

915022/915138

REMEDIAL ACTION IMPLEMENTATION REPORT

ERNST STEEL SITE

1728 AND 1746 WALDEN AVENUE
CHEEKTOWAGA, NEW YORK

(NYSDEC Site Number 915022)

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February 199⁷~~8~~

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REMEDIAL ACTION IMPLEMENTATION REPORT OVERVIEW & ORGANIZATION

The New York State Department of Environmental Conservation and 1746 Walden, Inc. entered into an Order on Consent, Index # B9-0372-91-05, effective July 27, 1995 (Appendix A). 1746 Walden, Inc. agreed to conduct certain interim remedial measures (IRM) on portions of a property that is located at 1746 Walden Avenue, Cheektowaga, New York, which had been previously designated as an inactive hazardous waste site, Ernst Steel site, NYSDEC Site No. 915022. This listed site also included the northeast portion of the adjacent property which is located at 1728 Walden Avenue, Cheektowaga, New York. This northeast portion of 1728 Walden Avenue is referred to as the Commercial Carriers, Inc. site.

An appendix to the Order on Consent was a document prepared by Ecology and Environment, Inc. (E&E) dated June 1995 and entitled "Interim Remedial Measures, Removal Action Plan, Ernst Steel Site, Site Number 915022, Cheektowaga, New York (see Appendix B). This document described the Ernst Steel site and its history, previous investigations at 1746 Walden Avenue, and the nature and extent of contamination. In addition, the document presented the cleanup goals, the selected remedy for the contaminants and the remedial action procedures to be undertaken at 1746 Walden Avenue.

As a result of a remedial action activity, that is, excavation of unexpected quantities of contaminated fill/soil, 1746 Walden, Inc. requested a modification to Interim Remedial Measures-Removal Action Plan (IRMRAP). 1746 Walden, Inc. proposed the on-site stabilization of the contaminated fill/soil at 1746 Walden Avenue for off-site disposal at a permitted NYSDEC 6NYCRR Part 360 Solid Waste Management Facility.

Nature's Way Environmental Consultants & Contractors, Inc. (NWECC&C) prepared a work plan addressing the stabilization of the contaminated fill/soil. NWECC&C work plan was dated November 28, 1995 and entitled "Work Plan For: Environmental Site Remediation Services; To Be Performed At: Benderson Development, Inc. Property, Former Ernst Steel Site, Walden Ave., Cheektowaga, N.Y." (Appendix B). The reference to Benderson Development, Inc. in the aforementioned title should have been properly referenced as 1746 Walden, Inc.. The NWECC&C work plan was approved by the NYSDEC and incorporated as an Appendix to the Order on Consent through an Amendment to Order on Consent, Index # B9-0372-91-05, effective January 10, 1996 (Appendix A).

Concurrent with the implementation of the aforementioned work plans at 1746 Walden Avenue, 1746 Walden, Inc. acquired the adjacent property that is located at 1728 Walden Avenue, Cheektowaga, New York. As noted previously, the northeast corner of this property is also included in the listed site, NYSDEC Site No. 915022. Due to the inclusion of this portion of the acquired property, 1746 Walden Inc. elected

to proceed with remediation of the fill/soils in this area which is referred to as Commercial Carriers, Inc. site.

In a February 2, 1996 letter to Jaspal S. Walia, P.E., NYSDEC, from David P. Albers, P.E., Project Manager, E&E (Appendix B), E&E requested amending the June 1995 IRMRAP with the inclusion of remediating the contaminated fill/soils in the northeast corner of the Commercial Carriers, Inc. site. Approval of the request was received from the NYSDEC in a letter to Mr. Albers dated February 6, 1996 (Appendix B). As a result of a subsequent site meeting with the NYSDEC representative, a second amendment to the June 1995 IRMRAP was requested in a letter (Appendix B) dated June 26, 1996, to Jaspal S. Walia, P.E., NYSDEC, from Richard L. Crouch, Jr., Barron & Associates, P.C.(B&A). This second amendment was also approved by the NYSDEC.

As a result of the implementation of the above work plans and NYSDEC-approved amendments and NYSDEC's recognition of completeness of the IRM, this Remedial Action Implementation Report has been prepared for submittal to the NYSDEC. The purpose of this report is to provide the necessary information and proper documentation to demonstrate that the contaminated portions on the Ernst Steel Site have been remediated to the selected cleanup goals and no further remediation is required at the Ernst Steel Site justifying the recommended removal of the site from the New York State Registry of Inactive Hazardous Waste Disposal Sites. The report includes descriptions of IRMRAP activities, the quantity of soil removed, post excavation test results, quality assurance/quality control (QA/QC), deviations from approved work plans and addendum, air monitoring results and certification of closure.

The listed inactive hazardous waste site, Ernst Steel Site, Site No. 915022, encompassed a portion of 1746 Walden Avenue and 1728 Walden Avenue. NYSDEC-approved IRMRAP activities were implemented and completed at 1746 Walden Avenue and then at 1728 Walden Avenue. At 1746 Walden Avenue, approximately ninety percent of the performance of the IRMRAP was project managed and supervised by qualified representatives from E&E. The final ten percent of the performance of the IRMRAP was project managed and supervised by qualified representatives from B&A. The performance of the IRMRAP at 1728 Walden Avenue was project managed and supervised by qualified representatives from B&A.

For the above reasons, the following text is subdivided into Part I and Part II. The necessary information and documentation associated with the implementation of the IRM at 1746 Walden Avenue are presented in Part I. The information and documentation presented in Part I for the eastern portion of the Ernst Steel site are based on the information/documentation that B&A received from E&E, NWE&C, 1748 Walden, Inc. and NYSDEC. The information and documentation generated during the performance of IRM activities, which was project managed and supervised by B&A representatives, at 1728 Walden Avenue are presented in Part II.

PART I

ERNST STEEL SITE

(Eastern Portion at 1746 Walden Avenue)

1.0 INTRODUCTION

The eastern portion of the Ernst Steel site which encompasses approximately one acre is located at the rear of 1746 Walden Avenue in the Town of Cheektowaga, Erie County, New York (see Figures 1-1 and 1-2 in E&E's June 1995 IRMRAP, Appendix B). At the time of the performance of the IRMRAP, the eastern portion of the Ernst Steel site was bordered to the north by defunct railroad tracks, to the south by a former steel fabrication building and overhead cranes which were formerly located just north of the fabrication building, to the west by 1728 Walden Avenue which was occupied by Ryder Automotive Operations, Inc. and to the east by Galleria Drive. The property located at 1728 Walden Avenue is also referred to as the Delevan Industries or Commercial Carriers, Inc. site. Please note that for the purpose of this document, 1728 Walden Avenue will be referred to as the Commercial Carriers, Inc. site.

Based on previous investigations (refer to E&E's June 1995 IRMRAP, Appendix B), the waste at the Ernst Steel site consists of discrete pockets of soil intermixed with dried paint waste. The paint waste varied in color from red to bright orange and contained both lead and chromium. The paint waste was present in the northern portion of the site range ground surface to approximately two feet below ground surface (i.e. top of clay). Paint waste in several discrete areas adjacent to the former fabrication building, appeared to be confined to the top three inches of material.

Underlying the site and the paint wastes in the above areas is a clay deposit. The results of previous studies which were referenced or discussed in the June 1995 E&E IRMRAP, Appendix B, indicated that the clay deposit limited the vertical migration of lead to less than six inch below the top of clay.

The proposed IRM activities at 1746 Walden Avenue, the eastern portion of the Ernst Steel site, set forth in the June 1995 IRMRAP, Appendix B, in summary, consisted of the removal of visually contaminated soils and soils above a total lead concentration of 500 parts per million (ppm). The cleanup goals were developed based on the proposed development of the site as commercial (nonresidential) use. Confirmation samples were to be collected in the excavated/remediated areas and tested for total lead to confirm and document that the excavated areas were below the proposed cleanup level.

It was proposed that the excavated material would be temporarily stockpiled on site in a designated temporary staging area and placed on and covered with plastic. Upon completion of excavation activities, the stockpiled soils would be characterized for disposal. Characterization for disposal would consist of obtaining a representative number of samples from each stockpile and analyzing the samples using the toxicity characteristic leaching procedure (TCLP) for lead and TCLP for chromium. The stockpiled soils would then be transported off site in accordance with all applicable requirements. Concurrent with the on-site removal activities, the existing on-site

monitoring well would be sampled and subsequently abandoned. The IRM activities would be conducted under strict adherence to a site specific Health and Safety Plan (H&SP), Appendix B.

The overall objectives of the IRM remedial action for the eastern portion of the Ernst Steel site located at 1746 Walden Avenue are:

- Removal of contaminated soils with leachable lead and chromium above the regulatory levels.
- Removal of contaminated soils which contain total lead levels above 500 ppm.
- To eliminate, to the extent practicable, the potential for contaminated soils to impact groundwater or surface water.
- To eliminate the potential for direct contact with the public of soils containing elevated levels of lead.

2.0 ERNST STEEL IRM REMEDIAL ACTIVITIES

2.1 Site Specific Health and Safety Plan

A Health and Safety Plan (H&SP) was developed by E&E for the proposed IRM activities. A copy of E&E's H&SP is presented in Appendix B. This plan describes the procedures and protocols that were implemented during the IRM activities to ensure the health and safety of the on-site workers and the surrounding public. As part of the H&SP, air monitoring was conducted at the perimeter of the work zones for compliance with an action level of 100 micrograms/cubic meter for particulates. In otherwords, if the downwind particulate level was 100 micrograms/cubic meter greater than the upwind particulate level, dust suppression techniques would be implemented. As a result of a subsequent modification to the initial work plan, the H&SP was modified (refer to Section 2.6 for a discussion of this modification).

The results of the air monitoring for particulates performed during the IRM activities on the eastern portion of the Ernst Steel Site are presented in Appendix C. During the excavation phase of the IRM, dust suppression techniques were not required; however, some complaints were received by the NYSDEC from the McNaughton Street residents about noise and dust. It was determined that the source of these two concerns were due to the demolition of the fabrication building at the time of the excavation activities and not the excavation activities. The dust problems associated with the building were addressed by the New York State Department of Labor and the Town of Cheektowaga, New York.

In addition to the above air monitoring, daily safety meeting prior to the performance of the each day's activities were conducted and site activities were performed in Level D PPE.

2.2 Groundwater Sampling and Monitoring Well Abandonment

On July 11, 1995 a representative from B&A visited the Ernst Steel site for the purpose of obtaining a sample from a monitoring well located in the northwest corner of 1746 Walden Avenue. Prior to removing the lock from the protective casing, the integrity of the monitoring well concrete collar was inspected. The surface of the concrete collar exhibited the effects of thermal contraction and expansion; however, the integrity of the concrete collar was good. The existing protective casing lock was removed and replaced with a new lock. The integrity of the two-inch I.D. PVC well casing visible within the protective casing and the vented, PVC well cap was also good.

The static water level and depth to the bottom of the monitoring well were measured using a water level meter. The measurements from the top of the PVC casing were 7.67 feet and 21.75 feet, respectively.

In preparation of obtaining a groundwater sample from the monitoring well, approximately ten gallons of water were removed from the well using a precleaned, 1-1/2 inch I.D., PVC bailer which the B&A representative brought to the site in a sealed, plastic sleeve. Initially, the clarity of the water removed from the well was clear to slightly cloudy. As the water level in the well approached the bottom of the well, the water clarity became muddy as a result of disturbing the silt and fine to medium sand present at the bottom of the well. The evacuated water was placed into an empty 55-gallon drum located adjacent to the monitoring well. The drum was labelled with the date and approximate volume of water.

The water level in the monitoring well following the above evacuation process and prior to sampling was 13 feet below top of PVC casing. The sampling protocol followed for this sampling event was to first satisfy the water volume requirement (i.e. sample plus a duplicate) and preservation for total TAL metals, and then, satisfy the water volume requirement (i.e. sample plus a duplicate), filtration and preservation for dissolved TAL metals. The labelled sample containers were placed in a cooler and delivered under chain of custody to Waste Stream Technology, Inc. (WST) laboratories, Buffalo, New York for analysis.

The pH of the groundwater sample obtained from the monitoring well was 7.1 s.u.. The turbidity of the sample was also to be measured; however, during calibration of a LaMotte Chemical Model 2008 Turbidimeter difficulty arose in calibrating. A subsequent turbidity measurement of the sample resulted in an erroneous reading. The samples were for the most part clear with minor amounts of suspended solids.

Upon receipt of the samples, WST performed the analyses for total and dissolved TAL metals and total cyanide following United States Environmental Protection Agency procedures. The laboratory analytical and quality control results, inclusive of the specific analytical methodology are presented in Appendix D.

For discussion purposes, the analytical results presented in Appendix D were compared to groundwater standards set forth in New York State Codes, Rules and Regulations, Title 6, Chapter X, Part 703.5. Of the detected TAL metals, total iron, dissolved lead, total sodium and dissolved sodium, exceed the groundwater standard. The results of the analysis for total and dissolved lead detected only dissolved lead above the method detection limit of 0.026 ppm at a concentration of 0.028 ppm. Dissolved lead was not detected in the duplicate sample. This detected concentration of dissolved lead, which slightly exceeds the groundwater standard of 0.025 ppm, in one sample but below the method detection limit in the duplicate sample does not suggest a significant environmental concern. In addition, the exceedance of the groundwater standards for total iron and dissolved and total sodium does not suggest a significant environmental concern associated with the groundwater quality in the vicinity of the sampled monitoring well.

Following receipt and review of the aforementioned analytical data, NYSDEC concurred with the abandonment of the Ernst Steel monitoring well. On August 14, 1995, an affiliated company of B&A, *Buffalo Drilling Company, Inc. (BDC)*, mobilized a truck-mounted CME-55 drill rig, personnel and equipment to the site. B&A's senior hydrogeologist was also in attendance to oversee the decommissioning process.

The monitoring well was located in an accessible area for the truck-mounted drill rig. The area in the vicinity of the well was sparsely vegetated with field grass and small shrubs. Three intact 55-gallon drums were present in the area adjacent to the well. Two of the drums appeared to be filled with solids, possibly auger cuttings generated during installation. The third drum contained a small volume of water generated during the above sampling event. The integrity of the monitoring well's steel protective casing, lock and cement collar was good.

Prior to decommissioning the monitoring well, the lock on the protective casing was removed. The total depth of the well from the top of the PVC riser was measured and determined to be 21.8 feet. Utilizing the drill rig, the protective casing was removed. During the removal of the protective casing, the PVC riser and attached screen were also removed from the original monitoring well boring. The PVC riser and attached screen were cut into convenient lengths and wrapped in plastic and staged with the protective casing in the vicinity of the decommissioned well.

Following the removal of the steel protective casing and the PVC riser and screen, 4-1/4 inch I.D. hollow stem augers (HSA's) were advanced into the original monitoring well boring to a depth of 22 feet below ground surface. The auger cuttings resulting from overdrilling the boring were placed in a 55-gallon drum and staged in the area adjacent to the decommissioned well and labelled. During the removal of the HSA's, a cement/bentonite standard grout mixture (i.e., one 94-pound bag, Type 1 Portland Cement; 5.5 pounds of powdered bentonite; and, approximately 9 gallons of water) was tremied into the borehole from the bottom to approximately 0.5 feet below ground surface. The decommissioning of the monitoring well was completed on the same day that BDC/B&A mobilized to the site.

2.3 *Excavation/Removal Activities*

On August 15, 1995, E&E personnel, who were monitoring the H&SP compliance and providing oversight for the IRM excavation and removal activities, and Big K Trucking, Inc.'s remedial personnel mobilized to 1746 Walden Avenue. A temporary staging area for the excavated contaminated soils was constructed using a 6-mil liner, signs and fencing. The staging area was set up along the western property line of 1746 Walden Avenue with its southern boundary running in an east-west direction directly across from the southwest corner of the former fabrication buildings (E&E's Figure 2, Appendix E). The eastern boundary of the staging area was the eastern half of the

pavement west of the former fabrication building. The staging area, as necessary, was expanded to the north within the limits of the eastern boundary and 1746 Walden Avenue's western property line.

Excavation activities began in the area identified as E-2 on E&E's Figure 2, Appendix E. Excavations were performed using an excavator and placing the excavated material into dump trucks which then transported the excavated material to the lined staging area for stockpiling. At the completion of each day's activity, the stockpiles were covered with plastic. Excavation activities in the areas of E-1 through E-11 were performed between August 15 and September 15, 1995 with the excavated material being stockpiled and covered in the temporary staging area. On September 6, 1996, 66 waste piles, approximately 20-ton, waste piles, were present within the staging area. Three large stockpiles were present adjacent to and north of the former steel fabrication building. These three stockpiles were relocated to the staging area and divided into approximately 20-ton piles. On September 15, 1996, 86 stockpiles were present within the staging area.

On December 7, 1995, E&E again mobilized to the site to continue excavation activities. Nature's Way Environmental Consultants and Contractors (NWECC) were the remedial contractors. As a result of confirmation sampling and analytical results (see Section 2.4), excavation of additional contaminated soils from excavations E-1e (east) and E-2 was required. Excavation activities at these two excavations were completed December 8, 1995.

Another area of visible paint waste was identified on January 18, 1996 at the southwest corner of the former steel fabrication building. This area was designated excavation E-12 (E&E's Figure 2, Appendix E). An excavation in this area was performed on January 18 and 22, 1996 and completed on January 22, 1996.

On January 23, 1996, excavation E-10 was reentered as a result of the previous sampling and analysis of the bottom of the excavation exceeding the cleanup goals. During the removal of contaminated soils from excavation E-10 on January 25, 1996, a visual oily sheen was observed on the surface water ponding on the clay. On January 26, 1996, the sheen previously observed on the water ponding on the E-10's excavation bottom was not observed. On January 29, 1996, excavating of E-10 was resumed as a result of the confirmation sample exceeding the cleanup goal. During the excavating of E-10 on January 29, 1996, a 10-inch drainage or sewer pipe containing oily water was encountered and removed. The NYSDEC spill response group was notified. The petroleum-stained soils which were absent of visible paint waste were stockpiled on and covered with plastic north and slightly west of excavation E-10 as a result of a recommendation by the on-site NYSDEC representative.

Excavating in the northeast corner of 1728 Walden Avenue, referred to as Commercial Carriers, Inc. site, was performed on February 3, 4 and 10, 1996. The excavated soils removed from this area were transported via a dump truck to the treatment/process area at 1746 Walden Avenue for staging in stockpiles and subsequent treatment (refer to Part II of this document). Based on NYSDEC field notes, 25 dump truck loads of excavated soil were removed from the Commercial Carriers, Inc. site and transported to the treatment/process area for temporary staging and subsequent treatment, approximately 500 tons assuming 20 tons per load.

On February 22, 1996, *Barron and Associates, P.C. (B&A)* assumed the responsibility of IRM remedial action project manager and on-site supervisor. On February 27, 1996, excavating of contaminated soil at excavation E-10 was resumed. The excavation was expanded to the north and south. As agreed upon by the NYSDEC during a site meeting conducted on February 26, 1996, the excavation would be expanded to the north and south until visible paint chips were removed from this area and the NYSDEC on-site representative concurred that the excavation was complete. Also during this meeting it was agreed upon that confirmation sampling would not be required once visible paint chips were removed since the area was mostly gravel fill.

Also discussed during the February 26, 1996, meeting was the excavating of additional areas identified as excavations E-A and E-B. Excavating in the areas, E-A and E-B, was to proceed until visible paint chips were removed and the on-site NYSDEC representative concurred that the excavations were complete. Confirmation sampling would not be necessary in these two limited areas since the visible paint waste was mostly surficial and underlain and surrounded by the in-situ clay soils.

2.4 Confirmation Sampling and Analysis

In order to assess the completeness of the removal of visually contaminated waste total lead analysis were performed on samples collected from the excavated surface at the completion of the removal of the visually contaminated waste both horizontally and vertically. A grid was constructed north of the former steel fabrication building on 50-foot centers over the excavated areas E-3, 4, 5, 6, 7, 8, 9, and 11 (E&E's Figure 1 Appendix F). This grid was then subdivided in the field to 25-foot centers for confirmation sampling purposes at the grid nodes. Discrete confirmation soil samples were collected based on this 25-foot grid and/or at locations selected by the NYSDEC representative. All sample locations selected in the field were with the concurrence of the on-site NYSDEC representative.

Confirmation samples were obtained as each excavation area was completed based on visual observations. During the field work conducted by E&E between August 15 and September 15, 1995, the confirmatory analytical results indicated that remediation was completed for excavations E-1w (west), 3, 4, 5, 6, 7, 8, 9, and 11. Further remediation was required at excavations E-1e (east), 2, and 10. This

information was forwarded to the NYSDEC in a letter dated September 29, 1995 to Jaspal S. Walia, P.E., NYSDEC, from David P. Albers, P.E., E&E (Appendix F). The September 29, 1995 letter contained as attachments the tabulated analytical results and a map showing the sample points and analytical results for the excavations to the north of the former fabrication building. These same results are also presented on E&E's Figures 1 and 2, Appendix E. The laboratory analytical and quality control results for the confirmation samples are presented in Appendix G.

As a result of the confirmation samples obtained from excavations E-1e, 2, and 10 exceeding the cleanup goal for total lead, additional soils were removed from these areas (refer to Section 2.3) and a second round of confirmatory samples were obtained from each of these excavations, excluding E-2. The previous confirmation analytical results for E-2 detected total lead in the sample from the bottom of the excavation at 370 ppm; however, the sidewall confirmatory samples exceeded the cleanup goal for total lead. The contaminated soils within the sidewalls of excavation E-2 were removed to the north and south to native soils, to the west to a concrete foundation and to the east to the access road. The excavation was deemed complete after the NYSDEC on-site representative visually inspected the excavation. The analytical results for the confirmation samples obtained after excavating at E-1e and E-10 detected total lead at the following concentrations:

- Excavation E-1e - total lead @ 29 ppm
- Excavation E-10 - total lead @ 1800 ppm

Excavation E-10 required further remediation due the total lead result exceeding the cleanup goal.

As discussed in Section 2.3, three additional areas were identified as containing paint waste. These areas were designated excavations E-12, E-A and E-B. At the completion of excavation activities at E-12, confirmatory samples were obtained and based on the results of the total lead analysis (i.e., 280 ppm and 420 ppm) the excavation was deemed complete.

As a result of a meeting on February 26, 1996, it was agreed upon by the NYSDEC that upon removal of visible paint waste from excavation E-10 and inspection/approval of the excavation by the NYSDEC, the excavation could be deemed complete without obtaining confirmation samples (refer to Section 2.3). On March 8, 1996, after inspection of E-10 by Jaspal S. Walia, P.E., NYSDEC, Mr. Walia agreed that excavation E-10 was complete.

The remaining excavations E-A and E-B were inspected by Mr. Kevin Glaser on March 14, 1996 and approved as complete (refer to Section 2.3). On March 13, 1996, a field inspection was performed by the NYSDEC, as a result of the field inspection, the NYSDEC representatives agreed that, with the exception of two items, the IRM

remedial effort to remove the lead-contaminated soils/fills on the eastern portion of the Ernst Steel Site, 1746 Walden Avenue, was complete. One of the two items was continuing the removal of visible paint chips in excavations E-A and E-B (see letter from B&A to Benderson Development Company, Inc. dated March 14, 1996). Excavations E-A and E-B were completed on March 14, 1996 and inspected by Mr. Kevin Glaser, NYSDEC. Mr. Kevin Glaser, NYSDEC, concurred that excavations E-A and E-B were complete based on his inspection.

For a summary of the above confirmation sample results and resultant actions at each excavation, please refer to Table 1 on the following page.

2.5 Waste Characterization

On September 6, 1995, *Buffalo Drilling Company, Inc. (BDC)*, an affiliated company of B&A, personnel mobilized to the Ernst Steel site for the purposes of sampling 66 stockpiles of excavated soils that had been generated as a result of the areas excavated to date. The results of this sampling and analysis program are presented in Appendix I. As a result of the aforementioned sampling and analytical event of the stockpiled soils, BDC personnel returned to the Ernst Steel site on September 15, 1995 to resample the stockpiles that had exceeded the regulatory limit for TCLP (lead) and sample 22 stockpiles which had recently been relocated to the staging area (see Section 2.3). The results of this sampling and analytical event are presented in Appendix J.

As a result of these two sampling and analytical events, a determination was made that the majority of the stockpiled soils exceeded regulatory limit for TCLP (lead) of 5 ppm. The hazardous and nonhazardous stockpiles were clearly marked based on the September 6 and 15, 1995 characterization.

As a result of the high costs associated with the off-site treatment and disposal of hazardous waste piles, 1746 Walden, Inc. investigated other options as opposed to off-site treating and disposing the stockpiled soils as hazardous. In November 1995, Benderson elected to proceed with an on-site chemical stabilization for the lead contaminated soils and subsequently dispose of the treated soils in a NYSDEC 6NYCRR Part 360 Solid Waste Management Facility.

On December 13 and 14, 1995, E&E personnel sampled 36 additional stockpiles which had been generated during excavation activities since BDC sampled in September 1995. The analytical program for this sampling event consisted of analysis for total lead and when the resultant total lead concentration for a sample was in exceedance of the cleanup goal of 500 ppm, the sample was analyzed for TCLP (lead). The laboratory analytical and quality control results for these samples are presented in Appendix K. Based on these results, the 36 stockpiles were clearly marked as to hazardous and nonhazardous.

TABLE 1

**CONFIRMATION SAMPLE ANALYTICAL RESULTS
EASTERN PORTION OF THE ERNST STEEL SITE**

EXCAVATION NO.	SAMPLE I.D.	TOTAL LEAD CONCENTRATION (PPM)	RESPONSE /ACTION
# 1	E1-BE-SW E1-BE-SE	260 16,000	Remediation complete in E-1 west Further excavating required in E-1 east. On 12/7 & 12/8/95, completed additional excavating of E-1 east. Confirmation sample result for lead @ 29 ppm. Remediation complete @ E-1 east
# 2	E2-PN E2-PS E2-PE E2-BE	6,600 1,200 1,800 370	Further excavating required @ E-2. On 12/7 & 12/8/95, additional excavating was performed and completed. Since the floor of the E-2 was below cleanup goals, additional excavating was only performed on the sidewalls. The north & south sidewalls were excavated to native soils; the east & west to an access road & a foundation wall. E-2 was deemed complete after excavation to native soil and visual inspection by NYSDEC.
# 3	E3-BE	420	Remediation Complete.
# 4	E4-BE	25	Remediation Complete
# 5	E5-BE	9.9	Remediation Complete
# 6	E6-BE	82	Remediation Complete
# 7	E7-BE	17	Remediation Complete
# 8	Refer to Table 1, page I-10b		Remediation Complete
# 9	E9-BE	22	Remediation Complete

NOTES: Sample I.D. E1-BE-SW: Excavation #1 (west), sample from bottom of excavation
Sample I.D. E2-PN: Excavation #2, sample from north perimeter sidewall

TABLE 1 (continued)

**CONFIRMATION SAMPLE ANALYTICAL RESULTS
EASTERN PORTION OF THE ERNST STEEL SITE**

EXCAVATION NO.	SAMPLE I.D.	TOTAL LEAD CONCENTRATION (PPM)	RESPONSE /ACTION
# 10	E10-BE E-10B	15,000 1,800	Further excavating required. Confirmatory sample obtained at completion of additional excavating Further excavating required. Additional excavating as agreed upon by NYSDEC would be performed on the north & south ends of E-10 until the visible paint chips were removed back to the gravel fill and the NYSDEC representative visually inspects E-10 and deems complete. Upon completion of E-10, NYSDEC representative inspected E-10 on 3/8/96 and agreed E-10 complete.
# 11	S 12/200 E11-PN E11-PS	33 44 36	Remediation Complete
# 12	E12-BE	280/420	Remediation Complete
# E-A	N/A	N/A	Since this area was limited and the paint waste was mostly surficial and surrounded by native clay soil, NYSDEC directed the excavation in this area to proceed until all visible paint waste was removed and the NYSDEC after visually inspecting deemed the excavation complete. On 3/14/96, E-A deemed complete by NYSDEC.

NOTES:

N/A : Not Applicable

280/420 : Sample and duplicate sample total lead concentration.

E-11 sample results on a wet weight basis.

TABLE 1 (continued)

**CONFIRMATION SAMPLE ANALYTICAL RESULTS
EASTERN PORTION OF THE ERNST STEEL SITE
EXCAVATION #8**

SAMPLE I.D.	TOTAL LEAD CONCENTRATION
S 50/150	26*
S 50/175	20*
S 50/200	25
S 75/175	28
S 75/200	230
S 100/200	64
S 100/225	47
S 100/250	24
S 125/225	51
S 125/250	23
S 125/275	11
S 125/300	110
S 150/225	97
S 150/250	18
S 150/275	320
S 150/300	14
S 150/325	21
S 150/350	23
S 175/225	440
S 175/250	77
S 175/275	50/300
S 175/300	50
S 175/325	170
S 175/350	48
S 175/375	80
S 200/275	130
S 200/300	16
S 200/325	91
S 200/350	340
S 200/375	26
S 225/300	14
S 225/325	180
S 225/350	300
S 250/350	36

NOTES:

* : Sample results on wet weight basis

50/300 : Sample and duplicate sample total
lead concentration

2.6 *On-Site Chemical Stabilization*

Nature's Way Environmental Consultants and Contractors, Inc. (NWECC&C) and their subcontractor, Solucorp Industries Ltd. performed the on-site chemical stabilization of the lead contaminated soils. NWECC&C work plan for the stabilization process is presented in Appendix B. E&E performed overall IRM supervision and H&SP air monitoring during the on-site stabilization.

As a result of the chemical stabilization process, the original H&S plan was modified to include air monitoring for hydrogen sulfide (H_2S) which is produced during the chemical stabilization process (refer to E&E's Existing Site Safety Plan Addendum Form attached to NWECC&C work plan, Appendix B). Initially, at the beginning of the stabilization process, the H_2S action levels were established at 1 ppm above background in the work zone and 10 ppb above background at 100 feet downwind from the work zone or the property line. On January 31, 1996, the New York State Department of Health (NYSDOH) approved an action level of 50 ppb above background at 250 feet downwind from the work zone. The monitoring point of 250 feet from the work zone was selected to protect both the construction workers who constructing the Target Store and the area residences. The closest area residences were approximately 1,000 feet from the processing area.

E&E monitored for H_2S emissions using Jerome Hydrogen Sulfide Analyzers. E&E's air monitoring results for H_2S are presented in Appendix C. When the H_2S readings exceeded the established action level, the treatment process was shut down until the readings dropped below the action level and/or corrective action was taken.

Initially, during the treatment process, the H_2S readings were frequently above the action level of 10 ppb resulting in the shutting down of the process. The problem was gradually solved by modification of the process equipment. Also, as discussed above the downwind action level at 250 feet from the work zone was set at 50 ppb. The modifications to the process equipment included:

- installing a large wet scrubber system (5000 cfm) to replace the carbon filter scrubber (1000 cfm) to remove H_2S ;
- installing a new chute; and,
- making the conveyor and chute areas leak free with plastic wrap and plywood frame.

On December 18 and 19, 1995, the exclusion zone for the treatment process was established in the southern portion of the Ernst Steel site in the area of the former office building (see E&E's Figure 2, Appendix E) west of the temporary staging area. The boundaries of the exclusion zone were established using orange snow fencing and placards.

As discussed previously, the stockpiled soils were clearly marked as hazardous and nonhazardous. On December 20, 1995, NWECC began relocating individual stockpiles marked as hazardous from the staging area to a mechanical screen located in the southwest corner of treatment area. The purpose of the mechanical screen was to screen the stockpiled soils to remove material larger than 1.5 inches in diameter in preparation for treatment. The screened soil was then stockpiled in the southeastern portion of the treatment area and the material exceeding 1.5 inches in diameter were placed in a "bone" pile in the southcentral portion of the treatment area. Initially, the screening process was slow due to clumps of frozen soil exceeding 1.5 inches in diameter. A hammer mill was brought to the site on January 10, 1996 to reduce the large pieces to an acceptable size and speed up the screening operations.

Solucorp began treating the soil on January 12, 1996. The treatment process, which was set up in the northeast corner of the treatment area, involved blending the screened soil with calcium sulfide in a screw-feeder type mixer. The chemical reaction was controlled by moisture, chemical dose, and the contact time. The processed soil was placed on plastic in 100-ton piles in the front portion of the staging area, labelled and covered with plastic for subsequent testing for disposal. A total of 41 piles were processed.

During the treatment process, several problems arose. As previously discussed, H₂S emissions during treatment exceeded the action level and repeatedly required the operation to be shut down. However, modifications to the process equipment reduced the occurrence of this exceedance and associated downtime. In addition to H₂S emission problems, the process also had weather-related problems. As a result of the cold weather at the time of the treatment of the lead contaminated soils, process equipment occasionally broke down requiring downtime for repairs. The results of waste characterization of the processed soils (see Section 2.7) required the retreatment of three, approximately 100 ton piles.

On February 22, 1996, B&A replaced E&E to oversee the remaining portion of the IRM on the Ernst Steel site. At that time, B&A were unable to obtain the appropriate H₂S air monitoring equipment; hence, the treatment process could not be operated. For that reason and because of the minor amount of soil requiring treatment, 1746 Walden Inc. elected to terminate the treatment process. The unprocessed soil and the "bone" pile would be shipped off site for treatment and disposal as a hazardous waste.

2.7 Processed Soil Waste Characterization

Upon stockpiling the processed soil in the staging area, a composite sample was prepared at each stockpile. The sample was then submitted under chain-of-custody to a laboratory for TCLP (lead) analysis. Initially, NWECC was submitting the composite samples to Express Lab while the NYSDEC was submitting their split

samples to E&E laboratories. A discrepancy was noted in the results from the two laboratories. Express Lab results for the samples submitted detected TCLP (lead) below the regulatory limit of 5 ppm while several of the NYSDEC split samples tested by E&E resulted in TCLP (lead) above the regulatory limit.

The NYSDEC reviewed the testing procedures at both labs and noted some inconsistencies during preparation of the samples. The inconsistencies were standardized and the NYSDEC requested NWE&C to submit the remaining processed soil composite to E&E and to resample the stockpiles in which the previous TCLP (lead) results differed between the laboratories. The processed soil laboratory analytical and quality control results are presented in Appendix L. A total of 42 stockpiles were sampled.

As a result of differences in laboratory results, potentially hazardous material was inadvertently sent to Modern Landfill. Four trucks returned to the site with their load and the material was again staged on site for sampling. These soils were from stockpile number 25. Two loads were off loaded at Modern Landfill but were segregated and sampled on February 19, 1996 by NWE&C with a NYSDEC representative present. These soils were from stockpile number 22. The results for TCLP (lead), 4.8 ppm and 0.92 ppm, for the two February 19, 1996 samples obtained at Modern Landfill were below the regulatory limit of 5 ppm (see Appendix L-2).

2.8 Disposal of Non-Hazardous and Hazardous Material

Based on the analytical results generated during BDC sampling efforts of September 6 and 15, 1995 and E&E sampling on December 13 and 14, 1995, non-hazardous/non processed soils were transported off site by Modern Disposal, Inc., Model City, New York for disposal at Modern Landfill, Model City, New York. These soils were removed from the site on January 2, 3, 4, 5, 8, 10, 11, 12 and 16, 1996. The total tonnage of the soil removed from the site during this time frame was 1,427.99 tons. On January 25, 1996, the removal of the processed soils from the site was initiated and subsequently completed on February 27, 1996. The non-hazardous processed soils were also transported by Modern Disposal, Inc. to Modern Landfill. The total tonnage of the processed soil removed from the site was 3,400.2 tons. On February 28, 76.56 tons of non-hazardous/non-processed soils were transported from the site by Modern Disposal, Inc. to Modern Landfill. These soils were from excavation E-10 and had been analyzed for TCLP (lead) and determined to be below the regulatory level. The results of the sampling of excavation 10 stockpiled soils are presented in Appendix L. The Non-Hazardous Material Manifests and weight slips for the above shipments are presented in Appendix M except for Manifest No. T-35 dated February 6, 1996. Although the manifest is not available, the truck and tonnage does appear on Modern Landfill's print out of shipments received (see computer printout in Appendix M).

As a result of 1746 Walden Inc.'s decision to terminate the treatment process on February 22, 1996 (Section 2.6), non-processed, hazardous soils stockpiled on site were transported off site by Hazmat Environmental Group, Inc., Buffalo, New York to CWM Chemical Services, Inc., Model City, New York for treatment and disposal.

Thirty-eight loads for a total tonnage of 706.26 tons were transported off-site between March 6, 1996 and March 13, 1996. The Hazardous Waste Manifests for these shipments are presented in Appendix N.

During the above off-site shipment of both non-hazardous and hazardous soils, the loading of the trucks was performed in the southern portion of the former treatment area. Plastic sheeting was placed on the ground and the tandems and/or trailers were backed on to the plastic sheeting. Precautions were taken to minimize the transfer of soil off site via the truck tires. Loading of the tandems and/or trailers was performed using a loader. Air monitoring for particulates was performed up and down wind of the loading area. The results of this monitoring, which resulted in no exceedances, are presented in Appendix C.

2.9 Demobilization from the Ernst Steel Site (Eastern Portion)

Upon the completion of the off-site removal of the stockpiled excavated soils, the staging and treatment areas were scraped and the mixture of snow and soils generated from this final scrapping were staged on and covered with plastic in the center of the former treatment area. On March 13, 1996, representatives from the NYSDEC, Benderson Development Company, NWECC and B&A met at the site to perform a field inspection. During this field inspection, it was agreed upon that the IRM for the eastern portion of the Ernst Steel site was complete except for two items. The two items were:

- The mixture of snow and soil generated during the final scrapping would be moved from the eastern portion of the Ernst Steel site to the western portion of the Ernst Steel site in the northeast corner of 1728 Walden Avenue, and staged on and covered with plastic. Lead contaminated soils were to be removed from this area at a later date and at that time the stockpiled soils would be addressed (refer to Part II of this document).

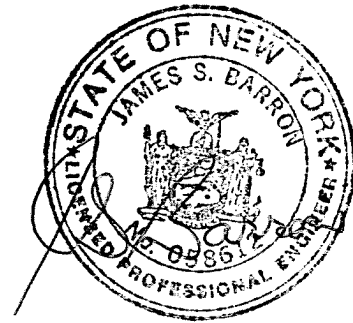
- Two discrete areas west of the treatment areas, excavations E-A and E-B, required further remediation to remove visible paint chips from these areas. This material would be combined/stockpiled with the material described above.

On March 14, 1996, the above items were addressed by NWE&C. Upon completion of the above two items, representatives from NYSDEC and B&A performed a final site inspection. During the final site inspection, it was agreed that the final two items had been addressed; hence, the IRMRAP and modifications were complete for the eastern portion of the Ernst Steel site (see Appendix H).

3.0 *Certificate of Closure*

Based solely on the information and documentation received from E&E, NWEC&C and 1746 Walden, Inc. that is set forth in Part I of this document, the IRMRAP, inclusive of the H&SP, and subsequent work plan and H&SP modifications for the eastern portion of the Ernst Steel site, 1746 Walden Avenue, have been satisfactorily completed. The IRM has been conducted and completed consistent with the National Contingency Plan (40 CFR Part 300).

The information and documentation presented in Part I demonstrate that the contaminated areas in the eastern portion of the Ernst Steel site have been remediated to the selected cleanup goals; hence, no further remediation is required to be undertaken within the eastern portion of the Ernst Steel site. As a result of completing the IRMRAP and its modifications and recommending no further remediation be required, it is recommended that the eastern portion of the Ernst Steel site, 1746 Walden Avenue, Cheektowaga, New York be removed from the New York State Registry of Inactive Hazardous Waste Disposal Sites.



2-10-99

PART II

ERNST STEEL SITE

(Western Portion at 1728 Walden Avenue)

1.0 INTRODUCTION

The northeast portion of the Commercial Carriers, Inc. site located at 1728 Walden Avenue in the Town of Cheektowaga, Erie County, New York (Figure 1, Appendix O) was included as a portion of the listed inactive hazardous waste site, NYSDEC Site No. 915022, the Ernst Steel site. Concurrent with the implementation of the IRMRAP on the adjacent portion of the Ernst Steel site at 1746 Walden Avenue (refer to Part I of this document), 1746 Walden Inc. acquired the property at 1728 Walden Avenue. Following acquisition of the property, 1746 Walden Inc. requested E&E to develop and submit an amendment to their June 1995 IRMRAP for the purpose of remediating soils with similar contamination (i.e., lead) as was encountered on the adjacent portion of the Ernst Steel site. In a letter dated February 2, 1996, to Jaspal S. Walia, P.E., NYSDEC, from David P. Albers, P.E., E&E (Appendix B), the work plan amendment for the northern portion of the Commercial Carriers, Inc. site was submitted. Approval of the amendment to the IRMRAP was received from the NYSDEC in a letter to Mr. Albers dated February 6, 1996.

The area of concern on the Commercial Carriers, Inc. site was delineated during a previous Phase II Environmental Site Assessment (ESA) conducted by Blasland, Bouck & Lee, Inc.(BB&L). This Phase II document is presently being obtained from Commercial Carriers, Inc. by 1746 Walden Inc.. Upon receipt of the document, BB&L's Phase II ESA report will be submitted as a separate document/addendum to this Remedial Action Implementation Report.

Based on the Phase II test pit excavations, sampling and analytical results, potential hazardous and non-hazardous soils were delineated by BB&L on a not-to-scale map which is attached to the aforementioned E&E work plan amendment. E&E proposed to excavate in February 1996 the area that potentially contained hazardous soils. The excavated soils would be transported to the treatment/process area on the portion of the Ernst Steel site that was located at 1746 Walden Avenue for subsequent chemical stabilization prior to disposal. The excavation would then be backfilled with clean material so that the area could be used for truck and trailer storage by the existing site tenant at the time of the excavation.

E&E proposed that the remaining soils, which were potentially non-hazardous, but in exceedance of the cleanup goals for the site (i.e. lead @ 500 ppm, chromium @ 40 ppm), would be removed after the existing tenant vacated the site in the Spring of 1996. All aspects of the existing H&SP submitted for the eastern portion of the Ernst Steel site would remain in affect during the performance of the cleanup on the Commercial Carrier, Inc. site.

2.0 COMMERCIAL CARRIERS, INC. IRM REMEDIAL ACTIVITIES

2.1 Site Specific Health and Safety Plan

A site specific Health and Safety Plan was developed by E&E for the proposed IRM activities on the adjacent portion of the Ernst Steel site that was located at 1746 Walden Avenue. This site specific Health and Safety Plan was followed during the IRM activities on the Commercial Carriers, Inc. site, the western portion of the Ernst Steel site. A copy of E&E's H&SP is presented in Appendix B. This plan describes the procedures and protocols that were implemented during the IRM activities to ensure the health and safety of the on-site workers and the surrounding public. As part of the H&SP, air monitoring was conducted at the perimeter of the work zones for compliance with an action level of 100 micrograms/cubic meter for particulates. In other words, if the downwind particulate level was 100 micrograms/cubic meter greater than the upwind particulate level, dust suppression techniques would be implemented. During the performance of the IRMRAP on the Commercial Carriers, Inc. site, the results of the air monitoring program did not require instituting dust suppression techniques.

The results of the air monitoring during the performance of the IRM removal activities on the Commercial Carriers, Inc. site are presented in Appendix P. In addition to the above air monitoring, daily safety meeting prior to the performance of the each day's activities were conducted and site activities were performed in Level D PPE.

2.2 Excavation/Removal Activities and Confirmation Sampling and Analysis

As previously discussed in Part I of this document, E&E and NWECC remedial personnel mobilized to the northeast portion of the Commercial Carriers, Inc. site on February 3, 1996. Excavation activities in this portion of the site was also performed on February 4 and 10, 1996. Approximately 500 tons of soil containing visible paint waste were removed down to the in-situ clay. This material was transported via a dump truck directly to the chemical stabilization process area on the eastern portion of the Ernst Steel site. The use of public roads was not needed during the transport of this excavated soil. The excavated soil was stockpiled in the process area on and covered with plastic. The soil was subsequently processed and disposed with the other processed soil from the eastern portion of the Ernst Steel site at Modern Landfill, Model City, New York.

In June, 1996, 1746 Walden Inc. proceeded with remediation of the soils in the northeast corner of the Commercial Carriers, Inc site that potentially exceeded the cleanup goals (i.e., lead @ 500 ppm and chromium @ 40 ppm) based on BB&L investigative findings (see E&E's February 2, 1996 letter, Appendix B). Prior to

initiating these IRM removal activities at the site, representatives from NYSDEC, Benderson Development Company and B&A met at the site on June 20, 1996 to discuss the previous work performed at the site, BB&L investigative results and delineation of the area of concern, and, the IRMRAP and amendment for the site. As a result of this meeting, a modification/amendment to the IRMRAP and previous amendment was submitted in a letter dated June 26, 1996 to Jaspal S. Walia, P.E., NYSDEC from Richard L. Crouch, B&A (Appendix B).

The modification to the IRMRAP set forth in the aforementioned letter was to satisfy a NYSDEC request that prior to beginning excavation activities, trenches would be excavated along the northern and eastern boundaries of the area delineated in the BB&L's figure (Appendix B) starting in the northeast corner. The purpose of the trenches was to assess the presence/absence of fill material intermixed with paint chips down to the underlying in-situ clay. The trenching activity would also be conducted along the northern and western boundaries of the previous area excavated in February 1996 to confirm that the fill material intermixed with paint chips had been removed.

On June 21, 1996, representatives from B&A visited the site to layout the approximate boundaries of the area shown on BB&L's figure presented in E&E's letter dated February 2, 1996. The boundaries of the area were established by painting the boundaries on the ground surface using spray paint. Please note that the boundaries established in the field were only approximate since the BB&L drawing was not-to-scale and no apparent field control point was shown on the drawing. B&A personnel had to assume that a control point for establishing the boundaries was the intersection of Commercial Carriers, Inc. eastern property line, which was assumed to be adjacent to the westernmost wall of the Target building, and the northern fence.

