Paltz, NY 12561-1696
914-256-3000

Michael D. Zagata
Commissioner

MEMORANDUM

TO: Bill Yeman, Central Office
FROM: Rod Aldrich, Regional Hazardous Materials Engineer
SUBJECT: Petroleum Spills
DATE: October 30, 1995

Our regional spills staff are involved with spills of various petroleum products, sometimes resulting from transport and other times from tank removals, etc. In the process of remediating these spills, petroleum contaminated soil is often excavated and left in piles that are on and under plastic.

Peter Doshna, the Regional Spills Engineer, has asked me what they should be telling the responsible parties regarding these petroleum contaminated soils and regarding their obligation to make a hazardous waste determination.

I know that everyone who generates a waste is obligated to make a hazardous waste determination. I wonder if generator knowledge could be used to make their determination in certain cases. Obviously, a wide range of petroleum materials can be spilled, such as: different grades of oil, kerosene, gasoline, jet fuel, etc.

Do you have enough familiarity with these materials to advise us, that by generator knowledge, certain of these contaminated soils are almost certainly not hazardous waste? Personally, I wonder if new oils, that do not contain waste oils, would not have enough of any constituent that would cause a waste to be a hazardous waste by the TCLP test. However, I suspect that gasoline contaminated soils might be hazardous for ignitability, or benzene content in the TCLP test.

Please tell me what is the best advice that we can give these regulated parties regarding these wastes and whether they have to conduct testing to determine if they are hazardous wastes.

RA/lk

cc: A. Klauss
P. Doshna
T. Shovlin

15 (12-75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Regional Spill Supervisors, Region 1, 2, 3, 4, 5, 6, 7, 8 and 9
FROM: Tom Quinn, Director, Bureau of Spill Prevention and Response
SUBJECT: **NEW TC RULE EXEMPTION**

DATE: April 22, 1991

EPA has promulgated another exemption to the Toxicity Characteristic (TC) Rule. The new exemption, effective March 25, 1991, exempts petroleum refineries, marketing terminals and bulk plants only. We expect very little impact to the programs as a result of this change.

These types of facilities **are only exempt**, however, for the recovery of free phase hydrocarbon (free product). The free product extracted from the recovery wells will not be subject to the rule.

The exemption **does not apply** to dissolved hydrocarbon recovery or contaminated soils. It also does not apply to infiltration galleries.

EPA is expected to respond to the New York State petition requesting a much broader exemption within the next few months. As it stands now **UST sites are still exempt** as originally promulgated under the Rule and all previous TC Rule guidance is still in effect.

If you have any of these facilities in your region undergoing remediation activities and have any questions regarding the application of the TC Rule, call Frank Peduto at (518)457-2462.

cc: Bob Hampston
Tom Plesnarski
Frank Peduto
Regional Spill Engineers, Region 1, 2, 3, 4, 5, 6, 7, 8 and 9

TQ/FP/ts

Division of Hazardous Waste Remediation
&
Division of Spills Management

Comparison of Written Guidance Documents

May 14, 1996

4023	None	Citizen Participation	DHWR has to comply with regulation but common sense says both programs should be working under common guidance for citizen participation.
4024	?	NYSDOH Notification	
4027	Spill Manual	Assistance for Public/Private Water Supplies	Criteria should be similar.
4029	?	Role of Technology Section	Both DHWR & DSM have Technology Sections
4032	?	Disposal of Drill Cuttings	Applicable to both programs as guidance
4041	?	Releasing Sampling Data, Findings and Recommendations	Applicable to both programs
4042 & 4048	Spill Manual	Interim Remedial Measures	Will DSM be handling more of these?
4046	STARS Memo #1	Determination of Soil Cleanup Objectives and Cleanup Levels	Probably the number 1 priority to reconcile.
DHWR Number	DSM Reference	Title	Comments
4050	Spill Manual	Payment Review Process	
4053		Obtaining Property Access for Investigation, Design, Remediation and Monitoring/Maintenance	
4056	Spill Manual	Remedial Action by PRPs	Requires a level of QA/QC for construction.

Division of Hazardous Waste Remediation
&
Division of Spills Management

Comparison of Written Guidance Documents

May 14, 1996

DHWR Number	DSM Reference	Title	Comments
4002	?	Preparation of Annual Short List of Prequalified Consultants	
4003	?	Insurance Requirements for Consultants and Construction Contracts	
4006	?	Consultant Overhead Rates and Multipliers	
4008	Spill Manual 1.4-1	Phase II Investigation Oversight Guidance/ Site Investigation Procedures	
4011	?	Contractor Oversight Guidance	Could O&D Memo #88-26 apply to both programs?
4013	?	Emergency Hazardous Waste Drum Removal/Surficial Cleanup Procedures	Will DSM take over this function at the regional level?
4014 & 4045	?	Protocol Between DHWR & DEE Enforcement Referrals	DSM has some internal policy on ISR referrals to AGO.
4015	?	Policy Regarding Alteration of Groundwater Samples for Metals Analysis	Policy should apply to both programs.
DHWR Number	DSM Reference	Title	Comments
4016	Various Internal Memos	Health & Safety Training	Should be acting under common guidance.
4020	?	Guidelines for Responding to FOIL Requests	Should be common to both programs.

EXHIBIT 1

HEALTH AND SAFETY PLAN REVIEW RECORD

Metro-North Railroad Company

I have read the Health and Safety Control Plan for the Site Investigation and Remediation Study at Harmon Railroad Yard and have been briefed on the nature, level, and degree of exposure likely as a result of participation in this Project. I agree to conform to all the requirements of the Health and Safety Plan.

_____
Employee Signature

_____ _____
Name Date

_____
Project Manager Signature

_____ _____
Name Date

EXHIBIT 2

CONTRACTOR OCCUPATIONAL HEALTH AND SAFETY

CERTIFICATION

Project: _____

Contractor: _____

1. Contractor certifies that the following personnel to be employed during these environmental study activities have met the following requirements of the OSHA Hazardous Waste Operations Standard (29 CFR 1910.120) and other applicable OSHA standards. (Indicate date below.)

Contractor Personnel	Medical Examination	Training Certification	Respirator

2. Contractor certifies that it has received a copy of the Health and Safety Plan and will ensure that its employees are informed and will comply with its requirements.

3. Contractor further certifies that is has read and understands and will comply with all provisions of its contractual agreement with ERM.

Signed: _____

Date: _____

EXHIBIT 3

FIELD MEDICAL DATA SHEET

Name:_____ Phone:_____

Address:_____

Date of Birth:_____ Height:_____ Weight:_____

Allergies:_____

Particular Sensitivities:_____

Do you wear contact lenses?:____
NOTE: Contact lenses are not permitted on-site.

List exposures to hazardous chemicals, if any and resultant illness or symptoms:

_____

List Medications you presently use:_____

List any other Medical Restrictions:_____

Special Medical, Fire or Incident Response Training:_____

_____

Name, address and phone number of personal physician:_____

_____

Nearest Relative:_____ Phone:_____

_____ _____
Employee Signature Date