On July 1, 1996, B&A and NWECC&C personnel and equipment mobilized to the site to begin remediation efforts. Prior to the excavation of trenches, the existing stockpile of soil generated during final site activities on the adjacent portion of the Ernst Steel site (see Part I, Section 2.9), which was deemed hazardous due to the presence of numerous visible paint chips, was relocated to a staging area west and south of the area to be excavated since the stockpile was sited over the area to be excavated. The staging area was lined with plastic and the stockpiled soils were covered with plastic following each day's activity. An orange snow fence was also placed around this staging area.

During the excavation of trenches, which originated in the northeast corner of the excavation area, visible paint chips were observed along the northern trench over to the first railroad spur to the west and within the eastern trench in its northern half. This excavated material was moved to and staged with the above, previously existing stockpiled soil. A second staging area was established east of and separate from the first staging area. This staging area was also lined with plastic and was designated

for excavated material that was potentially non-hazardous but possibly exceeded the cleanup goals for the site. The excavation area and stockpiled soils were fenced with orange snow fencing.

During the excavation of the area delineated by BB&L down to the underlying in-situ clay, both the B&A representative and the NWE&C representative visually scanned the excavated soil for the presence of paint chips/waste as it was removed from the excavation. As each excavator bucket of material was removed, a determination was made as to which staging area the excavated material would be placed, that is, potentially hazardous, if paint chips were observed, versus non-hazardous. Excavating and stockpiling of the soil within the northeast portion of the Commercial Carriers, Inc. site was performed on July 1, 2, 3, 5, 8, 9, 10 and 16. The excavation was performed using a track excavator with the excavated material being placed into a dump truck for subsequent placement in the appropriate staging area.

On July 2, 1996, it was determined that a third staging area would be required due to the amount of material that had been removed at that time and the remaining area to be excavated. This third staging area was established in the southwest portion of the Commercial Carriers, Inc. site to the east and north of a former administration building present at the time of the excavation activities. The area to the east of the building was designated for soils which did not appear hazardous. The area to the north of the building was designated for those soils which contained numerous visible paint chips. These two areas were separate. Both areas were lined with plastic and fenced off by both the existing property line fence along the southern and western boundaries and by orange snow fencing along the east, north and a portion of the western boundaries. The transport of the excavated material from the northeast corner of the site to this staging area did not require the use of public roads.

On July 16, 1996, the excavation had been completed within the delineated area previously defined by BB&L, excluding the areas underlying two railroad spurs (Figure 2, Appendix O). Based on the remedial approach followed for the adjacent portion of the Ernst Steel site and with concurrence from the NYSDEC, the railroad spur embankments were not excavated since these areas did not contain paint waste.

During the loading for off-site disposal of the hazardous stockpiles, NWE&C and B&A, during a downtime between loading of the trucks, proceeded to excavated an area identified by the NYSDEC to the north of the northwest corner of the Target store building and also the excavation sidewall adjacent to Target's western exterior wall. This area was excavated using a backhoe and the material was subsequently stockpile with the stockpiles that were being shipped off site as hazardous due to the presence of numerous visible paint chips.

Upon completion of the excavation and subsequent removal off site of the hazardous stockpiles, Jaspal S. Walia, P.E., NYSDEC, and Richard L. Crouch, B&A, met at the site on August 13, 1996. The purpose of the meeting was to inspect the excavation, select confirmation sampling points and obtain confirmation samples for analysis (refer to Section 2.3). Via the visual inspection, it was agreed that the paint waste of concern had been removed.

Twelve confirmation sample points were selected by the NYSDEC representative and flagged (see Figure 2). The B&A representative proceeded to obtain the samples, place the samples into precleaned, laboratory containers and label the containers. The laboratory analytical and quality control results of this confirmation sampling effort are presented in Appendix Q. Following are the results of this confirmation sampling event:

<u>Sample Point</u>	<u>Lead</u>	<u>Chromium</u>
1	64 ppm	14.4 ppm
2	437 ppm	54.9 ppm
3	463 ppm	33.7 ppm
4	930 ppm	460 ppm
5	2660 ppm	124 ppm
6	725 ppm	271 ppm
7	1095 ppm	101 ppm
8	32 ppm	8.9 ppm
9	26 ppm	27 ppm
10	109 ppm	34.4 ppm
11	23 ppm	20.0 ppm
12	33 ppm	29.4 ppm

Based on the above results of the confirmation samples, B&A and NWE&C were on-site on August 28, 1996 and expanded the easternmost excavation in a southern and western direction (Figure 2, Appendix O) based on the results of lead and chromium in exceedance of the cleanup goals at sample points 4, 5, 6 and 7. At sample point 2 due to the concentration of chromium slightly exceeding the cleanup goal, the excavation was expanded slightly to the west stopping at the railroad ballast underlying the railroad spur in this area.

During the expansion of the excavation in a southerly direction large, boulder-size, pieces of slag were encountered underlying approximately six inches of soil-type fill. Confirmation samples were obtained for analysis following the expansion of the excavation in the above direction. The excavated soils from this area were stockpiled on and covered with plastic west of the southwest corner of the excavation adjacent to the Target store. The amount of soil removed accounted for one stockpile. At the

time of this excavation activity, the hazardous and non-hazardous stockpiles generated during the initial excavation activities had been removed from the site (Section 2.3).

On September 5, 1996, B&A and NWECC&C representatives were back on site to further expand the excavation adjacent to the Target store in a southern direction as a result of the August 28, 1996 confirmation samples identified as sample points 13, 14 and 15 (Figure 2, Appendix O) which were in exceedance of chromium cleanup goals at concentrations of 619 ppm, 413 ppm and 336 ppm, respectively.

During this expansion of the excavation, a solid piece of slag, approximately 15 feet to 20 feet wide in an east-west direction and 10 feet wide in a north-south direction, was encountered approximately four inches to six inches below ground surface. Overlying the slag was a soil-type backfill. The excavated material, which resulted in three stockpiles, was staged on and covered with plastic adjacent to the stockpiled soil generated during the August 28, 1996 excavation activities. Confirmation samples, sample points 16, 17 and 18, were obtained from this expansion area. In addition, a sample of the slag from this area was also obtained. The analytical results of this confirmation sampling detected lead in exceedance of the cleanup goal in sample 16 at a concentration of 533 ppm and chromium in exceedance of the cleanup goal in samples 16, 17 and 18 at concentrations of 378 ppm, 224 ppm and 335 ppm, respectively. The concentrations of total lead and chromium in the sample of slag were 24.3 ppm and 163 ppm, respectively.

Upon receipt of the September 5, 1996 confirmation sample results, Jaspal S. Walia, P.E. was contacted. Mr. Walia agreed that the exceedance of the confirmation samples results for chromium above the cleanup goals may be the presence of slag. Mr. Walia agreed to meet B&A and NWECC&C at the site to observe further expansion of the excavation in the direction of concern.

On September 11, 1996, Jaspal S. Walia, P.E., NYSDEC, observed the further expansion of the excavation in a southerly direction down to slag or in-situ clay. This expansion resulted in the generation of one more stockpile of soil which was placed on and covered with plastic adjacent to the above stockpiles. At the direction of the on-site NYSDEC representative, a confirmation sample was obtained. At the NYSDEC's request, a sample of slag was subsequently obtained on the same day for analysis via TCLP (lead and chromium). The result of the confirmation sample, sample point 19, detected chromium in exceedance of the cleanup goal at a concentration of 85.4 ppm. The results of the TCLP (lead and chromium) analysis did not detect either metal above the method detection limit for the specific metal.

With the exceedance of chromium above the cleanup goal for sample point 19, Mr. Jaspal S. Walia, P.E., NYSDEC was contacted. During the discussion between Mr. Walia and Mr. Crouch, B&A, it was suggested that the detected total chromium may

be the result of slag being present in the confirmation sample; hence, it was agreed upon that a second confirmatory sample be obtained from the same area. This sample, confirmation sample 20, was obtained by a B&A representative on September 16, 1996. The results of this analysis did not detect total lead or total chromium above the cleanup goals for the site; hence, the NYSDEC concurred that the remedial excavation activities in the northeast corner of the Commercial Carriers, Inc. site was complete down to the native clay. Figure 3, Appendix O, presents the final post-excavation, confirmation concentrations that were below the target cleanup goals.

2.3 Stockpiled Soil Waste Characterization

As discussed in Section 2.2, the excavated material that was removed from the excavation, was visually scanned for the presence of paint chips. Excavated material containing numerous paint chips were staged in separate designated areas and deemed hazardous waste based on previous experience acquired from the work performed on the adjacent portion of the Ernst Steel site. The excavated material which did not appear to contain paint chips were staged/stockpiled separately. The staging area for the excavated material which did not appear to be potentially hazardous, prior to expansion of the excavation, consisted of 24 stockpiles in the fenced in and lined staging area located in the southern portion of the Commercial Carriers, Inc. property; and one large stockpile in the fenced in and lined staging area located adjacent to and southwest of the actual excavation.

On July 25, 1996, NWECC&C and B&A personnel visited the site for the purpose of sampling the 24 stockpiles in the southern portion of the site and the large stockpile located in the northern portion of the site generated during the initial excavation in the northern portion of the site. No sampling was performed on the stockpiled material that contained numerous visible paint chips since this material was to be sent to CWM Chemical Waste Services, Inc., Model City, New York for treatment and disposal. The composite samples obtained from the 24 stockpiles in the southern portion of the site were analyzed for total lead and total chromium and TCLP (lead and chromium). The samples from the large stockpile in the northern portion of the site were analyzed for TCLP (lead and chromium). The laboratory analytical and quality control results for this sampling event are presented in Appendix R. Based on the results of this analysis, stockpile 1, stockpiles 6 through 14, stockpile 16 and stockpile 22 could remain on site for use as backfill since the concentrations for total lead and chromium were below the target cleanup goals. The remaining stockpiles which were sampled and analyzed would be sent off site to Modern Landfill in Model City, New York.

During the expansion of the original excavation, five additional stockpiles of excavated material were generated. These stockpiles were identified as stockpiles 26 through 30 and were sampled along with the confirmation sample during each expansion event; as such, the laboratory analytical and quality control results are presented in

Appendix Q with the confirmation sample results. Samples from these stockpiles were analyzed for TCLP (lead and chromium). The results indicated that these stockpiles could also be sent off site to Modern Landfill in Model City, New York.

2.4 Disposal of Non-Hazardous and Hazardous Material

On July 30, 1996, three loads of hazardous material were sent off site to CWM Chemical Waste Services, Inc., Model City, New York. During the loading of these three shipments and future off-site shipment of hazardous and non-hazardous soils, loading of the shipments were performed in the respective staging area (i.e. southern or northern portion of the site). The trailers or tandems were backed on to a lined loading area and loaded. Prior to leaving the site, the truck tires were inspected to minimize the potential transport off site of contaminated soils. Also, during the off loading, air monitoring was performed for particulates upwind and downwind of the loading area. These results are presented in Appendix P. On August 7 and 8, 1996, the remaining material to be sent to CWM Chemical Waste Services, Inc., Model City, New York was loaded and transported off site. A total of 42 trailer or tandem loads, 1,006.19 tons were transported off site to CWM Chemical Waste Services, Inc.. The Hazardous Waste Manifest for the aforementioned shipments are presented in Appendix S.

On August 26 through 28, 1996 and subsequently on September 26, 1996, non-hazardous material was loaded and transported off site to Modern Landfill, Model City, New York. A total of 44 loads (i.e., 940.61 tons) were shipped off site to Modern Landfill. The Non-Hazardous Material Manifests for the these shipments are presented in Appendix T.

2.5 Demobilization from the Commercial Carriers, Inc. Site

Upon completion of the removal of the final five stockpiles of non-hazardous material on September 26, 1996 and the analytical results of the confirmation samples not exceeding the cleanup goals, the performance of the IRM for the Commercial Carrier, Inc. portion of the Ernst Steel site was deemed complete; hence, the remedial contractor, NWECC, and B&A demobilized from the site.

3.0 CERTIFICATE OF CLOSURE

Based on the information and documentation set forth in Part II of this document, the IRMRAP, inclusive of the H&SP, and subsequent work plan and H&SP modifications for the Commercial Carriers, Inc. site has been satisfactorily completed. The IRM has been conducted and completed consistent with the National Contingency Plan (40 CFR Part 300).

The information and documentation presented in Part II demonstrate that the contaminated areas in the western portion of the Ernst Steel site, referred to as the Commercial Carriers, Inc. site, have been remediated to the selected cleanup goals; hence, no further remediation is required to be undertaken within this portion of the Ernst Steel site. As a result of completing the IRMRAP and its modifications and recommending no further remediation be required in the eastern (see Section 3.0, Part I) and western portions of the Ernst Steel site, it is recommended that the Ernst Steel site, Site No. 915022, be removed from the New York State Registry of Inactive Hazardous Waste Disposal Sites.



2.10.97

APPENDIX A

*ORDER ON CONSENT, INDEX # B9-0372-91-05
&
ADDENDUM TO ORDER ON CONSENT*

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the
Development and Implementation
of an Interim Remedial Measure Program
for an Inactive Hazardous Waste Disposal
Site, Under Article 27, Title 13,
and Article 71, Title 27 of the
Environmental Conservation Law
of the State of New York
by

ORDER
ON
CONSENT
INDEX # B9-0372-91-05

1746 WALDEN, INC.
Respondent.

Site Code #915022

WHEREAS,

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of Article 27, Title 13 of the Environmental Conservation Law of the State of New York ("ECL"), entitled "Inactive Hazardous Waste Disposal Sites." This Order is entered into pursuant to the Department's authority under ECL Article 27, Title 13 and ECL 3-0301.

2. 1746 Walden, Inc. ("Respondent"), a corporation organized and existing under the laws of the State of New York, is doing business in the State of New York. Respondent has entered into a contract which entitles it to purchase a certain real property located at 1746 Walden Avenue, Town of Cheektowaga, Erie County, State of New York (the "Site") following negotiations held with the Department.

3. Prior to the purchase of the Site, Respondent held discussions with representatives of the Department for purposes of ascertaining the history of the Site, and to offer reassurance to the Department that the Site would be remediated in accordance with the standards required by the ECL and accompanying regulations in the event Respondent proceeded with the plan to acquire the Site.

4. Based upon available information, the Department suspects that a hazardous waste has been disposed at the site.

The Site has been listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site Number 915022. The Department has classified the Site as a Classification "2a", a temporary classification which indicates certain investigations are required to further define conditions at the site and make a determination as to whether hazardous waste exists at the site and whether they constitute a significant threat to public health of the environment, if present.

5. A. Pursuant to ECL 27-1313.3.a, whenever the Commissioner of Environmental Conservation (the "Commissioner") "finds that hazardous wastes at an inactive hazardous waste disposal site constitute a significant threat to the environment, he may order the owner of such site and/or any person responsible for the disposal of hazardous wastes at such site (i) to develop an inactive hazardous waste disposal site remedial program, subject to the approval of the Department, at such site, and (ii) to implement such program within reasonable time limits specified in the order."

B. Any person under order pursuant to ECL 27-1313.3.a has a duty imposed by ECL Article 27, Title 13 to carry out the remedial program committed to under order. ECL 71-2705 provides that any person who fails to perform any duty imposed by ECL Article 27, Title 13 shall be liable for civil, administrative and/or criminal sanctions.

C. The Department also has the power, inter alia, to provide for the prevention and abatement of all water, land, and air pollution. ECL 3-0301.1.i.

6. Respondent has submitted, and the Department has approved, a Work Plan for an Interim Remedial Measure for soil removal and other activities for the site which is incorporated into this Order as Appendix "A". This Work Plan implements activities consistent with 40 C.F.R. Part 300.

7. The Department and Respondent agree that the goal of this Order is for Respondent to implement an Interim Remedial Measure Program ("IRM Program") for the Site pursuant to

Appendix "A".

8. Respondent, having waived its right to a hearing herein as provided by law, and having consented to the issuance and entry of this Order, agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and agrees not to contest the validity of this Order or its terms other than as provided Paragraph XIII herein. This Order does not relieve Respondent of any obligations it may have to perform any further investigation of site conditions, including a Remedial Investigation and Feasibility Study, and if necessary, remediation of the site.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. Information Submittal

Within 60 days after the effective date of this Order, Respondent shall submit to the Department all data within its possession or control regarding the presence or suspected presence of hazardous wastes at the Site, to the extent that such data have not previously been provided to the Department. The data shall include:

a) a brief history and description of the Site to the extent known, an identification of the types, estimated quantities, physical state, location and dates of disposal of hazardous waste, as well as the names of "responsible parties" and their relationship to the waste and to the Site;

b) a description of the results of any previous environmental investigations of the Site performed by or on behalf of the Respondent together with copies of topographic surveys, property surveys, engineering studies and aerial photographs in the possession of the Respondent.

II. Performance and Reporting of IRM Program

A. Pursuant to the schedule in Appendix "A", Respondent shall commence and perform the IRM Program.

B. During the performance of the IRM Program,

Respondent must have on-Site a full-time representative who is qualified to supervise the work done.

C. Within the time frame set forth in the IRM Work Plan, Respondent must prepare an IRM report ("IRM Report") that includes all data generated and all other information obtained during the IRM Program and identifies any additional data relevant to the remediation of the Site that must be collected. The IRM Report shall be prepared by and have the signature and seal of a professional engineer who shall certify that the IRM Report was prepared in accordance with this Order.

III. Progress Reports

A. If the IRM field work requires more than two months for completion, Respondent shall submit to the parties identified in subparagraph XI in the numbers specified therein copies of written monthly progress reports that: (i) describe the actions which have been taken toward achieving compliance with this Order during the previous month; (ii) include all results of sampling and tests and all other data relevant to the remediation of the Site generated by Respondent or Respondent's contractors or agents in the previous month, including quality assurance/quality control information, whether conducted pursuant to this Order or conducted independently by Respondent; (iii) identify all work plans, reports, and other deliverables required by this Order that were completed and submitted during the previous month; (iv) describe all actions, including, but not limited to, data collection and implementation of work plans, that are scheduled for the next month and provide other information relating to the progress at the Site; (v) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of Respondent's obligations under the Order, and efforts made to mitigate those delays or anticipated delays; and (vi) include any modifications to any work plans that Respondent has proposed to the Department or that the

Department has approved. Respondent shall submit these progress reports to the Department by the tenth day of every month following the effective date of this Order in the event that the foregoing requirements of subparagraph III(A) of this Order are brought into effect by performance of IRM field work requiring more than four months for completion.

B. Respondent shall allow the Department to attend, and shall provide the Department at least seven days advance notice pursuant to paragraph XI herein of the occurrence of any of the following, if any such meetings or inspections take place: prebid meetings, job progress meetings, substantial completion meeting and inspection, and final inspection and meeting.

IV. Review of Submittals

A. (1) The Department shall review each of the submittals Respondent makes pursuant to this Order to determine whether it was prepared, and whether the work done to generate the data and other information in the submittal was done, in accordance with this Order and generally accepted technical and scientific principles. The Department shall notify Respondent in writing of its approval or disapproval of the submittal. All Department-approved submittals shall be incorporated into and become an enforceable part of this Order.

(2) (a) If the Department disapproves a submittal, it shall so notify Respondent in writing and shall specify the reasons for its disapproval. Within the period of time specified in the notice of disapproval, but not less than sixty 60 days, Respondent shall make a revised submittal to the Department that addresses and resolves all of the Department's stated reasons for disapproving the first submittal.

(b) After receipt of the revised submittal, the Department shall notify Respondent in writing of its approval or disapproval. If the Department disapproves the revised submittal, the Department shall notify Respondent in writing of the Department's objections and reasons therefore. Respondent shall make a re-revised submittal to the Department

that addresses and resolves all of the Department's stated reasons for disapproving the re-revised submittal within sixty (60) days of its receipt of the Department's objections to the submittal. If the Department disapproves the re-revised submittal, Respondent shall be in violation of this Order and the Department may take any action or pursue whatever rights it has pursuant to any provision of statutory or common law unless Respondent invokes the dispute resolution mechanism provided in paragraph XIII herein within 20 days of its receipt of the notice of disapproval of the re-revised submittal. If the Department approves the revised or re-revised submittal, it shall be incorporated into and become an enforceable part of this Order.

B. The Department may request in writing that Respondent modify and/or amplify and expand a submittal, and associated work, if the Department determines, as a result of reviewing data generated by an activity required under this Order or as a result of reviewing any other data or facts, that further work is necessary. Any request so made by the Department shall include an explanation of the basis for the request. In the event that Respondent refuses to undertake the request within the period of time specified therein, Respondent shall be in violation of this Order and the Department may take any action or pursue whatever rights it has pursuant to statutory or common law, unless Respondent invokes the dispute resolution mechanism provided in paragraph XIII herein within twenty days of its receipt of any written request by the Department to modify and/or amplify and expand a submittal.

V. Penalties

A. Respondent's failure to comply with any term of this Order constitutes a violation of this Order.

B. Respondent shall not suffer any penalty under this Order or be subject to any proceeding or action for any remedy or relief if it cannot comply with any scheduling requirements of this Order because of an act of God, war, or

riot or because of any condition or event entirely beyond the control of Respondent or its agent or agents carrying out Respondent's obligations under this Order. Respondent shall immediately notify the Department in writing when it obtains knowledge of any such condition and request an appropriate extension or modification of this Order.

Increased costs or expenses of any work to be performed under this Order, the financial inability of Respondent to perform such work, the failure of Respondent to make complete and timely application for any required approval or permit, and nonattainment of the goals, standards and requirements of this Order do not constitute conditions or events warranting the relief set forth in this subparagraph.

C. (1) As long as Respondent complies with the terms of this Order and any Appendix thereto, the Department shall not bring any action relative hereto which seeks relief which is inconsistent with or duplicative of relief provided for in this Order except as provided in subparagraph VIII.B.

(2) Upon the Department's approval of all submittals identified in paragraph IV herein, and upon payment of all monies specified in paragraph VII herein, Respondent, shall have fulfilled its obligations pursuant to this Order, and its obligations under this Order shall terminate with the exception of paragraph IX herein.

VI. Entry upon Site

Respondent hereby consents following reasonable notice to Respondent to the entry upon the Site or areas in the vicinity of the Site which may be under the control of Respondent by any duly designated employee, consultant, contractor, or agent of the Department or any State agency for purposes of inspection, sampling, and testing and to ensure Respondent's compliance with this Order. Respondent shall provide the Department with suitable office space at the Site, including access to a telephone, and shall permit the Department full access to all records relating to matters

addressed by this Order and job meetings.

VII. Payment of State Costs

Within 30 days after receipt of an itemized invoice from the Department, Respondent shall pay to the Department a sum of money which shall not exceed \$10,000.00 and which shall represent reimbursement for the State's expenses including, but not limited to, direct labor, fringe benefits, indirect costs, travel, analytical costs, and contractor costs incurred by the State of New York for work performed at the Site for negotiating this Order, reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with this Order. Such payment shall be made by certified check payable to the Department of Environmental Conservation. Payment shall be sent to the Bureau of Program Management, Division of Hazardous Waste Remediation, N.Y.S.D.E.C., 50 Wolf Road, Albany, NY 12233-7010. Itemization of the costs shall include an accounting of personal services indicating the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. This information shall be documented by quarterly reports of Direct Personal Service. Approved agency fringe benefit and indirect cost rates shall be applied. Non-personal service costs shall be summarized by category of expense (e.g., supplies, materials, travel, contractual) and shall be documented by the New York State Office of the State Comptroller's quarterly expenditure reports.

VIII. Department Reservation of Rights

A. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights including, but not limited to nor exemplified by, the following:

1. the Department's right to bring any action or proceeding against anyone other than Respondent and/or any

of Respondent's directors, officers, employees, servants, agents, successors, and assigns;

2. the Department's right to enforce this Order against Respondent and/or any of Respondent's successors and assigns if Respondent fails to satisfy any of the terms of this Order;

3. the Department's right to bring any action or proceeding against Respondent and/or any of Respondent's successors and assigns with respect to claims for natural resources damages as a result of the release or threatened release of hazardous substances or constituents at or from the Site or areas in the vicinity of the Site;

4. the Department's right to bring any action or proceeding against Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns with respect to hazardous substances that are present at the Site or that have migrated from the Site;

5. the Department's right to gather information and enter and inspect property and premises.

B. Nothing contained in this Order shall be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

IX. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns; provided, however, that Respondent shall not be required to indemnify and hold the Department, the State of New York or their representatives and employees harmless for any claims, suits, actions, damages and costs of any name and description arising out of or resulting from the negligence of the Department or

State of New York, or their representatives or employees.

X. Public Notice

A. If Respondent proposes to convey the whole or any part of Respondent's ownership interest in the Site prior to obtaining a de-listing of the Site from the Department, Respondent shall, not fewer than 60 days before the date of conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed date of the conveyance and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order.

B. Within thirty days after the effective date of this Order, Respondent shall file a deed notification with the Clerk of the County wherein the site is located to give all parties who may subsequently acquire any interest in the site notice of this Consent Order. Such notification may be withdrawn when Respondent's obligations pursuant to this Order have been completed by the Respondent.

XI. Communications

A. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

Communication from Respondent shall be sent to:

1. Regional Director, Region 9
New York State Department of Environmental
Conservation
270 Michigan Avenue
Buffalo, NY 14203
2. Director, Bureau of Environmental
Exposure Investigation
New York State Department of Health
2 University Place
Albany, New York 12203
3. Director, Division of Hazardous Waste
Remediation
New York State Department of Environmental
Conservation
50 Wolf Road
Albany, NY 12233-7010

4. Joseph P. Ryan, Esq.
Division of Environmental Enforcement
New York State Department of Environmental
Conservation
270 Michigan Avenue
Buffalo, NY 14203

B. Copies of work plans and reports shall be submitted as follows:

1. Four copies (one unbound) to
Martin Doster, Region 9
Division of Hazardous Waste Remediation
New York State Department of Environmental
Conservation
270 Michigan Avenue
Buffalo, New York 14203
2. Two copies to the Director, Bureau of
Environmental Exposure Investigation.
3. Director, Division of Hazardous
Waste Remediation
New York State Department of Environmental
Conservation
50 Wolf Road
Albany, NY 12233-7050
4. Joseph P. Ryan, Esq., Division of
Environmental Enforcement
New York State Department of Environmental
Conservation
270 Michigan Avenue
Buffalo, New York 14203

C. Communication to be made from the Department to Respondent shall be sent to:

John V. Heffron, Esq.
570 Delaware Avenue
Buffalo, NY 14202-1284

Craig A. Slater, Esq.
Saperston & Day, P.C.
1100 M&T Center
Three Fountain Plaza
Buffalo, NY 14203-1486

D. The Department and Respondent reserve the right to designate additional or different addressees for communication or written notice to the other.

XII. Contribution

A. Nothing in this order shall be construed to create any rights in, or grant any cause of action to, any person not a party to this Order. The proceeding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Order may have under applicable law. The Department and Respondent expressly reserve any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a party hereto.

B. With respect to potential actions or claims for contribution against Respondent for matters addressed in this Order, the Department agrees that Respondent is entitled to protection from any such contribution action and/or claim in a manner equivalent to that provided by the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), §113(f)(2), 42 U.S.C. §9613(f)(2).

C. Respondent agrees that with respect to any suit or claim for contribution brought against Respondent for matters related to this Order, Respondent will notify the Department in writing within ten (10) days of receipt of the complaint pursuant to subparagraph XI herein. Respondent shall also notify the Department within ten (10) days of service or receipt of any Motion For Summary Judgment, and within ten (10) days of receipt of any order from a court setting a case for trial.

XIII. Dispute Resolution

A. Unless otherwise expressly provided for in this Order, the dispute resolution procedures of this subparagraph shall be the exclusive mechanism to resolve any disputes arising under or with respect to this Order between Respondent and the Department. However, the procedures set forth in this subparagraph shall not apply to actions by the

Department to enforce obligations of the Respondent that have not been disputed in accordance with this subparagraph.

B. Any dispute which arises under or with respect to this Order shall in the first instance be the subject of informal negotiations shall not exceed twenty (20) days from the time that the dispute arises, unless it is modified by written agreement. The dispute shall be considered to have arisen when one party sends to the other party a Written Notice of Dispute in accordance with subparagraph XI herein.

C. If the Department disapproves a re-revised submittal, Respondent shall be in violation of this Order unless, within 20 days of receipt of the Department's notice of disapproval, Respondent serves on the Department's Director of Hazardous Waste Remediation ("the Director") a written statement of the issues in dispute, the relevant facts upon which the dispute is based, and factual data, analysis or opinion supporting its position, and all supporting documentation on which respondent relies (hereinafter called the "Statement of Position"). The Department shall serve its Statement of Position, including supporting documentation no later than twenty (20) days after receipt of Respondent's Statement of Position. In the event that these 20-day time periods for exchange of Statements of Position may cause a delay in the work being performed under this Order, the time periods may be shortened upon and in accordance with notice by the Department as agreed to by Respondent.

An administrative record of any dispute under this Paragraph shall be maintained by the Department. The record shall include the Statement of Position of each party served pursuant to the preceding Subparagraph, and any relevant information provided by the parties hereto. The record shall be available for review of all parties and the public.

Upon review of the administrative record as developed pursuant to this Paragraph, the Director shall issue a final

decision and order resolving the dispute. Respondent shall revise the submittal in accordance with the Department's specific comments, as may be modified by the Director, with the exception of those portions of the submittal which have been withdrawn by the Director, and shall submit a revised submittal. The period of time within which the submittal must be revised (as specified by the Department in its notice of disapproval) shall control unless the Director revises the time frame in the Director's final decision and order resolving the dispute.

After receipt of the revised submittal, the Department shall notify Respondent in writing of its approval or disapproval of the revised submittal.

If the revised submittal fails to address the Department's specific comments, as modified, and the Department disapproves the revised submittal for this reason, Respondent shall be in violation of this Order and the ECL.

In review by the Director of any dispute pursued under this Paragraph, Respondent shall have the burden of proving that there is no rational basis for the Department's position.

The invocation of the procedures stated in this Paragraph shall not extend, postpone, or modify Respondent's obligations under this Order with respect to any other nondisputed items, unless and until the Department agrees or a court determines otherwise. The Director's final decision issued pursuant to this paragraph shall serve as the final agency position for the purposes of any Article 78 action on that matter.

XIV. Confidentiality of Order Negotiations

A. The negotiations leading to this Consent Order, are of a confidential nature, such that the disclosure of these matters may prove harmful to the Respondent. Accordingly, to the extent that the confidentiality of this Order and the negotiations pertaining thereto does not conflict with statutory and common law, both the Department and the Respondent agree to refrain from disclosing any and all matters

pertaining to negotiations leading to this Order to any person or entity not a signatory to this Order except as otherwise required by subparagraph XIV.C herein or the provisions of the Freedom of Information Law, and, excluding governmental agencies, such as the New York State Department of Environmental Conservation, the United States Environmental Protection Agency, and the Town of Cheektowaga.

B. Without limiting the foregoing, the obligation of non-disclosure and confidentiality provided herein, shall extend to legal counsel and representatives retained by both the Department and Respondent, unless so ordered by a court of competent jurisdiction.

C. Respondent acknowledges that and agrees to cooperate with the Department when the Department engages in citizen participation activities related to this Order outlined in the Department's publication, "New York State Inactive Hazardous Waste Citizen Participation Plan" dated August 30, 1988, and any subsequent revisions thereto and 6NYCRR Part 375.

XV. Miscellaneous

A. All activities and submittals required by this Order shall address both on-Site and known off-Site contamination resulting from the disposal of hazardous waste at the Site.

B. Respondent shall retain professional consultants, contractors, laboratories, quality assurance/quality control personnel, and data validators acceptable to the Department to perform the technical, engineering, and analytical obligations required by this Order. The experience, capabilities, and qualifications of the firms or individuals selected by Respondent have been and shall be submitted to the Department. The Department's approval of these firms or individuals shall be obtained before the start of any activities for which Respondent and such firms or individuals will be responsible. The responsibility for the performance of the professionals retained by Respondent shall

rest solely with Respondent.

C. The Department shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by Respondent, and the Department also shall have the right to take its own samples. Respondent shall make available to the Department the results of all sampling and/or tests or other data generated by Respondent with respect to implementation of this Order and shall submit these results in the progress reports required by this Order.

D. Respondent shall notify the Department at least 10 working days in advance of any field activities to be conducted pursuant to this Order.

E. Respondent shall obtain all permits, easements, rights-of-way, rights-of-entry, approvals, or authorizations necessary to perform Respondent's obligations under this Order. The Department shall assist the Respondent to the extent practicable in the event that such assistance is requested or required by Respondent to secure any such necessary permits, easements, right-of-way, rights-of-entry, approvals or authorizations needed to perform this Order.

F. Respondent and Respondent's successors and assigns shall be bound by this Order. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall in no way alter Respondent's responsibilities under this Order. Respondent's officers, directors, employees, servants, and agents shall be obliged to comply with the relevant provisions of this Order in the performance of their designated duties on behalf of Respondent.

G. Respondent shall provide a copy of this Order to each contractor hired to perform work required by this Order and to each person representing Respondent with respect to the Site and shall condition all contracts entered into in order to carry out the obligations identified in this Order upon performance in conformity with the terms of this Order.

Respondent or Respondent's contractors shall provide written notice of this Order to all subcontractors hired to perform any portion of the work required by this Order. Respondent shall nonetheless be responsible for ensuring that Respondent's contractors and subcontractors perform the work in satisfaction of the requirements of this Order.

H. "Interim Remedial Measure" shall have the meaning set forth in the Department's "Division Technical and Administrative Guidance Memorandum: Interim Remedial Measures" (# HWR-91-4042, dated February 12, 1991) and 6 NYCRR 375-1.3(n) or modifications thereto.

I. All references to "professional engineer" in this Order are to an individual registered as a professional engineer in accordance with Article 145 of the New York State Education Law.

J. All references to "days" in this Order are to calendar days unless otherwise specified.

K. The section headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Order.

L. (1) The terms of this Order shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department regarding any report, proposal, plan, specification, schedule, or any other submittal shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order.

(2) If Respondent desires that any provision of this Order be changed, Respondent shall make timely written application, signed by the Respondent, to the Commissioner

M. The effective date of this Order shall be the date it is signed by the Commissioner or his designee.

MICHAEL D. ZAGATA
Commissioner
New York State Department
of Environmental Conservation

18

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of this Order, waives Respondent's right to a hearing herein as provided by law, and agrees to be bound by this Order.

1746 WALDEN, INC.

By:

X Randall Benson

RANDALL BENJERSON

(Type Name of Signer)

Title: VICE PRESIDENT

Date: 6-30-95

STATE OF NEW YORK)

)

S.S.:

COUNTY OF)

On this 30 day of June, 1995,
before me personally came RANDALL BENJERSON, to me
known, who, being by me duly sworn, did depose and say that he
resides in AMHERST NEW YORK; that he is the
VICE PRESIDENT of the 1746 WALDEN INC.,
the corporation described in and which executed the foregoing
instrument; that he knew the seal of said corporation; that the
seal affixed to said instrument was such corporate seal; that
it was so affixed by the order of the Board of Directors of
said corporation, and that he signed his name thereto by like
order.

John Vincent Heffron
Notary Public

JOHN VINCENT HEFFRON
Notary Public, State of New York
Qualified in Erie County
My Commission Expires May 5, 1996

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the
Development and Implementation
of an Interim Remedial Measure Program
for an Inactive Hazardous Waste Disposal
Site, Under Article 27, Title 13,
and Article 71, Title 27 of the
Environmental Conservation Law
of the State of New York
by

AMENDMENT
TO
ORDER
ON
CONSENT
INDEX # B9-0372-91-05

1746 WALDEN, INC.

Respondent.

Site Code #915022

WHEREAS,

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of Article 27, Title 13 of the Environmental Conservation Law of the State of New York ("ECL"), entitled "Inactive Hazardous Waste Disposal Sites." This Order is entered into pursuant to the Department's authority under ECL Article 27, Title 13 and ECL 3-0301.

2. 1746 Walden, Inc. ("Respondent"), a corporation organized and existing under the laws of the State of New York, is doing business in the State of New York. Respondent has entered into a contract which entitles it to purchase a certain real property located at 1746 Walden Avenue, Town of Cheektowaga, Erie County, State of New York (the "Site") following negotiations held with the Department.

3. Prior to the purchase of the Site, Respondent held discussions with representatives of the Department for purposes of ascertaining the history of the Site, and to offer reassurance to the Department that the Site would be remediated in accordance with the standards required by the ECL and accompanying regulations in the event Respondent proceeded with the plan to acquire the Site.

4. The Department and Respondent entered into an Order on Consent as identified in the above caption effective

July 27, 1995, wherein the Respondent was to conduct certain interim remedial measures ("IRM") at portions of the property designated as inactive hazardous waste site no. 915022 (the "Site").

5. Pursuant to that Order on Consent and in accordance with a Work Plan approved by the Department, Respondent undertook the initial IRM. However, during the course of that work it was determined that the volume of contamination, primarily soils, was greater than originally known.

6. To effectively address the additional volume of contamination, the Respondent and the Department have agreed to additional IRM actions for soil stabilization and other activities for the Property by amending the Work Plan to reflect these additional elements of the IRM as well as additional health and safety requirements. This Work Plan implements activities consistent with 40 C.F.R. Part 300.

7. The Department and Respondent agree that the goal of this Amendment is for Respondent to implement an additional IRM activities at the Property pursuant to the original IRM Work Plan and the amendments to the Work Plan as set forth in Appendix D as attached.

8. Respondent, having waived its right to a hearing herein as provided by law, and having consented to the issuance and entry of this Amendment, agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Amendment.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. IRM Implementation

Respondent shall undertake and implement additional IRM actions for the Property as agreed to by the Department and Respondent pursuant to the attached Appendix D and the original IRM Work Plan, under the oversight of the Department. Any modifications or revisions which may be required due to

unanticipated field conditions shall be subject to approval by the Department. Any such modification or revisions shall be attached to and incorporated into this Amendment as an Appendix. Appendix D is incorporated into and made part of this Amendment.

During the performance of IRM field activities, Respondent shall have on-Site, a full-time representative who is qualified to supervise the work done.

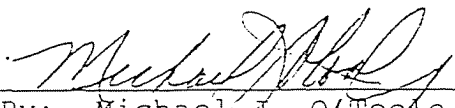
Within the time frame set forth in the Appendix D, Respondent must prepare a final IRM closure report ("IRM Report") that includes all data generated and all other information obtained during the IRM Program and identifies any additional data that must be collected. The IRM Report shall be prepared by and have the signature and seal of a professional engineer who shall certify that the IRM Report was prepared in accordance with this Order.

II. This Amendment and any appendices shall be incorporated in and become a part of the Order on Consent between the Department and the Respondent dated July 27, 1995 and identified as Index No. B9-0372-91-05. The terms, provisions, conditions and requirements of that Order on Consent shall remain in effect and shall apply to this Amendment.

III. The terms, conditions and modifications contained in this Amendment shall become effective on the date this Amendment is signed by the Commissioner or his designee.

DATED: 1/10/96 , New York
1996

MICHAEL D. ZAGATA
Commissioner
New York State Department
of Environmental Conservation


By: Michael J. O'Toole, Jr.

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of this Order, waives Respondent's right to a hearing herein as provided by law, and agrees to be bound by this Order.

1746 WALDEN, INC.

By: _____

Randall Benderson
(Type Name of Signer)

Title: _____

Date: _____

STATE OF NEW YORK)

) S.S.:

COUNTY OF ERIE)

On this 15th day of December, 1995,
before me personally came Randall Benderson, to me
known, who, being by me duly sworn, did depose and say that he
resides in the Town of Amherst, New York; that he is the
Vice President of the Benderson Development Company, Inc.
the corporation described in and which executed the foregoing
instrument; that he knew the seal of said corporation; that the
seal affixed to said instrument was such corporate seal; that
it was so affixed by the order of the Board of Directors of
said corporation, and that he signed his name thereto by like
order.

[Signature]

Notary Public

DANIEL J. DUGGAN

NOTARY PUBLIC, State of New York

Qualified in Erie County

My Commission Expires March 30, 1996

APPENDIX B

WORK PLANS AND ADDENDUMS

**Interim Remedial Measures
Removal Action Plan
Ernst Steel Site
Site Number 915022
Cheektowaga, New York**

June 1995

Prepared for:

1746 Walden, Inc.
570 Delaware Avenue
Buffalo, New York 14202

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ecology and environment, inc.

International Specialists in the Environment

BUFFALO CORPORATE CENTER 368 Pleasantview Drive, Lancaster, New York 14086
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recycled paper

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Under contract to 1746 Walden, Inc., (Walden) and Saperston and Day, P.C., (Saperston and Day), Ecology and Environment, Inc., (E & E) has prepared this Interim Remedial Measures (IRM) Removal Action Plan (RAP) to address the remediation of contaminated soil at the Ernst Steel site (Site Number 915022) in Cheektowaga, New York. This plan will be incorporated as an appendix to the Order of Consent between Walden and the New York State Department of Environmental Conservation (NYSDEC). This RAP identifies IRMs that will be undertaken to complete the removal of contaminated soil from the Ernst Steel site. This property is on the New York State Registry of Inactive Hazardous Waste Sites (Registry) as Site Number 915022 and is designated as a Class 2 site.

The properties immediately east and west of the Ernst Steel site were at one time owned by the Ernst Corporation and were also placed on the Registry. These properties also contained contaminated soils from previous Ernst Corporation operations. As a result of remedial activities at the eastern and western properties, they were removed from the Registry in 1991 and 1994, respectively. Details of these investigations and closures are a matter of public record.

The contaminants identified at the Ernst Steel site consist of nonprocessed dried paint sludge that has been mixed with the soil (ATEC 1992). Elevated levels of lead and chromium associated with the dried paint sludge are present in the soil.

The remainder of this section describes the Ernst Steel site and its history, previous investigations conducted at the site, and the nature and extent of the lead contamination. Section 2 presents the cleanup goals and remedy selected for those contaminants. Section 3 describes the remedial action procedures, and Section 4 describes the expected project schedule. The leachability study analytical results are provided in Appendix A.

1.1 Site Description and History

The Ernst Steel site encompasses approximately 1 acre and is located at the rear of 1746 Walden Avenue in the town of Cheektowaga, Erie County, New York (see Figure 1-1). The site is just west of Interstate 90 and is bordered to the north by defunct railroad tracks, to the south by a former steel fabrication building and adjacent areas (the fabrication building), to the west by Ryder Automotive Operations, Inc., formerly called DBA Delavan (Delavan), and to the east by Galleria Drive. The site boundary for the Ernst Steel site is not limited to the 1746 Walden Avenue property, but also includes the northeast corner of the Delavan property. Chain-link fences exist along the north and west boundaries of the Walden property; however, access is not restricted on the south and east sides. The fabrication building (approximately 100,000 square feet) is surrounded primarily by gravel and asphalt surfaces. Overhead cranes were formerly located just north of the fabrication building. The cranes have been dismantled, leaving only concrete foundations and rails.

The Ernst Corporation operated the steel fabrication plant between 1953 and 1980 at this location (see Figure 1-2). At that time, the Ernst Corporation property encompassed approximately 30 acres of land. Activities included the assembly, servicing, and painting of large steel structures (NYSDEC 1985). Land disposal activities were performed by filling topographic depressions on the 30-acre property with lead-based paint sludge (i.e., red and orange lead oxide). The majority of this paint sludge was disposed of in the easternmost portion of the original parcel (U.S. Environmental Protection Agency [EPA] 1983).

The Ernst Corporation sold the western portion (6.1 acres) of the original 30-acre property in 1976 to Delavan. In 1986, the Ernst Corporation sold the central parcel (10.21 acres) to U.S. Steel Corporation, which sold the central parcel to U.S. MetalSource in 1991. The Ernst Corporation sold the remaining 13.95 acres located on the eastern side of the original 30 acres to Pyramid Company (Pyramid) in 1987 (see Figure 1-2). Walden purchased a 10.21-acre parcel from U.S. MetalSource in 1994, a portion of which is the Ernst Steel site.

1.2 Investigation History

Each of the following former Ernst Corporation land parcels is or was at one time on the Registry:

- Ernst Steel site: 1746 Walden, Inc., 1746 Walden Avenue, Site No. 915022 (1 acre). The portion of the Delavan site that is

contaminated with paint sludge is also considered part of this listed site.

- Delavan site: Ryder Automotive Operations, Inc., 1728 Walden Avenue, Site No. 915138; removed from Registry in 1994 (6.1 acres).
- Pyramid site: Pyramid Company, retention basin east of and adjacent to Ernst site, Site No. 915137; removed from Registry in 1991 (13.95 acres).

In 1982, three soil samples were collected by NYSDEC from three 4.5-foot soil borings completed in the area north and northeast of the fabrication building. All soil samples exhibited elevated levels of chromium, copper, lead, nickel, zinc, and iron. As a result of the findings of this investigation, the Ernst Steel site (Site No. 915022) was listed as a Class 2-A inactive hazardous waste disposal site in 1983 (Beuchi 1985).

On September 28, 1983, NUS Corporation performed a Preliminary Assessment of the Ernst Steel site (Site No. 915022) for the EPA (EPA 1983). The study noted the presence of dry paint sludge, primarily at the eastern portion of the property. Approximately 10,000 cubic yards of soil was removed from the Pyramid site (Site No. 915137) in 1988 and the site was delisted in 1991. The Ernst Steel site and the Pyramid site contained the same type of contamination (i.e., paint sludge).

Because the Delavan and Pyramid sites have been delisted from the Registry as a result of remediation activities, the remaining sections of this IRM will focus only on the Ernst Steel site (Site No. 915022) that is on Walden property. Soil sampling was performed by NYSDEC in the area north of the fabrication building in October 1988 and June 1990. Visible paint sludge was present in some of the samples, and elevated levels of chromium and lead were recorded (NYSDEC 1990).

In April 1992, U.S. MetalSource and NYSDEC agreed on an IRM for the Ernst Steel site, involving the removal of 80 cubic yards of contaminated soils (paint sludge) from the area north of the fabrication building (ATEC 1992). After this soil removal, ATEC noted the presence of orange-red staining (indicative of paint sludge contamination) in the base of the excavation (ATEC 1992). At the request of NYSDEC, further excavation and sampling was performed. Visual inspection revealed the presence of staining sporadically from the surface to 2.5 feet below ground surface (BGS). Analytical results indicated the need for further remedial action.

At the request of NYSDEC, a monitoring well was also installed in the northwest corner of the Ernst Steel site downgradient of the contaminated fill area (ATEC 1992). Samples from the well were analyzed for volatile organics and inorganics. Volatile organics were not detected during analysis. In addition, analysis of the groundwater from the monitoring well showed that groundwater was not contaminated with either lead or chromium. Under contract to U.S. MetalSource, ATEC conducted a focused feasibility study on the Ernst Steel site, which recommended stabilization of soil as a viable remedial technology; however, stabilization would require long-term monitoring that could prevent further development of the property. U.S. MetalSource therefore opted not to proceed with stabilization and no further actions were taken by U.S. MetalSource.

Currently, the Ernst site is designated as a Class 2 site on the Registry (NYSDEC 1995).

1.3 Supplemental Investigation and Leachability Study

From June 14 to 16, 1994, E & E conducted a supplemental site investigation at the Ernst Steel site to delineate areas containing paint waste. This investigation consisted of the excavation of approximately 1,300 linear feet of soil trenches and several smaller excavations in the remaining portion of the site (see Figure 1-3). The trenches were selected based on the visual observation of paint waste on the ground surface and, in some instances, corresponded to paint waste areas identified during previous investigations. This work was completed using a backhoe, and the trenching activities were documented by E & E personnel.

Prior to trenching, a 400- by 450-foot grid with 50-foot centers was constructed over the site using a tape measure and metal pin flags (see Figure 1-3). Trenching was initiated and completed in an east/west orientation with 50-foot spacing between trenches. The trenches were excavated to the top of native clay (generally, 1 to 2 feet BGS), with the exception of a few areas where fused slag prevented excavation to the native clay. The type of material excavated, the presence or absence of paint waste, depth to clay, and other pertinent information was logged for each trench. The location of the trenches and areas containing paint waste were also plotted on a site map (see Figure 1-3).

Following completion of the east/west-oriented trenches, three additional trenches with a north/south orientation were completed, connecting areas of observed paint waste. Five smaller excavations were then completed in the remaining portion of the site. Results of the trenching activities are discussed in Section 1.4.

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- Delavan site: Ryder Automotive Operations, Inc., 1728 Walden Avenue, Site No. 915138; removed from Registry in 1994 (6.1 acres).
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On July 27, 1994, at the request of NYSDEC, E & E collected three samples from each of three locations at the site (Figure 1-3) for a leachability study. The purpose of this study was to determine whether detectable quantities of lead had leached to underlying soils from soils containing visible paint waste. Sample depths varied based on depth of the paint waste and depth to the top of native clay.

At the S-1 sample location, paint waste was observed in the top 3 inches of soil. Samples were collected at 9 inches BGS, the top of the clay at 1 foot BGS, and 6 inches below the clay at 1.5 feet BGS. At the S-2 sample location, paint waste was also observed in the top 3 inches of soil. Samples were collected at 9 inches BGS, the top of the clay at 1.5 feet BGS, and 6 inches below the top of the clay at 2 feet BGS. At the S-3 sample location, paint waste was observed in the top 6 inches of soil. Samples were collected at 1 foot BGS, the top of the clay at 1.5 feet BGS, and 6 inches below the top of the clay at two feet BGS. The samples were delivered to E & E's Analytical Services Center (ASC) for total lead (EPA Method Number 7421) and EP-Tox lead (EPA Method Number 1310) analyses. The leachability study results are discussed in Section 1.4.

1.4 Nature and Extent of Waste

The waste at the Ernst Steel site consists of discrete pockets of soil mixed with dried paint sludge between the former railspurs in the northern portion of the site. The paint sludge varies in color from red to bright orange, making it readily discernable by visual observation. The paint waste contains both lead and chromium. The majority of the dried paint sludge pieces intermixed in the soil are relatively small to medium sized (0.075 to 4.75 millimeters [mm]); however, larger pieces (greater than 300 mm) of dried paint sludge were also found to exist in the trenches. The depth to the paint sludge in the northern portion of the site ranges from ground surface to approximately 2 feet BGS (top of clay), with most paint sludge found in the top 6 inches of soil. Paint waste identified around the perimeter of the building appears to be confined to the top 3 inches of material.

The supplemental investigation delineated a total of 16,961 square feet of soil contaminated with paint waste. In addition, a total of 2,951 square feet of paint waste was delineated near the southeast corner of the fabrication building. Note that the areas delineated during the supplemental investigation are based on visual observation of paint waste within widely spaced trenches. Areas of noncontaminated soils may exist within the delineated areas.

Analytical results from the leachability study confirmed that the paint sludge had not leached into the adjacent soils and that all samples had levels less than 500 ppm total lead. Analytical results of the leachability study are included in Appendix B and are summarized in Table 1-1.

Samples S-1A, S-2A, and S-3A were collected 6 inches below the visible paint waste and had total lead concentrations of 270 ppm, 460 ppm, and 190 ppm, respectively. Corresponding EP-Tox lead results were 0.4 ppm and 2.2 ppm for samples S-1A and S-2A, respectively, and were below the detection limit for sample S-3A. Samples S-1B, S-2B, and S-3B were collected at the top of the clay and had total lead concentrations of 34 ppm, 21 ppm, and 38 ppm, respectively. EP-Tox lead concentrations for these samples were all below the detection limit. Samples S-1C, S-2C, and S-3C were collected from intervals 6 inches below the top of the clay and had total lead concentrations of 15 ppm, 34 ppm, and 15 ppm, respectively. EP-Tox lead concentrations for these samples were also below the detection limit. These levels corroborate with the leachability study previously conducted at the Pyramid site, which concluded that vertical migration was limited to less than 6 inches below the paint sludge (E & E 1988).

Background lead concentrations had been established by soil sample analysis on the adjacent Pyramid site. Three background locations, jointly agreed upon by NYSDEC, the New York State Department of Health (NYSDOH), and E & E, were sampled by E & E in 1987. The total lead concentrations at these locations ranged from 42.1 to 544 ppm. EP-Tox levels were less than 5 mg/L.

The low leachability, migration of contaminants has been further restricted because of the absence of vertical groundwater flow and lack of surface water drainage systems in the contaminated areas. The greater than 20-thick-foot clay layer has successfully obstructed the downward migration of contaminants through the groundwater medium (ATEC 1992). The conclusion that groundwater has not been impacted is further supported by the results of ATEC's April 1992 groundwater sampling event, which showed no detectable levels of organics and acceptable levels of lead and chromium (below NYSDEC Class GA standards). The absence of surface drainage structures at the site has prevented point source off-site surface migration of contaminants.

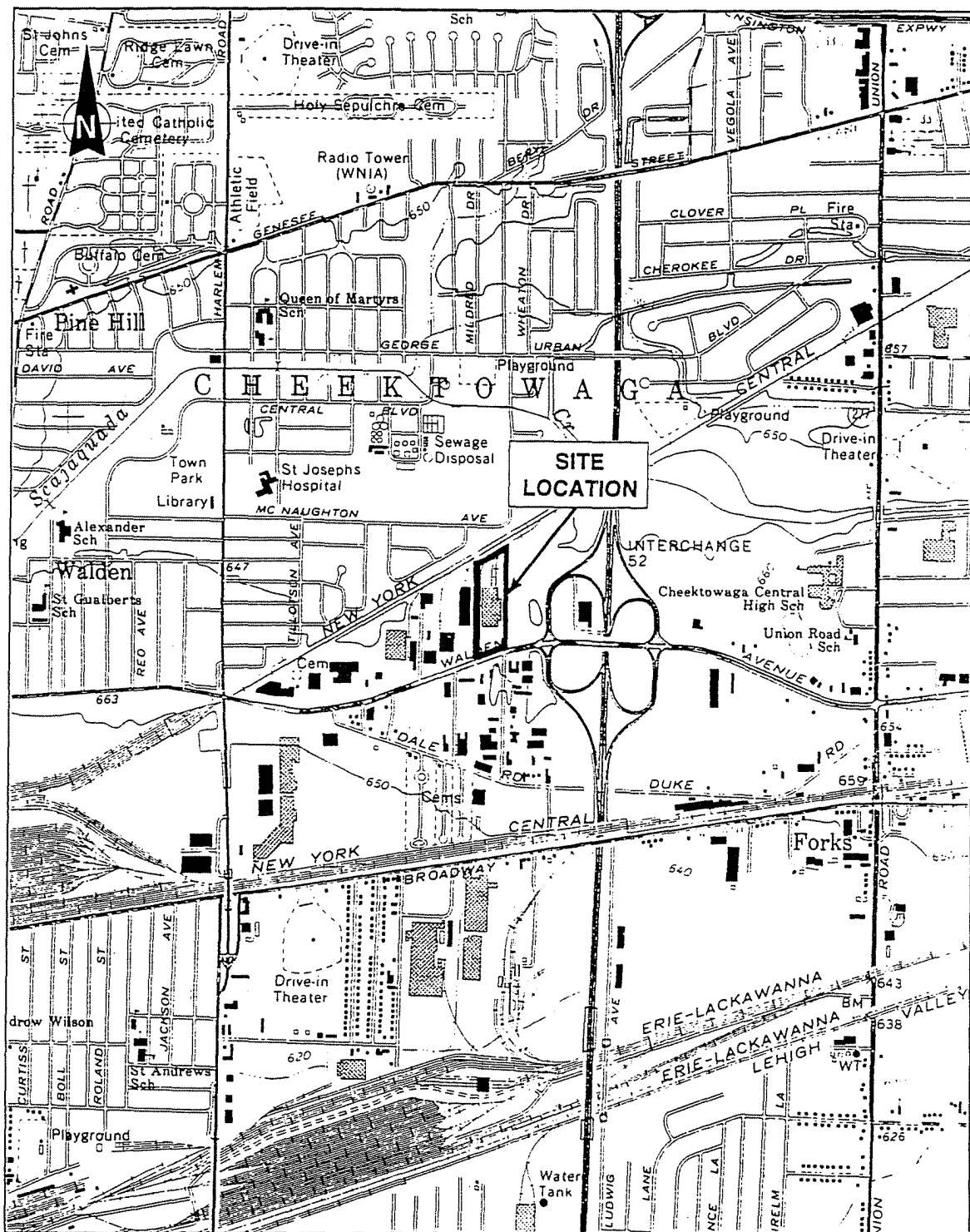
Table 1-1				
LEACHABILITY STUDY ANALYTICAL RESULTS				
Sample Number	Depth BGS (feet)	Matrix	Total Lead (ppm)	EP-Tox Lead (ppm)
S-1A	0.75	Soil	270	0.4
S-1B	1.0	Clay	34	ND
S-1C	1.5	Clay	15	ND
S-2A	0.75	Soil	460	2.2
S-2B	1.5	Clay	21	ND
S-2C	2.0	Clay	34	ND
S-3A	1.0	Soil	190	ND
S-3B	1.5	Clay	38	ND
S-3C	2.0	Clay	15	ND

Key:

BGS = Below ground surface.

ND = Not detected.

ppm = Parts per million.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Buffalo NE, NY, 1965.

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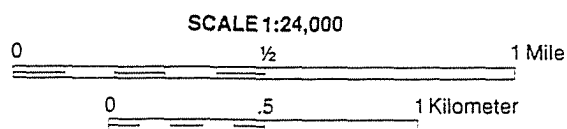


Figure 1-1 LOCATION MAP, 1746 WALDEN AVENUE PROPERTY

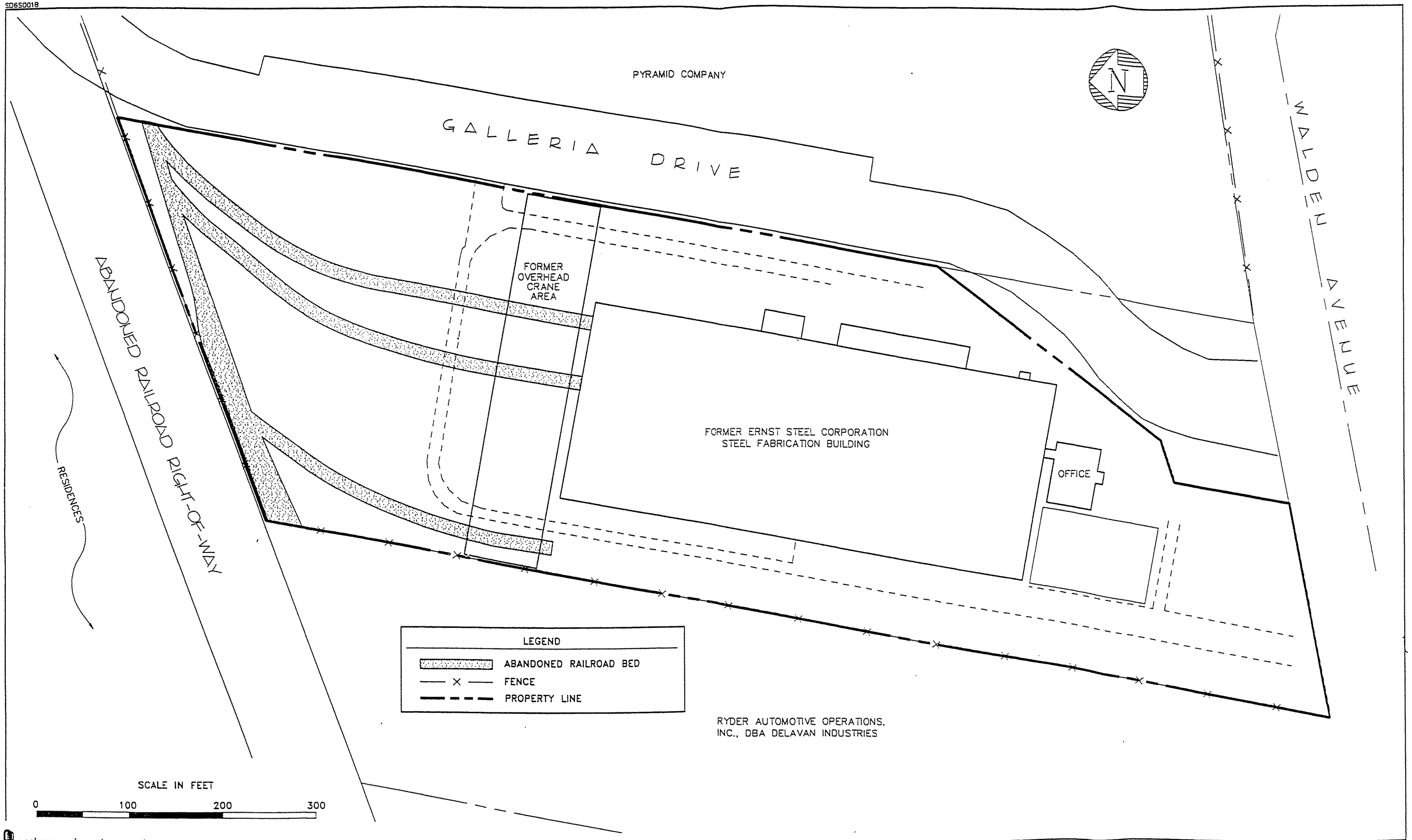


Figure 1-2 SITE MAP
ERNST STEEL SITE

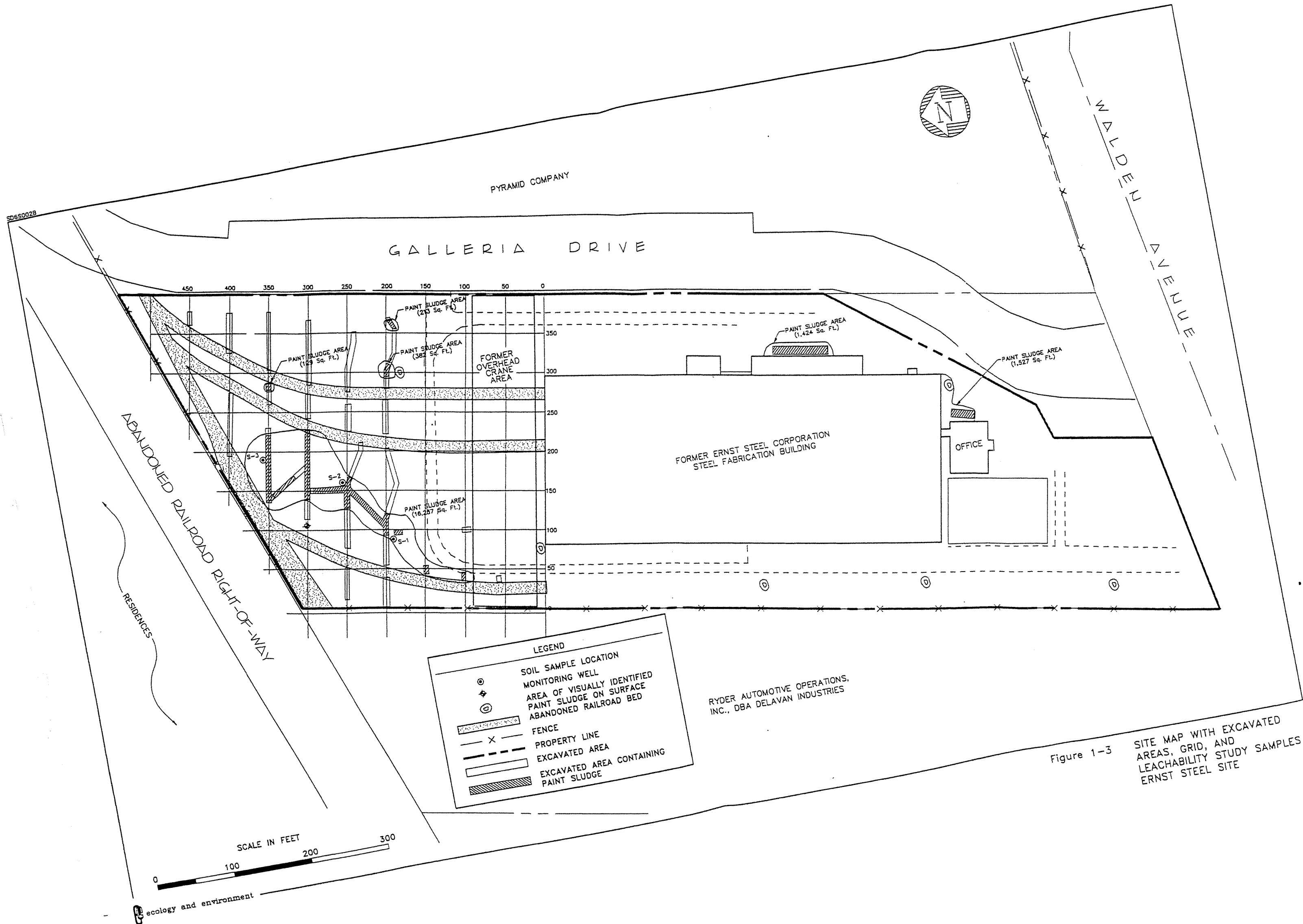


Figure 1-3 SITE MAP WITH EXCAVATED
AREAS, GRID, AND
LEACHABILITY STUDY SAMPLES
ERNST STEEL SITE

METALS SECTION

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10320

MATRIX: SOLID

SAMPLE ID CLIENT: S-3A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	190		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10321

MATRIX: SOLID

SAMPLE ID CLIENT: S-3B

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
-----	-----	-	-----	-----
Lead	38		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10322

MATRIX: SOLID

SAMPLE ID CLIENT: S-3C.

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
-----	-----	-	-----	-----
Lead	15		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF DUPLICATE
ANALYSES OF SOLID SAMPLES

9401.609

(mg/kg as received)				
Parameter	E & E Laboratory No. 94- 10314	Sample Result	Duplicate Result	Relative Percent Difference (RPD)
Lead		270	280	3.7

THIS RPD IS WITHIN E & E, INC. QC TARGETS.

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, RPDs ARE
CALCULATED DIRECTLY FROM THE RAW DATA.

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOLID SAMPLES

9401.609

(mg/kg as received)

Parameter	E & E Laboratory No. 94- 10314	Sample Result	Spiked Sample Result	Spike Amount	Percent Recovery
Lead		270	180	2.0	4X

THIS RECOVERY IS NOT WITHIN E & E, INC. QC TARGETS.

4X = RECOVERY NOT REPORTED BECAUSE SAMPLE AMOUNT IS FOUR OR MORE
TIMES GREATER THAN SPIKE AMOUNT.

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, PERCENT
RECOVERIES ARE CALCULATED DIRECTLY FROM THE RAW DATA.

LABORATORY CONTROL SAMPLE
(7/29)

9401.609

(mg/kg)

ANALYTE	FOUND VALUE	TRUE VALUE	PERCENT RECOVERY
Lead	140	240	59

THIS RECOVERY IS NOT WITHIN E & E, INC. QC TARGETS (80%-120%).

NOTE: ALTHOUGH RESULTS ARE REPORTED AS ROUNDED VALUES, PERCENT RECOVERIES
ARE CALCULATED DIRECTLY FROM THE RAW DATA.

METALS SECTION

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB : METHOD BLANK

MATRIX: SOLID

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	ND		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

2

Cleanup Goals and Remedy Selection

2.1 Cleanup Goals

Visually contaminated soils and soils above total lead concentrations of 500 ppm will be removed from the Ernst Steel site based on applicable regulations, communication with NYSDEC personnel. Walden proposes to develop this site for commercial (nonresidential) use. Confirmatory samples will be collected in the excavation area and tested for total lead to document that the removal area is below the proposed cleanup level.

IRMs at the Ernst Steel site will include the removal of soil visually identified as containing paint waste and adjacent soil that has a total lead concentration greater than 500 ppm, based on confirmation sampling. Excavated material will be stockpiled and sampled. Material containing in excess of 500 ppm total lead will be disposed of off site in accordance with all applicable requirements. Excavated soil with less than 500 ppm total lead will be used for backfill. Representative samples of the waste pile will be analyzed using the toxicity characteristic leaching procedure (TCLP) for lead and TCLP for chromium to develop a waste profile. The number of samples required for an excavated pile will correspond with the quantity of soil stockpiled. The total number of samples will be decided in the field in concurrence with the NYSDEC representative.

2.2 Remedy Selection

Based on professional judgment, the results of previous investigations, and the nature and extent of the wastes at the Ernst site, excavation has been selected as the method for remediating contaminated soils. Although the focused feasibility study conducted for the Ernst site (ATEC 1992) concluded that stabilization of the soil was the most cost-effective alternative, NYSDEC has agreed that excavation and off-site disposal is an appropriate IRM at this site. Excavation and off-site disposal would reduce long-term liability by securing the contaminated material in a secure landfill facility, whereas stabilization would leave the

contaminants in place, which may pose future liability. Furthermore, the stabilization process increases the volume of contaminated materials and requires a long-term monitoring program to ensure the effectiveness of the process, whereas excavation and off-site disposal entirely removes the waste without the need for a monitoring program. Soil will be excavated based on visual inspection because lead and chromium contamination in the soil is directly attributed to the presence of paint in the soil. The excavated soil containing paint sludge will be disposed of at an approved facility. Following excavation and postexcavation sampling, the excavated area will be graded or filled with clean soil, depending on the depth of excavation. These measures will be conducted in accordance with the RAP presented in Section 3.

This IRM is expected to serve as the final remedial measure for the Ernst site.

3.1 Removal Action Plan Objectives

The objectives of this RAP are to:

- Outline procedures to be followed to: remove visibly contaminated soil and paint waste containing concentrations of total lead exceeding 500 ppm; excavate and dispose of off site in a manner that minimizes or eliminates any threats of contamination to human health or the environment; and
- Provide the proper documentation to support a NYSDEC decision to delist the portion of the Ernst site (Site No. 915022) that is on 1746 Walden Inc. property from the New York State Registry of Inactive Hazardous Waste Disposal Sites.

This RAP is intended to be used as a guide for field personnel, project managers, and agency personnel to achieve the above objectives. Procedures for the removal of contaminated soils from the Ernst site are described below.

3.2 Waste Excavation and Profile

Heavy equipment such as front-end loaders and 15- to 20-cubic-yard dump trailers will be used to excavate and remove the contaminated soil and dried paint sludge from the Ernst site. All removal activities will be monitored by E & E to document compliance with the IRMRAP. Contaminated materials will be excavated, stock piled, and profiled. NYSDEC will be notified five days prior to site excavation activities. Visibly contaminated soils and soil with total lead levels above 500 ppm will be transported off site for disposal.

The excavation and removal will be to below the level of visible paint waste: the extent will be determined by an E & E field representative in conjunction with a NYSDEC representative. Based on previous intrusive investigations, dewatering measures will most

likely not be necessary, as the soils are comprised of clay. To determine whether excavation has been effective in achieving the proposed cleanup level, postexcavation sampling will be performed as discussed in Section 3.4. A Health and Safety Plan (HASP) will contain procedures to be followed by on-site personnel to ensure their health and safety.

The HASP will also contain procedures for ensuring the protection of the nearby community. Particulate matter will be monitored continuously upwind, downwind, and within the work area. If the downwind particulate level is $100 \mu\text{g}/\text{m}^3$ greater than the upwind particulated level, then dust suppression techniques will be employed. All readings will be recorded and made available for review by the NYSDEC representative. The NYSDEC TAGM HWR-89-4031 entitled "Fugitive Dust Suppression and Particulate Monitoring at Inactive Hazardous Waste Sites" will be used as a guide in establishing the action levels to be employed for the protection of workers and the surrounding community.

To verify that the paint/soil mixture to be transported and disposed of is characterized appropriately, representative samples will be collected from the stockpiled material and analyzed for TCLP lead and TCLP chromium, as well as any other analyses required by the disposal facility. The number of samples will correspond with the quantity of soil stockpiled. The total number of samples will be decided in the field in concurrence with the NYSDEC representative.

3.3 Waste Storage and Transportation

The wastes will be temporarily stockpiled on site in a designated staging area. The staging area will be constructed using an impermeable plastic liner and cover. To provide that material is contained on site, all vehicles used for waste handling will be restricted to specific areas. Trailers arriving on site will be parked in a staging area. A single trailer will then be moved into position for loading. Trailers will be restricted to access roads. Each trailer will be lined with heavy plastic to prevent contamination of the trailer interior. Enough plastic will be provided on the ends and sides to allow complete coverage of the contained waste. The front-end loader will operate in contaminated areas only.

After the trailer is properly loaded, the plastic liner will be drawn over the contained waste and secured, completely enclosing the contents. The trailer will then be covered with a tarpaulin and parked in the staging area in preparation for transportation. The transport and arrival of trailers will continue until all waste is excavated.

The excavation equipment will require decontamination prior to departure from the Ernst site. Decontamination will occur on an asphalt area and will include scraping gross

contamination, which will be stockpiled and managed with the paint waste. The excavation vehicles and equipment will be washed with a high-pressure washer to remove residual contamination that could be carried off site. The decontamination water and paint waste will be separated and the residual paint waste will be added to the stockpile. The lead and chromium in the paint sludge is not expected to leach into the decontamination water; however, the decontamination water will be analyzed for lead and chromium using EPA Method SW-846-ICP Method 6010 prior to disposal.

3.4 Confirmation Sampling and Analytical Program

To assess the completeness of the removal of visually contaminated waste, total lead (EPA Method 7421) analysis will be performed on soil samples collected from the excavated surface. These confirmation samples will be collected from 0 to 6 inches BGS using precleaned hand trowels or stainless steel spoons. A grid will be constructed on 25-foot centers over the excavated area and at least 10 feet beyond the perimeter of the excavated area. Discrete soil samples will be collected at each grid node. A typical confirmation grid is shown in Figure 3-1. NYSDEC will be notified of all confirmation sampling. The locations of the confirmation samples will be selected in the field with the concurrence of the NYSDEC representative. The NYSDEC representative may also split some of the confirmation samples that are collected.

Once the laboratory data become available, the completeness of the remedial action will be determined. If the total lead concentration of a soil sample is greater than 500 ppm, the soil from the area represented by that sample will be further excavated, and confirmation sampling will be repeated until a surface soil total lead concentration of less than 500 ppm is reached. Surface soil containing less than 500 ppm total lead will be left in place. After successful removal of contaminated material based on the postexcavation sampling results, the excavated areas will be graded.

3.5 Waste Disposal

Contaminated materials (excavated soil) found to be in excess of the regulatory level of 5.0 mg/L for TCLP lead will be shipped to a Resource Conservation and Recovery Act (RCRA)-approved treatment, storage, and disposal (TSD) facility for final disposal. All waste will be properly bulked (trailerred). All contaminated nonhazardous waste will be shipped to a local industrial landfill. Excavated soils with less than 500 ppm of total lead and less than the

likely not be necessary, as the soils are comprised of clay. To determine whether excavation has been effective in achieving the proposed cleanup level, postexcavation sampling will be performed as discussed in Section 3.4. A Health and Safety Plan (HASP) will contain procedures to be followed by on-site personnel to ensure their health and safety.

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regulatory limit of 5.0 mg/L for TCLP lead and TCLP chromium, respectively, will be used on site in the excavated areas as backfill.

3.6 Removal Action Implementation Report

After NYSDEC's recognition of completeness of the IRM, a Remedial Action Implementation Report will be submitted to NYSDEC. This report will provide NYSDEC with the necessary information and proper documentation to delist the 1746 Walden Inc. property from the New York State Registry of Inactive Hazardous Waste Disposal Sites. The report will include descriptions of the excavation activities, the quantity of soil removed, excavation configurations, postexcavation sample locations, analytical results, a quality assurance/quality control (QA/QC) evaluation, and any deviations from the approved plan. To support these descriptions, appropriate figures, tables, and charts will be provided with the report.

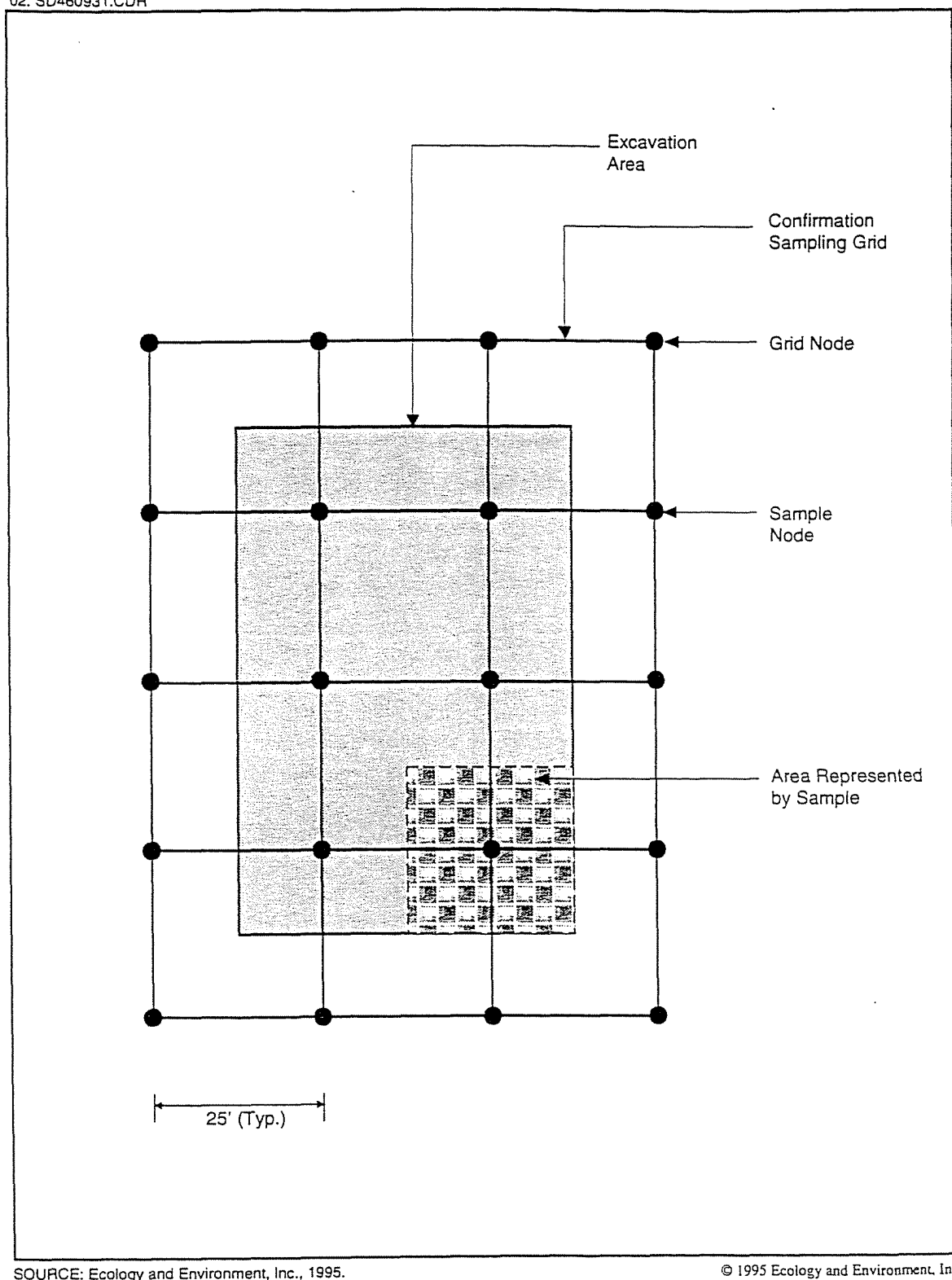


Figure 3-1 TYPICAL CONFIRMATION SAMPLING GRID

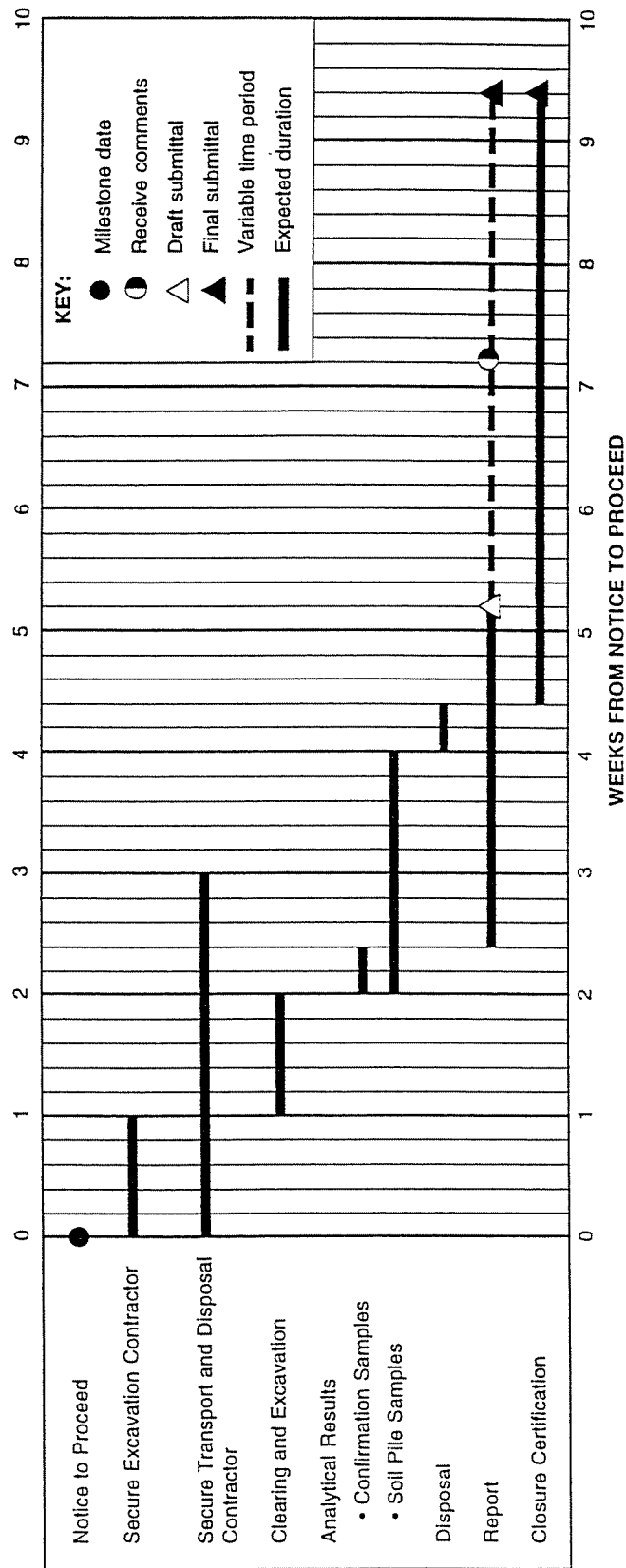
Upon approval by NYSDEC, Walden will implement this IRMRAP. Figure 4-1 shows the proposed IRMRAP schedule. Note, however, that inclement weather could postpone the field tasks and ultimate project end date.

Walden will secure an Occupational Safety and Health Administration (OSHA)-certified excavator for waste removal. Walden will also secure a licensed contractor for transportation of waste materials to appropriate facilities and make any necessary arrangement and obtain proper documentation for the proper disposal of the waste materials.

Clearing, excavation, and confirmation sampling will be completed within two weeks of Notice to Proceed. The confirmation sample results will be available within 48 hours of receipt by E & E's ASC. Based on the data, the adequacy of the remedial activity will be determined. The soil pile sample results will be available within two weeks of receipt by the ASC.

The draft Remedial Action Implementation Report will be submitted to Saperston and Day within three weeks after the results of the confirmation samples have been received. The final report will be submitted to Saperston and Day within one week of E & E's receipt of the draft report comments.

One week after receipt from the appropriate disposal facility, a closure certification will be prepared by E & E. This closure certificate will be forwarded to NYSDEC as a basis for delisting the 1746 Walden Inc. property from the Registry.



Assumptions:

- One iteration of excavation and confirmation sampling will be necessary
- Timely review of draft report (2 weeks)
- Timely receipt of disposal documentation

SOURCE: Ecology and Environment, Inc., 1995.

© 1995 Ecology and Environment, Inc.

Figure 4-1 IRMRAP PROJECT SCHEDULE

- ATEC Environmental Consultants, 1992, Final Report, Additional Sampling and Feasibility Study, U.S. MetalSource.
- Beuchi, P., 1985, letter to F. Ernst, Vice President of Ernst Steel Corporation from P. Beuchi, Associate Sanitary Engineer with NYSDEC.
- Ecology and Environment, Inc., (E & E), 1988, Revised Closure Plan, Ernst Steel Property, Walden Avenue Cheektowaga, New York, prepared for the Pyramid Company of Buffalo.
- Ernst, F., 1985, letter to P. Beuchi.
- New York State Department of Environmental Conservation, 1990, letter and attached sampling results from J. Walia, Environmental Engineer with NYSDEC, to R. Blake, General Manager, U.S. MetalSource, Steel Supply Division.
- _____, 1985, Division of Solid and Hazardous Waste, Inactive Hazardous Waste Disposal Site Report: Ernst Steel Site (915022).
- _____, 1995, Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Site Report: Ernst Steel Site (915022).
- United States Environmental Protection Agency (EPA), 1983, Potential Hazardous Waste Site Preliminary Assessment for Ernst Steel Corporation (NY D980508246), performed by NUS Corporation.

A

Leachability Study Analytical Results

MEMORANDUM

TO: Tim Grady
FROM: Gary Hahn *GH/jp*
DATE: August 25, 1994
SUBJECT: SD-6000 Ernst Steet Report
RE: 9401.609
CC: Lab File

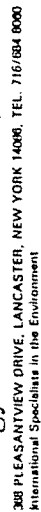
Attached is the laboratory report of the analysis conducted on nine samples received at the Analytical Services Center on July 28, 1994. Analysis was performed according to the procedures set forth in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, U.S. EPA, 1986.

The chain of custody form provided herein is integral to this report and must be included with the analytical results forms upon transferral to another data user.

A facsimile of draft results was sent to John Peck on 8/25/94.

All samples on which this report is based will be retained by E & E for a period of 30 days from the date of this report, unless otherwise instructed by the client. If additional storage of samples is requested by the client, a storage fee of \$1.00 per sample container per month will be charged for each sample, with such charges accruing until destruction of the samples is authorized by the client.

GH/jp
enclosure



CHAIN-OF-CUSTODY RECORD

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

234055

12/1/77

CONCENTRATION CHANGE on back of form.

Ecology and Environment, Inc.
SAMPLE TRACKING REPORT

	SAMPLE	CLIENT SAMPLE ID	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED
-	NUMBER				
LEAD		(ICP) -S			
	10314.01	S-1A	07/27/94	07/29/94	08/18/94
	10315.01	S-1B	07/27/94	07/29/94	08/18/94
	10316.01	S-1C	07/27/94	07/29/94	08/18/94
	10317.01	S-2A	07/27/94	07/29/94	08/18/94
	10318.01	S-2B	07/27/94	07/29/94	08/18/94
	10319.01	S-2C	07/27/94	07/29/94	08/18/94
	10320.01	S-3A	07/27/94	07/29/94	08/18/94
	10321.01	S-3B	07/27/94	07/29/94	08/18/94
	10322.01	S-3C	07/27/94	07/29/94	08/18/94
LEAD		EPT MSA-SOLID			
	10314.01	S-1A	07/27/94	08/03/94	08/18/94
	10315.01	S-1B	07/27/94	08/03/94	08/23/94
	10316.01	S-1C	07/27/94	08/03/94	08/23/94
	10317.01	S-2A	07/27/94	08/03/94	08/23/94
	10318.01	S-2B	07/27/94	08/03/94	08/23/94
	10319.01	S-2C	07/27/94	08/03/94	08/23/94
	10320.01	S-3A	07/27/94	08/03/94	08/23/94
	10321.01	S-3B	07/27/94	08/03/94	08/23/94
	10322.01	S-3C	07/27/94	08/03/94	08/23/94

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB :EE-94-10314

MATRIX: SOLID

SAMPLE ID CLIENT: S-1A

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	0.40	-	0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB :EE-94-10315

MATRIX: SOLID

SAMPLE ID CLIENT: S-1B.

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND		0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB :EE-94-10316

MATRIX: SOLID

SAMPLE ID CLIENT: S-1C

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND		0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB : EE-94-10317

MATRIX: SOLID

SAMPLE ID CLIENT: S-2A

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	2.2	-	0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB : EE-94-10318

MATRIX: SOLID

SAMPLE ID CLIENT: S-2B

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND		0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB :EE-94-10319

MATRIX: SOLID

SAMPLE ID CLIENT: S-2C

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND		0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB :EE-94-10320

MATRIX: SOLID

SAMPLE ID CLIENT: S-3A

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND	-	0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB :EE-94-10321

MATRIX: SOLID

SAMPLE ID CLIENT: S-3B

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND		0.050	5.0	MG/L

QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE

Results of Analysis of Extracts from the E.P. Toxicity Test

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

SAMPLE ID LAB : METHOD BLANK

MATRIX: SOLID

PARAMETER	RESULTS	Q	QNT. LIMIT	REGULATORY LEVEL	UNITS
Lead	ND		0.050	5.0	MG/L

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10314

MATRIX: SOLID

SAMPLE ID CLIENT: S-1A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	270		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10315

MATRIX: SOLID

SAMPLE ID CLIENT: S-1B

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	34		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10316

MATRIX: SOLID

SAMPLE ID CLIENT: S-1C

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
-----	-----	-	-----	-----
Lead	15		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10317

MATRIX: SOLID

SAMPLE ID CLIENT: S-2A

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	460		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER :9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10318

MATRIX: SOLID

SAMPLE ID CLIENT: S-2B

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	21		7.5	MG/KG

QUALIFIERS: C = COMMENT

ND = NOT DETECTED

J = ESTIMATED VALUE

METALS SECTION

JOB NUMBER : 9401.609

ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : SD-6000 ERNST STEEL

RESULTS IN WET WEIGHT

SAMPLE ID LAB : EE-94-10319

MATRIX: SOLID

SAMPLE ID CLIENT: S-2C

PARAMETER	RESULTS	Q	QNT. LIMIT	UNITS
Lead	34		7.5	MG/KG

QUALIFIERS: C = COMMENT
J = ESTIMATED VALUE

ND = NOT DETECTED

NATURE'S WAY
ENVIRONMENTAL CONSULTANTS & CONTRACTORS, INC.

3553 Crittenden Rd.
Crittenden, N.Y. 14038

(716) 937-6527
(FAX) 937-9360

WORK PLAN FOR:
ENVIRONMENTAL SITE REMEDIATION SERVICES

TO BE PERFORMED AT:

BENDERSON DEVELOPMENT INC. PROPERTY
FORMER ERNST STEEL SITE
WALDEN AVE.
CHEEKTOWAGA, N.Y.

PREPARED BY:

NATURE'S WAY
ENVIRONMENTAL CONSULTANTS & CONTRACTORS INC.
3553 CRITTENDEN RD.
CRITTENDEN, N.Y. 14038

NOVEMBER 28, 1995

NATURE'S WAY
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(1)

INTRODUCTION

This document presents a Remedial Action Work Plan (RAP) proposed by Nature's Way Environmental Consultants & Contractors Inc. (NWECC Inc.), with regard to Remediation of Lead contaminated soils at the site listed above. It is the purpose of this document to specify and define the planned Remediation activities at this Site.

This RAP will present:

1. Project Objectives and Proposed Remediation Technique(s) to be Employed;
2. Results of Site Specific Treatability Study Performed on Representative Worst-Case Soil Samples.
3. Chronological Listing of Proposed Remediation Activities:
4. Site Specific Health & Safety Considerations/Plan.
5. Confirmation Sampling/Analysis Plan.
6. List of Documentation to Be Submitted.

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(2)

PROJECT OBJECTIVES

1. Perform On-Site Chemical Stabilization of lead contaminated soils, reducing lead levels in leachate of the soils to demonstrated and documented compliance with applicable EPA TCLP limits (< 5.0 ppm). This is to be accomplished using Solucor Inc. as a subcontractor to NWECC Inc., to provide it's patented metals in soils stabilization process.
2. Off-Site Disposal of the stabilized contaminated soils to an approved Sanitary landfill, with documentation.
3. Achieve a "Delisted" Status from USEPA and NYSDEC for the Site.

NATURE'S WAY
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(3)

PROPOSED REMEDIAL TECHNIQUE

NWEC&C Inc. will provide a turnkey package of On- and Off-Site Environmental Services comprising a remediation package to eliminate lead contaminated soils present at the Subject Site, utilizing a patented, On-Site, metals in soils, stabilization process, provided by subcontractor Solucorp Industries Ltd., 520 Victor Street, Saddle Brook, NJ. This process has been previously demonstrated and employed on a number of sites, and has been accepted into the EPA "SITE" Program.

The process to be employed by Solucorp may be summarized as follows:

After mechanical screening of the soils to be treated to remove debris larger than 1.5" in dia., metals contaminated soils are fed through a specially designed (and enclosed) and modified Pug Mill at a rate of approx. 60 tons per hour, with application of a proprietary treatment agent (MBS - Molecular Bonding System Product) at a ratio of 1.0% to 2.0% to the soil, producing a chemical reaction which transforms the metals in the soil (in this case, lead) to their Sulfide form (Lead Sulfide). This chemical form is both extremely insoluble (thus eliminating leachate toxicity) and durable. In addition the treatment agents utilized are formulated to add a great deal of buffering capacity to the soils to prevent future acidification/leaching from freeing metals from the sulfide form remaining in the soil. The process and reactions involved are immediate (almost instantaneous) and no "curing" time is required. This technology offers significant landfill space savings, since the volume of the soils treated is increased by only 1.0% to 2.0%, as opposed to the 25% to 35% volume increase associated with cement or lime stabilization.

Technical information on this process as provided by Solucorp is included as Attachment #1.

As the soils are processed, they will be stockpiled in approx. 100 ton piles on-site, at which time they are sampled and analyzed according to the attached Confirmation Sampling/Analysis Plan, to document successful completion of treatment.

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(4)

PROPOSED REMEDIAL TECHNIQUE

Upon submission of documentation of successful treatment, approval to dispose of the treated soils at an approved sanitary landfill (Waste Management Inc.'s Lakeview Landfill in Erie, PA, or modern Landfill in Lewiston, N.Y.) will be requested from the NYSDEC and/or PADER, as applicable.

Upon receipt of approval to dispose of the soils to a sanitary landfill as requested, we will load and truck the soils to the selected landfill, with manifests as required for each load, and submit copies of landfill disposal receipts (weigh slips) and manifests to the NYSDEC.

We will request a written confirmation of assignment of "Delisted" status for the Site upon submission of the above documentation of completion of Site remediation.

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RESULTS OF SITE SPECIFIC TREATABILITY STUDY

A Treatability Study was performed 11/06 - 11/10/95 on a representative Worst- Case Soil Samples by Solucorp to select the proper treatment agent formulations, and confirm treatability of the specific soils and contaminant associated with the Site. The treatability study results are presented in Attachment #2. Results show that leachate lead concentrations from the soils prior to treatment ranged from 16.0 to 47 ppm., with all formulations tested resulting in reduction of lead in leachate concentrations to no-detect levels.

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CHRONOLOGICAL LISTING OF PROPOSED REMEDIATION ACTIVITIES

General Information

Prior to initiation of processing, the soil piles to be treated will be segregated (marked with appropriately colored flags) from those not requiring treatment prior to disposal in a sanitary landfill (TCLP Lead Levels < 5.0 ppm) based on previously performed and submitted sampling/analytical data.

According to estimates provided, approximately 2500 tons of lead contaminated soils are present on-site, with approx. 2200 tons presently stockpiled and consisting of 1700 tons containing lead above TCLP limits, and 500 tons containing lead at levels below 5.0 ppm on a TCLP extract. In addition, we are told that an estimated 200 cubic yards (300 tons) of soils containing lead at levels above TCLP limits are as yet unexcavated, and will require excavation (and characterization testing) prior to processing and/or disposal.

Action #1 - Treatability Study

Initiation Date: 11/06/95
Completion Date: 11/10/95

A treatability Study on a representative sample of the soils to be treated will be performed at and by Solucor Inc. Results of treatability tests documenting attainment of required stabilization levels in the subject soils by the process to be employed will be provided to NWECC Inc., Client, and Regulatory Authorities.

Action #2 - Submission of Treatability Study Data to NYSDEC for Approval to Proceed

Initiation Date: 11/14/95
Completion Date: 2 - 3 Business Days

It is assumed for the purposes of this proposal that ongoing consultation with the NYSDEC will result in an agreement with the Regulatory Authorities involved that authorization to proceed with the proposed work will be given immediately upon submission of acceptable Treatability Study results. NWECC Inc. will actively participate in those negotiations and consultations and will provide all requested information to the best of our ability and availability, in an effort to gain such agreement and approval.

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(7)

CHRONOLOGICAL LISTING OF PROPOSED REMEDIATION ACTIVITIES

Action #3 - Mobilization

Initiation Date: 12/08/95
Completion Date: 12/13/95

Mobilize and setup equipment On-Site.

Action #4 - Treatment/Stabilization of Soils

Initiation Date: 12/14/95
Completion Date: 12/22/95

Process Soils as Described above.

Action #5 - Confirmation Testing/Off-Site Landfill Approval

Initiation Date: 12/15/95
Completion Date: 01/03/96

We plan to utilize 3 day turnaround analyses of processed soils for confirmation of TCLP Lead compliance (performed as soils are processed in 100 ton batches/stockpiles), and pre-prepared and submitted paperwork to Landfill and Regulatory Authorities, in an effort to minimize the time required for final approval to landfill the treated soils. We expect that final approval for transport to landfill of the treated soils can be completed in approx. three days with Regulatory Authority cooperation and presubmission/approval as described.

Action #6 - Off-Site Sanitary Landfill Disposal of Treated Soils

Initiation Date: 01/10/96
Completion Date: 01/18/95

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CHRONOLOGICAL LISTING OF PROPOSED REMEDIATION ACTIVITIES

Action #7 - Submission of Documentation Package and Final Billing

Initiation Date: 01/18/96
Completion Date: 01/28/96

A complete Documentation Package, including final tonnages, Process logs, confirmation testing analytical w/QA/QC, Regulatory Authority Submissions and Approvals, Manifests, and other documentation that may be developed or required will be submitted to the NYSDEC.

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(9)

SITE SPECIFIC HEALTH & SAFETY CONSIDERATIONS

This workplan proposes to implement, and follow without modification, the previously submitted (E&E Inc.) Site Specific Health & Safety Plan for this Site (Attachment #3), specifically including, but not limited to:

1. Air Monitoring - Lead/Particulates - to be performed as specified by E&E Inc., by E&E Inc. personnel during all hazardous designated soils processing/handling activities.

2. All other applicable specifications of the E&E Inc. Health & Safety Plan.

In addition, NWECC Inc. plans to implement the following modifications and/or additional Health & Safety Procedures:

Based on both the physical state (solids) and type (toxicity related to contact/ingestion/inhalation exposure only) of contaminants associated with the Site, and in addition, the process (SOLUCORP) to be employed at the Site, we plan to implement the following additional safeguards to prevent adverse impact to the environment and/or human health and safety:

1. Additional Air Monitoring Requirements due to Process Characteristics:

A. Hydrogen Sulfide Gas concentrations between the carbon scrubbers (Location #1) in series on the Effluent Discharge (stack) of the Process Gas treatment System will be monitored by a Scott hydrogen sulfide gas analyzer, and alarmed at 1.0 ppm.

B. H₂S concentration in ambient air will be monitored by Jerome 631X Hydrogen Sulfide Gas Analyzer with data logger, and alarmed at 10.0 ppb, at one location:

1. Location #2: At Perimeter of the Designated (fenced) Work area:

C. H₂S concentrations will be monitored by hand-held H₂S/O₂ meter:

1. within the Designated Work Area.

*E&E will
provide this
monitoring.
See E&E Site Safety Plan
addendum*

(11115)

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(10)

SITE SPECIFIC HEALTH & SAFETY CONSIDERATIONS

B. Corrective Actions:

1.If levels detected exceed 1.0 ppm at:

a. Location #1 - Between Carbon Filters

Shut Down of Process;

Off gas treatment (carbon drums) will be rotated and/or changed out, as applicable to eliminate discharge above action level:

Restart process and immediately retest to determine discharge within limits indicated above:

2.If levels detected exceed 10.0 ppb (applicable DOH specified action level) at:

a. Location #2 - Designated Work Area Perimeter:

Shut Down of Process;

Off gas treatment (carbon drums) will be rotated and/or changed out, as applicable to eliminate discharge above action level:

Restart process and immediately retest to determine levels at this location are within limits indicated above:

3.If levels detected exceed 4.0 ppm at:

a. Location #3 - within Work Area Perimeter:

Shut Down of Process;

Off gas treatment (carbon drums) will be rotated and/or changed out, as applicable to eliminate discharge above action level:

Restart process and immediately retest to determine levels at this location are within limits indicated above:

As determined by
E+E

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2. Additional General Health & Safety Requirements:

A. Both untreated and treated stockpiled soils will be placed on impermeable groundcover (i.e. poly liner or blacktop) and covered with 6 mil poly liners at all times while On-Site.

B. Access to the treatment area will be restricted by construction fencing, and limited to Authorized personnel only, and a Log will be kept of all personnel in the treatment area.

C. All personnel entering the treatment area will be required to wear protective clothing including tyveks, gloves, and appropriate dust inhalation protection (dust masks).

D. If necessary, dust will be controlled (See E&E Inc. Fugitive Dust Control Addendum to Health & Safety Plan) throughout the screening and treatment process through application of a fine water mist in the area of those operations.

E. All protective clothing will be properly removed and disposed of prior to leaving the treatment area. All equipment will be decontaminated by manual (broom/brush/wipedown) removal of all soils upon completion of processing, and prior to leaving the treatment area.

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CONFIRMATION SAMPLING/ANALYSIS PLAN

All processed soils will be placed in approximately 100 ton stockpiles, mapped, logged, and randomly sampled (eight grabs at random locations and depth) to obtain one composite sample per 100 tons of treated soil, using EPA SW-846 standard sampling techniques and implements (i.e. stainless soil sampling tubes). The samples so collected will be submitted under chain of custody to an independent NYSDOH ELAP certified analytical laboratory for TCLP Lead analysis. All results will be submitted to the NYSDEC. Should any soil pile exceed applicable TCLP Lead limits (5.0 ppm), all soils in that individual stockpile will be reprocessed and resampled and reanalyzed, until results are within acceptable limits.

LIST OF DOCUMENTATION TO BE SUBMITTED

A complete Documentation Package, including final tonnages, Process logs, confirmation testing analytical w/QA/QC, Regulatory Authority Submissions and Approvals, Manifests, and other documentation that may be developed or required will be submitted to the Client and NYSDEC within 30 days after completion of disposal.

All Of Which Is Respectfully Submitted,

Russel J. Savage, Oper. Mgr.
NWECC Inc.

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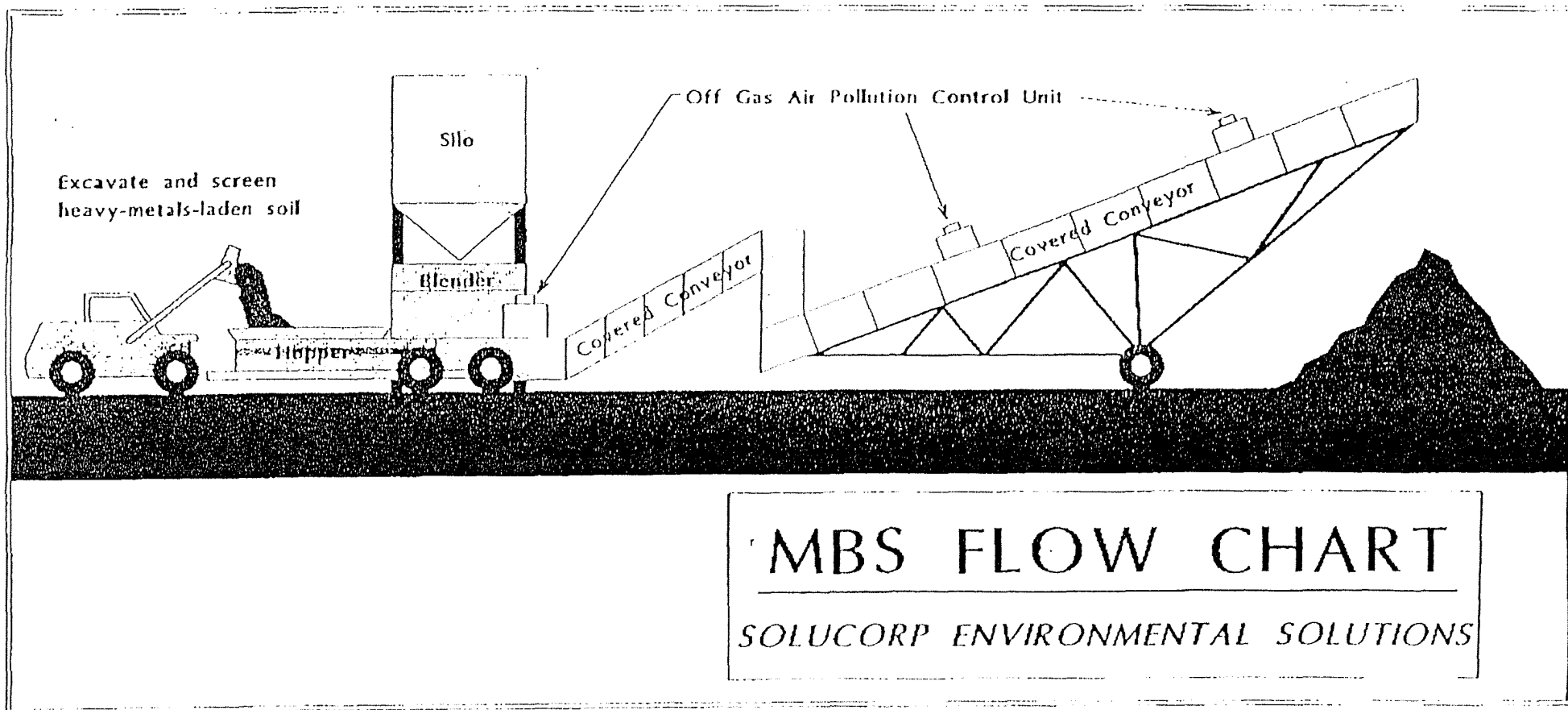
ATTACHMENT #1
SOLUCOR INC. PROCESS INFORMATION

DESCRIPTION OF THE MOLECULAR BONDING SYSTEM TECHNOLOGY

The Molecular Bonding System (MBS) is a process developed for the stabilization of a variety of media contaminated with heavy metals. The process employs a proprietary mixture of (non-hazardous) chemicals to convert the heavy metal contaminants from their existing reactive/leachable form (usually oxides) into an insoluble, stable, non-hazardous, metal-sulfide compound that will achieve TCLP levels far below regulatory limits. The MBS process maintains the pH levels in the media within a range where the insolubility of the heavy-metal sulfides is assured. The system also provides buffer capacity to ensure that the pH is not significantly altered by the addition of acids or caustic to the media. The process has been designed (and proven successful in commercial-scale applications) for wastes classified as D004 through D011, as well as K-listed wastes. Given the chemical similarities of radioactive wastes, it is likely that MBS can be applied to the permanent stabilization of low level radioactive wastes. Furthermore, its ability to alter the form of hazardous contaminants into a non-hazardous form, can provide a unique and cost effective solution to the treatment of mixed (e.g. radioactive and heavy metal) wastes.

As depicted in the attached process flow diagram provided, the MBS treatment process is completely mobile and easily transportable (to allow for on-site treatment). Waste material is screened and crushed as required to reduce particle sizes to an average 1" diameter (particle size reduction increases surface area, which maximizes contact with the reagents). The waste media is then mixed with powdered reagents in a closed hopper pug mill (the reagent mixture is established through treatability studies for the site specific conditions). Water is then added to catalyze the reaction and to ensure homogeneous mixing. Curing time is essentially immediate and the resulting increase in volume is between 2%-3%. The treated media is then conveyed to a stockpile. Solucorp fully enclosed pug mill is provided with a vacuum system which pulls the exhaust vapors (and odors) through a regenerable-wet scrubber (backed-up by an activated carbon adsorption system) prior to discharge to the atmosphere. The treated media can then be either returned to the original site or disposed in a Subtitle D landfill (the negligible increase in treated waste volume significantly reduces T&D costs, compared to conventional treatment processes).

MBS SOIL REMEDIATION PROCESS



AIR POLLUTION CONTROL UNITS

<u>Description</u>	<u>Specifications</u>	<u>Dimensions</u>
♦ Wet Scrubber	✓ Stack Emission Height ✓ Stack Diameter ✓ Exit Velocity ✓ Temperature ✓ Volumetric Flow Rate	30 feet 1.2 feet 1,100 ft./min. 2° above ambient 5000 CFM
♦ Dry Scrubbers	✓ Stack Diameter ✓ Exit Velocity ✓ Volumetric Flow Rate	4 inches 285.7 ft./min. for 100 CFM units 857.1 ft./min. for 300 CFM units 100-300 CFM each

* Hydrogen Sulfide potential ranges from 0-15 lbs./hr. depending on feed rates and concentrations of contaminants.

demonstrated in Table I-3, the MBS process is far superior to other remediation technologies in every category. Its inherent ability to transform hazardous contaminants into non-hazardous compounds can facilitate on-site disposal as well as reduce the owner's future liability. When off-site disposal is called for, the MBS process results in much lower T&D costs, since the treatment process does not require the addition of large volumes of additives. Tables I-4 and I-5 provide additional comparison of MBS cost advantages.

Table I-3 Remediation Technology Comparison Matrix

Criteria	MBS	Cement	Lime	Silicate/ Mineralization	Vitrification	Soil Washing
Permanent Stabilization	Yes	No	No	No	Yes	Yes
Pollution Prevention	Yes	No	No	No	No	No
Operating Costs	Low	Low	Low	Low	Medium	High
Curing Time	Neg.	Long	Long	Long	Long	N/A
Mat'l Volume Change	Neg.	Large	Large	Large	N/A	Soil Swelling

Table I-4: Cost comparison of MBS versus solidification/stabilization.

Transportation & Disposal	MBS	Lime-based Aggregate/cement	Variance
Additional Product Weight	2%-3%	15%-30%	13%-27%
No. of truck loads (22 Tons/Truck-10,000 tons)	486	614	21%
Product Cost	Competitive	Competitive	N/A

PROCESS RESULTS

The MBS process has undergone extensive bench scale and pilot scale testing prior to its successful full-scale commercialization, where the same dramatic reductions in the TCLP levels of hazardous contaminants achieved in the laboratory, were achieved in the field. Table 1-1 below provides results from recent bench scale tests, tangibly demonstrating these significant reductions in contaminant levels. Table 1-2 outlines the excellent results obtained from 2 recent commercial projects.

Table 1-1 MBS Bench Test Results (TCLP)

Element	Lead	Chromium	Arsenic	Mercury	Hydrocarbs & Lead	Cadmium
Before	650 ppm	11 ppm	130 ppm	6 ppm	55 ppm	78 ppm
After	0.74 ppm	<0.10 ppm	1.7 ppm	0.075 ppm	<0.01 ppm	<0.05 ppm
EPA Limit	5 ppm	5 ppm	5 ppm	0.2 ppm	5 ppm	1 ppm

Table 1-2 MBS Commercial Test Results

	PIGMENT DYE MFGR LEAD	BRASS FOUNDRY LEAD CADMIUM
Before	77 ppm	55 ppm 6 ppm
After ⁽¹⁾	Non Detect to Fractional	Non Detect to Fractional
EPA Limit	5 ppm	5 ppm 1 ppm
Volume Addition	1.8%	1.6%
# of Processing Days	25	18
Tons Per Hour	60	65

⁽¹⁾ Sampling conducted daily by an independent certified laboratory

COMPARISON WITH OTHER TREATMENT TECHNOLOGIES

The MBS process is the only treatment system that chemically alters the form of heavy metal contaminants into a non-leachable, non-hazardous, stable compound. The treated product is essentially rendered non-hazardous. Conventional stabilization methods require the addition of large volumes of stabilization agents (e.g. cement or silica-based additives) to the treated material (merely encapsulating the contaminants without changing their chemical/hazardous form) and significantly increasing transportation and disposal costs. The MBS process also offers significant advantages over other treatment processes, including soil washing and vitrification. Its inherent process simplicity, its modular/transportable design and its fully closed cycle (preventing the release of contaminants or secondary wastes), results in: lower operating costs, enhanced safety and reduced emissions/secondary wastes. Table 1-3 provides a comparison of various remediation technologies and the MBS process. As

Table I-5: Comparison of MBS versus Landfilling

Element	MBS	Hazardous Landfill	Varlance
Stabilization Cost Processing at \$ 50/ton	\$500,000	-0-	(\$500,0000)
Transportation and Disposal			
Total Product Weight	10,500	10,000	(500 Tons)
T&D	\$ 50/ton	\$200/ton	\$150/ton
Total T&D Cost	\$525,000	\$2,000,000	\$1,465,000
Product and Disposal Cost			\$975,000
Total Cost	\$1,025,000	\$2,000,000	51.3%

NEW JERSEY COMMERCIAL PROJECT

REMEDIATION DATE	JULY/AUGUST 1995
SOURCE OF POLLUTION	FORMER PIGMENT/DYE MANUFACTURER
PROJECT SCOPE	REMEDiate APPROXIMATELY 6,000 TONS OF HAZARDOUS LEAD SOIL AND DISPOSE OF OFF-SITE
TYPE OF SOIL	SANDY/SILTY
PRE/POST TCLP RESULTS	77 PPM ⇨ TO NON-DETECT/FRACTIONAL PPM'S (TCLP RESULTS RUN DAILY BY INDEPENDENT EPA AND STATE CERTIFIED LABORATORY)
VOLUME ADDITION	1.8%
PROCESSING RATE	60 TONS PER HOUR (AVERAGE)

CONNECTICUT COMMERCIAL PROJECT

REMEDIATION DATE	AUGUST/SEPTEMBER 1995
SOURCE OF POLLUTION	FORMER BRASS MANUFACTURER
PROJECT SCOPE	REMEDiate APPROXIMATELY 4,000 TONS OF HAZARDOUS LEAD AND CADMIUM SOIL AND SLAG. ELEVATED LEVELS OF COPPER AND ZINC WERE ALSO PRESENT.
TYPE OF SOIL	SANDY/SILTY
PRE/POST TCLP RESULTS	LEAD 33 PPM'S/CADMIUM 6 PPM'S WERE BROUGHT TO FRACTIONAL/NON-DETECTABLE LEVELS. TCLP ANALYSIS CONDUCTED DAILY BY INDEPENDENT AND STATE CERTIFIED LABORATORIES.
VOLUME ADDITION	1.6%
PROCESSING RATE	60 TONS PER HOUR (AVERAGE)

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ATTACHMENT #2
TREATABILITY STUDY RESULTS


ENVIRONMENTAL SOLUTIONS

SOLUCORP Industries, Ltd.
520 Victor Street
Saddle Brook, NJ 07663
Tel: 201-368-7902
Fax: 201-368-8322

November 10, 1995

Mr. Russ Savage
NWECC&C, Inc.
3553 Crittenden Road
Crittenden, NY 14038

Dear Russ:

SOLUCORP Industries treatability laboratory, B.C. Research, located in Vancouver, B.C. Canada received a representative (hot spot) sample from Nature's Way Environmental Consultants and Contractors, Inc. on Monday November 6, 1995. This sample was taken from the Former U.S. Steel Facility in Cheektowaga, New York.

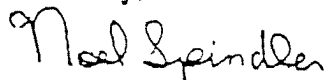
B.C. Research performed a TCLP extraction test on the sample to determine the exact levels of lead contamination. Once these results were received and verification that the sample was RCRA hazardous for lead (D008), treatment tests were initiated on the material using SOLUCORP's MBS (Molecular Bonding System) technology. Treatability tests are performed using a series of three formulations. From these formulations, TCLP results are run to determine if successful treatment has occurred. This formula is then identified for eventual field remediation.

SOLUCORP performed this treatability study to verify that the technology would successfully stabilize the hazardous lead contaminated soil. SOLUCORP is now awaiting a decision from the NYSDEC in order to mobilize our equipment at this particular site.

Attached are the results of the treatability tests performed by SOLUCORP using its MBS technology.

If you should have any questions, please do not hesitate to give me a call at (201) 368-7902.

Sincerely,



Noel Spindler
Executive Sales Manager

COMPANY NAME

Solucorp

ATTENTION TO

Noel Spindler/Mike
Deluca

FAX NUMBER

201-368-8522

CITY

NJ

PGS

1

FROM

Rik Vos

DATE

November 10, 1995

PROJECT NUMBER

2-21-772

SUBJECT

Nature's Way

			Moisture Added (%)	TCLP Lead (ppm)
Untreated (1)	-	-	-	47
Untreated (2)				23
Untreated (3)				16
2	2.9	1	10	<0.05
4	4.6	1	10	<0.05
6	7.5	1	11	<0.05

Regards,

Rik

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TOTAL P.O.

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ATTACHMENT #3
E&E Inc. Site Specific Health & Safety Plan

ecology and environment, inc.

322

SITE SAFETY PLAN

Version 984

A. GENERAL INFORMATION

Project Title: ERNST STEEL Project No.: SD6030
TDD/Fan No.: _____
Project Manager: BARBARA PECK Project Dir.: _____
Location(s): 1746 WALDEN AVE, CHEEKTOWAGA NY
Prepared by: B. PECK Date Prepared: _____
Approval by: John Date Approved: 5-10-95
Safety Officer Review: _____ Date Reviewed: _____
Objective of Work: TO IMPLEMENT INTERIM REMEDIAL MEASURES (IRM) REMOVAL
AND PLAN TO ADDRESS THE REMEDIATION OF CONTAMINATED SOIL AT THE ERNST SITE
Proposed Date of Field Activities: SPRING 1995
Background Info: Complete: ☒ Preliminary (No analytical data available) ☐

Presentation/Summary:

Overall Chemical Hazard:	Serious ☐	Moderate ☐
	Low ☒	Unknown ☐
Overall Physical Hazard	Serious ☐	Moderate ☐
	Low ☒	Unknown ☐

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid ☐	Solid ☒	Sludge ☐	Gas/Vapor ☐

Characteristic(s):

Flammable ☐	Volatile ☐	Corrosive ☐	Acutely Toxic ☐
Ignitable ☐			
Explosive ☐	Reactive ☐	Carcinogen ☐	Radioactive* ☐

Other: DISCRETE POCKETS OF SOIL MIXED WITH DRIED PAINT SLUDGE

Physical Hazards:

Overhead ☐	Confined* ☐	Below Grade ☒	Trip/Fall ☒
Puncture ☐	Burn ☐	Cut ☐	Splash ☐
Noise ☒	Other: <u>HEAVY EQUIPMENT</u>		

Requires completion of additional form and special approval from the Corporate Health/Safety group. Contact C or HQ.

Site History/Description and Unusual Features (see Sampling Plan for detailed description): THE ERNST CORP.

ERATED STEEL FABRICATION PLANT BETWEEN 1953 + 1980 - LAND DISPOSAL ACTIVITIES WERE PERFORMED
FILLING TOPOGRAPHIC DEPRESSIONS ON THE PROPERTY WITH LEAD BASED PAINT. SITE NOW INACTIVE.

Locations of Chemicals/Wastes: APPROXIMATELY 1 ACRE LOCATED AT REAR OF 1746

WALDEN AVE (BETWEEN FORMER RAILSPURS IN NORTHERN PORTION OF SITE)

Estimated Volume of Chemicals/Wastes: 2800 TONS

Site Currently in Operation

Yes: ☐ No: ☒

C. HAZARD EVALUATION

List Hazards by Task (i.e., drum sampling, drilling, etc.) and number them. (Task numbers are cross-referenced in Section D)

Physical Hazard Evaluation:

WASTE EXCAVATION AND PROFILE - HEAVY EQUIPMENT, NOISE

WASTE STORAGE AND TRANSPORTATION - HEAVY EQUIPMENT, NOISE, TRAFFIC

CONFIRMATION SAMPLING - TRIP FALL

Critical Hazard: Airborne dust containing Pb, Cr, Ba. STAY UPWIND OF EXCAVATION
AND Generation of dust - use dust suppression techniques if necessary

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
LEAD	0.05 mg/m ³	INGEST / EYES CONTACT / INH	Cumulative Neurotoxin Vomiting	0	None
CHROMIUM	0.5 mg/m ³	INGEST / EYES CONTACT / INH	Contact dermatitis Ulceration of skin	0	None
BARIUM	0.5 mg/m ³	INGEST / EYES CONTACT / INH	Tightness of chest Facial Verrit, diarrhea	0	None

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminant.

E. EMERGENCY EVACUATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

ambulance 911

Hospital Emergency Room St. Joseph Intercommunity

Prison Control Center 818-7654

Police (include local, county sheriff, state) 911

Fire Department 911

Support N/A

Agency Contact (EPA, State, Local USCG, etc.) NUSDOL - JASPA LIAISON PE - 851-7220

Local Laboratory Ecology and Environment's Analytical Services Center (85-888)

Express N/A

Agent/EPA Contact John Heffron Benderson Develop. Co. 886-0211

Other Contact N/A

SITE RESOURCES

Emergency Evacuation Alarm Method 3 blasts on car or truck horn

Water Supply Source _____

Telephone Location, Number _____

Cellular Phone, if available _____

Radio _____

Other _____

EMERGENCY CONTACTS

~~Mr. Raymond Harrison, State of Florida (305) 331-2445 or (904) 462-3277 (221)~~
~~Alachua, Florida (904) 370-2760 (224 home)~~

~~Ecology and Environment Inc. Safety Director~~
~~Paul Jorgensen (904) 681-8050 (office)~~
~~(904) 681-1800 (home)~~

~~Regional Office Contact~~ N/A (home)

~~_____ (office)~~

~~REGIONAL MANAGER, Office Manager~~ N/A (home)

See attachment at the end of this plan which outlines fugitive dust monitoring and Control and Community Contingency Plan.

EMERGENCY ROUTESTwenty-four hour answering service: ~~()~~

What to report:

- State: "this is an emergency."
- Your name, region, and site.
- Telephone number to reach you.
- Your location.
- Name of person injured or exposed.
- Nature of emergency.
- Action taken.

A toxicologist, (~~)~~ will contact you. Repeat the information given to the answering service.

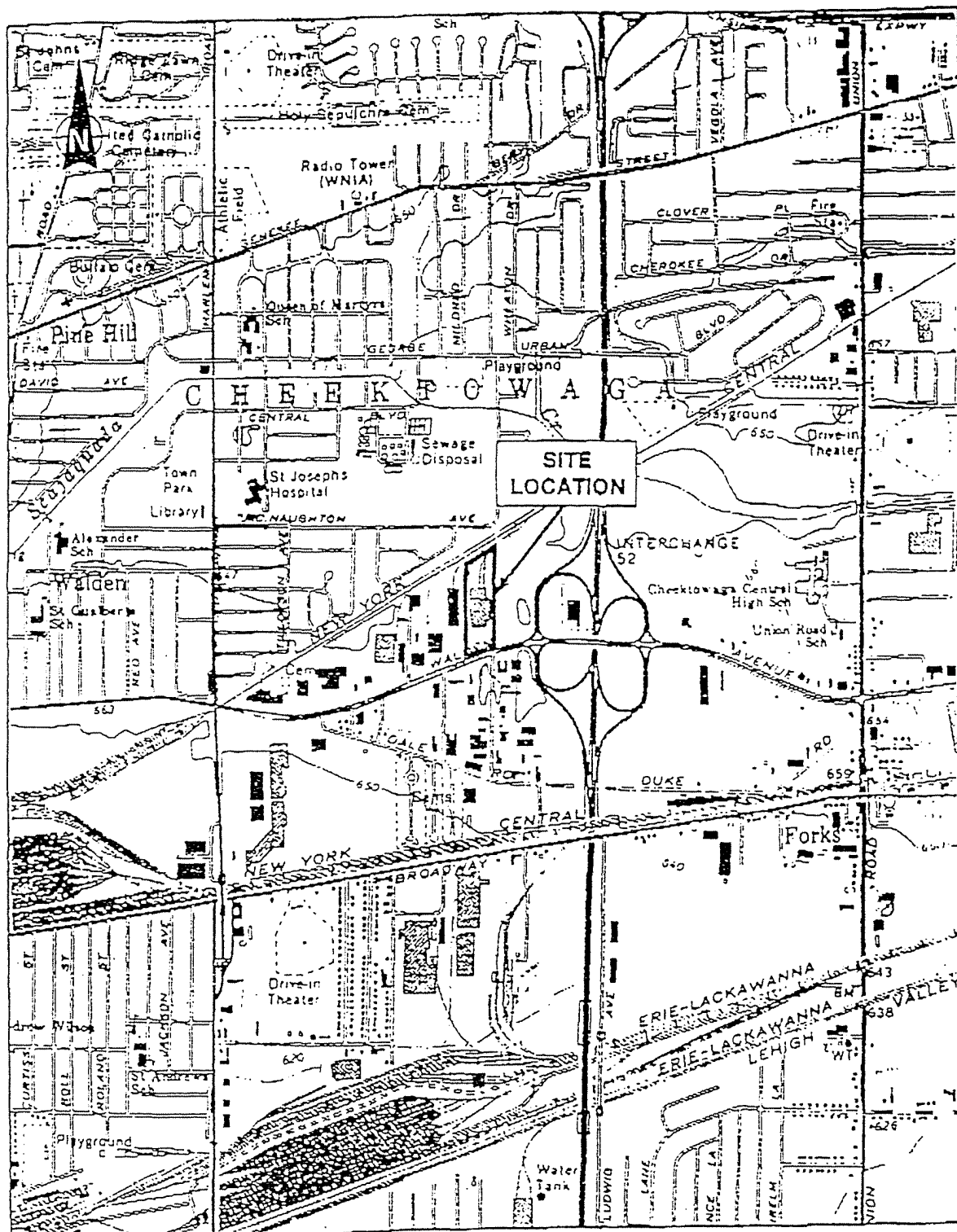
If a toxicologist does not return your call within 15 minutes, call the following persons in order until contact is made:

~~()~~
~~()~~**EMERGENCY ROUTES**

(NOTE: Field Team must know route(s) prior to start of work)

Directions to hospital (include map) Walden Avenue (west) to Harlem Rd.
Turn Right. Hospital on Right hand corner of Harlem Rd
and W. Naughton Ave.

Emergency Egress Routes to Get Off-Site Exit by Roads to either Walden Ave
or Galleria Drive.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Buffalo NE, NY, 1965.

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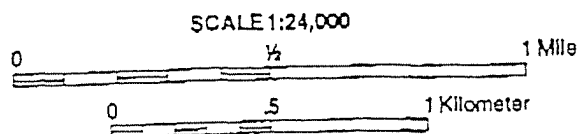


Figure 1-1: LOCATION MAP
ERNST STEEL SITE

INSTRUMENTATION	No.	DECON EQUIPMENT	No.
OVA		WASH TUBS	
THERMAL DESORBER		BUCKETS	
OI/EXPLOSIMETER W/CAL. KIT		SCRUB BRUSHES	
PHOTOVAC TIP		PRESSURIZED SPRAYER	X
HRU (Probe _____)		DETERGENT (Type _____)	
MAGNETOMETER		SOLVENT (Type _____)	
PIPE LOCATOR		PLASTIC SHEETING	
WEATHER STATION		TARPS AND POLES	
DRAEGER PUMP, TUBES _____		TRASH BAGS	X
BRUNTON COMPASS		TRASH CANS	
MONITOX CYANIDE		MASKING TAPE	
HEAT STRESS MONITOR		DUCT TAPE	
NOISE EQUIPMENT _____		PAPER TOWELS	X
PERSONAL SAMPLING PUMPS		FACE MASK	
		FACE MASK SANITIZER	
		FOLDING CHAIRS	
		STEP LADDERS	
		DISTILLED WATER	
RADIATION EQUIPMENT			
DOCUMENTATION FORMS			
PORTABLE RATEMETER			
SCALER/RATEMETER		SAMPLING EQUIPMENT	
NaI Probe		1 OZ. BOTTLES	
ZnS Probe		HALF-GALLON BOTTLES	
GM Pancake Probe		VOA BOTTLES	
GM Side Window Probe		STRING	
MICRO R METER		HAND BAILERS	
ION CHAMBER		THIEVING RODS WITH BULBS	
ALERT DOSIMETER		SPOONS	
POCKET DOSIMETER		KNIVES	
		FILTER PAPER	
FIRST AID EQUIPMENT		PERSONAL SAMPLING PUMP SUPPLIES	
FIRST AID KIT	X		
OXYGEN ADMINISTRATOR			
STRETCHER			
PORTABLE EYE WASH			
BLOOD PRESSURE MONITOR			
FIRE EXTINGUISHER			

VAN EQUIPMENT	No.	MISCELLANEOUS (Cont.)	No.
TOOL KIT			
HYDRAULIC JACK			
LUG WRENCH			
TOW CHAIN			
VAN CHECK OUT			
Gas			
Oil			
Antifreeze			
Battery			
Windshield Wash			
Tire Pressure			
MISCELLANEOUS		SHIPPING EQUIPMENT	
PITCHER PUMP		COOLERS	
SURVEYOR'S TAPE	X	PAINT CANS WITH LIDS, 7 CLIPS EACH	
100 FIBERGLASS TAPE		VERMICULITE	
300 NYLON ROPE		SHIPPING LABELS	
NYLON STRING		DOT LABELS: "DANGER"	
SURVEYING FLAGS	X	"UP"	
FILM	X	"INSIDE CONTAINER COMPLIES ..."	
WHEEL BARROW		"HAZARD GROUP"	
BUNG WRENCH		STRAPPING TAPE	
SOIL AUGER		BOTTLE LABELS	
PICK		BAGGIES	
SHOVEL		CUSTODY SEALS	
CATALYTIC HEATER		CHAIN-OF-CUSTODY FORMS	
PROPANE GAS		FEDERAL EXPRESS FORMS	
BANNER TAPE		CLEAR PACKING TAPE	
SURVEYING METER STICK			
CHAINING PINS & RING			
TABLES			
WEATHER RADIO			
BINOCULARS			
MAGAPHONE			

ecology and environment, inc.

ON-SITE SAFETY MEETING

Project _____ TDD/Pan _____
 Date _____ Time _____ Job No. _____
 Address _____
 Specific Location _____
 Type of Work _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____
 Chemical Hazards _____
 Radiation Hazards _____
 Physical Hazards _____
 Emergency Procedures _____
 Hospital/Clinic _____ Telephone _____
 Hospital Address _____
 Special Equipment _____
 Other _____

Checklist

1. Emergency information reviewed? _____ and made familiar to all team members? _____
2. Route to nearest hospital driven? _____ and its location known to all team members? _____
3. Site safety plan readily available and its location known to all team members? _____

Meeting shall be attended by all personnel who will be working within the exclusion area. Daily informal updates meetings will be held when site tasks and/or conditions change.

ATTENDEES

(Expand on back of sheet if necessary)

Name Printed	Signature

Meeting Conducted by: _____ (Print) _____ (Signature)

(Site Safety Coordinator)

(Team Leader)

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ATTENDEES (Cont.)

Name Printed	Signature

Region X - Seattle
Chemical Hazard Evaluation Form

Health - X - Reactivity
Special Hazard - / \

CAS # 0 Name: Lead Formula: Pb
DOT Class: Synonyms: White lead, Plumbum, Inorganic Lead
Chemical Classification: Heavy Metal

CHEMICAL PROPERTIES

Physical State: S	Ionization Potential: 0	ev
Molecular Weight: 207	Boiling Point: 3164	F
Specific Gravity: 11.3	Melting Point: 620	F
Vapor Pressure: 0	Freeze Point: 0	F
Odor Threshold: 0	ppm	Odor Descript: none
	Flash Point:	F
	Lower Explosive Limit: 0	%
	Upper Explosive Limit: 0	%

Incompat/React: strong oxidizers, peroxides, active metals
Solubility:

HEALTH HAZARD PROPERTIES

Permissible Exposure Limit: 0	ppm	Threshold Limit Value: .018	ppm
[or: .05	mg/M3]	[or: .05	mg/M3]
Short Term Exposure Limit: 0	ppm	Immediate Danger to Life & Health: 0	ppm
[or:	mg/M3]	[or:	mg/M3]
Ceiling Designation:		Skin Hazard Designation:	
Other Properties: PEL - 50ug/m3			

Carcin: indefinite
Mutagen: -
Inhalation Tox: -
Dermal Tox: -
Oral Tox: rat TDLo: 790mg/kg
Other Tox: TARGET ORGNS: GI Trct, CNS, Kid, Bld, Gingival Tissue

Aquatic Tox: -
Repro Tox: exper teratogen

Routes of Exposure: Ingest: X Eyes: X Absorption: Dermal Skin Contact: X Inhalation: X

SYMPTOMS

Acute: cumulative neurotoxin (prolong expos), stomach distress, vomtg, diarrhea, black stool s, anemia, nervous system effects
Chronic: alimentary: abdm pain/discomf, constptn, diarrh neuromusc: musc weaknss, joint/musc p ain, dizzy, insom, encephalic: brain involvment, stupor, coma, death-r

PERSONAL PROTECTIVE MEASURES

Respirators: APR: dusty/windy condit or known high concent or >
Cartridge Type: GMC-H, AP3 (RACAL)
Clothing: Coverall: Saranex Gloves: Nitrile
Special
Precautions:

FIRST AID

Eye/Skin: flush w/water 15 minutes, wash skin with soap/water, SEEK MEDICAL ATTENTIO
Inhalation:
Ingestion: give water, induce vomiting, SEEK MEDICAL ATTENTION IMMEDIATELY

FIRES, RELEASES, SPILLS & DISPOSAL

Fire: 13 Leaks & Spills: 7,8,10 Disposal: P
Decomp Products: toxic fumes of lead

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Region X - Seattle
Chemical Hazard Evaluation FormHealth - X - Reactivity
Special Hazard - / \CAS #: 0 Name: Chromium-metal
DOT Class: Synonyms: Insoluble salts
Chemical Classification: Heavy metal

Formula: Cr

CHEMICAL PROPERTIES

Physical State: S	Ionization Potential: 0	ev
Molecular Weight: 52	Boiling Point: 4784	F
Specific Gravity: 7.2	Flash Point: 0	F
Vapor Pressure: 0 mmHG	Melting Point: 3452	F
Odor Threshold: 0 ppm	Freeze Point: 3339	F
	Lower Explosive Limit: 0	%
	Upper Explosive Limit: 0	%
	Odor Descript: none	

Incompat/React: strong oxidizers, powdered metal is explosive
Solubility: insoluble

HEALTH HAZARD PROPERTIES

Permissible Exposure Limit: .236	ppm	Threshold Limit Value: .236	ppm
[or: .5	mg/M3]	[or: .5	mg/M3]
Short Term Exposure Limit: 0	ppm	Immediate Danger to Life & Health: 235.577	ppm
[or:	mg/M3]	[or:	mg/M3]
Ceiling Designation:		Skin Hazard Designation:	
Other Properties:			

Carcin: -	
Mutagen: -	
Inhalation Tox: -	Aquatic Tox: -
Dermal Tox: -	Repro Tox: -
Oral Tox: -	
Other Tox: TARGET ORGANS: Respiratory System	

Routes of Exposure:	Ingest: X	Eyes: X	Dermal Absorption:	Skin Contact: X	Inhalation: X

SYMPTOMS

Acute: contact dermatitis, ulceration of skin/nasal mucosa, irritation of eyes/mucous membranes
Chronic: pulmonary disease

PERSONAL PROTECTIVE MEASURES

Respirators: APR: dusty/windy condit or known high concent or >
Cartridge Type: GMC-8, AP3 (RACAL)
Clothing: Coverall: Tyvek Gloves: Butyl
Special
Precautions:

FIRST AID

Eye/Skin: Flush w/water 15 min, wash skin w/soap & water, SEEK MEDICAL ATTENTION.
Inhalation: move to fresh air, artif resp if nec, SEEK MEDICAL ATTENTION
Ingestion: Give lg amts of water, induce vomiting, SEEK MEDICAL ATTENTION

FIRES, RELEASES, SPILLS & DISPOSAL

Fire: 13
Leaks & Spills: 3,4,6-9
Decomp Products: Disposal: P

NOT TO BE USED IN LIEU OF MSDS

JOB NO:

ecology and environment, Inc.
HAZARD EVALUATION OF CHEMICALS

PREPARATION/UPDATE DATE 4-12-85

CHEMICAL NAME: BARIUM

CAS NUMBER: DOY NAME/ID NO.: 1400

SYNONYMS: METALLIC BARIUM, BARIUM METAL.

RO:

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: BA MOLECULAR WEIGHT: 137.36 PHYSICAL STATE: SOLID SPG/D 3.5 SOLUBILITY (H₂O): REACTS
VAPOR PRESS: 10MM FREEZING POINT: 1337 F BOILING POINT: FLASH POINT: FLAMMABLE LIMITS:
ODOR CHARACTERISTICS:
INCOMPATIBILITIES: REACTS WITH WATER RELEASING TOXIC GASES. AMMONIA, O₂, HALOGENS, ACIDS METAL IN POWDERED FORM IS EXPLOSIVE

BIOLOGICAL PROPERTIES:

LD₅₀: 250 MG/KG TLV-TWA: 0.5 MG/M³ PEL: 0.5 MG/M³ OXID THRESHOLD:
HEPATO (LC₅₀): RAT/HOUSE (LC₅₀): AQUATIC:
CARCINOGEN: TERATOGEN:
ROUTE OF EXPOSURE: (X) INHALATION (X) BY CONTACT (X) SKIN CONTACT (X) INGESTION MUTAGEN:

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

PREVENT SKIN CONTACT, WEAR GLOVES, IMPERVIOUS CLOTHING

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: SOLUBLE BARIUM COMPOUNDS ARE PRIMARY SKIN IRRITANTS AND CONVULSANT POISONS. MAY CAUSE LOCAL IRRITATION OF EYES, NOSE, THROAT, BRONCHIAL, TUBES AND SKIN. SOLUBLE BARIUM COMPOUNDS MAY ALSO CAUSE SEVERE STOMACH PAINS, SLOW PULSE RATE, IRREGULAR HEART BEAT, ACUTE SYMPTOMS: TIGHTNESS OF BREATH AND FACIAL MUSCLES, VOMITING, DIARRHEA, PAIN, WEAKNESS, CARDIAC DISTURBANCES AND CONVULSIONS

CHRONIC SYMPTOMS: NO CHRONIC POISONING HAS BEEN REPORTED

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICIAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION
EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES
SKIN CONTACT: REMOVE CONTAMINATED CLOTHING, WASH IMMEDIATELY WITH SOAP AND WATER
INGESTION: GIVE LARGE QUANTITIES OF WATER, INDUCE VOMITING, SEEK MEDICAL ATTENTION

DISPOSAL/WASTE TREATMENT:

REFERENCES CONSULTED: () VERSCHUERPAN () MERCK INDEX () HAZARDOUS () ACSII () TOXIC & HAZARDOUS SAFETY MANUAL () SAK
() MISH/OSHA POCKET GUIDE
() OTHER: OHS DATABASE

ATTACHMENT TO E & E SITE SAFETY PLAN FOR ERNST STEEL

FUGITIVE DUST MONITORING AND CONTROL

The E & E field team will provide continuous monitoring for particulate levels during all intrusive activities. A wind sock to show wind direction and to assist in the deployment of air monitors will be used during IRM field activities. Air monitoring will be performed upwind and downwind of the work area using a Miniram real-time aerosol monitor model PDM-3. In addition, particulate levels will be monitored at the downwind (i.e., 2 permanent locations) site perimeter during any excavation activities. Readings will be integrated over a period up to 15 minutes in duration. If particulate levels are detected in excess of 100 $\mu\text{g}/\text{m}^3$ greater than the upwind reading, additional dust suppression techniques will be implemented. These suppression techniques may include:

1. Applying water to haul roads.
2. Wetting equipment and excavation faces.
3. Spraying water on buckets during excavation and dumping.
4. Hauling materials in properly tarped or watertight containers.
5. Restricting vehicle speeds to 10 mph.
6. Covering excavated areas and material after excavation activity ceases.
7. Reducing the excavation size and/or number of excavations.

If these dust suppression techniques do not lower particulates to an acceptable level, work will be suspended until appropriate corrective measures are developed to remedy the situation.

COMMUNITY CONTINGENCY PLAN

During the initial site safety meeting, emergency response procedures will be discussed with all parties involved at the site. The E & E site safety officer will be identified as the individual in charge during an emergency situation. The site safety officer will identify an individual responsible for communicating emergency situations to local police, fire department and other emergency services. Various emergencies and their prevention will be discussed. Site emergency evacuation will be designated by three long blasts on a car or truck horn.

Site security and access control will be maintained by fencing around waste pile.
Warning signs will be posted around the perimeter of the work area.

Evacuation routes include Gallaria Drive along the east perimeter and Walden Avenue to the south of the site.

First Aid kits will be available at the site and a cellular phone will be stationed at the site.

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EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: Ernst Steel TDD/Plan/Project Number: SD 6050Date of original SSP: 6/26/95Date of amendment: 12/6/95Date of proposed new work: 12/11/95

Added activities and hazard evaluations: Monitoring of airborne emissions during chemical stabilization process. Process has the potential for Hydrogen Sulfide emission. (See Chemical Hazard Evaluation Sheet attached)

or National Drager 190

Added monitoring activities: ① Continuous monitoring with H₂S Monitox in breathing zone. ② Continuous monitoring using Jerome 631-X with data logging capability set at 1 minute interval and alarm at 10 ppb H₂S. Location 100'

Level of protection: A B (X) C X D downwind of work area or site perimeter - whichever is closer (see attachment)

Reason for up/downgrading:

Based on miniram readings, upgrade to level C at 1mg/m³ as total dust. H₂S Action level: leave area and stop work if H₂S level exceeds 4 ppm in the breathing zone.

Decon: No change

Team Members

Responsibility

Gilbert MaxwellAir Monitoring

Equipment

Quantity

Equipment

Quantity

miniram3H₂S Monitox1Jerome 631-X with data logging1

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: Don J. Jones, CIHDate: 12-6-95Reviewed by: Date:

INSTRUCTIONS: This form to be approved through normal channels and attached to original plan.

Form SSP-A

SITE SAFETY PLAN ADDENDUM FOR ERNET STEEL SITE**SUPPLEMENTAL ATTACHMENT****HYDROGEN SULFIDE MONITORING:**

1. **Ambient air monitoring-** Sampling will be performed using a Jerome 631-X with data logging capability. Data logging will be set for storage at 1 minute intervals. The alarm level will be set at 10 ppb H_2S . The sampling location will be at 100 feet downwind of the work area or the site perimeter, whichever is closer. The process will be shut down anytime the alarm is activated. Measurements will then be taken upwind to determine any background contribution of H_2S . After the shutdown, prior to resuming the process, the off gas treatment system will be checked and serviced as necessary.
2. **Breathing zone monitoring -** continuous air monitoring in the breathing zone will be conducted using a National Drager 190 H_2S Monitor set to alarm at 4 ppm.

Ecology and Environment
Region X - Seattle
Chemical Hazard Evaluation Form

\4/- Fir
Health - 3 X 0 - Reactivity
Special Hazard - / \

CAS # 7783064 Name: HYDROGEN SULFIDE

Formula: H2S

DOT Class: Flammable gas. Synonyms: Hydrosulfuric acid, Sulfuretted Hydrogen, Hepatic

Chemical Classification: Sulfide

CHEMICAL PROPERTIES

Physical State: G Ionization Potential: 10.46 ev
Molecular Weight: 34 Boiling Point: -76 F Flash Point: F
Specific Gravity: 1.18 Melting Point: -117 F Lower Explosive Limit: 4.3 %
Vapor Pressure: 0 mmHG Freeze Point: 0 F Upper Explosive Limit: 46 %
Odor Threshold: .8 ppm Odor Descript: rotten eggs

Incompat/React: strong oxidizers, metals

Solubility: water, alcohol, glycerol

HEALTH HAZARD PROPERTIES

Permissible Exposure Limit: 10 ppm Threshold Limit Value: 10 ppm
[or: 14 mg/M3] [or: 14 mg/M3]
Short Term Exposure Limit: 15 ppm Immediate Danger to Life & Health: 300 ppm
[or: 21 mg/M3] [or: mg/M3]

Ceiling Designation:

Skin Hazard Designation:

Other Properties: man LDLo: 5700 ug/kg, coma/pulmonary edema, 1-2 inspirations may result in death

Carcin:

Mutagen:

Inhalation Tox: rat LC50: 713 ppm/lhr

Aquatic Tox:

Dermal Tox:

Repro Tox:

Oral Tox:

Other Tox: TARGET ORGANS: Respiratory System, Eyes

Dermal

Skin

Routes of Exposure: Ingest: X Eyes: X Absorption: X Contact: X Inhalation: X

SYMPTOMS

Acute: rhinitis, anorexia, vomiting, painful conjunctivities, appearance of halo around lights, headache, anemia, nausea, raw throat, cough, dizzy, drowsy, p
Chronic: persistent low blood pressure, nausea, lost appetite, wt loss, impaired gain & balance, conjunctivities, chronic cough

PERSONAL PROTECTIVE MEASURES

Respirators: SCBA

Cartridge Type: -

Clothing: Coverall: PE Tyvek Gloves: Neoprene

Special

Precautions: Sense of smell diminishes

FIRST AID

Eye/Skin: Flush/rinse w/large amt water, wash skin w/soap, SEEK MEDICAL ATTENTION

Inhalation:

Ingestion: SEEK MEDICAL ATTENTION

FIRES, RELEASES, SPILLS & DISPOSAL

Fire: 3,6,7,13

Leaks & Spills: 3,9,13

Disposal: N

Decomp Products: sulfur

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SITE SAFETY PLAN

Version 988

A. GENERAL INFORMATION

Project Title: ERNST STEEL Project No.: SD 1050
 TDD/Pan No.: _____
 Project Manager: BARBARA PECK Project Dir.: T. GRADY
 Location(s): 1746 WALDEN AVE, CHEEKTOWAGA NY
 Prepared by: B. PECK Date Prepared: _____
 Approval by: Joe V... Date Approved: 5-10-95 / 6-26-95
 Site Safety Officer Review: _____ Date Reviewed: _____
 Scope/Objective of Work: TO IMPLEMENT INTERIM REMEDIAL MEASURES (IRM) REMOVAL ACTION PLAN TO ADDRESS THE REMEDIATION OF CONTAMINATED SOIL AT THE ERNST SITE
 Proposed Date of Field Activities: _____ SUMMER, 1995
 Background Info: Complete: [X] Preliminary (No analytical data available) []

Documentation/Summary:

Overall Chemical Hazard:	Serious []	Moderate []
	Low [X]	Unknown []
Overall Physical Hazard	Serious []	Moderate []
	Low [X]	Unknown []

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid [] Solid [X] Sludge [] Gas/Vapor []

Characteristic(s):

Flammable/ [] Volatile [] Corrosive [] Acutely Toxic []
 Ignitable []
 Explosive [] Reactive [] Carcinogen [] Radioactive* []

Other: DISCRETE POCKETS OF SOIL MIXED WITH DRIED PAINT SLUDGE

Physical Hazards:

Overhead [] Confined* [] Below Grade [X] Trip/Fall [X]
 Puncture [] Burn [] Cut [] Splash []
 Noise [X] Other: HEAVY EQUIPMENT

*Requires completion of additional form and special approval from the Corporate Health/Safety group. Contact RSC or HQ.

Site History/Description and Unusual Features (see Sampling Plan for detailed description): THE ERNST CORP.
OPERATED STEEL FABRICATION PLANT BETWEEN 1953 + 1980. LAND DISPOSAL ACTIVITIES WERE PERFORMED
BY FILLING TOPOGRAPHIC DEPRESSIONS ON THE PROPERTY WITH LEAD BASED PAINT. SITE NOW INACTIVE.

Locations of Chemicals/Wastes: APPROXIMATELY 140 FEET LOCATED AT REAR OF 1746
WALDEN AVE (BETWEEN FORMER RAILSPURS IN NORTHERN PORTION OF SITE)

Estimated Volume of Chemicals/Wastes: ± 800 TONS

Site Currently in Operation

Yes: [] No: [X]

C. HAZARD EVALUATION

List Hazards by Task (i.e., drum sampling, drilling, etc.) and number them. (Task numbers are cross-referenced in Section D)

Physical Hazard Evaluation:

1. WASTE EXCAVATION AND PROFILE - HEAVY EQUIPMENT NOISE
2. WASTE STORAGE AND TRANSPORTATION - HEAVY EQUIPMENT, NOISE, TRAFFIC
3. CONFIRMATION SAMPLING - TRIP FALL

Chemical Hazard: Airborne dust containing Pb, Cr, Ba. STAY UPWIND OF EXCAVATION
AVOID Generation of dust - use dust suppression techniques if necessary.

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
LEAD	0.05 mg/m ³	INGEST / EYES CONTACT / INH	Cumulative neurotoxin vomiting	0	None
CHROMIUM	0.5 mg/m ³	INGEST / EYES CONTACT / INH	Contact dermatitis ulceration of skin	0	None
BARIUM	0.5 mg/m ³	INGEST / EYES CONTACT / INH	tightness of neck facial vomit, diarrhea	0	None

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminant.

D. SITE SAFETY WORK PLAN

Site Control: Attach map, use back of this page, or sketch of site showing hot zone, contamination reduction, zone, etc.

Perimeter identified? [] Site secured? [X]

Work Areas Designated? [X] Zone(s) of Contamination Identified? []

Personal Protection (TLD badges required for all field personnel):

Anticipated Level of Protection (Cross-reference task numbers to Section C):

	A	B	C	D
Task 1			(X)	✓
Task 2			(X)	✓
Task 3			(X)	✓
Task 4				

(Expand if necessary)

Modifications: (X) = UPGRADE TO LEVEL C BASED ON MINIRAM @ $1\text{mg}/\text{m}^3$ as total dust.

Action Levels for Excavation of Work Zone Pending Reassessment of Conditions:

- Level D: O_2 <19.5% or >25%; explosive atmosphere >10% LEL, organic vapors above background levels, particulates > 1 mg/m³, other _____.
- Level C: O_2 <19.5% or >25%; explosive atmosphere >25% LEL (California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates > _____ mg/m³, other _____.
- Level B: O_2 <19.5% or >25%; explosive atmosphere >25% LEL (California-20%), unknown organic vapors (in breathing zone) >500 ppm, particulates > _____ mg/m³, other _____.
- Level A: O_2 <19.5% or >25%; explosive atmosphere >25% LEL (California-20%), unknown organic vapors >500 ppm, particulates > _____ mg/m³, other _____.

Air Monitoring (daily calibration unless otherwise noted):

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling	#units/locate
Lead	BZ	Mini ram	continuous	1 upwind
Chromium	↓	↓	↓	2 downwind
Barium	↓	↓	↓	

(Expand if necessary)

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:

The excavation equipment will require decon prior to departure from the site. Decon will occur on an asphalt area and will include scraping gross contamination, which will be stockpiled and managed with the paint waste. Excavation equipment will be washed w/ a high pressure washer to remove residual. Pb and Cr in paint waste not expected to leach into decon H₂O therefore the paint waste will be separated and the residual paint waste will be added to the stockpile - sampling equipment will be disposable.

Personnel Decon Protocol: Soap and water will be available and will be used prior to eating or drinking. Shower upon returning home.

Decon Solution Monitoring Procedures, if Applicable: None

Special Site Equipment, Facilities, or Procedures (Sanitary Facilities and Lighting Must Meet 29 CFR 1910.120):

Site Entry Procedures and Special Considerations: No entry into trenches will be permitted.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:

Daylight hours only - Cease work if heavy rain or lightning.

General Spill Control, if applicable:

Investigation-Derived Material Disposal (i.e., expendables, decon waste, cuttings):

Expendables will be double bagged & disposed of properly

Sample Handling Procedures Including Protective Wear:

Gloves - confirmation soil sampling

Team Member*

X Joh. Peck

X Siener, Tom

X Horn, Keith

Responsibility

Team Leader

Site Safety Officer - Corporate Resume attached

Site Safety Officer - Resume attached

*All entries into exclusion zone require Buddy System use. All E & Z field staff participate in medical monitoring program and have completed applicable training per 29 CFR 1910.120. Respiratory protection program meets requirements of 29 CFR 1910.134, and ANSI Z88.2 (1980).

E. EMERGENCY INFORMATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

Ambulance 911
Hospital Emergency Room St. Joseph Intercommunity
Poison Control Center 818-7654
Police (include local, county sheriff, state) 911
Fire Department 911
Airport N/A
Agency Contact (EPA, State, Local USCG, etc.) NUSDEC- JASPAL WALLA PE -851-7220
Local Laboratory Ecology and Environment's Analytical Service Center 685-8080
UPS/Fed. Express N/A
Client/EPA Contact John Heffron Benderson Develop. Co. 886-0211
Site Contact N/A

SITE RESOURCES

Site Emergency Evacuation Alarm Method 3 blasts of C. horn
Water Supply Source _____
Telephone Location, Number _____
Cellular Phone, if available _____
Radio _____
Other _____

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (Univ. of Florida) (501) 221-0465 or (904) 462-3277, 3281
Alachua, Florida (501) 370-8263 (24 hours)
2. Ecology and Environment, Inc., Safety Director
Paul Jonnaire (716) 684-8060 (office)
..... (716) 655-1260 (home)
3. Regional Office Contact N/A (home)
NYSDOH - Buffalo Office (716) 847-4502 (office)
ERIE COUNTY Dept. of Health 716 858-7677
4. PITOM, TATOM, or Office Manager N/A (home)

*** See attachment at the end of this plan which outlines
fugitive dust monitoring and control and community
contingency plan.

MEDTOX HOTLINE

1. Twenty-four hour answering service: (501) 370-8263

What to report:

- State: "this is an emergency."
- Your name, region, and site.
- Telephone number to reach you.
- Your location.
- Name of person injured or exposed.
- Nature of emergency.
- Action taken.

2. A toxicologist, (Drs. Raymond Harbison or associate) will contact you. Repeat the information given to the answering service.

3. If a toxicologist does not return your call within 15 minutes, call the following persons in order until contact is made:

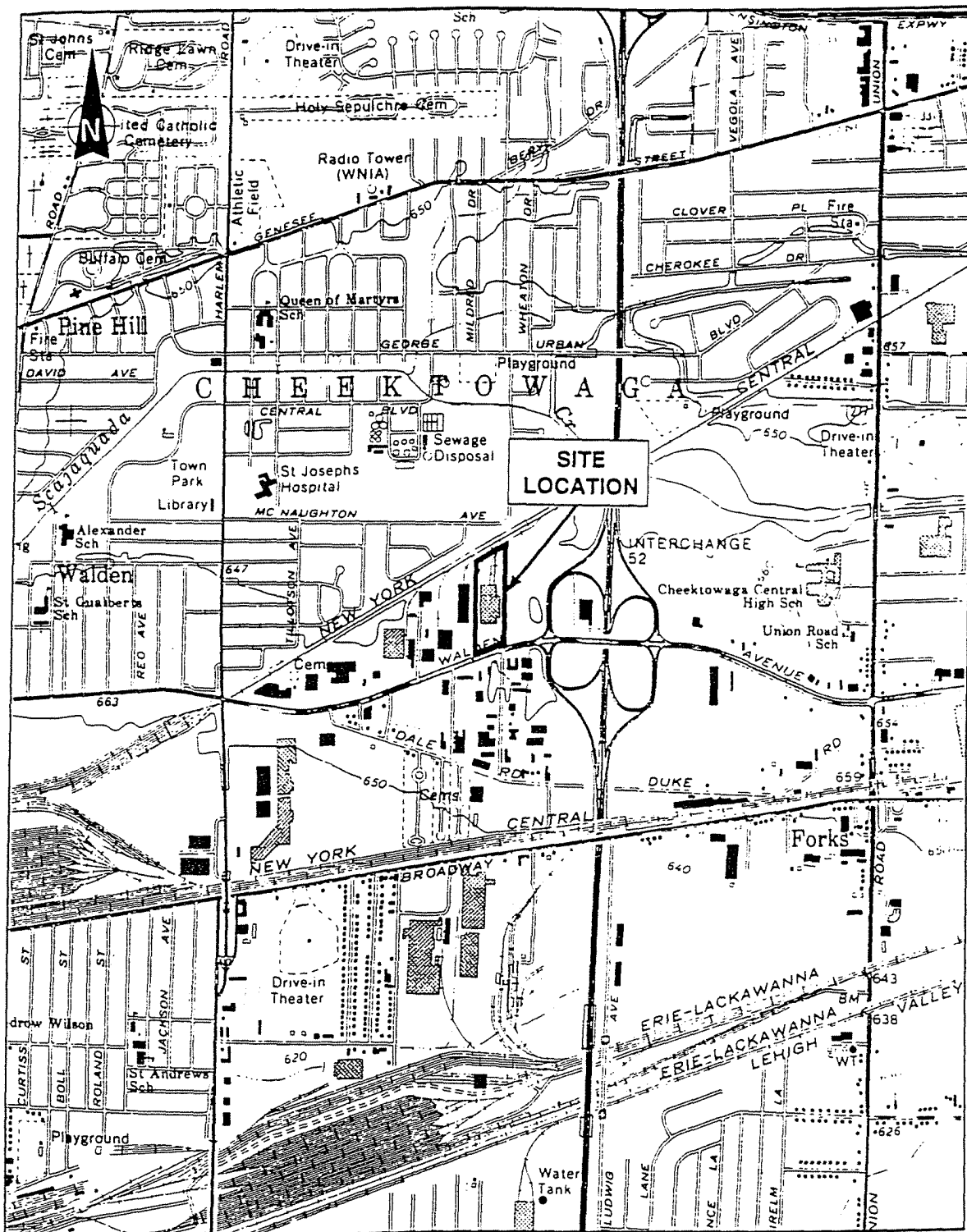
- a. 24 hour hotline - (716) 684-8940
- b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260

EMERGENCY ROUTES

(NOTE: Field Team must know Route(s) Prior to Start of Work)

Directions to hospital (include map) Walden Avenue (west) to Harlem Rd.
Turn Right. Hospital on Right hand corner of Harlem Rd
and McNaughton Ave.

Emergency Egress Routes to Get Off-Site Exit by Roads to either Walden Ave
or Galleria Drive.



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Buffalo NE, NY, 1965.

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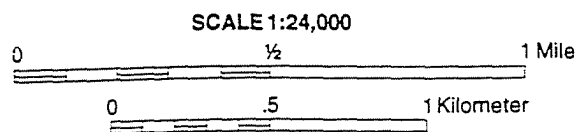


Figure 1-1 LOCATION MAP
ERNST STEEL SITE

F. EQUIPMENT CHECKLIST

PROTECTIVE GEAR

Level A	No.	Level B	No.
SCBA		SCBA	
SPARE AIR TANKS		SPARE AIR TANKS	
ENCAPSULATING SUIT (Type _____)		PROTECTIVE COVERALL (Type _____)	
SURGICAL GLOVES		RAIN SUIT	
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES		SURGICAL GLOVES	
GLOVES (Type _____)		GLOVES (Type _____)	
OUTER WORK GLOVES		OUTER WORK GLOVES	
HARD HAT		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES	
5-MINUTE ESCAPE COOLING VEST		HARD HAT WITH FACE SHIELD	
		CASCADE SYSTEM	
		MANIFOLD SYSTEM	
Level C		Level D	
ULTRA-TWIN RESPIRATOR		ULTRA-TWIN RESPIRATOR (Available)	
POWER AIR PURIFYING RESPIRATOR		CARTRIDGES (Type _____)	
CARTRIDGES (Type _____)		5-MINUTE ESCAPE MASK (Available)	
5-MINUTE ESCAPE MASK		PROTECTIVE COVERALL (Type _____)	
PROTECTIVE COVERALL (Type _____)		RAIN SUIT	
RAIN SUIT		NEOPRENE SAFETY BONDS	
BUTYL APRON		BOOTIES	
SURGICAL GLOVES		WORK GLOVES	X
GLOVES (Type _____)		HARD HAT WITH FACE SHIELD	X
OUTER WORK GLOVES		SAFETY GLASSES	X
NEOPRENE SAFETY BOOTS		STEEL TOEN BOOTS	X
HARD HAT WITH FACE SHIELD			
BOOTIES			
HARDHAT			

INSTRUMENTATION	No.	DECON EQUIPMENT	No.
OVA		WASH TUBS	
THERMAL DESORBER		BUCKETS	
O2/EXPLOSIMETER W/CAL. KIT		SCRUB BRUSHES	
PHOTOVAC TIP		PRESSURIZED SPRAYER	X
HNu (Probe _____)		DETERGENT (Type _____)	
MAGNETOMETER		SOLVENT (Type _____)	
PIPE LOCATOR		PLASTIC SHEETING	
WEATHER STATION		TARPS AND POLES	
DRAEGER PUMP, TUBES _____		TRASH BAGS	X
BRUNTON COMPASS		TRASH CANS	
MONITOX CYANIDE		MASKING TAPE	
HEAT STRESS MONITOR		DUCT TAPE	
NOISE EQUIPMENT _____		PAPER TOWELS	X
PERSONAL SAMPLING PUMPS		FACE MASK	
Mini Ram -	3	FACE MASK SANITIZER	
Wind Sock	1	FOLDING CHAIRS	
		STEP LADDERS	
RADIATION EQUIPMENT		DISTILLED WATER	
DOCUMENTATION FORMS			
PORTABLE RATEMETER			
SCALER/RATEMETER		SAMPLING EQUIPMENT	
NaI Probe		8 OZ. BOTTLES	
ZnS Probe		HALF-GALLON BOTTLES	
GM Pancake Probe		VOA BOTTLES	
GM Side Window Probe		STRING	
MICRO R METER		HAND BAILERS	
ION CHAMBER		THIEVING RODS WITH BULBS	
ALERT DOSIMETER		SPOONS	
POCKET DOSIMETER		KNIVES	
		FILTER PAPER	
FIRST AID EQUIPMENT		PERSONAL SAMPLING PUMP SUPPLIES	
FIRST AID KIT	X		
OXYGEN ADMINISTRATOR			
STRETCHER			
PORTABLE EYE WASH			
BLOOD PRESSURE MONITOR			
FIRE EXTINGUISHER			

VAN EQUIPMENT	No.	MISCELLANEOUS (Cont.)	No.
TOOL KIT			
HYDRAULIC JACK			
LUG WRENCH			
TOW CHAIN			
VAN CHECK OUT			
Gas			
Oil			
Antifreeze			
Battery			
Windshield Wash			
Tire Pressure			
MISCELLANEOUS		SHIPPING EQUIPMENT	
PITCHER PUMP		COOLERS	
SURVEYOR'S TAPE	X	PAINT CANS WITH LIDS, 7 CLIPS EACH	
100 FIBERGLASS TAPE		VERMICULITE	
300 NYLON ROPE		SHIPPING LABELS	
NYLON STRING		DOT LABELS: "DANGER"	
SURVEYING FLAGS	X	"UP"	
FILM	X	"INSIDE CONTAINER COMPLIES ..."	
WHEEL BARROW		"HAZARD GROUP"	
BUNG WRENCH		STRAPPING TAPE	
SOIL AUGER		BOTTLE LABELS	
PICK		BAGGIES	
SHOVEL		CUSTODY SEALS	
CATALYTIC HEATER		CHAIN-OF-CUSTODY FORMS	
PROPANE GAS		FEDERAL EXPRESS FORMS	
BANNER TAPE		CLEAR PACKING TAPE	
SURVEYING METER STICK			
CHAINING PINS & RING			
TABLES			
WEATHER RADIO			
BINOCULARS			
MAGAPHONE			

ON - SITE SAFETY MEETING

Project _____ TDD/Pan _____
 Date _____ Time _____ Job No. _____
 Address _____
 Specific Location _____
 Type of Work _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____

 Chemical Hazards _____

 Radiation Hazards _____

 Physical Hazards _____

 Emergency Procedures _____

 Hospital/Clinic _____ Telephone _____
 Hospital Address _____
 Special Equipment _____
 Other _____

Checklist

1. Emergency information reviewed? _____ and made familiar to all team members? _____
2. Route to nearest hospital driven? _____ and its location known to all team members? _____
3. Site safety plan readily available and its location known to all team members? _____

Meeting shall be attended by all personnel who will be working within the exclusion area. Daily informal update meetings will be held when site tasks and/or conditions change.

ATTENDEES

(Expand on back of sheet if necessary)

Name Printed	Signature

Meeting Conducted by: _____ (Print) _____ (Signature)
 _____ (Site Safety Coordinator) _____ (Team Leader)

A T T E N D E E S (Cont.)

Name Printed	Signature

CAS # 0 Name: Lead Formula: Pb
DOT Class: Synonyms: White lead, Plumbum, Inorganic Lead
Chemical Classification: Heavy Metal

CHEMICAL PROPERTIES

Physical State: S	Boiling Point: 3164	F	Ionization Potential: 0	ev
Molecular Weight: 207	Melting Point: 620	F	Flash Point:	F
Specific Gravity: 11.3	Freeze Point: 0	F	Lower Explosive Limit: 0	%
Vapor Pressure: 0	mmHG	F	Upper Explosive Limit: 0	%
Odor Threshold: 0	ppm		Odor Descript: none	

Incompat/React: strong oxidizers, peroxides, active metals
Solubility:

HEALTH HAZARD PROPERTIES

Permissible Exposure Limit: 0	ppm	Threshold Limit Value: .018	ppm
	[or: .05		[or: .05
	mg/M3]		mg/M3]
Short Term Exposure Limit: 0	ppm	Immediate Danger to Life & Health: 0	ppm
	[or:		[or:
	mg/M3]		mg/M3]
Ceiling Designation:		Skin Hazard Designation:	
Other Properties: PEL - 50ug/m3			

Carcin: indefinite
Mutagen: -
Inhalation Tox: -
Dermal Tox: -
Oral Tox: rat TDLo: 790mg/kg
Other Tox: TARGET ORGNS: GI Trct, CNS, Kid, Bld, Gingival Tissue

Aquatic Tox: -
Repro Tox: exper teratogen

Routes of Exposure: Ingest: X Eyes: X Absorption: Dermal Skin Contact: X Inhalation: X

SYMPTOMS

Acute: cumulative neurotoxin (prolong expos), stomach distress, vomtg, diarrhea, black stool
s, anemia, nervous system effects
Chronic: alimentary: abdm pain/discomf, constptn, diarrh neuromusc: musc weaknss, joint/musc p
ain, dizzy, insom, encephalic: brain involvment, stupor, coma, death-r

PERSONAL PROTECTIVE MEASURES

Respirators: APR: dusty/windy condit or known high concent or >
Cartridge Type: GMC-H, AP3 (RACAL)
Clothing: Coverall: Saranex Gloves: Nitrile
Special
Precautions:

FIRST AID

Eye/Skin: flush w/water 15 minutes, wash skin with soap/water, SEEK MEDICAL ATTENTIO

Inhalation:

Ingestion: give water, induce vomiting, SEEK MEDICAL ATTENTION IMMEDIATELY

FIRES, RELEASES, SPILLS & DISPOSAL

Fire: 13 Leaks & Spills: 7,8,10 Disposal: P
Decomp Products: toxic fumes of lead

NOT TO BE USED IN LIEU OF MSDS

CAS # O Name: Chromium-metal
DOT Class: Synonyms: Insoluble salts
Chemical Classification: Heavy metal

Formula: Cr

CHEMICAL PROPERTIES

Physical State: S	Ionization Potential: 0	ev
Molecular Weight: 52	Boiling Point: 4784	F
Specific Gravity: 7.2	Flash Point: 0	F
Vapor Pressure: 0	Melting Point: 3452	F
Odor Threshold: 0	Freeze Point: 3339	F
	Lower Explosive Limit: 0	%
	Upper Explosive Limit: 0	%
	Odor Descript: none	

Incompat/React: strong oxidizers, powdered metal is explosive
Solubility: insoluble

HEALTH HAZARD PROPERTIES

Permissible Exposure Limit: .236	ppm	Threshold Limit Value: .236	ppm
	[or: .5		[or: .5
	mg/M3]		mg/M3]
Short Term Exposure Limit: 0	ppm	Immediate Danger to Life & Health: 235.577	ppm
	[or:		[or:
	mg/M3]		mg/M3]
Ceiling Designation:		Skin Hazard Designation:	
Other Properties:			

Carcin: -
Mutagen: -
Inhalation Tox: -
Dermal Tox: -
Oral Tox: -
Other Tox: TARGET ORGANS: Respiratory System

Aquatic Tox: -
Repro Tox: -

Routes of Exposure: Ingest: X Eyes: X Absorption: Dermal Skin Contact: X Inhalation: X

SYMPTOMS

Acute: contact dermatitis, ulceration of skin/nasal mucosa, irritation of eyes/mucous membranes
Chronic: pulmonary disease

PERSONAL PROTECTIVE MEASURES

Respirators: APR: dusty/windy condit or known high concent or >
Cartridge Type: GMC-H, AP3 (RACAL)
Clothing: Coverall: Tyvek Gloves: Butyl
Special
Precautions:

FIRST AID

Eye/Skin: Flush w/water 15 min, wash skin w/soap & water, SEEK MEDICAL ATTENTION.
Inhalation: move to fresh air, artf resp if nec, SEEK MEDICAL ATTENTION
Ingestion: Give lg amts of water, induce vomiting, SEEK MEDICAL ATTENTION

FIRES, RELEASES, SPILLS & DISPOSAL

Fire: 13 Leaks & Spills: 3,4,6-9 Disposal: P
Decomp Products:

NOT TO BE USED IN LIEU OF MSDS

JOB NO:

ecology and environment, inc.
HAZARD EVALUATION OF CHEMICALS

PREPARATION/UPDATE DATE 4-12-89

CHEMICAL NAME: BARIUM

CAS NUMBER:

DOT NAME/ID NO.: 1400

RU:

SYNONYMS: METALLIC BARIUM, BARIUM METAL

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: BA MOLECULAR WEIGHT: 137.36 PHYSICAL STATE: SOLID SPG/D 3.5 SOLUBILITY (H2O): REACTS
VAPOR PRESS: 10MM FREEZING POINT: 1337 F BOILING POINT: FLASH POINT: FLAM SOLID FLAMMABLE LIMITS:
ODOR CHARACTERISTICS:
INCOMPATIBILITIES: REACTS WITH WATER RELEASING TOXIC GASES. AMMONIA, OZ, HALOGENS, ACIDS METAL IN POWDERED FORM IS EXPLOSIVE

BIOLOGICAL PROPERTIES:

LD50: 250 MG/M3 TLV-TWA: 0.5 MG/M3 PEL: 0.5 MG/M3 ODOR THRESHOLD:
HUMAN (LC50): RAT/MOUSE (LC50): AQUATIC:
CARCINOGEN: TERATOGEN:
ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION MUTAGEN:

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

PREVENT SKIN CONTACT, WEAR GLOVES, IMPERVIOUS CLOTHING

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: SOLUBLE BARIUM COMPOUNDS ARE PRIMARY SKIN IRRITANTS AND CONVULSANT POISONS. MAY CAUSE LOCAL IRRITATION OF EYES, NOSE, THROAT, BRONCHIAL TUBES AND SKIN. SOLUBLE BARIUM COMPOUNDS MAY ALSO CAUSE SEVERE STOMACH PAINS, SLOW PULSE RATE, IRREGULAR HEART BEAT, ACUTE SYMPTOMS: TIGHTNESS OF NECK AND FACIAL MUSCLES, VOMITTING, DIARRHEA, PAIN, WEAKNESS, CARDIAC DISTURBANCES AND CONVULSIONS

CHRONIC SYMPTOMS: NO CHRONIC POISONING HAS BEEN REPORTED

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICIAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION
EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES
SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH IMMEDIATELY WITH SOAP AND WATER
INGESTION: GIVE LARGE QUANTITIES OF WATER; INDUCE VOMITTING; SEEK MEDICAL ATTENTION

DISPOSAL/WASTE TREATMENT:

REFERENCES CONSULTED: [] VERSCHUERAN [] MERCK INDEX [] HAZARDLINE [] ACGIH [] TOXIC & HAZARDOUS SAFETY MANUAL [] CHRIS [] SAX
[] NIOSH/OSHA POCKET GUIDE
[] OTHER: OHS DATABASE

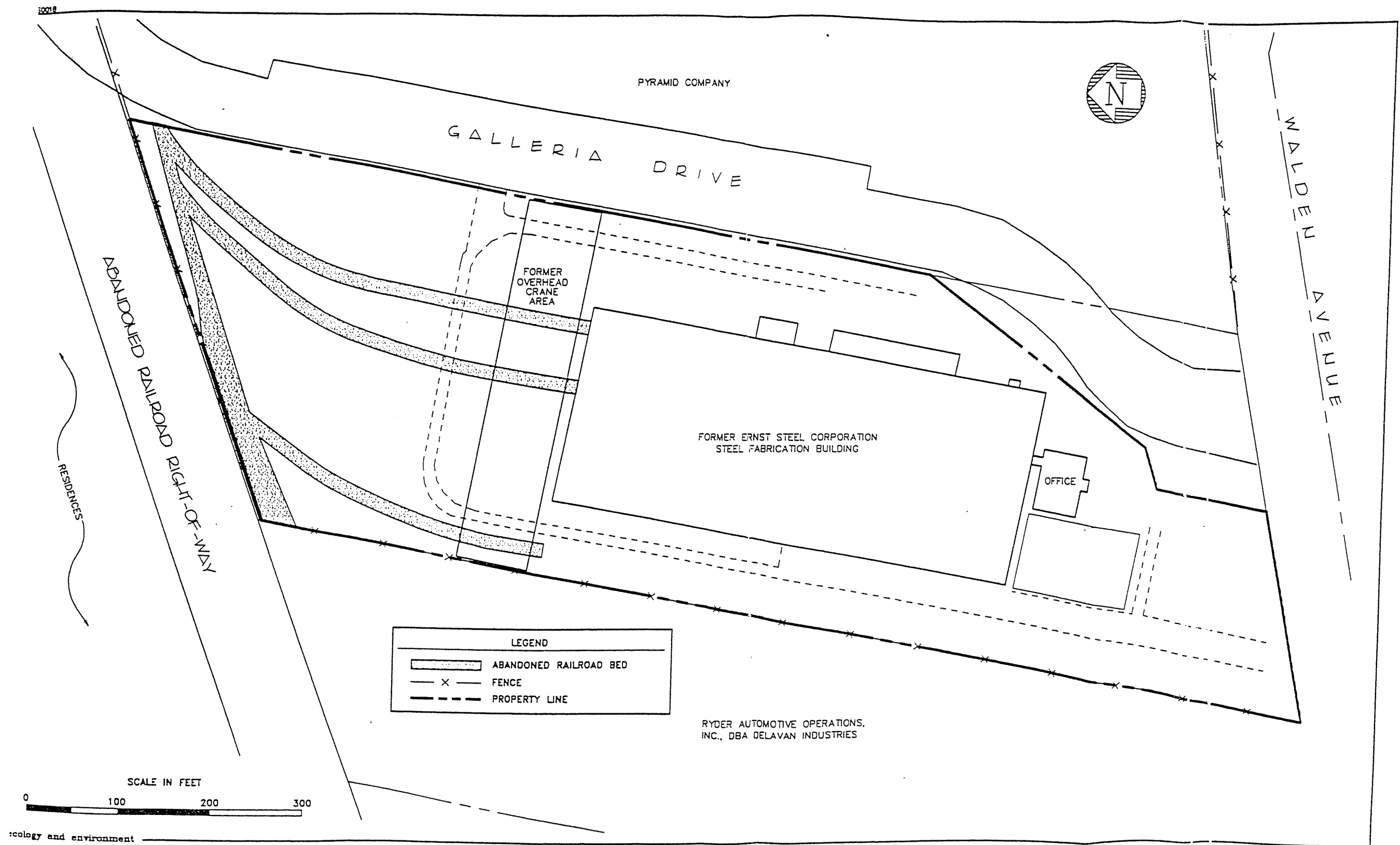


Figure 1-2 SITE MAP
ERNST STEEL SITE

EDUCATION:

B.S., Biology, Purdue University

EXPERIENCE:

A Certified Industrial Hygienist with 22 years' experience, Mr. Siener is the manager of E & E's industrial hygiene/air quality group. He approves the selection of site health and safety officers and reviews their performance and air quality monitoring activities. He has directed major, multisite industrial hygiene programs; managed numerous surveys involving the sampling, quantification, and characterization of indoor and outdoor airborne pollutants; evaluated exposures to chemical and physical agents; developed air monitoring programs; and provided technical guidance for the development of recommendations and engineering controls to reduce exposure. A specialist in the preparation of site-specific safety plans, he routinely provides quality assurance for industrial hygiene-related activities in the United States and overseas.

On behalf of E & E's standby contract with the New York State Department of Environmental Conservation (NYSDEC), Mr. Siener reviewed/approved site safety plans, led development of air monitoring and industrial hygiene procedures, and directed/performed safety and industrial hygiene field audits. As site safety auditor for E & E's remedial investigation/feasibility study (RI/FS) for the Madison Wire/Orban Industries site, he conducted industrial hygiene sampling for volatile organic compounds, in order to confirm the cause of high organic vapor analyzer readings. He provided health and safety support for the RI/FS for the Wellsville-Andover Landfill and for the five-year operation and maintenance program at the Dewey Loeffel Landfill. Throughout New York State, Mr. Siener also provided health and safety reviews and audits for numerous NYSDEC Phase II investigations at hazardous waste sites.

For the City of New York, he provided industrial hygiene/toxicological leadership during RI activities and the cleanup of mercury contamination at approximately 100 underground waterline valve chambers that were scattered throughout seven New York boroughs and the Catskill region. Mr. Siener conducted site inspections, evaluated the results of laboratory analyses, conducted hazard assessments, established health and safety protocol, led the development of site-specific safety plans and emergency procedures, trained cleanup contractor personnel in the safety procedures, and headed the E & E industrial hygiene team that monitored all on-site cleanup contractor activities.

During the construction of the 26th Ward Water Pollution Control Plant municipal sludge dewatering facility addition in New York City, Mr. Siener directed a field team in the collection of soil-gas and ambient air samples for cyanide analysis. Based on the analytical results, he recommended personal protective equipment levels, monitoring devices, and work procedures for the excavation crews.

Thomas G. Siener, CIH (Cont.)

SPECIAL EXPERIENCE:

Asbestos

Mr. Siener holds United States Environmental Protection Agency (EPA) accreditation as a building inspector/management planner under the Asbestos Hazard Emergency Response Act (AHERA), as well as certification as an asbestos project monitor from the New York State Department of Labor. He also holds certification in Method 582, Sampling and Evaluation of Airborne Asbestos Dust, from the National Institute of Occupational Safety and Health (NIOSH). He has provided quality assurance (QA) for and directed several of E & E's major, multisite asbestos sampling and removal oversight programs.

As principal in charge for E & E's three-phased asbestos services contract for the renovation of the Buffalo, New York, War Memorial Auditorium, Mr. Siener provided QA for the asbestos inspection/sampling activities and the provision of abatement design and contractor bid support, then personally provided construction oversight/clearance inspections, managed the post-abatement sampling, and conducted a final inspection to ensure that all project requirements were met.

For the United States Navy, Mr. Siener managed/participated in the multisite sampling/analysis of suspect asbestos-containing materials; conducted hazard assessments; and provided close coordination with project engineers conducting cost/benefit analyses and developing abatement recommendations for the Naval Weapons Station, Earle, New Jersey; Naval Air Engineering Center, Lakehurst, New Jersey; SUBS New London, Connecticut; and Naval Construction Battalion Center, Davisville, Rhode Island.

As E & E project manager for the joint-venture asbestos survey of over 10-million square feet of building space at the Stuttgart Greater Military Community in the Federal Republic of Germany, he delineated health and safety procedures, supervised the sampling effort, evaluated survey results, led report preparation, and provided CIH approval/signature for all final documents. He also directed E & E asbestos surveys in Augsburg, Wildflecken, Fulda, Bamberg, Frankfurt, Kitzingen, and Faulenberg, Germany; and Sinop, Turkey.

As project CIH for E & E's asbestos surveys of over 500 buildings at the United States Department of Energy facility in Oak Ridge, Tennessee, Mr. Siener developed site safety plans addressing asbestos exposure concerns as well as other chemical and physical health and safety concerns. The plans delineated required respiratory protection and personnel protective equipment, safe work practices, and monitoring equipment requirements for field personnel. In addition, Mr. Siener audited survey teams for compliance with the safety plans during field visits.

Mr. Siener also was senior project advisor for E & E's comprehensive AHERA-level asbestos survey for the Federal Aviation Administration at the Anchorage, Alaska, Air Route Traffic Control Center.

Thomas G. Siener, CIH (Cont.)

For the New York State University Construction Fund, Mr. Siener directed E & E's bulk sampling/analyses and abatement oversight projects to meet requirements of EPA and AHERA. For multiple sites on eight university campuses, he provided industrial hygiene supervision for the operation of the E & E field laboratory and conducted quality control and industrial hygiene clearance checks of the facilities. At Monroe Community College in Rochester, New York, he supervised the industrial hygiene/air sampling during asbestos abatement activities, conducted industrial hygiene clearance checks, and assessed the impacts of the removal operation on public health and the environment.

In addition, for the County of Monroe, New York, Mr. Siener managed E & E's survey of over 200 county-owned buildings and development of an Asbestos Replacement and Remediation Management Master Plan.

At the 194-unit Sycamore Green apartment complex in Rochester, New York, he supervised industrial hygiene sampling and analyses during asbestos abatement activities. For the fast-track survey, he reviewed reports and analytical results obtained by second- and third-shift personnel and evaluated the impacts of abatement activities on apartment occupants, the general public, and the environment.

Mr. Siener also was project CIH for E & E's "AHERA-type" asbestos surveys of over 800,000 square feet of building space at numerous facilities owned by New York Telephone Company. He supervised the sampling and analyses and presented the results on a site-by-site basis to the client.

At Brooks Memorial Hospital in western New York, Mr. Siener directed the bulk sampling/analysis operations for asbestos. This included building inspections, bulk sampling and analyses to locate all potential ACM, development of a priority list of affected areas, and preparation of abatement recommendations.

In addition, Mr. Siener has provided CIH oversight for a variety of E & E asbestos survey/abatement programs for other school systems and public facilities: e.g., the Amherst, New York, Central School System and the Buffalo Psychiatric Center. For these and other projects, he has assessed impacts of removal activities on public health and the environment, characterized air particulate concentrations to comply with regulations of the Occupational Safety and Health Administration (OSHA), conducted hazard assessments, and managed decontamination procedures.

He has conducted training sessions for Laborers' International (Buffalo, New York) concerning the health effects of asbestos as part of a New York State Department of Health-approved course offered as partial fulfillment of the requirements for asbestos certification.

Lead

For Niagara Mohawk Power Corporation, Mr. Siener provided QA for E & E's performance of airborne sampling for lead during abrasive blasting operations that involved the removal of lead paint from the bases of electrical power transmission towers.

Thomas G. Siener, CIH (Cont.)

Additional Air Quality/Industrial Hygiene

For the New York State Environmental Facilities Corporation, Mr. Siener provided QA oversight for E & E's evaluation of the exposure of Thruway toll collectors in Williamsville, New York, to air contaminants including carbon monoxide, sulfur dioxide, nitrogen dioxide, and total dust. The project team also evaluated noise exposure and set up and operated an on-site weather station to collect weather data continuously during the survey. Mr. Siener reviewed the survey findings, provided technical guidance for the development of appropriate recommendations, and reviewed the final report.

Mr. Siener also has directed/conducted numerous investigations of indoor air quality problems in offices, schools, and business buildings. The surveys have involved sampling for a wide range of indoor air contaminants, including formaldehyde, carbon dioxide, carbon monoxide (CO), ozone, airborne microbes, and volatile organic vapors. He has evaluated the performance of numerous heating, ventilating, and air conditioning (HVAC) systems and measured temperature and relative humidity within the buildings as part of indoor air quality studies.

For example, Mr. Siener was principal in charge of E & E's indoor air quality investigation at North Central Bronx Hospital in New York City; as well as the firm's evaluation of indoor air quality and the HVAC system at the Alden, New York, Correctional Facility.

For a printing company, he directed a survey to quantify and characterize airborne particulates. The work involved use of a variety of particulate collection and analytical methods to investigate particulate interference with the printing process and assess contributions from outside the shop, other operations in the shop, and the printing press itself. The gathered information was used to design and locate exhaust hoods.

For Morton Salt in Silver Springs, New York, he provided QA for an industrial hygiene survey, evaluation of worker exposure to nuisance dust and carbon monoxide (CO), and comparison of CO exposure levels with OSHA permissible exposure limits.

Environmental Audits

For Shearman and Sterling, Mr. Siener conducted environmental audits of medical facilities in Ludwigstadt and Munich, Germany. For a major steel company, he conducted a health and safety review for E & E's Phase I environmental regulatory compliance audit of a facility in Alabama.

Waste Sites

Mr. Siener provided health and safety and industrial hygiene oversight for E & E field investigations of 22 separate hazardous waste sites at the 2,002-acre Norton Air Force Base in California, in support of the United States Air Force Installation Restoration Program.

Thomas G. Siener, CIH (Cont.)

To support E & E's work at the LaSalle Electrical Utilities site in Illinois, Mr. Siener assisted in the development of the QA project plan and building inventory work plan, which included ACM sampling and testing; assisted in the development of specifications for the removal of polychlorinated biphenyl (PCB)-contaminated asbestos; reviewed the air sampling/monitoring procedures/methods during the removal of asbestos transite roofing; and oversaw activities of the removal/demolition contractor to ensure compliance with state and federal regulations governing asbestos abatement activities.

During eight years with LTV (Republic) Steel Corporation (LTV) in progressive roles as assistant supervisor of safety and health, environmental engineer, and administrator of health, Mr. Siener was concerned with occupational safety and health; exposure evaluation; analysis of relevant existing and proposed regulations; and compliance activities for air and water quality, hazardous waste disposal, and by-product reclamation. With responsibility for the recognition and evaluation of employee exposures to various chemical and physical agents, including process emissions in the form of airborne toxicants, he recommended engineering and administrative controls to reduce exposures, implemented hearing conservation and lead exposure compliance programs, devised engineering controls to reduce lead exposures, supervised the installation of CO monitoring systems and developed procedure manuals for CO control, determined necessary protective equipment, and supervised and trained industrial hygiene technicians. He also served as radiation control officer for LTV's Canton, Ohio, plant.

In addition, Mr. Siener coordinated LTV compliance with PCB and hazardous waste temporary storage, recordkeeping, and disposal regulations; determined regulatory requirements for solid and liquid wastes and arranged for their reclamation/disposal; supervised technicians conducting water quality sampling for National Pollutant Discharge Elimination System permit requirements; trained facility supervisors regarding proper waste-handling procedures; and developed computer programs for PCB inventory, coal analysis, and water quality analytical data storage, plotting, and reporting. He also wrote procedures, purchased equipment, and undertook quarterly sampling of groundwater monitoring wells; and he performed radiation surveys and ventilation system checks.

DOE Security Clearance

Mr. Siener holds a "Q" security clearance from the United States Department of Energy.

Additional International

Mr. Siener developed the site safety plan and health and safety approach for E & E's investigation of a hazardous waste facility at the Maraven Refinery in Venezuela.

Additional Instructor

Mr. Siener has provided American Red Cross instruction in cardiopulmonary resuscitation (CPR) to E & E employees.

Thomas G. Siener, CIH (Cont.)

With LTV, he had a key role in the provision of industrial hygiene-related training for LTV employees. For example, he provided lead exposure training with emphasis on OSHA regulations and compliance. He also provided American Red Cross CPR instruction.

Laboratory

Mr. Siener worked as a laboratory technician at E.J. Meyer Hospital in Buffalo, New York; and as a quality control supervisor for a food processing facility in Arcade, New York.

Additional Training

Mr. Siener obtained certification as an Expert Visible Emission Reader from the Cleveland Division of Air Pollution Control. He has completed a variety of courses and seminars in occupational hazards (NIOSH), ventilation (American Conference of Governmental and Industrial Hygienists), radiation safety (American Iron and Steel Institute), radiation investigative methods and protection (E & E), radon reduction in structures (New York State Energy Office), and hazardous waste management and statistical process control (various private industries).

Thomas G. Siener, CIH (Cont.)

EMPLOYMENT:

Ecology and Environment, Inc.; Buffalo, New York, 1985-present
LTV (Republic) Steel Corporation, Canton, Ohio, Administrator of Health, 1985, and
Environmental Engineer, 1982-1985; Buffalo, New York, Assistant Supervisor
of Safety and Health, 1977-1982
E.J. Meyer Hospital, Buffalo, New York, Laboratory Technician, 1975-1976
Arcade Industries, Arcade, New York, Quality Control Supervisor, 1973-1974

PROFESSIONAL AFFILIATIONS:

Certified Industrial Hygienist, American Board of Industrial Hygiene
American Industrial Hygiene Association
American Society of Safety Engineers
National Asbestos Council

BIBLIOGRAPHY:

Thomas G. Siener, CIH (Cont.)

LANGUAGE CAPABILITIES: NONE

ED. DATES: BS 1971

CIH 1982, #2291; Expiration/Renewal Date?

AHERA insp. no. 260, 1987; expires 3/93

AHERA mgmt. planner no. 310, 1990; expires 3/93

NYSDOL Asb.proj.mon. Cert.no.?, 1992; expires 7/93

NYSDOL Asb.handler II, no. AH89-02385, 1989; expired

NIOSH 1987

Cert. Exp. Vis. Emission Reader 1984

Courses/seminars: NIOSH 1977, ACGIH 1978, AISI 1977, haz.

waste mgmt. 1983 & 1984, stat.proc. control 1984, radon 1986, E & E

rad. train. 1988

REFERENCES:

Richard Crandal, R.A., Erie County Department of Public Works, Engineer, Buffalo, New York: 716/858-8380.

Robert Wade, United States Army Corps of Engineers, European Division, Project Manager, Frankfurt, Germany: 011-49-69-151-7344.

Need one more: name, agency/company, title, city, state, phone.

References verified 8-92.

REVIEW STATUS: 8-92/TS; TO TS 5-94

EXPERIENCE:

With 21 years' experience, Mr. Horn is certified by the Joint Commission of the American Board of Industrial Hygiene and Board of Certified Safety Professionals as a certified Occupational Health and Safety Technologist (OHST); certified by the United States Department of Defense as a hearing conservationist, instructor, and pesticide applications manager; and certified by the State of Maryland as a food service sanitation manager. He applies his extensive background in industrial hygiene, hazardous waste management, public health and safety, asbestos investigation/abatement, and field safety to E & E industrial hygiene surveys and assists in the implementation of the corporate health and safety training program.

In support of E & E's air toxics inventory at the Idaho National Engineering Laboratory, Mr. Horn surveyed work sites to identify operations performed, compile a chemical hazard inventory for each operation, and identify possible emissions and in-place controls. Using computer-aided design, he completed diagrams of each operation's ventilation system and its relation to emission stack flow.

Mr. Horn was E & E project manager for industrial hygiene surveys for AIRCO (trichloroethylene [TCE]); Truck-Lite Corporation (TCE, trichloroethane, benzene); Morton Salt Company (nuisance dust and carbon monoxide); the State University of New York College at Buffalo (contaminated ventilation duct removal); *The Buffalo News* (carbon black); IIMAK Corporation (nuisance dust and paint pigment); and Colorforms Corporation (dibutyl phthalate and paint pigment).

Mr. Horn also has managed/conducted indoor air quality surveys and microbiological/chemical sampling for numerous E & E clients in western New York, including the Erie County Correctional Facility, Alden Correctional Facility, Kenmore Mercy Hospital, Buffalo CONAX Corporation, Erie County Library, Goldome Bank, Benderson Development Company, Radisson Hotels, and the Banana Republic Store. The surveys included interviews with affected and unaffected facility personnel and medical staff; assists in the design/review of personnel questionnaires; obtains temperature, humidity, and ventilation measurements; reviews the effectiveness of facility heating, ventilating, and air conditioning (HVAC) systems; and collects samples of possible microbiological and chemical contaminants using state-of-the-art equipment and collection methodologies.

Mr. Horn developed E & E's corporate standard operating procedure for confined space entry. He provides field training for confined space entry and the use of Level B personal protection (air-purifying respirator and dermal protection) for the decontamination of air receiver tanks and piping. He also has conducted training in lead hazards and in personnel sampling techniques for lead exposure during HVAC system dismantling operations.

Keith J. Horn, OHST (Cont.)

SPECIAL EXPERIENCE:

Spill Contingency Planning

Mr. Horn participated in E & E's preparation of a comprehensive emergency response plan for the transportation of anhydrous ammonia by barge and tanker into and out of Alaska, Washington, Oregon, and California and the Province of British Columbia, Canada. The plan covers all aspects of emergency planning, personnel health and safety, environmental protection, community notification/alert, corporate and contractor response, and post-incident evaluation. The client integrated the plan into its existing program for truck and rail transportation and facility response.

Waste Sites

In support of the New York State Department of Environmental Conservation for Phase II hazardous waste disposal site investigations throughout New York State, Mr. Horn was site safety officer (SSO), responsible for providing health and safety oversight and air quality monitoring. He had a similar role for E & E's investigation of cyanide contamination at a former coal gasification (town gas) plant site in Buffalo, New York.

As a corporate health and safety officer, Mr. Horn has developed and provided oversight for the implementation of site safety plans delineating personal protection equipment, monitoring activities, worker safety, training, and decontamination procedures. He prepared such plans for operations at the Berks Sand Pit in Pennsylvania; Madison Wire and the Wellsville-Andover Landfill in New York; and pipeline compressor stations in Alaska, Kentucky, Minnesota, Pennsylvania, New York, Mississippi, Louisiana, Alabama, and Georgia.

Asbestos

Mr. Horn was field sampling team leader for E & E's asbestos survey for the County of Monroe, New York, which involved the investigation of over 200 county-owned buildings totaling more than 2.5 million square feet. Mr. Horn led the building inspections to identify asbestos-containing materials, sampling of suspect materials, and quantification/assessment of suspect materials.

Similarly, as field sampling team leader for New York Telephone facilities located throughout New York State, Mr. Horn provided on-site sampling and analyses, quantified and assessed the condition of suspect asbestos-containing materials, and supervised all team technicians. He conducted air quality monitoring, sampling, and analyses in support of E & E asbestos inspections and abatement monitoring activities at the State University of New York colleges at Buffalo and Alfred, Rushford Central School, and Williamsville Central School. In western New York, he also conducted asbestos surveys for the cities of Buffalo and North Tonawanda, as well as for McDonalds Corporation.

Mr. Horn provided on-site quality control (QC) for asbestos sampling conducted during the survey of over 900 buildings totaling over 10 million square feet at the United

Keith J. Horn, OHST (Cont.)

Mr. Horn provided on-site quality control (QC) for asbestos sampling conducted during the survey of over 900 buildings totaling over 10 million square feet at the United States Military Community (MILCOM) in Stuttgart, Germany. He performed QC checks of the survey work at random buildings and submitted reports to the project manager. He also was an E & E asbestos inspection team leader for similar work at the Fulda, Wildflecken, and Bamberg MILCOMs (over 6.9 million square feet) in Germany.

From 1987 to 1991, he held certification as an asbestos inspector and handler from the United States Environmental Protection Agency and the New York State Department of Labor, respectively.

Emergency Response

Mr. Horn was SSO for E & E's monitoring of the cleanup of chemical spills in Fort Wayne, Indiana; and Alden, New York.

Additional Instructor

During two years as a preventive medicine instructor with the Army Academy of Health Sciences at Fort Sam Houston in Texas, he conducted the United States Department of Defense (DoD) pesticide applicators' course and various other medical training courses covering all aspects of entomology and pesticide usage/safety. He was an instructor for classes in the response to environmental health threats and desert survival at the United States Army Intelligence Center and School, Fort Huachuca, Arizona. While assigned to Fort Meade, he initiated and conducted a quarterly 21-hour field sanitation team certification course; presented the Army Food Service Advisors course in health and sanitation; and conducted numerous other classes in heat and cold weather injury, environmental health threats, and communicable diseases.

Additional Army Radioactive/Asbestos/Hazardous Waste/Ind. Hygiene

Mr. Horn worked for 14 years with the Preventive Medicine Activities of the United States Army at bases in the United States and abroad. In these positions, he was the noncommissioned officer in charge (NCOIC) for all industrial hygiene, epidemiological, and health and safety-related activities. His responsibilities encompassed asbestos inspections and support of asbestos management and abatement programs; radiological safety and surveillance, including the performance of ionizing and nonionizing surveys and evaluation of survey results; hazardous material transportation/storage; and pesticide application, storage, and safety. He was responsible for potable and nonpotable water quality sampling and surveillance; evaluated waste disposal practices; and supervised weather surveillance (for pesticide application and entomological surveys).

Assigned for two years to the 98th General Hospital in Nuernberg, Germany, he performed over 200 industrial hygiene surveys within the hospital, at 10 outlying clinics, and at other requesting units to identify potentially hazardous operations and list potential and actual exposures and controls. He measured/evaluated noise levels, carbon dioxide, anesthetic gases, heat stress parameters, nonionizing radiation, and lighting. He collected

Keith J. Horn, OHST (Cont.)

prepared final reports. He also purchased and maintained industrial hygiene instruments and supplies and calibrated survey instrumentation.

For three years, Mr. Horn was an environmental health specialist and NCOIC for all preventive medicine activity branches in the outlying clinics (Maryland, Pennsylvania, Delaware) of Fort Meade Army Hospital, Maryland. He directed all activities of 12 environmental health technicians and the Occupational Health Evaluation Team, based in Fort Meade, which traveled throughout the tristate area to conduct hearing, vision, pulmonary function, and blood testing for civilian workers engaged in the DoD Medical Surveillance Program. The preventive medicine programs included the survey/collection of samples for asbestos, mercury, chlordane, polychlorinated biphenyls, and other toxic chemicals; health and safety inspections of food service, hospital, child care, and barber and beauty shop facilities to verify compliance with health and safety regulations; and performance of worksite surveys for chemical and physical stress agents (heat, lighting, noise, ventilation). Responsible for all testing and collection methodologies, Mr. Horn coordinated all office logistics and maintained all equipment inventories for the assigned programs. He advised post engineers on all aspects of asbestos management/abatement and assisted in the removal and disposal of asbestos-containing materials in the Fort Meade elementary school and gymnasium. He also was responsible for all ionizing and nonionizing radiation safety equipment. In addition, he supported the Army Environmental Hygiene Agency's environmental impact survey at the Seneca Army Depot waste disposal unit by collecting/conducting chemical and microbiological analyses of plant, animal, and potable and nonpotable water samples.

For two years, Mr. Horn was the NCOIC at Fort Huachuca, Arizona. At Fort Huachuca and Yuma Proving Grounds, he performed visual inspections of government buildings for asbestos and assisted in asbestos management/abatement; conducted surveys for ionizing and nonionizing radiation and evaluated the results to determine health risks; conducted sanitation inspections of community service facilities to ensure compliance with federal and state regulations; performed ventilation surveys; and sampled for chlordane, carbon dioxide (CO₂), and nitrous oxide. In addition, he conducted surveys for medically important arthropods and supervised the application of pesticides. He maintained the state-certified water analysis laboratory that conducted microbiological and chemical analyses/surveys of potable and nonpotable water.

While assigned to Fort Huachuca, Mr. Horn also was NCOIC for the Army's 12-person search-and-rescue/emergency medical team that traveled throughout Arizona to assist local fire departments and civilian teams. He was responsible for all team logistics, scheduling, equipment, supplies, and vehicles (three ambulances).

In addition, at Fort Huachuca, he established, maintained, and evaluated the communicable disease program, including the performance of clinical and laboratory tests, evaluation of test results, and provision of advice to physicians concerning treatment regimes for clinics. In addition, he initiated/maintained the Local Occupational Health Hazard Inventory and linked it via computer to the database for annual and semiannual physical examinations performed on DoD workers identified as health risk workers. He performed

Keith J. Horn, OHST (Cont.)

noise and safety surveys in conjunction with hearing conservation classes and hearing protection device fitting.

Additional International

In 1985, Mr. Horn was NCOIC for the Preventive Medicine Activity, Medical Element, Joint Task Force Bravo, Honduras, directing Preventive Medicine Activity services for all United States military personnel in the country. For the entomological, community health, and preventive medicine programs, he scheduled operations encompassing food service sanitation (inspections for compliance with federal health codes); potable and nonpotable water quality surveillance; waste disposal; encampment site approval, entomological surveys; pesticide application, storage, and safety; hospital safety and infection control; radiological surveillance and safety; hazardous material transportation/storage; weather surveillance (for pesticide application and entomological studies); and the training of United States military, Honduran military, and civilian personnel on environmental and medical health threats. Mr. Horn also was responsible for the 10-person operation of the complete medical laboratory used to conduct testing of toxic chemicals, unknown substances, potable and nonpotable water, and air samples; as well as to conduct insect rearing and microbiological analyses of collected specimens. He managed laboratory construction and operation, supervised sample collection and data compilation, and was responsible for the accuracy and validity of all analytical results. In addition, he provided industrial hygiene-related support for the construction and maintenance of the water and sewage systems and coordinated routine surveys/inspections of the systems to insure compliance with military regulations and national standards. Mr. Horn also advised the local commander during many environmental health emergencies, including an incident involving contamination of a major potable water supply that required the reinstallation of a distribution system, and a major spill of 9,000 gallons of MOGAS that necessitated the removal and disposal of 12,000 square feet of contaminated soil.

During his four-year military assignment in Augsburg, Germany, Mr. Horn conducted ionizing/nonionizing radiation, asbestos, CO₂, and noise surveys; collected samples to determine facility compliance with health and safety codes; and performed sanitation inspections of food service, military housing, child care, hotel, and barber/beauty shop facilities, including four outlying clinics and American Forces Recreation Center areas. Responsible for the epidemiological investigation program, he advised and provided liaison with the Health Department of the Federal Republic of Germany, conducted disease vector surveys, and evaluated pesticide applicators.

On-Site Laboratories

During his Army service, Mr. Horn also was responsible for the operation of on-site medical laboratories used to conduct testing of toxic chemicals, unknown substances, potable/nonpotable water, and air samples; as well as to conduct insect rearing and microbiological analyses of collected specimens. He supervised sample collection and data compilation, and was responsible for all analytical results. He also provided industrial hygiene-related support for the construction and maintenance of water and sewage

Keith J. Horn, OHST (Cont.)

systems and coordinated routine surveys/inspections to insure compliance with military regulations and national standards.

Additional Computer Operations/Data Management

While assigned to the Army Academy of Health Sciences at Fort Sam Houston, Texas, Mr. Horn also the medical zoology branch librarian/publications manager and supply noncommissioned officer, responsible for the evaluation, procurement, inventory, and maintenance of textbooks, training manuals, and training supplies. He also analyzed training budgets, comparing supply consumption with future needs.

At Walter Reed Army Medical Center in Washington, DC, Mr. Horn was responsible for information compilation/retrieval via computer terminals, card files, and tapes for physicians working in the World Health Organization (WHO) and for epidemiological consultant teams (EPICONS) worldwide. He also performed computer programming related to information dissemination to all of the institute's outlying clinics. As branch librarian, he requisitioned, indexed, and maintained the WHO and EPICON libraries.

Additional Professional Certifications (Expired)

Mr. Horn's additional professional certifications have included DoD certification as a hearing conservationist, instructor, and pesticide applications manager; and certification by the State of Maryland as a food service sanitation manager.

Additional Training

Between 1974 and 1988, he completed numerous military, government, and civilian training programs/courses in basic and advanced industrial hygiene, asbestos sampling and removal, ionizing and nonionizing radiation monitoring, water and wastewater treatment, emergency medical procedures, cardiopulmonary resuscitation and first aid, food microbiology, hearing conservation, preventive medicine, computer-assisted data processing, and audiovisual media/equipment applications at the Academy of Health Sciences and Army Intelligence Center and School.

Military Awards

Mr. Horn has received the Meritorious Service Medal, Joint Services Commendation Medal, National Defense Service Medal, two Army Commendation medals, the Army Achievement Medal, and the Humanitarian Service award for work in the environmental field. He holds ribbons for Professional Development, Overseas Service, and Armed Forces Service; as well as the Expert Field Medical, Jungle Expert, Mountain, and Air Assault badges.

Keith J. Horn, OHST (Cont.)

EMPLOYMENT:

Ecology and Environment, Inc., Buffalo, New York, 1988-present
United States Army, Preventive Medicine Activity, 98th General Hospital, Nuernberg, Germany, Environmental Health/Industrial Hygiene Technician, 1986-1988; Academy of Health Sciences, Fort Sam Houston, Texas, Preventive Medicine Instructor, 1984-1986; Joint Task Force Bravo, Honduras, Preventive Medicine Activity, Noncommissioned Officer in Charge (NCOIC), 1985; Fort Meade, Maryland, Environmental Health Specialist/NCOIC, 1981-1984; Fort Huachuca, Arizona, Preventive Medicine Activity, NCOIC/Environmental Health Specialist, 1979-1981; Walter Reed Army Medical Center, Washington, DC, Preventive Medicine Technician, 1979; Augsburg, Germany, Preventive Medicine Activity, NCOIC/Preventive Medicine Technician, 1974-1978

PROFESSIONAL AFFILIATIONS:

Certified Occupational Health and Safety Technologist
American Industrial Hygiene Association

BIBLIOGRAPHY:

Keith J. Horn, OHST (Cont.)

LANGUAGE CAPABILITIES: GERMAN

Reading: good
Writing: fair
Speaking: fluent

ED. DATES: No degree
OHST, no. 1050, 1991; expires 10/92
DoD pesticide applic. cert. no. A-84-150, 1984; no expiration
DoD hearing conserv. cert. no. HUA-101, 1978; no expiration
DoD instructor cert.no.?, year?; no expiration
MD food serv. cert.no.?, year?; no expiration
Emerg.Med.Tech. cert. no. S17192, 1977; expired
Military & civilian courses, 1974-1988

REFERENCES:

LTC Larry Richards, United States Army, Medical Department Activity (MEDDAC), Fort
Devans, Massachusetts: Phone?
LTC Dave Smith, Walter Reed Army Medical Center, Washington, DC: 912/767-6705.
Kenneth Fuller, United States Army, MEDDAC, City?, New York: Phone?

References verified 7-92.

REVIEW STATUS: 7-92/KH; TO KH 6-93, 4-94, 11-94



ecology and environment, inc.

International Specialists in the Environment

BUFFALO CORPORATE CENTER

368 Pleasant View Drive, Lancaster, New York 14086

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February 2, 1996

Jaspal S. Walia, P.E.
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

Re: Commercial Carriers, Inc. Site
Cheektowaga, New York
NYSDEC Site No. 9-15-138 (9-15-022)

Dear Mr. Walia:

This letter is to amend the June 1995 Interim Remedial Measures Removal Action Plan (IRM RAP) for the Ernst Steel site (Site No. 9-15-022) to include remediation of soils with similar contamination at the northern end of the adjacent Commercial Carriers, Inc. (CCI) site (to be remediated by Benderson Development Company). This letter supersedes my letter of January 19, 1996 on this subject and addresses comments presented by you in our telephone conversation of January 24, 1996.

The northern portion of the CCI site has been characterized by previous investigations. The attached map and analytical table provide a summary of this information. We propose to rely on these data to excavate hazardous and nonhazardous soils as shown on the attached map. Mr. Frank Kozak of Blasland, Bouck & Lee, Inc., consultants for the latest sampling effort at the northern end of the CCI site, has indicated to me that no new sampling beyond what is shown in the attached map was done by his firm. The areas to be excavated will be staked out in the presence of a NYSDEC representative prior to excavation. The cleanup goals for this site are 500 mg/kg total lead and 40 mg/kg total chromium.

Hazardous soils as delineated in the attached map will be loaded and transported directly to the adjacent site for chemical stabilization and off-site disposal at a sanitary landfill (Modern Disposal). The excavation of known hazardous soils is proposed to be conducted this Saturday, February 3, 1996. A portion of nonhazardous soils (with a TCLP lead level of 4.4 ppm) that is directly adjacent to the hazardous soils will also be excavated at this time and treated as hazardous. This is being done because of the variability of the soils and to take advantage of the efficiency of the on-site chemical stabilization process currently being used at the Ernst Steel site. The excavation will be backfilled with clean material so the site can continue to be used for truck and trailer storage.

Mr. Walia
February 2, 1996
Page 2

Nonhazardous soils as delineated in the attached map, except as noted above, will be loaded directly for transport to a sanitary landfill (Modern Disposal). Public roads will not be used for transport from the CCI site to the adjacent site. Soils that require excavation that have not yet been characterized will be staged, sampled and analyzed for TCLP lead and TCLP chromium and disposed off site as appropriate. The excavation of known nonhazardous soils and identification of additional soils that may be above cleanup goals will be done after the current site tenant leaves (late spring/early summer 1996). E & E will inform you of the start date as it is scheduled.

Cross-contamination and the tracking of mud onto public right-of-ways will be minimized through the use of plastic to keep trucks transporting soils off the site from coming in contact with soils and by pressure washing dirt and mud off trucks as necessary.

Because the horizontal limits of contamination have not been fully defined by the previous investigations, we propose to collect sidewall samples (analyzing for total lead and total chromium) in the same manner that was adopted for excavations at the adjacent site. The vertical limit of excavation will be underlying clay, approximately 12 inches below grade. No sampling of this clay is proposed because previous investigations and sampling at the adjacent site have indicated that it is not contaminated. The horizontal limits of excavation along the northern edge of the property will be limited to the railroad bed at the site property boundary and will be identified visually. Sampling the sidewalls on the northern edge of the property will be based on field observations and at the direction of NYSDEC. However, remediation of soils outside of the subject property will not be conducted by the subject property owner. The horizontal limits of excavation along the southern edge of the contamination is expected to be limited to the existing pavement north of the large building.

All aspects of the existing health and safety plan will remain as they currently exist.

If you have any questions, call me at 684-8060.

Sincerely,



David P. Albers, P.E.
Project Manager

Attachments

xc: C. Martens/Benderson
C. Slater/HS&E

Sample I.D.	Chromium (ug/g)		Lead (ug/g)		ICLP (mg/l)					
	Total Chromium	Clean-up Objectives*	Total Lead	Clean-up Objectives**	Barium	Barium Max. Level	Chromium	Chromium Max. Level	Lead	Lead Max. Level
TP14	39.7 N	10 or SB	307	SB	NA	100	NA	5	NA	5
TP15/153	950 N/801	10 or SB	80.1/29.4	SB	NA	100	NA	5	NA	5
TP16	1090 N	10 or SB	27.6	SB	NA	100	NA	5	NA	5
TP17	551 N	10 or SB	728	SB	NA	100	NA	5	NA	5
TP18	60.4 N	10 or SB	205	SB	NA	100	NA	5	NA	5
TP19	246 N	10 or SB	211	SB	NA	100	NA	5	NA	5
TP20	33.0 N	10 or SB	110	SB	NA	100	NA	5	NA	5
TP21/213	47.1 N/74.4	10 or SB	804/1540	SB	NA	100	NA	5	NA	5
TP22	54.1 N	10 or SB	173	SB	NA	100	NA	5	NA	5
TP23	26.4 N	10 or SB	90.7	SB	NA	100	NA	5	NA	5
TP24	130 N	10 or SB	125	SB	NA	100	NA	5	NA	5
TP25/253	209 N/167	10 or SB	307/323	SB	NA	100	NA	5	NA	5
1CS1	NA	10 or SB	NA	SB	0.778 B	100	0.00540 B	5	0.0389 U	5
1DS1	NA	10 or SB	NA	SB	1.22 B	100	0.00880 B	5	28.1	5
2BS1	NA	10 or SB	NA	SB	0.355 B	100	1.04	5	0.0054 B	5
2DS1	NA	10 or SB	NA	SB	0.321 B	100	0.204 B	5	1380	5
3DS1	NA	10 or SB	NA	SB	0.241 B	100	0.109 B	5	0.148 B	5
4DS1	NA	10 or SB	NA	SB	0.548	100	0.00740 B	5	0.0389 U	5
5DS1	NA	10 or SB	NA	SB	0.170 B	100	0.0803 B	5	0.225 B	5
6DS1	NA	10 or SB	NA	SB	1.12 B	100	0.00770 B	5	0.112 B	5
7DS1	NA	10 or SB	NA	SB	0.509 B	100	0.00520 B	5	0.0841 B	5
8DS1	NA	10 or SB	NA	SB	1.85 B	100	0.00810 B	5	0.113 B	5
9DS1	NA	10 or SB	NA	SB	1.53 B	100	0.0425 B	5	1.65	5
10DS1	NA	10 or SB	NA	SB	1.26 B	100	0.0147 B	5	4.32	5
11DS1	NA	10 or SB	NA	SB	0.487 B	100	0.101 B	5	329	5
12DS1	NA	10 or SB	NA	SB	0.281 B	100	0.0268 B	5	0.5389	5
13DS1	NA	10 or SB	NA	SB	0.310 B	100	0.0700 B	5	0.0369 U	5
1CS2	278	10 or SB	1450	SB	NA	100	NA	5	NA	5
1DS2	1100	10 or SB	44000	SB	NA	100	NA	5	NA	5
2BS2	391	10 or SB	1070	SB	NA	100	NA	5	NA	5
2DS2/3	22000/20700	10 or SB	186000/187000	SB	NA	100	NA	5	NA	5
3DS2	391	10 or SB	882	SB	NA	100	NA	5	NA	5
4DS2	883	10 or SB	474	SB	NA	100	NA	5	NA	5
5DS2	34.5	10 or SB	88.0	SB	NA	100	NA	5	NA	5
6DS2/3	737/43.4	10 or SB	122/88.1	SB	NA	100	NA	5	NA	5
7DS2	484	10 or SB	890	SB	NA	100	NA	5	NA	5
8DS2	175	10 or SB	1370	SB	NA	100	NA	5	NA	5
9DS2	998	10 or SB	3550	SB	NA	100	NA	5	NA	5
10DS2	236	10 or SB	1370	SB	NA	100	NA	5	NA	5
11DS2	1860	10 or SB	132000	SB	NA	100	NA	5	NA	5
12DS2	566	10 or SB	205	SB	NA	100	NA	5	NA	5
13DS2	34.3	10 or SB	38.5	SB	NA	100	NA	5	NA	5

① Pb CLEANUP
500 mg/kg

② Cr CLEANUP
40 mg/kg

HAE ADDONS

NOTE: Soil Clean-up Objectives for total chromium and total lead are based on NYSDEC TAGM 94-4048.

* - NYSDEC Proposed Revision; Chromium = 50 ppm.

** - NYSDEC average background level in metropolitan areas typically ranges from 200 to 500 ppm.

SB - Site background

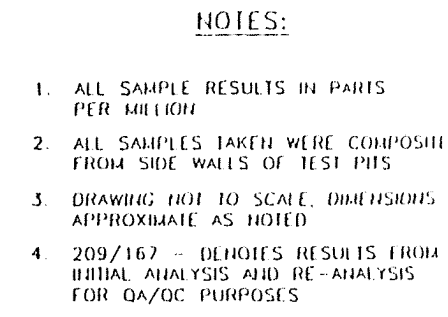
B - analyte is found in the associated blank as well as in the sample.

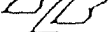
U - Non - Detected

N - Estimated concentration.

NA - Not Analyzed

737/43.4 - Denotes results from initial analysis and re-analysis for QA/QC purposes.




BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
COMMERCIAL CARRIERS, INC.
CHEEKTOWAGA, NEW YORK
PHASE II ENVIRONMENTAL SITE ASSESSMENT
TEST PIT SAMPLE LOCATION
AND TEST RESULTS

BARRON & ASSOCIATES, P.C.

10440 Main Street
Clarence, New York 14031

Tel: (716) 759-7821

Fax: (716) 759-7823

June 26, 1996

New York State Department of
Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

Job No. 96-1229B

ATTN: Jaspal S. Walia, P.E.

RE: *Submittal: Modifications to Interim Remedial Measures Removal Action Plan, Commercial Carrier, Inc.'s portion of Ernst Steel Site #915022, Cheektowaga, New York*

Ladies and Gentlemen:

Benderson Development Company, Inc. is proceeding with the remediation of fill material that exceed clean-up goals at the above referenced site. Previously, fill material that were intermixed with paint chips and characterized as a hazardous waste were removed from this area and properly disposed. The intent of this excavation activity is to remove the soils that have been identified by Blasland, Bouck & Lee, Inc. as exceeding NYSDEC cleanup goals. All aspects of the field activities will be performed in accordance with the existing E&E's health and safety plan and the letter addressed to Jaspal S. Walia, P.E. dated February 2, 1996 from E&E with the following minor modifications.

As a result of a June 20, 1996 meeting at the above referenced site with representatives from the NYSDEC, Benderson Development Company, Inc. and *Barron & Associates, P.C. (B&A)* in attendance, the following modifications to the IRMRAP are submitted. *B&A* prior to excavation activities will establish the boundaries of the excavation area based on Blasland, Blouck & Lee, Inc.'s figure presented as an attachment to the aforementioned referenced letter. Based on a concern expressed by the NYSDEC, activities on the Commercial Carrier, Inc.'s portion of the Ernst Steel site will be initiated in the northeast corner of the site. Two trenches will be excavated starting at the northeast corner, one in a southerly direction and the other in a westerly direction, to assess the presence or absence of fill material intermixed with paint chips still remaining on site. If fill material intermixed with paint chips are encountered during this trenching activity, the fill material will be removed and stockpiled on site for subsequent testing and disposal. This trenching activity will also be performed along the northern and western boundaries of the area previously excavated which contained fill material which was characterized as hazardous waste. Again, this trenching activity is to confirm the removal of fill material containing paint chips; hence, if this type of fill material is encountered, it will be removed and stockpiled.

Following this trenching and excavation activity, the removal of fill material in the area that was identified by Blasland, Bouck & Lee, Inc. as exceeding the cleanup goal will be initiated. The fill material removed from this area will be stockpiled separately from the aforementioned fill material with paint chips, if encountered. Upon completion of the excavation activity, representative composite samples will be obtained from the stockpiled material and analyzed for TCLP (lead and chromium) for off-site disposal, as appropriate.

During the excavation, confirmatory sampling of the excavation sidewalls will also be performed. The sidewall sample locations will be based on field observations and at the direction of the NYSDEC. The sidewall samples will be analyzed for total lead and chromium.

The stockpiled area will be located on the existing pavement north of the on-site warehouse building. The stockpiled area will consist of two subareas. One area will be for fill material containing paint chips. The other area will be for fill material exceeding NYSDEC cleanup goals. Each stockpile will be underlain with plastic and subsequently covered with plastic.

Upon receipt of the analytical results, arrangements will be made for transportation and subsequent disposal at appropriate disposal facilities. During the loading of the stockpiled material for off-site disposal, cross-contamination and the tracking of mud onto public right-of-ways will be minimized through the use of plastic to keep trucks transporting the stockpiled material off site from coming in contact with soils and by pressure washing dirt and mud off trucks as necessary.

At this time, it is anticipated that work will begin on July 1, 1996. Should any question arise during your review of this submittal, please call the undersigned at 759-7821.

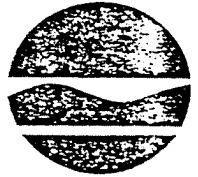
Yours truly,
BARRON & ASSOCIATES, P.C.



Richard L. Crouch, Jr.
Senior Hydrogeologist

xc: Clark Martens, Benderson
Craig Slater, HS&E

New York State Department of Environmental Conservation
270 Michigan Avenue, Buffalo, New York 14203-2999
(716) 851-7220



Michael D. Zagata

February 6, 1996

Mr. David P. Albers, P.E.
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, NY 14086

Dear Mr. Albers:

Commercial Carrier portion of
Ernst Steel Site #915022
Cheektowaga, NY

We have reviewed your February 2, 1996 letter describing excavation and treatment of soils containing hazardous waste from the Commercial Carrier, Inc. (Formerly known as Delavan Industries) property. We find that our previous comments and concerns have been incorporated in this letter, therefore, we approve the work plan outlined in this letter.

If you have any questions, please call me at 716-851-7220.

Sincerely,

Jaspal S. Walia, P.E.
Environmental Engineer

JSW/ad

cc: Mr. Martin Doster - NYSDEC
Craig Slater, Esq. - Harter, Secrest & Emery
Mr. Clark Martens - Benderson Corp.
Mr. Mike Rivara - NYSDOH

APPENDIX C

ERNST STEEL SITE AIR MONITORING RESULTS

APPENDIX C-1

AIR MONITORING RESULTS - PARTICULATES

DAILY FIELD REPORT		Job No:	96-1229
Barron & Associates, P.C.		Client:	1746 WALDEN INC
10440 Main Street		Project:	GALLERIA & WALDEN
Clarence, New York 14031		Date:	3/12/96

Name:	R. CROUCH	Weather:	COLD, CLOUDY, ^{INTERMITTENT} SNOW
Hours on Site:	N/A	Travel Time:	N/A

SUMMARY OF FIELD OBSERVATIONS

OFF LOADED LAST HAZ TRUCK
 SNOWING BEING LOADING

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN DR
Project: GALLERIA & WALDEN
Date: 3/11/96

Name: R. CROUCH
Hours on Site: N/A

Weather: COLD, PARTLY SUNNY
Travel Time: NA

SUMMARY OF FIELD OBSERVATIONS

OFF LOADED ONE TRUCK HAZ

UPWIND - 0.11

DOWNWIND - 0.11

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN INC
Project: GALLERIA & WALDEN
Date: 3/9/96

Name: M. PATTERSON

Hours on Site: N/A

Weather: COLD, PARTLY SUNNY 20°

Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

OFF LOADING HAZE

OFF LOADING ONE TANK UPWIND - 0.03 DOWNWIND 0.04

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN SOC
Project: GALLERY & WALDEN
Date: 3/8/96

Name: M. VOGL
Hours on Site: N/A

Weather: COLD PARTLY SUNNY-CLOUDY
Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

OFF LOADING HAZE

MINIRAM PARTICULATE READINGS

USED ONE MINIRAM, SECOND MINIRAM NOT FUNCTIONING

TIME	UPWIND	DOWNWIND
8:30	0.03	0.03
9:01	0.04	0.05
9:15	0.02	0.05
9:36	0.03	0.04
10:00	0.02	0.03
10:20	0.04	0.03
10:39	0.03	0.03
NOT LOADING		
2:00	0.03	0.03
2:21	0.01	0.04
2:45	0.02	0.03
3:02	0.01	0.01
3:23	0.02	0.04

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN BOX
Project: GALVESTON & WALDEN
Date: 3/7/96

Name: M. PATTERSON
Hours on Site: N/A

Weather: COLD, CLOUDY, ZSO
Travel Time: LIA

SUMMARY OF FIELD OBSERVATIONS

OFF LOADING HAZE

ONE MILIRANT, SECOND MALFUNCTION MAY NOT BE CHARGED

TIME	UPWIND	DOWNWIND
7:32	0.11	0.10
7:53	0.13	0.13
8:11	0.10	0.14
8:32	0.11	0.20
8:53	0.12	0.14

NO LOADING

10:15	0.01	0.01
10:30	0.01	0.03
10:45	0.02	0.03
11:00	0.01	0.05
11:15	0.01	0.05
11:45	0.01	0.09
12:00	0.03	0.07
12:15	0.02	0.07
12:30	0.03	0.07
12:45	0.04	0.09
1:00	0.04	0.07

NO LOADING

2:00	0.01	0.05
2:15	0.02	0.05
2:30	0.02	0.07
2:45	0.02	0.07

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN, INC
Project: GALLERIA & WALDEN
Date: 3/6/96

Name: M. VOGL
Hours on Site: N/A

Weather: COLD, CLOUDY, 25°
Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

OFF LOADING HAZ SOIL
& GRADING

MINEAM	UPWIND	DOWNWIND	TWA UP	DOWN (DOWN)
7:15	.07	.06	.06	.06
7:32	.05	.09	.07	.08
7:45	.11	.14	.23	.43
8:02	.14	.18	.18	.28
8:18	.08	.09	.15	.15
8:32	.16	.2	.15	.1
8:47	.16	.19	.16	.11
9:11	.2	.24	.21	.18
9:28	.11	.13	—	—
9:53	.11	.04	—	.15
10:03	.07	.08	.11	.11

DAILY FIELD REPORT		Job No:	96 - 1229
Barron & Associates, P.C.		Client:	1746 WALDEN DR
10440 Main Street		Project:	GALVIA & WALDEN
Clarence, New York 14031		Date:	2/29/96

Job No: 96 - 1229

Client: 1746 WALDEN DOC

Project: GALLERIA & WALDEN

Date: 2/29/96

Weather: COLD, PARTLY CLOUDY 25°

Travel Time: N/A

EX E-A & EX E-B, SCRAPPING AREA w/ SNOW COVER

USED ONLY 1 MINIMUM UP & DOWN WIND OF EXCAVATION

TIME	UPWIND	DOWNWIND	TWA UP	TWA DOWD
10:50	0.10	0.13	—	—
11:07	0.13	0.13		
11:21	0.11	0.13		
11:38	0.13	0.12		
11:57	0.14	0.15		
12:16	0.11	0.14		
12:28	0.12	0.14		
12:46	0.13	0.12		
1:04	0.16	0.16		
1:23	0.14	0.16		

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN, INC.
Project: GALLERIA & WALDEN
Date: 2/28/96

Name: M. VOGL
Hours on Site: N/A

Weather: COLD, CLOUDY, 32-34
Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

OFF LOADING NOW HAS

FINISH E-10, SCRAPPIING SITE, EX. E-A, EX E-B

MINIRAM READINGS

TIME	UPWIND	DOWNWIND	TW+UP	TW+DOWN
7:40	1.39	1.40	1.37	1.39
8:08	1.09	1.11	1.26	1.16
8:30	.90	1.03	—	—
8:45	RAIN / SLEET			
TO	↓			
3:10	↓			

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1229
Client: 1746 WALDEN, INC
Project: GALLERIA & WALDEN
Date: 2/27/96

Name: R. CROUCH / M. VOGL

Weather: CLOUDY, COOL, 35°

Hours on Site: N/A

Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

MINIRAM PARTICULATE MONITORING

OFF LOADING NOW - HAE & EXCAVATING E-10

REC'D ANOTHER MINIRAM FROM RESPONSE

TIME	UPWIND	DOWNWIND	UP TWA	DOWN TWA
7:05	1.34	1.33	1.34	1.34
7:17	1.34	1.34	1.34	1.33
7:36	1.35	1.38	1.34	1.36
8:01	1.34	1.35	1.35	1.36
8:23	1.36	1.37	1.35	1.36
8:40	1.36	1.37	1.36	1.37
9:05	1.36	1.36	1.35	1.36
9:17	1.37	1.38	1.36	1.37
9:40	1.38	1.38	1.38	1.38
10:01	1.39	1.40	1.38	1.39
10:20	1.4	1.4	1.38	1.4
10:36	1.45	1.43	1.45	1.43
11:00	1.45	1.45	1.45	1.45
11:25	RAIN			
12:00				
1:00				
2:00				
3:00				
4:30				

DAILY FIELD REPORT		Job No:	96-1229
Barron & Associates, P.C.		Client:	1746 WALDEN HX
10440 Main Street		Project:	GALLERIA & WALDEN
Clarence, New York 14031		Date:	6/26/96

Name: R. COUCH Weather: COLD, CLOUDY - PARTLY SUNNY, 20
Hours on Site: N/A Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

MINIRAM PARTICULATE MONITORING
OFF LOADING LOW-HAZ

TIME	UPWIND	DOWNWIND	UP TWA	DOWN (TWA)
7:50	1.30	0.00	1.35	0.00
NO LOADING				
8:20	1.36	0.00	1.56	0.00
DOWNWIND MINIRAM MALFUNCTIONING SENDS BACK TO RESPONSE RENTAL				
8:42	1.36	1.33	A	
NO LOADING			USING 1 MINIRAM	
9:41	1.34	1.39		
NO LOADING				
10:32	1.33	1.37		
NO LOADING				
12:15	1.34	1.35		
12:36	1.34	1.36		
12:55	1.34	1.39		
1:14	1.35	1.39		
1:37	1.34	1.36		
2:04	1.34	1.33		
NO LOADING				
3:04	1.34	1.41		
3:18	1.36	1.33		
3:36	1.35	1.33		
3:50	1.35	1.34		

DAILY FIELD REPORT

Barron & Associates, P.C.
10440 Main Street
Clarence, New York 14031

Job No: 96-1729
Client: 1746 WALDEN, INC
Project: CALIFORNIA & WALDEN
Date: 9/23/96

Name: R. CROUCH
Hours on Site: N/A

Weather: COLD, CLOUDY, 25.0
Travel Time: N/A

SUMMARY OF FIELD OBSERVATIONS

MURAM PARTICULATE MONITORING

OFF-LOADING NON-HAZE

TIME	UPWIND	DOWNWIND	TWA UP	TWA DOWN
8:55	1.32	0.0	1.33	0.0
NO LOADING				
9:28	1.43	0.03	1.36	0.03
9:46	1.39	0.01	1.38	0.01
10:10	1.36	0.00	1.35	0.00
10:30	1.34	0.00	1.36	0.01
NO LOADING				
11:30	0.99	0.00	1.39	0.00
11:45	1.39	0.00	1.30	0.00
11:59	1.37	0.00	1.38	0.00
12:17	1.43	0.00	1.45	0.00
12:33	0.94	0.00	1.34	0.00
12:55	1.41	0.00	1.41	0.00
1:14	1.39	0.00	1.38	0.00
NO LOADING				
2:04	1.41	0.00	1.38	0.00
2:55	1.43	0.00	1.45	0.00
NO LOADING				
3:30	1.43	0.00	1.39	0.00

NOTE: DOWNWIND LINICAM APPEARS TO BE MALFUNCTIONING
CONTACTED RESPONSE DENTAL, WILL CALIBRATE AGAIN

1# ~~SAVES~~ (DW)
2# ~~FAST~~ (YUW)
3# ~~OUT OF ORDER~~

MINI RAM READING: 2-21-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

[illegible]

MINI RAM READING:

2-20-90

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

1-SW (upw)
2-E (DW)
3- out of order

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1	SOUTHWEST	10:25	26.3	.00	.00	---
2	EAST	10:25	.50	.25	.28	---
2	EAST	11:25	55.1	.25	.25	---
1	SW	11:25	93.0	.00	.00	---
1#	SW	12:25	149.0	.00	.00	---
2#	EAST	12:25	129.0	.25	.24	---
2#	EAST	1:25	189.0	.00	.00	---
1#	SOUTHWEST	1:25	228.0	.00	.00	---
1#	SOUTHWEST	2:25	28.0	.00	.00	---
1#	EAST	2:25	39.6	.00	.00	---
3#	EAST	3:30	100.0	.00	.00	---
1#	SW	3:30	300.0	.00	.00	---
1#	SW	4:50	4.99	.00	.00	---
2#	EAST	4:30	160.0	.00	.00	---
<i>Light M. 2-19-96</i> <i>C/A out</i>						
LOCATION						

(Calibration)
OFF SET Unit 614

MINI RAM READING: 2-19-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

- ① EAST (20)
- ② SOUTHWEST (up)
- ③ out of order

LOCATION	WIND DIRECTION	TIME	ELTIME	R/TIME	TWA	UNIT NO:
1#	EAST	10:20	59.6	.17	.12	
2#	SOUTHWEST	10:20	54.3	.00	.00	
2#	SW	11:20	113.0	.00	.00	
1#	E	11:20	106.0	.22	.14	
1#	E	12:20	166.0	.16	.12	
2#	SW	12:20	173.0	.00	.00	
2#	SW	1:20	233.0	.00	.00	
1#	EAST	1:20	228.0	.24	.17	
1#	E	2:20	288.0	.10	.17	
2#	SW	2:20	293.0	.00	.00	
2#	SW	3:30	353.0	.00	.00	
1#	E	3:30	348.0	.09	.17	

see manual
2-16-90
E & E one

LOCATION

MINI RAM READING: C-1690

(A) 1# EAST
 (B) 2# SOUTHWEST
 3# OUT OF ORDER

LOCATION	WIND DIRECTION	TIME	ELTIME	RTIME	TWA	UNIT NO:
1	EAST	10:00	—0—	.00	.00	—
2	SOUTHWEST	10:00	—0—	.00	.00	—
2#	SW	11:00	43.5	.00	.00	—
1#	E	11:00	51.1	.00	.03	—
1#	E	12:00	111.0	.00	.03	—
2#	SW	12:00	103.5	.00	.00	—
2#	SW	1:00	151.0	.00	.00	—
1#	E	1:00	171.0	.00	.03	—

NOTE: NO TREATMENT OF CONTAMINATED
 SOILS DUE TO WIDE SCATTER OF
 PUS MTL AND CONTOUR POINT
 SOLICORP UNIT. *[Signature]*
 Refused

LOCATION

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

01-09-008 *
01-09-014 SW
01-09-013 *

* UNIT NOT
FUNCTIONAL

LOCATION	WIND DIRECTION	TIME	ELTIME	R/TIME	TWA	UNIT NO:
SW	NE	08:45	0	0	0	014
SW	NE	08:50	4.33	0.09	0.14	014
SW	NE	09:46	59.0	0.00	0.03	014
SW	NE	10:30	103	0.00	0.01	014
SW	NE	11:26	156	0.00	0.01	014
SW	NE	12:27	217	0.14	0.01	014
SW	NE	13:35	287	0.11	0.04	014
SW	NE	14:25	338	0.09	0.05	014
SW	NE	15:30	995	0.00	0.04	014
SW	NE	16:30	—	0.00	0.04	014

J. V. FATH

LOCATION

MINI RAM READING: 2-14-96

1# SW/DW
2# FE/UPW
3# DATE OF ORDER

RESULT UNIT
DISPLAY ERROR
UNIT MALFUNCTION

MINI RAM READING: 2-13-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TME	ELTIME	R/TIME	TWA	UNIT NO:
<i>* note: mini cam units parents due to snow fall close if dust.</i> <i>little little</i> <i>ed & ehe</i> <i>pie mauld 2-12-94</i>						

MINI RAM READING:

2-12-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1 #	ENE / DW	9:00	-0-	.00	.00	
2 #	SW / 4PW	9:00	-0-	.00	.00	
2 #	SW	10:00	54.3	.00	.00	
1 #	E	10:00	22.1	.01	.03	
1 #	E	11:00	92.0	.00	.00	
2 #	SW	11:00	114.1	.00	.00	
2 #	SW	12:00	174.0	.00	.00	
1 #	E	12:00	147.0	.00	.03	
1 #	E	1:00	202.0	.00	.03	
2 #	SW	1:00	234.0	.00	.00	
2 #	SW	2:00	294.0	.00	.00	
1 #	E	2:00	262.0	.01	.03	

* Shut down remote
operations due to low
battery (low life)
will 2-9-96
die E & E inc

LOCATION

MINI RAM READING:

2-9-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

- ① NORTHWEST / DW
- ② SOUTHWEST / UPW
- ③ OUT OF ORDER.

LOCATION	WIND DIRECTION	TIME	ELTIME	RTIME	TWA	UNIT NO:
1#	NE	9:00	-0-	.00	.00	---
2#	SW	9:00	-0-	.00	.00	---
3#	SW	10:00	34.3	.60	.00	---
4#	NE	10:00	34.1	.00	.01	---
1#	NE	11:00	94.0	.00	.00	---
2#	SW	11:00	94.1	.00	.00	---
2#	SW	12:00	154.0	.00	.00	---
1#	NE	12:00	154.0	.00	.00	---
1#	NE	1:00	214.0	.00	.00	---
2#	SW	1:00	214.0	.00	.00	---
2#		2:00				---
1#		2:00				---
1#		3:00				---
2#		3:00				---

*Serials to moist shot down
 immediate operations treatment
 unit Solenoid 3:00 PM
 pul mult
 C/E vic
 1-8-96*

LOCATION

MINI RAM READING:

2-8-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

1# Southwest (SW)
 2# Downward (SW)
 3# out of order

LOCATION	WIND DIRECTION	TIME	ELTIME	RTIME	TWA	UNIT NO:
1#	SW	9:00	-0-	.00	.60	---
2#	E	9:00	-0-	.00	.00	---
2#	E	10:00	70.0	.00	.00	---
1#	SW	10:00	40.1	.09	.12	---
1#	SW	11:00	100.0	.12	.12	---
2#	E	11:00	133.0	.00	.00	---
2#	E	12:00	193.0	.00	.00	---
1#	SW	12:00	160.0	.10	.12	---
1#	SW	1:00	190.0	.09	.12	---
2#	E	1:00	223.0	.00	.00	---
2#	E	2:00	293.0	.00	.00	---
1#	SW	2:00	250.0	.02	.12	---
1#	SW	3:00	310.0	.10	.12	---
2#	E	3:00	343.0	.00	.00	---
2#	E	4:00	8.89	.00	.00	---
1#	SW	4:00	8.89	.00	.11	---

del material epe in
2-7-96

LOCATION

MINI RAM READING:

9-6-00

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

1# EAST (PW)
2# SOUTHWEST (UPC)
3# OUT OF ORDER

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1#	EAST	9:30	48.6	.00	.00	
2#	SOUTHWEST	9:30	63.6	.00	.00	
2#	SW	10:36	125.0	.00	.00	
1#	SW E	10:36	118.0	.00	.00	
2#	SW	11:25	174.0	.00	.00	
1#	E	11:25	172.0	.00	.00	
1#	E	12:30	202.0	.00	.00	
2#	SW	12:30	204.0	.00	.00	
1#	E	1:25	278.0	.00	.00	
2#	SW	1:25	285.0	.00	.00	
2#	SW	2:30	9.99	.00	.00	
1#	E	2:30	9.99	.00	.00	
1#	E	3:00	9.99	.00	.00	
2#	SW	3:00	9.99	.00	.00	
2#	SW	3:30	9.99	.00	.00	
1#	E	3:30	9.99	.00	.00	
1#	E	4:30	9.99	.00	.00	
2#	E	4:30	9.99	.00	.00	

[Large handwritten scribbles and signatures across the table area]

LOCATION

MINI RAM READING:

2-6-96

[Handwritten signature]

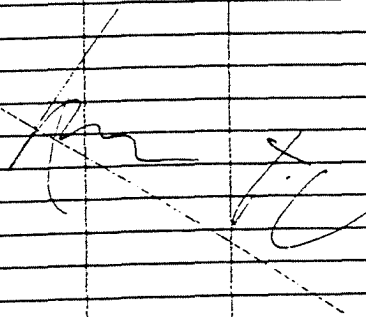
1# EAST (PW)
2# SOUTHWEST (PW)
B# OUT OF ORDER

MINI RAM READING:

2-5-96

② 01-09-074 NORTH EAST

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	ELTIME	RTIME	TWA	UNIT NO:
1	NORTH EAST	0900	START UP			009
2		0903	START UP			014
1		9:25	26.8	0.14	0.12	008
2		9:30	28.0	0.00	0.00	014
1		10:00	28.0	0.12	0.12	008
2		10:03	25.0	0.44	0.17	014
2		11:00	123.0	0.18	0.28	014
1		11:07	128	0.16	0.13	008
2		11:20	141	0.50	0.29	014
1		11:36	152	0.16	0.13	008
2		12:08	187	0.00	0.32	014
1		12:10	191	0.16	0.13	008
1		12:30	222	0.16	0.14	008
2		12:40	223	0.00	0.29	014
1		1304	244	0.16	0.14	008
2		1300	241	0.00	0.27	014
1	N-NE	13:28	268	0.16	0.14	008
2	N:NE	13:31	268	0.00	0.27	014
1		13:51	295	0.18	0.14	008
2		13:59	299	0.50	0.30	014
1		14:25	326	0.16	0.15	008
2		14:28	326	0.48	0.32	014
2		15:10	368	0.28	0.35	014
1		15:15	376	0.16	0.15	008
PUL MILL BEH CLOGGED - NO FURTHER SOILS HANDLING TODAY -						
						
LOCATION						

→ MOVING WEST SE

2-3-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

1 - EAST (DW)
 2 - SOUTHWEST (LAK)
 3 - OUT OF ORDER

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1#	EAST	8:57	47.5	.38	.37	---
2#	SOUTHWEST	9:03	-0-	.02	.04	---
1#	EAST	9:30	86.1	.42	.39	---
2#	SOUTHWEST	9:30	-0-	.02	.02	---

Note: Shut down all remedial operations
 due to pig mud being frozen

12:05 RE-START

1#	EAST	12:05	232.0	.42	.40	---
1#	EAST	12:29	265.0	.40	.40	---
1#	EAST	1:05	270.0	.41	.40	---
1#	EAST	2:00	304.0	.33	.40	---
1#	EAST	2:00	304.0	.31	.40	---
1#	EAST	2:30	9.99	.30	.40	---
1#	EAST	3:00	9.99	.40	.40	---
1#	EAST	3:30	9.99	.30	.40	---
1#	EAST	4:00	9.99	.36	.40	---

Red mudline
 2-2-96

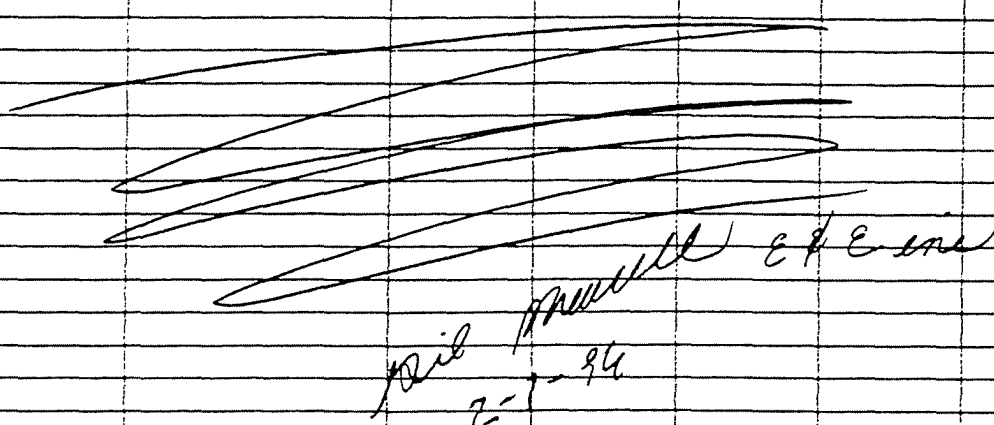
LOCATION

MINI RAM READING:

2-2-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

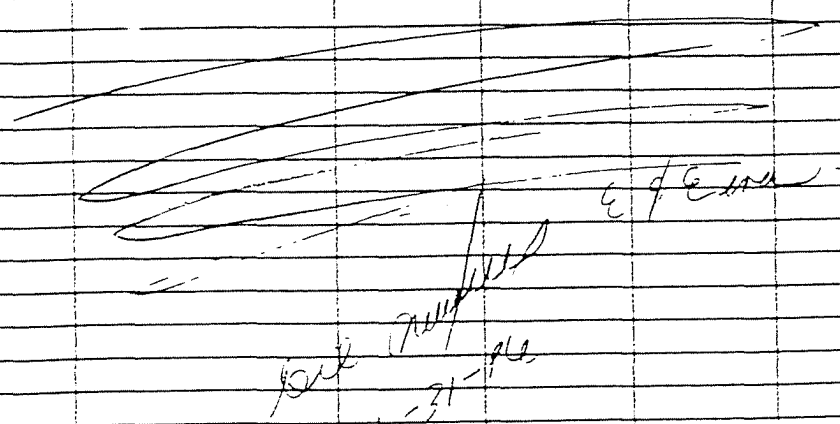
2 (NE) DW
2 (SW) UPW
3 OUT OF ORDER

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1	SOUTHWEST	9:00	42.6	.08	.08	---
2	NORTHEAST	9:02	39.2	.22	.24	---
1	SOUTHWEST	9:30	64.5	.08	.09	---
2	NORTHEAST	9:32	70.0	.22	.24	---
1#	SOUTHWEST	10:00	94.0	.07	.09	---
2#	NORTHEAST	10:00	100.0	.22	.24	---
1#	SW	10:30	129.0	.13	.18	---
2#	NE	10:35	137.0	.33	.28	---
2	NE	11:01	158.0	.33	.29	---
1#	SW	11:05	159.0	.11	.10	---
1#	SW	11:31	197.0	.15	.11	---
2#	NE	11:32	198.0	.20	.29	---
2#	NE	12:00	278.0	.10	.29	---
1#	SW	12:00	217.0	.09	.11	---
1#	NE	12:30	246.0	.03	.01	---
2#	SW	12:30	249.0	.09	.28	---
2#	SW	1:00	277.0	.15	.13	---
1#	NE	1:00	274.0	.04	.11	---
1#	NE	1:30	316	.33	.33	---
2#	SW	1:30	317	.15	.13	---
1#	NE	2:00	9.99	.40	.33	---
2#	SW	2:00	9.99	.19	.13	---
2#	SW	2:30	9.99	.11	.13	---
1#	NE	2:50	9.99	.33	.33	---
1#	NE	3:00	9.99	.32	.33	---
2#	SW	3:00	9.99	.11	.13	---
2#	SW	3:30	9.99	.09	.13	---
1#	NE	3:30	9.99	.30	.33	---
1#	NE	4:00	9.99	.28	.33	---
2#	SW	4:00	9.99	.07	.13	---
						
LOCATION						

MINI RAM READING: 2-1-94

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

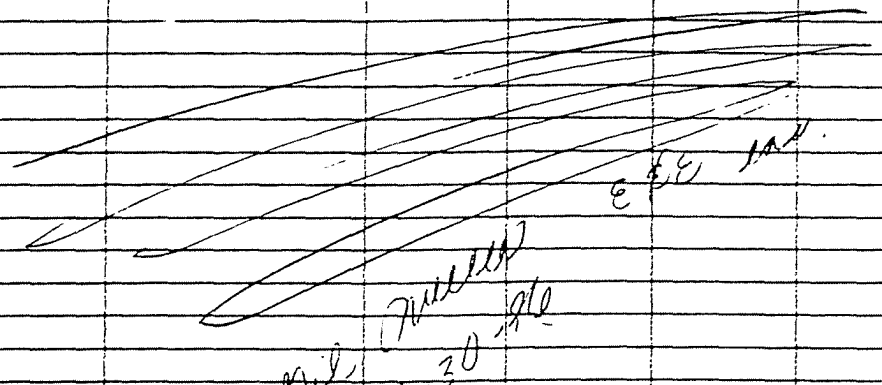
- ① (NE) DOWNWARD
② (SW) UPWARD
③ OUT OF ORDER

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1	NORTHEAST	8:13	4.50	.12	.10	---
2	SOUTHWEST	8:16	9.16	.00	.00	---
1	NE	8:54	46.8	.14	.12	---
2	SW	8:57	50.1	.00	.00	---
1	NE	9:35	83.6	.12	.13	---
2	SW	9:38	91.2	.02	.00	---
2	SW	10:00	111.0	.04	.01	---
1	NE	10:20	131.1	.19	.13	---
1#	NE	10:43	154.0	.16	.13	---
2#	SW	10:46	159.8	.13	.04	---
2#	SW	11:19	192.0	.11	.05	---
1#	NE	11:16	187.0	.21	.13	---
1#	NE	11:44	216.0	.21	.15	---
2#	SW	11:46	219.0	.11	.06	---
2#	SW	12:15	246.0	.10	.06	---
1#	NE	12:16	249.0	.20	.13	---
1#	NE	12:46	277.0	.21	.16	---
2#	SW	12:48	281.0	.10	.07	---
2#	SW	1:15	310.0	.11	.07	---
1#	NE	1:16	306.0	.10	.16	---
1#	NE	1:45	336.0	.09	.16	---
2#	SW	1:46	340.0	.10	.07	---
2#	SW	2:15	9.99	.09	.07	---
1#	NE	2:15	9.99	.08	.16	---
1#	NE	2:30	9.99	.23	.18	---
2#	SW	2:30	9.99	.21	.09	---
2#	SW	3:00	9.99	.20	.18	---
1#	NE	3:00	9.99	.21	.09	---
						
1-31-90						
LOCATION						

MINI RAM READING: 1-31-90

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

1# NE (Downwind)
2# SW (Upwind)
3# out of order

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1#	NDRTEASE	9:30	5.66	.21	.22	---
2#	SOUTHWEST	9:36	10.3	.13	.10	---
1#	NE	10:00	36.0	.10	.20	---
2#	SW	10:05	41.0	.10	.10	---
2#	SW	10:35	71.0	.09	.10	---
1#	NE	10:30	65.0	.16	.22	---
1#	NE	11:00	92.5	.16	.25	---
2#	SW	11:02	96.0	.04	.06	---
2#	SW	11:32	126.0	.03	.06	---
1#	NE	11:30	123.0	.10	.25	---
1#	NE	12:00	154.0	.12	.25	---
2#	SW	12:06	136.0	.04	.06	---
2#	SW	12:32	195.0	.13	.07	---
1#	NE	12:30	184.0	.10	.25	---
1#	NE	1:03	215.0	.21	.21	---
2#	SW	1:00 PM	212.0	.08	.08	---
2#	SW	1:30	242.0	.07	.08	---
1#	NE	1:33	245.0	.20	.21	---
1#	NE	2:03	275.0	.11	.21	---
2#	SW	2:00	276.0	.07	.08	---
2#	SW	2:30	302.0	.09	.08	---
1#	NE	2:33	305.0	.04	.21	---
1#	NE	2:59	323.0	.23	.21	---
2#	SW	3:00	330.0	.10	.08	---
2#	SW	3:30	360.0	.10	.09	---
1#	NE	3:41	353.0	.23	.21	---
1#	NE	3:55	999	.25	.22	---
2#	SW	3:55	999	.08	.08	---
 E 40 100 1-30-96						
LOCATION						

MINI RAM READING:

1-30-96

#3 out of order

1# SE (LAW)
2# NW (ADU)

MINI RAM READING: 1-29-96

ERFST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

[illegible]

MINI RAM READING:

1-26-92

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	ELTIME	R/TIME	TWA	UNIT NO:
400 1#	NORTHWEST	8:00	-0-	.00	-0-	---
2#	SOUTH (NW)	8:02	-0-	.00	-0-	---
3#	SOUTHEAST (SE)	8:03	-0-	.00	-0-	---
3#	SE	9:10	56.6	.13	.18	---
2#	S	9:10	53.6	.16	.19	---
1#	NW	9:12	45.6	.00	.08	---
1#	NW	9:50	95.8	.05	.05	---
2#	S	9:46	92.8	.23	.18	---
3#	SE	9:45	96.0	.14	.17	---
3#	SE	10:15	126.0	.15	.17	---
2#	S	10:15	122.8	.23	.18	---
1#	NW	10:16	125.8	.05	.05	---
1#	NW	10:50	155.8	.05	.05	---
2#	S	10:50	153.00	.23	.21	---
3#	SE	10:49	156.0	.16	.17	---
3#	SE	11:20	187.0	.19	.16	---
2#	S	11:22	185.0	.23	.21	---
1#	NW	11:23	185.0	.05	.05	---
1#	NW	11:53	215.0	.05	.05	---
2#	S	11:53	215.0	.20	.21	---
3#	SE	11:54	215.0	.10	.16	---
NO REMEDIAL ACTIVITIES (LUNCH)						
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ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TME	ELTME	R/TIME	TWA	UNIT NO:
1#	NORTHEAST DW	8:24	.17	.17	44.83	---
2#	NE DW	8:25	16.66	.60	.00	---
3#	SW (up W)	8:31	16.66	.28	.22	---
Shut-down mini ram units 3# due to high wind / rain which would damage the units. 10:00 AM <i>[Large diagonal scribbles across the table body]</i> file <i>[signature]</i> 1-24-96 E & E inc						
LOCATION:						

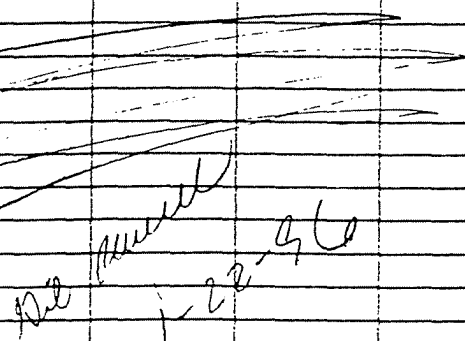
MINI RAM READING:

1-24-96

START UP
10:00 AM

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

1# DOWNWARD (N)
2# DOWNWARD (NE)
3# UPWARD (SW)

LOCATION	WIND DIRECTION	TME	EL/TME	R/TIME	TWA	UNIT NO:
1#	NORTH	8:44	35.1	.09	.09	---
2#	NORTHEAST	8:50	25.6	.07	.07	---
3#	SOUTHWEST	8:52	3:83	.12	.17	---
3#	SW	9:30	25.80	.17	.17	---
2#	NE	9:35	80.0	.07	.07	---
1#	N	9:36	80.1	.09	.08	---
1#	N	10:07	106.0	.03	.08	---
2#	NE	10:03	106.1	.03	.07	---
3#	SW	10:08	63.0	.05	.17	---
3#	SW	10:30	85.0	.09	.17	---
2#	NE	10:32	130.0	.04	.07	---
1#	N	10:34	130.0	.04	.09	---
1#	N	11:00	156.1	.06	.08	---
2#	NE	11:01	159.1	.08	.07	---
3#	SW	11:05	110.0	.02	.17	---
3#	SW	11:31	140.8	.07	.17	---
2#	NE	11:33	189.0	.03	.07	---
1#	N	11:34	196.1	.08	.08	---
1#	N	11:49	216.0	.09	.09	---
2#	NE	11:50	219.1	.03	.07	---
3#	SW	11:49	176.0	.26	.22	---
3#	SW	12:47	235.0	.26	.23	---
2#	NE	12:52	279.0	.27	.13	---
1#	N	12:55	274.0	.11	.09	---
1#	N	1:34	319.0	.12	.09	---
2#	NE	1:33	320.0	.23	.13	---
3#	SW	1:30	252.0	.26	.23	---
3#	SW	2:01	284.0	.21	.23	---
2#	NE	2:04	351.0	.10	.13	---
1#	N	2:05	350.0	.08	.09	---
1#	N	2:36	9.99	.09	.09	---
2#	NE	2:35	9.99	.10	.13	---
3#	SW	2:33	9.99 ¹⁴	.29	.24	---
3#	SW	3:04	9.99	.20	.24	---
2#	NE	3:02	9.99	.10	.13	---
1#	N	3:03	9.99	.07	.09	---
1#	N	3:30	9.99	.06	.09	---
2#	NE	3:31	9.99	.10	.13	---
3#	SW	3:35	9.99	.20	.24	---
						
LOCATION						

MINI RAM READING: 1-22-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TME	EL/TIME	R/TIME	TWA	UNIT NO:
1#	DOWNWIND/N	9:17	23.9	.26	.29	---
2#	DOWNWIND/NE	9:18	23.9	.00	.00	---
3#	UPWIND/SE	9:17	21.8	.26	.29	---
3#	SE	9:56	62.8	.09	.10	---
2#	NE	9:59	63.5	.01	.00	---
1#	N	9:59	63.8	.24	.24	---
3#	SE	10:26	92.8	.9	.10	---
2#	NE	10:28	93.10	.00	.00	---
1#	N	10:29	93.8	.24	.26	---
1#	N	10:59	110.0	.09	.10	---
2#	NE	10:56	121.0	.00	.00	---
3#	SN	10:57	121.0	.30	.26	---
4#	SOUTHWEST	11:40	168.0	.11	.10	---
2#	NORTHEAST	11:39	165.0	.00	.00	---
3#	NORTH	11:37	161.0	.24	.26	---
1#	NORTH	12:11	195.0	.16	.25	---
2#	NORTHEAST	12:12	198.0	.00	.00	---
3#	SOUTHWEST	12:43	228.0	.14	.10	---
3#	SOUTHWEST	12:46	232.0	.14	.10	---
2#	NORTHEAST	12:47	232.0	.00	.00	---
1#	NORTH	12:48	233.0	.16	.23	---
1#	N	1:27	271.0	.11	.23	---
2#	NE	1:26	271.0	.00	.00	---
3#	SW	1:23	270.0	.16	.10	---
3#	SW	1:56	303.0	.11	.11	---
2#	NE	1:59	304.0	.00	.00	---
1#	N	2:00	314.0	.11	.21	---
1#	N	2:30	335.0	.11	.20	---
2#	N	2:30	337.0	.00	.00	---
3#	SN	2:28	335.0	.13	.11	---
3#	SW	3:05	9.99	.10	.11	---
2#	NE	3:07	9.99	.00	.00	---
1#	N	3:07	9.99	.11	.21	---
1#	N	3:30	9.99	.10	.21	---
2#	NE	3:30	9.99	.00	.00	---
3#	SW	3:32	9.99	.10	.11	---
3:30 PM Shut down operation. Due to dense fog & paint near power plant.						
LOCATION						

MINI RAM READING: 1-18-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	EL/TIME	R/TIME	TWA	UNIT NO:
1#	UPW/SW	9:50				N/A
2#	DW/NE	9:50				
3#	DW/NE	9:50				
mini ram calculations for just be utilized due to rain at the site. which dust level are under control. just under 1-17-96						
LOCATION						

MINI RAM READING: 1-17-96

Die *Muller*

MINI RAM READING: 1-16-96

52 *May 1891*

MINI RAM READING: 1-15-A

1# DOWNWIND (SW)
 2# UPWIND (NE)
 -# (OUT OF ORDER)

ERNST STREET SITE
 1-12-96

DATE	TIME	TWA	REFL TIME	FL TIME	NO.
1-12-96	~~8:45~~	.08	.04	33.1	2#
	~~8:46~~	.04	.02	32.5	1#
	8:30	.02	.02	75.6	1#
	8:31	.08	.04	80.5	2#
	9:05	.08	.07	111.0	2#
	9:06	.02	.02	110.0	1#
	9:30	.02	.02	138.0	1#
	9:31	.08	.07	139.0	2#
	10:00	.09	.19	169.0	2#
	10:01	.02	.02	168.0	1#
	10:30	.02	.02	192.0	1#
	10:31	.09	.12	200.0	2#
	11:01	.12	.20	235.0	2#
	11:02	.02	.08	235.0	1#
	11:32	.02	.02	265.0	1#
	11:33	.12	.18	265.0	2#
	Lunch Break				
	12:45	.14	.06	333.0	2#
	12:46	.02	.00	9.99	1#
	1:20	.13	.00	9.99	1#
	1:21	.14	.00	9.99	2#
	2:00	.14	.00	9.99	2#
	2:01	.13	.00	9.99	1#
	2:30	.13	.00	9.99	1#
	2:31	.14	.00	9.99	2#

STAD TREATMENT AD-EN-ANX

ERNST STEEL SITE

1-11-96

(1 of 2)

1# Upward (BW)
2# Downward (E)
(3#) Out of order

DATE	TIME	TWA	REAL TIME	FL TIME	#
	8:15	.00	.00	27.1	1#
	8:16	.00	.03	2.6	2#
	8:45	.00	.00	60.0	2#
	8:46	.00	.00	58.0	1#
	9:15	.00	.00	89.0	1#
	9:16	.00	.00	89.0	2#
	9:45	.00	.00	120.0	2#
	9:46	.00	.00	120.0	1#
	10:15	.00	.00	150.0	1#
	10:16	.00	.00	150.0	2#
	10:45	.00	.00	180.0	2#
	10:46	.00	.00	180.0	1#
	11:15	.00	.00	210.0	1#
	11:16	.00	.00	210.0	2#
	11:45	.09	.12	236.0	2#
	11:46	.02	.09	239.6	1#
	12:15	.02	.04	270.0	1#
	12:16	.09	.07	270.0	2#
	12:45	.09	.08	292.0	2#
	12:46	.03	.04	295.0	1#
	1:15	.03	.04	325.0	1#
	1:16	.09	.07	322.0	2#
	1:45	.09	.08	999.0	2#
	1:46	.03	.04	999	1#
	2:15	.03	.04	9.99	1#
	2:16	.09	.00	9.99	2#

1-11-96 (continued next page)

202

REVER SHAL SIDE

1-17-96

<u>DATE</u>	<u>TIME</u>	<u>TNO</u>	<u>REAL TIME</u>	<u>REL TIME</u>	<u>STATION #</u>
	2:45	.09	.08	9.99	2#
	2:46	.03	.03	9.99	1#
	3:15	.03	.03	9.99	1#
	3:16	.09	.08	9.99	2#
	3:45	.09	.08	9.99	2#
	3:46	.03	.03	9.99	1#
	4:15	.03	.03	9.99	1#
	4:16	.09	.07	9.99	2#

-11-96

1# upwind (W)
2# downwind (SE)
3# downwind (E)

18° AM

ERNST STEEL SITE

1-10-96

(CALIBRATION REQUIRED #2)
(10F2)

DATE	TIME	TWQ	PREF TIME	FL TIME	STATION
1-10-96	8:15 AM	.00	.00	9.83	3#
	8:16	(.08) ^{BG}	(.06)	11.66	2#
	8:17	.00	.00	15.88	1#
	8:45	.00	.00	40.5	1#
	8:46	(NO READING)	(NO READING)		2#
	8:47	.00	.00	40.6	3#

(Screening stop due to drive belt
replacement required no means
if hazardous sol. during
Downtime. *shut down
for repairs*)

10:30	.00	.00	147.8	1#
10:31	.00	.00	147.0	3#
11:00	.00	.00	178.0	3#
11:01	.00	.00	177.0	1#
11:30	.00	.00	206.0	1#
11:31	.00	.00	209.0	3#
12:00	.00	.00	238.0	3#
12:01	.00	.00	237.0	1#
12:30	.00	.00	266.0	1#
12:31	.00	.00	269.0	3#
1:01	.00	.00	299.0	3#
1:02	.00	.00	298.0	1#
1:31	.00	.00	327.0	1#
1:32	.00	.00	330.0	3#
2:00	.00	.00	358.0	3#
2:01	.00	.00	357.0	1#

CONTINUE
NEXT PROBE

2 of 2 20 PM

FINAL DATA SET

1-10-86

<u>KE</u>	<u>TIME</u>	<u>TWO</u>	<u>REAL TIME</u>	<u>FL TIME</u>	<u>STATION</u>
	2:30	.00	.00	9.99	1#
	2:31	.00	.00	9.99	3#
	3:00	.00	.00	9.99	3#
	3:01	.00	.00	9.99	1
	3:30	.00	.00	9.99	1#
	3:31	.00	.00	9.99	3#
	4:00	.00	.00	9.99	3#
	4:01	.00	.00	9.99	3#
	4:30	.00	.00	9.99	1#
	4:31	.00	.00	9.99	3#

END OF DAY

- #1 UP WIND (E)
- #2 DOWNWIND (E)
- #3 DOWNWIND (E)

ERNST STEEL SAE
1-9-96

<u>DATE</u>	<u>TIME</u>	<u>TWO</u>	<u>REAL TIME</u>	<u>FL TIME</u>	<u>STATION</u>

Heavy snow
fall
no readings were taken
upwind or downwind
due to the situation
conditions.

1-8-96

ERAND STERIL SITE

1# DOWNWIND (SW)

2# DOWNWIND (SW)

3# UPWIND (NE)

pump no #2
down needs
recharge.

60 AM
20° PM

(1 of 2)

TE	TIME	TWA	REL TIME	REL TIME	STATION #
1-8-96	9:00 PM	.05	.05	.33	1#
	9:01	← MINI RAM OUT OF ORDER			2#
	9:02	.05	.05	.37	3#
	9:36	.05	.05	.63	3#
	9:37	~~Low battery, needs to be changed~~			2#
	9:38	.05	.05	.63	1#
	10:05	.05	.04	.84.8	1#
	10:07	.05	.05	92.8	3#
	10:30	.05	.04	114.8	3#
	10:31	.05	.05	122.8	1#
	11:05	.05	.04	144.8	1#
	11:06	.05	.04	152.8	3#
	11:30	.05	.02	181.0	3#
	11:34	.05	.03	176.0	1#
	12:06	.05	.01	206.0	1#
	12:08	.05	.01	211.0	3#
	12:30	.05	.01	233.0	3#
	12:32	.05	.01	232.0	1#
	12:55	.06	.06	255.0	1#
	12:56	.04	.02	253.0	3#
	1:25	.04	.02	285.0	3#
	1:27	.04	.06	286.0	1#
	2:00	.04	.06	319.0	1#
	2:02	.04	.02	320.0	3#
	2:30	.04	.02	350.0	3#
	2:32	.04	.05	349.0	1#
	3:00	.04	.05	499.0	1#
1-8-96	3:02	.04	.12	4.99	3#

CONTINUE
NEXT PAGE

1-8-96

FRANK STALL SHE

(2 of 2)

<u>DATE</u>	<u>TIME</u>	<u>TWO</u>	<u>REAL TIME</u>	<u>FL TIME</u>	<u>STATION</u> [#]
1-8-96	3:30	.04	.02	9.99	3#
	3:32	.04	.04	9.99	1#
	4:00				
	4:01				
	4:30				
	4:31				

(END OF THE DAY)

1-8-96

AIR MONITORING

7-6-96

T = -7°F, W 0-5 MPH NE

LS+LS# 01-09-008 WP
01-09-013 AM
01-09-014 DN

					FAC. COR
8:05	0.05	-	-	008	LS. OF FAC. 6
8:07	0.14	-	-	013	W. FAC
8:08	0.14	-	-	014	C. OF DOWN W. FAC
8:13	0.00	0.00	26.1	008	S. END DLEW
8:33	0.03	0.28	26.8	014	
8:34	0.05	0.07	26.6	013	
8:59	0.11	0.08	59.8	013	
8:59	0.05	0.18	52.3	014	
9:03	0.00	0.00	58.0	008	
9:41	0.00	0.00	96.0	008	
9:45	0.07	0.09	99.6	013	
9:46	0.07	0.12	107	014	
10:16	0.00	0.00	134	008	
10:22	0.15	0.04	134	013	
10:23	0.00	0.10	136	014	
10:46	0.09	0.10	159	013	
10:46	0.37	0.09	160	014	
10:48	0.00	0.00	165	008	
11:28	0.04	0.09	200	013	-
11:28	0.03	0.08	201	014	
11:31	0.00	0.00	206	008	
12:00	0.00	0.00	235	008	
12:05	0.02	0.09	236	013	
12:06	0.00	0.08	238	014	

END

FORING
MCHES)

UNITS 01-09-008

01-09-013

01-09-014

UP Down

DOWN

UP
Down

6

TWA	RML	TINL	UNIT
UNITS @ 08:10 π	$T = 7^{\circ}F$	WIND	NE 0-2 MPH
1.87	1.88	16.8	008
0.78	0.57	16.6	014
0.59	0.47	17.3	013

ZEROED ALL UNIT USING F-BAR - NO WORK

(SOLLS/HMOLM) SINCE 0800 WAITING TRUCKS/SPPAYS

NOT @ 09:10 COS UPump COS 10/4 DOWN AND

WIND S/E 0-5 MPH Lt SHAW

51	0.00	0.01	53.5	013
52	0.18	0.24	41.0	014
53	0.11	0.13	45.0	008
54	0.66	0.10	67.5	008
55	0.00	0.04	83.3	013
56	0.04	0.22	69.5	014
57	0.00	0.01	167	013
58	0.11	0.14	153	014
59	0.06	0.08	171	008
60	0.00	0.01	253	013
61	0.13	0.16	238	014
62	0.00	0.05	243	008
63	0.00	0.08	273	008
64	0.14	0.16	278	014
65	0.00	0.61	293	013
66	0.00	0.01	330	013
67	0.14	0.16	314	014
68	0.09	0.08	337	008

-40 AM
SW wind
direction

1# upwind
2# downwind
3# downwind

ERNST STEEL STE
1-4-96
(10F2)

DATE	TIME	TWA	REAL TIME	FL TIME	STATION
1-4-96	8:10	.16	.16	.32	1#
	8:17	.00	.00	.34	2#
	8:12	.00	.00	.32	3#
	8:45	.00	.00	.67	3#
	8:46	.00	.40	.64	2#
	8:47	.16	.20	.62	1#
	8:15	.40	.28	.81.8	1#
	9:16	.00	.00	81.0	2#
	9:17	.00	.00	81.0	3#
	9:45	.00	.00	108.0	3#
	9:46	.00	.00	108.0	2#
	9:47	.34	.28	114.0	1#
	10:27	.34	.28	144.0	1#
	10:28	.00	.00	138.0	2#
	10:29	.00	.00	138.0	2#
	11:04	.00	.00	188.0	3#
	11:05	.00	.00	189.00	2#
	11:06	.32	.06	194.00	1#
	11:36	.32	.10	224.00	1#
	11:37	.00	.00	219.00	2#
	11:38	.00	.00	218.00	3#
	12:09	.00	.00	248.00	3#
	12:10	.00	.00	249.00	2#
	12:11	.32	.08	254.00	1#
	12:45	.32	.08	284.00	1#
	12:46	.00	.00	279.00	2#
-4-96	12:47	.32	.00	279.00	3#

CONFIRMED
NOT PAGE

1-4-86

(2072)

<u>DATE</u>	<u>TIME</u>	<u>TWA</u>	<u>REFL TIME</u>	<u>FL TIME</u>	<u>STATION</u>
1-4-86	1:16	.00	.00	309.0	3#
	1:17	.00	.00	309.0	2#
	1:18	.32	.10	314.0	1#
	1:48	.32	.12	344.0	1#
	1:49	.00	.00	339.0	2#
	1:50	.00	.00	338.0	3#
	2:25	.00	.00	9.99.0	3#
	2:26	.00	.00	9.99	2#
	2:27	.32	.12	9.99	1#
	3:01	.32	.12	9.99	1#
	3:02	.00	.00	9.99	2#
	3:03	.00	.00	9.99	3#
	3:33	.00	.00	9.99	3#
	3:34	.00	.00	9.99	2#
	3:37	.32	.12	9.99	1#

(END OF WORK DAY)

1-4-86

SD-6040
Boulder
disposal

ENRST STEEL SITE
1-3-96

WIND direction (west)

* Note: muni ram two downwind and
one upwind weren't set-up
due to heavy snow fall
within the area. All day
the snow fall affects the muni
ram and snow fall mounds
the dust within the air if
any at all.

Bill Mayfield E&E
1-3-96



12:00 AM
wind chills
-10°

1# UPWIND (W)
 2# DOWNWIND (E)
 3# DOWNWIND (E)

check
 25° 00'

FRONT STREET SITE
 1-2-96
 1st

DATE	TIME	TWA	REAL TIME	FE TIME	STATION
1-2-96	8:30	.40	.40	.00	1#
	8:31	.00	.00	.01	2#
	8:32	.00	.00	.03	3#
	9:00	.22	.46 <i>zero into</i>	57.9	1#
	9:02	.00	.00	59.5	2#
	9:02	.00	.00	60.0	3#
	9:30	.00	.00	90.0	3#
	9:31	.00	.00	89.0	2#
	9:32	.22	.46	87.0	1#
	10:00	.00	.00	112.0	3#
	10:01	.00	.00	110.0	2#
	10:02	.22	.20	116.0	1#
	10:33	.22	.21	145.0	1#
	10:34	.00	.00	140.0	2#
	10:35	.00	.00	142.0	3#
	11:05	.00	.00	172.0	3#
	11:06	.00	.00	170.0	2#
	11:07	.22	.20	175.0	1#
	11:35	.22	.21	206.0	1#
	11:36	.00	.00	200.0	2#
	11:37	.00	.00	202.0	3#
	12:00	.00	.00	234.0	3#
	12:01	.00	.00	232.0	3#
	12:02	.22	.22	230.0	1#
	12:00	.22	.24	266.0	1#
	12:31	.00	.00	262.0	2#
3-2-12:37		.00	.00	264.0	3#

CONTINUE NEXT
 PAGE

ZAFZ

1-2-96

<u>DATE</u>	<u>TIME</u>	<u>TWA</u>	<u>REAL TIME</u>	<u>FL TIME</u>	<u>STAY</u>
1-2-96	1:02	.00	.00	296.0	3 ~~#~~
	1:03	.00	.00	294.0	2 ~~#~~
	1:04	.22	.21	296.0	1 ~~#~~
	1:31	.22	.22	326.5	1 ~~#~~
	1:32	.00	.00	323.0	2 ~~#~~
	1:33	.00	.00	325.5	3 ~~#~~
	2:07	.00	.00	353.0	3 ~~#~~
	2:09	.00	.00	354.0	2 ~~#~~
	2:09	.22	.22	356.2	1 ~~#~~
	2:30	.00	.00	9.99	1 ~~#~~
	2:31	.00	.00	9.99	2 ~~#~~
	2:32	.22	.21	9.99	3 ~~#~~
	3:00	.00	.00	9.99	3 ~~#~~
	3:02	.00	.00	9.99	2 ~~#~~
	3:02	.22	.21	9.99	1 ~~#~~
	3:40	.00	.00	9.99	1 ~~#~~
	3:41	.00	.00	9.99	2 ~~#~~
	3:42	.22	.22	9.99	3 ~~#~~

-2-96

1 DOWNWARD (E)

2nd DOWNWARD (E)

3rd UPWARD (N)

30° AM

FIRST OFFICIAL DATE

12-30-95

10 of 2

W/E	TIME	TWR	REAL TIME	FL TIME	STATION
	8:45	.00	.00	2.83	1 [#]
	8:46	.00	.00	4.16	2 [#]
	8:47	.27	.27	6.16	3 [#]
	9:35	.24	.25	57.5	3 [#]
	9:36	.00	.00	57.1	2 [#]
	9:37	.00	.00	57.3	1 [#]
	10:06	.00	.00	82.6	1 [#]
	10:07	.00	.00	84.1	2 [#]
	10:08	.24	.27	86.4	3 [#]
	10:38	.24	.25	113.0	3 [#]
	10:39	.00	.00	111.0	2 [#]
	10:40	.00	.00	109.0	1 [#]
	11:10	.00	.00	139.0	1 [#]
	11:11	.00	.00	141.0	2 [#]
	11:12	.24	.25	143.0	3 [#]
	11:46	.26	.34	189.0	3 [#]
	11:47	.00	.00	189.0	2 [#]
	11:48	.00	.00	190.0	1 [#]
	12:10	.00	.00	213.0	1 [#]
	12:11	.00	.00	212.0	2 [#]
	12:12	.26	.24	212.0	3 [#]
	12:45	.26	.25	242.0	3 [#]
	12:46	.00	.00	242.0	2 [#]
	12:47	.00	.00	243.0	1 [#]
	12:16	.00	.00	275.0	1 [#]
	1:17	.00	.00	276.0	2 [#]
	1:18	.29	.34	279.0	3 [#]

12-30-95

(SEE NEXT PAGE)

2072

PM 30⁰

12-30-95

FINISH START SITE

<u>TIME</u>	<u>TIME</u>	<u>TWO</u>	<u>REAL TIME</u>	<u>FL TIME</u>	<u>STATION</u>
	1:40	.29	.32	309.0	3#
	1:41	.00	.00	304.0	2#
	1:42	.00	.00	305.0	1#
	2:11	.00	.00	328.0	1#
	2:12	.00	.00	329.0	2#
	2:13	.29	.31	332.0	3#
	2:45	.00	.00	339.0	1#
	2:46	.00	.00	359.0	2#
	2:47	.29	.30	362.0	3#
	3:15	.33	.40	9.99	3#
	3:16	.00	.00	9.99	2#
	3:17	.00	.00	9.99	1#
	3:45	.00	.00	9.99	1#
	3:46	.00	.00	9.99	2#
	3:47	.33	.39	9.99	3#
	4:15	.33	.39	9.99	3#
	4:16	.00	.00	9.99	2#
	4:17	.00	.00	9.99	1#

STARTED CLOSING-UP SITE

2-30-95

ERNST STEEL SATE

(AM) 23°

(AM) 29° 104Z

C008 20th
CLARK MACHIN

7:30 AM

12-29-95

1# upwind
2# downwind
3# downwind

Equipment
Silicone
12:05 PM
Arrived

DATE	TIME	TWA	REAL TIME	FL TIME	STATION
12-29-95	8:15	.39	.39 *	9.66	1#
	8:16	.00	.00	15.6	2#
	8:17	.00	.00	19.1	3#
	9:00	.27	.17	50.1	1#
	9:01	.00	.00	55.5	2#
	9:02	.00	.00	58.3	3#
	9:30	.27	.18	78.0	1#
	9:31	.00	.00	83.0	2#
	9:32	.00	.00	86.0	3#
	10:01	.27	.17	108.0	1#
	10:02	.00	.00	113.0	2#
	10:03	.00	.00	116.0	3#
	10:35	.22	.21	145.0	1#
	10:36	.00	.00	150.0	2#
	10:37	.00	.00	153.0	3#
	11:09	.22	.21	178.0	1#
	11:10	.00	.00	183.0	2#
	11:11	.00	.00	183.0	3#
	11:40	.22	.20	208.0	1#
	11:41	.00	.00	213.0	2#
	11:42	.00	.00	213.0	3#
	12:15	.00	.00	250.0	3#
	12:16	.00	.00	249.0	2#
	12:17	.22	.25	245.0	1#

(CONTINUE NEXT PAGE)

12-29-95

Continue

FIRST STAFF SITE
2 of 2

<u>R/F</u>	<u>TIME</u>	<u>TWO</u>	<u>PRED TIME</u>	<u>VEL TIME</u>	<u>STATION</u>
12-29-95	12:45	.22	.25 ~~12:45~~	276	1#
	12:46	.00	.00	287	2#
	12:47	.00	.00	284	3#
	1:15	.22	.23	304	1#
	1:16	.00	.00	309	2#
	1:17	.00	.00	312	3#
	1:45	.00	.00	9.99	3#
	1:46	.00	.00	9.99	2#
	1:47	.22	.23	9.99	1#
	2:15	.22	.17	9.99	1#
	2:16	.00	.00	9.99	2#
	2:17	.00	.00	9.99	3#
	2:45	.23	.25	9.99	1#
	2:46	.00	.00	9.99	2#
	2:47	.00	.00	9.99	3#
	3:15	.22	.24	9.99	1#
	3:16	.00	.00	9.99	2#
	3:17	.00	.00	9.99	3#
	3:45	.00	.00	9.99	3#
	3:46	.00	.00	9.99	2#
	3:47	.22	.25	9.99	1#
	4:00	.22	.26	9.99	1#
	4:01	.00	.00	9.99	2#
	4:02	.00	.00	9.99	3#

12-29-95

(AM) 23° 0' ~~W~~ (downward) ~~11:27~~
 (PM) 25° 2' ~~E~~ (downward) ~~11:27~~
 3° ~~E~~ (downward).

partly cloudy

~~2:30~~ 9:30 AM

FAIRLY STEADY SITE
 12-28-95
 1 of 2

TE	TIME	TWQ	REFL time	FEL TIME	STATION
12-2345	10:10	.22	.23 Background	.00	1#
	10:11	.00	.00	.00	2#
	10:12	.00	.00	.00	3#
	10:46	.18	.21	35.6	1#
	10:47	.00	.00	36.8	2#
	10:48	.00	.00	35.5	3#
	11:20	.21	.21	65.7	1#
	11:21	.00	.00	66.0	2#
	11:22	.00	.00	65.4	3#
	11:45	.23	.25	94.0	1#
	11:46	.00	.00	94.7	2#
	11:47	.00	.00	93.8	3#
	12:15	.23	.24	119.0	1#
	12:16	.00	.00	119.8	2#
	12:17	.00	.00	118.9	3#
12:30	← Crew lunch No immediate departure →				
1:15	.00	.00	187.0	3#	
1:16	.00	.00	187.0	2#	
1:17	.23	.21	187.0	1#	
1:55	.24	.29	223.0	1#	
1:56	.00	.00	223.0	2#	
1:57	.00	.00	223.0	3#	
2:29	.24	.27	256.0	1#	
2:30	.00	.00	257.0	2#	
2:31	.00	.00	256.0	3#	
3:00	.24	.25	256.0	1#	
3:01	.00	.00	256.0	2#	
3:02	.00	.00	257.0	3#	

CONTINUE NEXT PAGE

CONTINUE NEXT PAGE

HE	TIME	TWA	PEEL TIME	FL TIME	STATION
	3:29	.24	.19	315	1#
	3:30	.00	.00	376	2#
	3:31	.00	.00	315	3#
	4:00	.14	~~.23~~	9.99	1#
	4:01	.00	.00	9.99	2#
	4:02	.00	.00	9.99	3#
	4:32	.23	.15	9.99	1#
	4:33	.00	.00	9.99	2#
	4:34	.00	.00	9.99	3#
STOP SCREENING OPERATIONS, COVERED STOCKPILES					

GENERAL NOTES

- * REMOVE FINE SCREEN / UNIT
- * EXTENDED SOIL STAGING AREA
- * EMPLOYEE GATE.
- * TURNED OVER F/E TPL/TCLP RESULTS (N/A)
- * COURSE SCREEN BETWEEN 2"-4" IN Ø
- * MARKED STOCKPILES F/E #1-36 HAZARDOUS / NON HAZARDOUS / BLUE / NON-HAZARDOUS. GREATER THAN 1 1/2"
- * SCREEN SOILS DIAMETER INCREASED BROOKFIELD (SITE.)

12-27-95

FERNET STAFF STATE.

1# Upwind (W)

2# Downwind (E)

3# Downwind (E)

<u>DATE</u>	<u>TIME</u>	<u>TWO</u>	<u>REAL TIME</u>	<u>FEL TIME</u>	<u>STATION</u>
12-27-95	8:45	.29	.21	24.0	1#
	8:46	.00	.00	21.3	2#
	8:47	.00	.00	24.0	3#
	9:20	.00	.00	51.7	3#
	9:21	.00	.00	50.6	2#
	9:22	.22	.14	56.6	1#
	9:46	.26	.16	79.9	1#
	9:47	.00	.00	76.6	2#
	9:48	.00	.00	79.6	3#
	10:23	.21	.26	117.00	1#
	10:24	.06	.00	79.0	2#
	10:25	.00	.00	92.0	3#
	10:54	.21	.27	147.0	1#
	10:55	.00	.00	143.0	2#
	10:56	.00	.00	146.0	3#
	11:06	.23	.24	181.0	1#
	11:27	.00	.00	178.0	2#
	11:28	.00	.00	180.0	3#
	12:04	.23	.27	219.0	1#
	12:05	.00	.00	215.0	2#
	12:06	.00	.00	218.0	3#
	lunch break				
	1:00	.23	.17	219.0	1#
	1:01	.00	.00	275.0	2#
	1:02	.00	.00	278.0	3#

(CONTINUE NEXT PAGE)

CONTINUE 12-27-95

(FOLLOWING CHAIRS GIVE)

FLANK STEEL SITE

(#1) 20° (PM) 22° 11:37 snow cloudy.

#	HE	TIME	TWA	PERL TIME	FL TIME	STATION
28		12-27-95	.23	.15	303.00	3#
1	29	12-27-95	.00	.00	299.00	2#
1	30	12-27-95	.00	.00	307.00	1#
2	7-95	2:00	.23	.19	333.00	1#
		2:01	.00	.00	330.00	2#
		2:02	.00	.00	332.00	3#
		2:30	.22	.21	9.99.00	1#
		2:31	.00	.00	9.99.00	2#
		2:32	.00	.00	9.99.00	3#
		3:05	.22	.20	9.99.00	1#
		3:06	.00	.00	9.99	2#
		3:07	.00	.00	9.99	3#
		3:45	.22	.20	9.99	1#
		3:46	.00	.00	9.99	2#
		3:47	.00	.00	9.99	3#
		4:20	.00	.00	9.99	3#
		4:21	.00	.00	9.99	2#
		4:22	.22	.21	9.99	1#

* STOP SCREENING OPERATIONS / STARTED CLEANING UNIT...

12-27-95

1st UPWIND (WEST)
 2nd DOWNWIND (EAST)
 3rd DOWNWIND (EAST)

1 of 2

(4 MAN ORG) AM

16⁰⁰ PM
 20⁰⁰ EAST (W)

12-26-95

SURFACING ALBATROSS
 SURF. FL. TIME

F	E	TIME	TWA	REAL TIME	FL TIME	STATION #
22695		9:21	.36	.24	.15	1 #
		9:24	.00	.00	.00	2 #
		9:25	.00	.00	.00	3 #
		~~10:45~~	.28	.29	52.6	1 #
		~~10:46~~	.00	.00	51.6	2 #
		~~10:47~~	.00	.00	50.5	3 #
		10:42	.21	.28	81.0	1 #
		10:43	.00	.00	78.0	2 #
		10:44	.00	.00	78.00	3 #
		11:10	.00	.00	107.00	3 #
		11:11	.00	.00	105.00	2 #
		11:12	.27	.29	109.00	1 #
		11:39	.27	.29	136.00	1 #
		11:40	.00	.00	134.00	2 #
		11:41	.00	.00	132.00	3 #
		12:10	.27	.29	170.0	1 #
		12:11	.00	.00	169.00	2 #
		12:12	.00	.00	167.00	3 #
		12:45	.27	.29	200.00	1 #
		12:46	.00	.00	197.00	2 #
		12:47	.00	.00	198.00	3 #
		1:15	.00	.00	228.00	3 #
		1:16	.00	.00	231.00	2 #
		1:17	.28	.31	235.00	1 #

(CONTINUED NEXT PAGE)

CONTINUED 12-26-95

ZIFZ

DATE	TIME	TWA	PERK TIME	FL TIME	STATION
12-26-95	1:41 PM	.29	.29	260.00	1#
	1:42	.00	.00	261.00	2#
	1:43	.00	.00	257.00	3#
	2:15	.29	.29	286.00	3#
	2:16	.00	.00	291.00	2#
	2:18	.00	.00	289.00	3#
	2:45	.29	.30	325.00	1#
	2:46	.00	.00	323.00	2#
	2:47	.00	.00	322.00	3#
	3:22	.29	.28	9.99.00	1#
	3:20	.00	.00	9.99.00	2#
	3:22	.00	.00	9.99.00	3#
	3:55	.29	.26	9.99.00	1#
	3:56	.00	.00	9.99	2#
	3:57	.00	.00	9.99	3#

{ CONTINUED STOP SCREENING OF OPERATIONS AND
 { cleaned unit and removed stockpile of
 { contaminated soils. (4:00 PM)

1 UPWIND (W)
2 DOWNWIND (E)
3 DOWNWIND (E)

12-21-95
FINALE STEEL STE

DATE	TIME	TWO	REFL TIME	FL TIME	NO. #
12-21-95	9:30 ^{START-UP} TIME	.16	.11	57.5	1#
	9:31	.00	.00	60.8	2#
	9:32	.00	.00	63.8	3#
	10:01	.15	.14	91.2	3#
	10:02	.00	.00	93.0	2#
	10:03	.00	.00	96.0	2#
	10:25	.15	.11	111.0	3#
	10:26	.00	.00	114.0	2#
	10:27	.00	.00	117.0	1#
	11:02	.00	.00	150.0	1#
	11:03	.00	.00	147.0	2#
	11:04	.15	.11	143.0	3#
	11:25	.00	.00	176.0	1#
	11:26	.04	.03	177.0	2#
	11:27	.00	.00	177.0	3#
	12:05	.00	.00	219.0	3#
	12:06	.00	.00	214.0	2#
	12:07	.13	.16 ^{limit} break	214.0	1#
	12:53	.14	.19	259.0	1#
	12:54	.00	.00	263.0	2#
	12:55	.00	.00	265.0	3#
	1:20	.00	.00	292.0	3#
	1:21	.00	.00	292.0	2#
	1:22	.15	.04	291.0	1#
	2:30	.17	.23	9.44	1#
	2:31	.00	.00	9.99	2#
12-21-95 2:27				9.99	3#

CONTINUED:

12-21-95
FINISH STEEL SITE

<u>DATE</u>	<u>TIME</u>	<u>TWA</u>	<u>RT</u>	<u>ELI</u>	<u>STATION</u>
2-21-95	3:10	.17	.23	9.99	1 #
	3:11	.00	.00	9.99	2 #
	3:12	.00	.00	9.99	3 #

STOP SCREENING OPERATIONS

TO CLEAN UNIT COURSE SCREEN AND

FINE PLUGGED WITH CONTAMINATED

SOIL.

Bill Russell

12-21-95

12-21-95

FIRST START DATE 12-20-95
 AIR MONITORING
 SOIL SCREENING OPERATIONS

#1 DOWNWIND (F)
 #2 DOWNWIND (F)
 #3 UPWIND (W)

DATE	TIME	TWA	REAL TIME	EL TIME	STATION
12-20-95	9:27	.00	.00	24.8	1#
	9:26	.00	.00	22.6	2#
	9:25	.25	.20	18.8	3#
	9:59	.21	.20	46.0	3#
	10:00	.00	.00	48.3	2#
	10:01	.00	.00	50.0	1#
	10:29	.22	.24	80.0	3#
	10:30	.00	.00	82.6	2#
	10:31	.00	.00	84.3	1#
	11:08	.22	.24	108.0	3#
	11:01	.00	.00	110.0	2#
	11:02	.00	.00	112.0	1#
	11:31	.18	.24	136.0	3#
	11:32	.00	.00	138.0	2#
	11:33	.00	.00	142.0	1#
	12:00	.23	.22	165.0	3#
	12:01	.00	.00	167.0	2#
	12:02	.00	.00	169.0	1#
	12:32	.23	.16	203.0	3#
	12:33	.00	.00	205.0	2#
	12:34	.00	.08	207.0	1#
	1:05	.23	.18	233.0	3#
	1:06	.00	.00	236.0	2#
	1:07	.00	.00	240.0	1#
	1:37	.22	.22	264.0	3#
	1:38	.00	.00	260	2#
12-20-95	1:39	.00	.00	268	1#
				270	

CONTINUED

<u>Q/E</u>	<u>TIME</u>	<u>TWQ</u>	<u>REAL TIME</u>	<u>FL TIME</u>	<u>STATION</u>
30-95	2:45	.22	.24	331	3 ~~#~~
	2:46	.00	.00	334	2 ~~#~~
	2:47	.00	.00	335	1 ~~#~~
	3:15	.22	.22	9.99	3 ~~#~~
	3:16	.00	.00	9.99	2 ~~#~~
	3:17	.00	.00	9.99	2 ~~#~~
	3:45	.22	.20	9.99	3 ~~#~~
	3:46	.00	.00	9.99	2 ~~#~~
	3:47	.00	.00	9.99	1 ~~#~~
	4:15	.18	.18	9.99	3 ~~#~~
	4:16	.00	.00	9.99	2 ~~#~~
	4:17	.00	.00	9.99	1 ~~#~~

STOP SCREENING OPERATIONS

ERNST STAFF SITE
1# UPWIND (E)
2# DOWNWIND (W)

12-18-95

<u>LINE</u>	<u>TIME</u>	<u>TWA</u>	<u>Real time</u>	<u>FL TIME</u>	<u>STATION</u>
12-18-95	11:05	0.00	.00	~~.83~~	1#
	11:06	0.00	.00	28.3	2#
	11:35	0.00	.00	59.5	2#
	11:37	0.00	.01	86.0	1#
	12:20	0.00	.00	103.0	2#
	12:22	0.00	.00	80.0	1#
(Lunch BREAK)					
	1:22	0.00	.00	140.0	2#
	1:25	0.00	.00	142.0	1#
* 1:55	~~0.00~~	~~.00~~	~~.00~~	BATTERY	2# ~~MISSING~~
1:56	0.00	.00	.00	201	1#
2:40	0.00	.00	.00		2#

completed
TEST run
PVS mill
with CONTAMINATED
SOILS (NON-HAZARDOUS)

See diary
12-18-95

12-19-95

1# UPWIND (W)
2# DOWNWIND (SE)

12-08-95

HE	TIME	TWA	REAL TIME	EL TIME	STATION
2-9-95	9:07	0.00	0.00 mg/m^3	20.3	1#
	9:10	0.00	0.00 "	28.5	2#
	9:32	0.00	0.00 "	45.1	1#
	~~9:35~~	0.00	0.00 "	58.0	2#
	10:07	0.00	0.00 "	85.3	2#
	10:09	0.00	0.00 "	82.2	1#
	10:32	0.00	0.00 "	105	1#
	10:35	0.00	0.00 "	113	2#
	11:05	0.00	0.00 "	137	1#
	11:07	0.00	0.00 "	145	2#
	11:27	0.00	0.00 "	163	1#
	11:32	0.00	0.00 "	169	2#
	12:00	0.00	0.00 "	197	2#
	12:36	0.02 ^{lunch}	0.00 "	230	1#
	12:43	0.00	0.00 "	242	2#
	1:00	0.00	0.00 "	259	2#
	1:03	0.02	0.00	256	1#
	1:34	0.00	0.00	292	2#
	1:36	0.02	0.00	289	1#
	2:09	0.00	0.00	327	2#
	2:04	0.02	0.00	317	1#
	2:45	0.00	0.00	9.99	2#
	2:48	0.02	0.00	9.99	1#
	3:50	0.02	0.00	9.99	1#
	3:53	0.00	0.00	3.98	2#

END

completed
for
operation

1# UPWIND ~~DATE~~ (W)
 2# DOWNWIND ~~DATE~~ (E)
 3# DOWNWIND (F) N/A

12-7-95

DATE	TIME	TWA	REFL TIME	FL TIME	STATION
12-7-95	9:53	0.00	0.00	25.3	2#
12-7-95	9:59	0.00	0.00	27.0	1#
" "	10:26	0.00	0.00	58.1	2#
" "	10:27	0.00	0.00	61.1	1#
" "	11:05	0.00	0.00	96.6	2#
" "	11:07	0.00	0.00	99.5	1#
" "	11:34	0.00	0.00	126.9	2#
" "	11:36	0.00	0.00	130.1	1#
Lunch Break					
" "	12:46	0.00	0.00	198	1#
" "	12:49	0.00	0.00	200	2#
12-7-95	1:20 PM	0.00	0.00	237	2#
" "	1:23	0.00	0.00	220	1#
12-7-95	1:48	0.00	0.00	259	2#
" "	1:50	0.00	0.00	265	1#
12-7-95	2:24	0.00	0.00	~~260~~	2#
" "	2:30	0.00	0.00	~~269~~	1#
" "	2:47	0.00	0.00	319	2#
" "	2:51	0.00	0.00	323	1#
12-7-95	3:28	0.00	0.00	9.99	1#
" "	3:39	0.00	0.00	9.99	2#
" "	4:16	0.00	0.00	9.99	2#
" "	4:19	0.00	0.00	9.99	1#
" "	4:38	0.00	0.00	2.92	1#
" "	4:45	0.00	0.00	5.82	2#

#1 ~~NOTE~~ location #2 mini Ram will not ~~be~~ correctly read a 2.63 all the time.

9:45 started Location of mini Ram 1 Upwind and 1 Downwind 2 MINI RAM'S
to Load Soil! ~~3 upwind~~ ~~3 downwind~~

Date	Time	TWA	Real Time	EL Time	Station #
7/8	8:50	.00	0.00	37.3	#3
	9:05	.00	.00	72.0	#1
	9:20	.00	.00	67.8	#3
	9:35	.00	.00	103	#1
	9:55	.00	.00	123	#1
	10:05	.00	.00	109	#3
	10:20	.00	.00	126	#3
*	10:25	.00	.11	154	#1
	10:45	.00	.00	152	#3
*	10:55	.01	.06	182	#1
	11:00	.00	.00	170	#3
	11:15	.01	.19	203	#1
	11:25	.00	.00	188	#3
	11:30	.01	.02	216	#1
	11:55	.00	.00	219	#3
*	12:15	.02	.15	264	#1
*	12:35	.04	.28	299	#1
	12:55	.00	.00	282	#3
	13:25	.00	.00	313	#3
*	13:35	.06	.39	.00	#1
	13:45	.00	.00	245	#3
*	13:55	.15	.19	18.3	#1

* Ryder truck just pulled in by meter and other contractor at this time pushing concrete around no dump of contaminated soil at this time.

#1 Down wind #3 Upwind

Date	Time	TWA	Real Time	EL Time	Comments
9/8/98	14:00	.00	.00	.0	#3
	14:15	.19	.02	38.6	#1
	14:45	.00	.00	40.5	#3
	14:55	.13	.07	74.8	#1
	15:00	.00	.00	53.6	#3
	15:30	.14	.43	113	#1
	15:40	.00	.00	96.6	#3
	15:50	.15	.15	133	#1
	16:00	.00	.00	117	#3
	16:05	.14	.04	144	#1
	16:15	.00	.00	131	#3
	16:24	.14	.15	167	#1
	16:30	Started to Rain Dyst level Down to			
		~~.00~~ Real time			
	17:00	Left Site			

Theresa Cole

9-9-95

(MINI RAM)

FINAL CHECK DATE.

<u>DATE</u>	<u>TIME</u>	<u>FLTA</u>	<u>REAL TIME FL</u>	<u>STATION #</u>
9/9	8:00 ^{AM}	.00	0.00	21.70
9/9	8:00 ^{AM}	.00	0.00	N/A
9/9	9:44	.00	0.00	122
11/9	9:49	.00	0.00	135
				1 # (E) 400
				2 # (SW) 400
				1 #
				2 #


Pulled mini ram due
to heavy rain...
10:00 AM

9-15-95
ARRIVED

REAL TIME READING
9-15-95

DATE	TIME	TW @	REAL TIME	EL TIME	STATION
9-15-95	9:52	0.00	.00	5.00	up / #E
9-15-95	9:59	0.00	.00	8.33	down / #E
9-15-95	10:23	0.01	.02	34.2	2 #
" "	10:27	0.00	.00	37.2	1 #
" "	10:53	0.01	.00	63.8	2 #
" "	10:56	0.00	.00	66.18	1 #
" "	11:27	0.00	.00	97.2	1 #
" "	11:39	0.01	.00	109	2 #
" "	12:00	0.02	.02	131	2 #
" "	12:06	0.00	.00	136	1 #

LUNCH BREAK
(NO NEUTRONIC ACTIVITIES)

9-15-95	1:22 PM	0.00	.00	212	1 #
" "	1:25	0.02	.04	216	2 #
" "	1:54	0.02	.00	245	2 #
" "	1:57	0.00	.00	247	1 #
" "	2:24	0.02	.00	274	2 #
" "	2:28	0.00	.00	278	1 #
" "	3:15	0.02	.00	326	2 #
" "	3:18	0.00	.00	330 (low battery)	2 #

MINIRAM #3 WORK AREA

DATE	TIME	TWA	REALTIME	ELTIME
3/16/95	07:12	0.00	0.00	0
3/16/95	07:48	0.00	0.00	37
3/16/95	08:05	0.00	0.00	54.3
	08:15	0.00	0.00	63.0
	08:30	0.00	0.00	82.5
	08:45	0.00	0.00	95.0
(STATION AREA)			~~0.00~~ 8:16-5	
3/16/95	9:20	0.00	0.00	127.0
" "	9:36	0.00	0.00	141.80
" "	10:22	0.00	0.00	187.00
" "	10:56	0.00	0.00	220.00
3-16-95	2:11	0.00	0.00	9.99 ✓
" "	3:09	0.00	0.00	2.48 ✓
3-16-95	3:12	0.00	0.00	9.65
" "	3:14	0.00	0.00	11:90

GM TIME

SETTING



ecology and environment, inc.

General Computation Sheet

8-17-95
GWA

Calculation Set No.

Preliminary ☐Final ☐Void ☐

Sheet ___ of ___ Project No.

Name of Project ERNST STEEL 8/17/95 System

Rev.

Completed By

Checked By

Subject MINIRAM #3 STOCK PILE

Initials: / /

Initials: / /

Initials: / /

Initials: / /

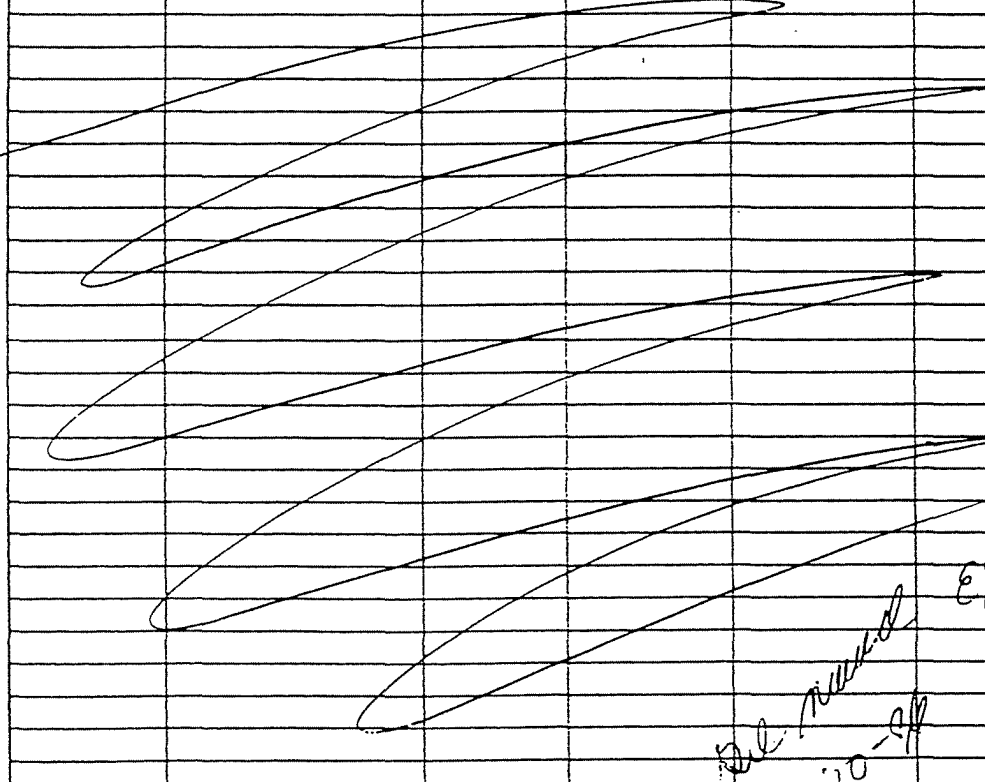
TIME	TWA	REALTIME	EL. TIME	COMMENTS
7:55	0.00	0.00	40.5	WEST REFLECTION STOCK PILE
8:10	0.00	0.00	55.1	GULF REFLECTION STOCK PILE
8:18	0.00	0.00	64.1	" " "
8:35	0.00	0.00	80.6	" " "
8:55	0.00	0.00	100.00	" " "
9:46	0.00	0.00	151.06	" " "
10:29	0.00	0.00	191.00	" " "
10:44	0.00	0.00	208	" " "
(Lunch BREAK)				
12:45	0.00	0.00	3.20	" " "
1:24	0.00	0.00	4.43	" " "
1:55	0.00	0.00	4.99	" " "
2:09	0.00	0.00	4.99	" " "
3:09	0.00	0.00	4.98	" " "

APPENDIX C-2

AIR MONITORING RESULTS - HYDROGEN SULFIDES

TERMINAL LOCATION: (A) NW
(B) N

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORK AREA	NW	8:49	—	1.1 PPM	—
A	NW	8:49	—	.004	—
B	N	8:49	—	.008	—
NOTE: Shut-down due to REPAIRS TO SLOPERN ALL WASTE (LOUSE SCREEN)					
WORK AREA	NW	11:00	—	1.1 PPM	—
A	NW	11:00	—	.004	—
B	N	11:00	—	.006	—
WORK AREA	NW	12:00	—	1.2 PPM	—
A	NW	12:00	—	.120	—
B	N	12:00	—	.004	—
WORK AREA	NW	1:00	—	1.1 PPM	—
A	NW	1:00	—	PPM	—
B	N	1:00	—	.012	—
WORK AREA	NW	2:05	—	1.1 PPM	—
A	NW	2:05	—	.047	—
B	N	2:05	—	PPM	—
WORK AREA	NW	3:11	—	1.1 PPM	—
A	NW	3:11	—	.021	—
B	N	3:11	—	.010	—
					
LOCATION					

2:20-96
2:20-96

HYDROGEN SULFIDE READING: 2:20-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

JEROME
 LOCATIONS (A) NORTH EAST / NORTH WEST (PM)
 (B) EAST / NORTH WEST (PM)

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	RTIME (PPM)	TWA
WORK AREA	NE	11:25	---	1/4 PPM	---
A	NE	11:25	---	.007	---
B	E	11:25	---	.006	---
WORK AREA	NE	12:25	---	1/4 PPM	---
A	NE	12:25	---	.007	---
B	E	12:25	---	.004	---
NORTH AREA	NE	1:25	---	1/4 PPM	---
A	NE	1:25	---	.007	---
B	E	1:25	---	.006	---
WORK AREA	NE	2:25	---	1/4 PPM	---
A	NE	2:25	---	.008	---
B	E	2:25	---	.007	---
WORK AREA	NE	3:20	---	1/4 PPM	---
A	NE	3:30	---	.007	---
B	SW	3:30	---	.112	---
NORTH AREA	NN	4:36	---	.400 PPM	---
B	NN	4:30	---	.200 PPM	---
A	NN	4:30	---	.010 PPM	---
LOCATION					

Shut down
 TREATMENT
 OPERATIONS.
 4:05 PM.
 due to high
 H₂S reading
 along the NN
 parameter.

Jerome
 2-19-90

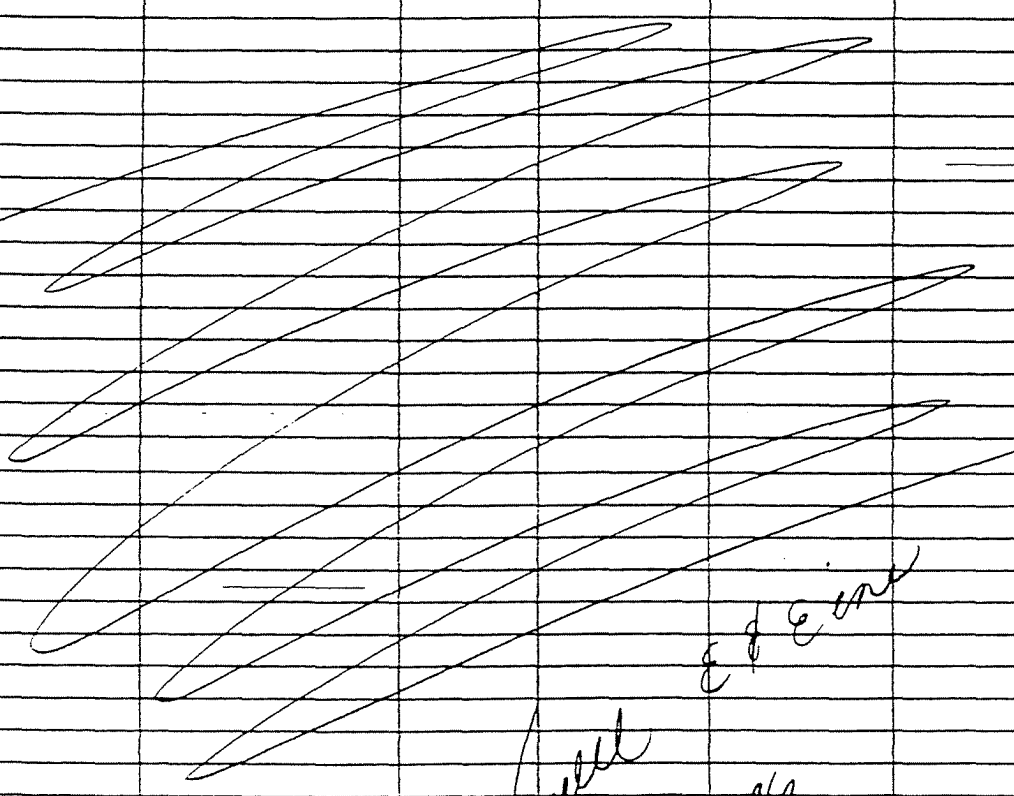
HYDROGEN SULFIDE READING: 2-19-90

(B) E

spike up
spike 26 ppm?

Start up
10:15 am

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORK AREA	EAST	10:15	—	<2 PPM	—
A	NORTH EAST	10:15	—	.009	—
B	EAST	10:15	—	.009	—
WORK AREA	EAST	11:15	—	<2 PPM	—
A	NE	11:15	—	.021	—
B	E	11:15	—	.013	—
WORK AREA	EAST	12:20	—	<2 PPM	—
A	NE	12:20	—	.019	—
B	E	12:20	—	.010	—
WORK AREA	EAST	1:20	—	<2 PPM	—
A	NE	1:20	—	.008	—
B	EAST	1:20	—	.008	—
WORK AREA	EAST	2:20	—	<2 PPM	—
A	NE	2:20	—	.007	—
B	EAST	2:20	—	.009	—
WORK AREA	EAST	3:20	—	<2 PPM	—
A	NE	3:20	—	.008	—
B	EAST	3:20	—	.004	—



 Ed E. one
 2-16-96

LOCATION

HYDROGEN SULFIDE READING:

2-16-96

(A) NORTHEAST
(B) EAST

(B) EAST

NOTE REC-60
RUBEN LSO

2-13-94

LOCATION	

HYDROGEN SULFIDE READING: 2-13-96

2-12-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

(A) SE
(B) E

JEROME
UNIT 6

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	RTIME (PPM)	TWA
WORK AREA	SE	11:00	—	24 PPM	—
A	SE	11:00	—	.007	—
B	E	11:00	—	.006	—

NOTE: silo up treatment now operational
due to silo grider feed not
being operational. Under repair.

START
1:30 PM

shut down at 4:00 PM
due to machine speeding
50 PPM SE (A)

RE STARTED

WORK AREA	SE	4:20	—	24 PPM	—
A	E	4:20	—	.010	—
B	E	4:20	—	.010	—

LOCATION

shut down
4:20 PM
supervising

HYDROGEN SULFIDE READING:

2-12-96

(A) NORTH EAST
(B) FENZ

(B) ~~FRS~~

2-9-96

2, 9, 96

(A) North (20)

(B) North ~~North~~ (20)

(B) North ~~side~~

HYDROGEN SULFIDE READING: 2-8-90

TERMINAL
LOCATIONS

(A) NORTH
(B) EAST

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORK AREA	NE	9:00	---	1.4 PPM	---
A	NE	9:00	---	.008	---
B	NE	9:00	---	.009	---
WORK AREA	NE	10:00	---	1.4 PPM	---
A	NE	10:00	---	.006	---
B	NE	10:00	---	.007	---
WORK AREA	NE	11:00	---	1.4 PPM	---
A	NE	11:00	---	.005	---
B	NE	11:00	---	.010	---
WORK AREA	NE	12:00	---	1.4 PPM	---
A	NE	12:00	---	.003	---
B	NE	12:00	---	.007	---
WORK AREA	NE	1:00	---	1.4 PPM	---
A	NE	1:00	---	.007	---
B	NE	1:00	---	.010	---
WORK AREA	NE	2:00	---	1.4 PPM	---
A	NE	2:00	---	.004	---
B	NE	2:00	---	.003	---
WORK AREA	NE	3:00	---	1.4 PPM	---
A	NE	3:00	---	.010	---
B	NE	3:00	---	.012	---
WORK AREA	NE	4:00	---	1.4 PPM	---
A	NE	4:00	---	.010	---
B	NE	4:00	---	.011	---
2-7-96 2-7-96					
LOCATION					

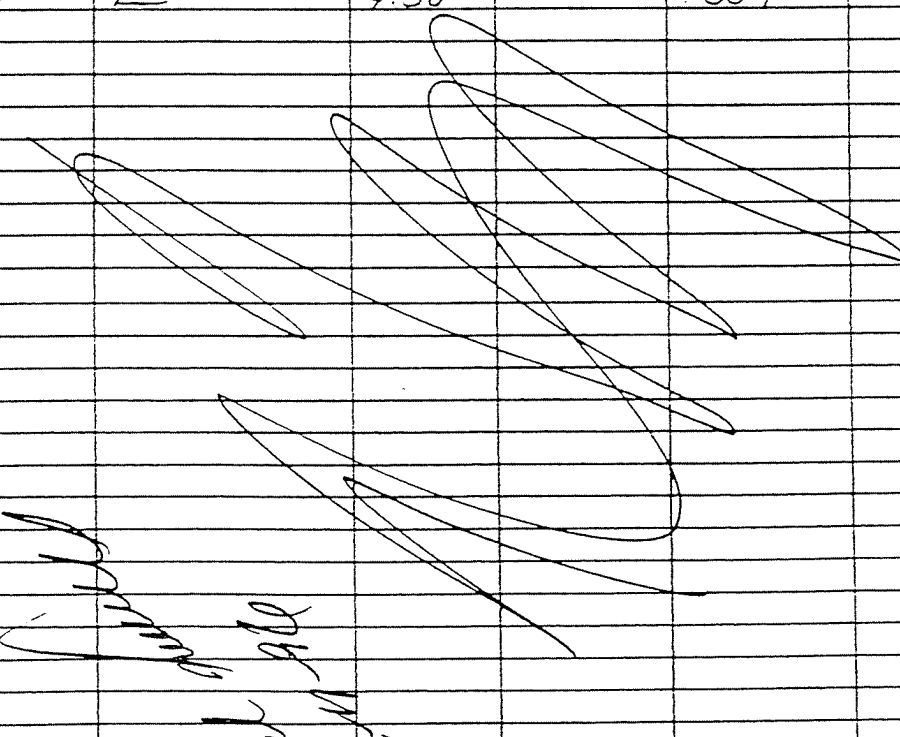
HYDROGEN SULFIDE READING:

2-7-96

JEROME

(A) NORTHEAST (DW)
(B) EAST (DW)

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	RTIME (PPM)	TWA
WORK AREA	EAST	4:30	—	2.4 PPM	—
A	NORTHEAST	9:30	—	.014	—
B	EAST	9:30	—	.008	—
WORK AREA	E	10:40	—	2.4 PPM	—
A	NE	10:40	—	.008	—
B	E	11:40	—	.007	—
WORK AREA	E	11:35	—	2.4 PPM	—
A	NE	11:35	—	.008	—
B	E	11:35	—	.006	—
WORK AREA	E	12:30	—	2.4 PPM	—
A	NE	12:30	—	.010	—
B	E	12:30	—	.008	—
WORK AREA	E	1:25	—	2.4 PPM	—
A	NE	1:25	—	.008	—
B	E	1:25	—	.006	—
WORK AREA	E	2:30	—	2.4 PPM	—
A	NE	2:30	—	.010	—
B	E	2:30	—	.008	—
WORK AREA	E	3:30	—	2.4 PPM	—
A	NE	3:30	—	.010	—
B	E	3:30	—	.006	—
WORK AREA	E	4:30	—	2.4 PPM	—
A	NE	4:30	—	.009	—
B	E	4:30	—	.007	—
					
LOCATION					

HYDROGEN SULFIDE READING:

2-6-90

JF 01/01/95

(A) NORTHWEST
(B) EAST

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
1#	NE	9:00	---	.034	---
2#	E	9:00	---	.003	---
WORK AREA	E	9:00	---	2.1 PPM	---
shut down treatment operations due to bearing being frozen. (NO) 2-5-96					
LOCATION					

HYDROGEN SULFIDE READING:

2-5-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
<i>Jim North</i> <i>resident engineer</i> <i>2-3-96</i>					
LOCATION					

HYDROGEN SULFIDE READING: 3.96

TEST LOCATIONS

(A) NORTH SIDE
(B) EAST

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORK AREA	NORTHEAST	9:00	—	1.4 PPM	—
A	NORTHEAST	9:00	—	.004	—
B	EAST	9:00	—	.007	—
NOTE: shut-down all remedial operations due to fugitive dust being frozen. (9:30 AM)					
WORK AREA	EAST	12:05	—	1.4 PPM	—
A	NORTHEAST	12:05	—	.019	—
B	EAST	12:05	—	.010	—
WORK AREA	E	1:00	—	1.4 PPM	—
A	NE	1:00	—	.09	—
B	E	1:00	—	.06	—
WORK AREA	E	2:00	—	1.4 PPM	—
A	NE	2:00	—	.010	—
B	E	2:00	—	.006	—
WORK AREA	E	3:00	—	1.4 PPM	—
A	NE	3:00	—	.004	—
B	E	3:00	—	.007	—
WORK AREA	E	4:00	—	1.4 PPM	—
A	NE	4:00	—	.006	—
B	E	4:00	—	.008	—
did mail E&E inc. 2-2-96					
LOCATION					

HYDROGEN SULFIDE READING: 2-2-96

STATION 1000000

(A) NORTH
(B) EAST

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	RTIME (PPM)	TWA
WORK AREA	NORTHEAST	9:15	—	2.2 PPM	—
A	NORTHEAST	9:15	—	.006	—
B	EAST	9:15	—	.000	—
WORK AREA	NORTHEAST	9:30	—	2.2 PPM	—
A	NORTHEAST	9:30	—	.004	—
B	EAST	9:30	—	.007	—
WORK AREA	NE	9:45	—	1.4 PPM	—
A	NE	9:45	—	.003	—
B	E	9:45	—	.003	—
Shut-down unit due to frozen pump mill unit under repair (several)					
WORK AREA	NE	11:30	—	1.4 PPM	—
A	NE	11:30	—	.010	—
B	E	11:30	—	.009	—
WORK AREA	NE	11:45	—	1.4 PPM	—
A	NE	11:45	—	.008	—
B	E	11:45	—	.004	—
WORK AREA	NE	12:00	—	1.4 PPM	—
A	NE	12:00	—	.006	—
B	E	12:00	—	.004	—
WORK AREA	NE	12:15	—	1.4 PPM	—
A	NE	12:15	—	.010	—
B	E	12:15	—	.012	—
WORK AREA	NE	12:30	—	1.4 PPM	—
A	NE	12:30	—	.004	—
B	E	12:30	—	.0018	—
WORK AREA	NE	12:45	—	1.4 PPM	—
A	NE	12:45	—	.006	—
B	E	12:45	—	.009	—
WORK AREA	NE	1:00	—	1.4 PPM	—
A	NE	1:00	—	.006	—
B	E	1:00	—	.007	—
WORK AREA	NE	1:15	—	1.4 PPM	—
A	NE	1:15	—	.003	—
B	E	1:15	—	.004	—
WORK AREA	NE	1:30	—	1.4 PPM	—
A	NE	1:30	—	.005	—
B	E	1:30	—	.009	—
WORK AREA	NE	1:45	—	1.4 PPM	—
A	NE	1:45	—	.007	—
B	E	1:45	—	.004	—
WORK AREA	NE	2:00	—	1.4 PPM	—
A	NE	2:00	—	.006	—
B	E	2:00	—	.010	—
WORK AREA	NE	2:30	—	1.4 PPM	—
A	NE	2:30	—	.006	—
B	E	2:30	—	.010	—
A	NE	2:45	—	.003	—
LOCATION	E	2:45	—	.012	—
A	NE	3:00	—	.004	—
B	E	3:00	—	.010	—

low battery

due to
mill
2-1-94
E/E
over

HYDROGEN SULFIDE READING:

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

start-up 9:30 AM

JEROME

A: EAST
B: NORTHEAST

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORK AREA	NORTHEAST	9:30	—	22 PPM	—
" "	EAST	10:00	—	24 PPM	—
" "	E	11:30	—	22 PPM	—
" "	E	11:00	—	22 PPM	—
" "	E	11:30	—	24 PPM	—
" "	EAST	12:00	—	24 PPM	—
" "	EAST	12:00	—	24 PPM	—
" "	E	1:00	—	24 PPM	—
A	EAST	2:15	—	.006	—
B	NORTHEAST	2:45	—	.004	—
A	E	1:00	—	.007	—
B	NORTHEAST	1:00	—	.004	—
WORK AREA	E	1:00	—	24 PPM	—
A	EAST	1:15	—	.004	—
B	NORTHEAST	1:15	—	.006	—
WORK AREA	EAST	1:15	—	22 PPM	—
A	EAST	1:30	—	.052	—
B	NORTHEAST	1:30	—	.004	—
WORK AREA	EAST	1:30	—	22 PPM	—
A	NE	1:45	—	.005	—
B	E	1:45	—	.006	—
WORK AREA	E	1:45	—	24 PPM	—
A	NE	2:00	—	.003	—
B	E	2:00	—	.007	—
WORK AREA	E	2:00	—	22 PPM	—
A	NE	2:15	—	.007	—
B	E	2:15	—	.024	—
WORK AREA	E	2:15	—	24 PPM	—
A	NE	2:30	—	.010	—
B	E	2:30	—	.006	—
WORK AREA	E	2:30	—	24 PPM	—
shut down treatment operations due to frozen hose see manifest e of area 1-31-96					
LOCATION					

HYDROGEN SULFIDE READING: 1-31-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

HYDROGEN SULFIDE READING:

1-30-96

1 Hour
INSPECTION ON
WIND DIRECTIONS

JENOMES / NORTHWEST (A)
UNITS NORTH (B)

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R TIME (PPM)	TWA
A	NORTHWEST	1:00 PM	—	.004	—
B	NORTH	1:00 PM	—	.006	—
WA	NORTHWEST	1:00 PM	—	2.1 PPM	—
A	NN	2:15 PM	—	.004	—
B	N	2:15 PM	—	.003	—
WA	NN	2:15 PM	—	1 PPM	—
A	NN	3:00 PM	—	.010	—
B	N	3:00 PM	—	.009	—
WA	NN	3:00 PM	—	1 PPM	—
<i>[Large handwritten scribble across the table]</i> <i>shut down treatment</i> <i>unit due to high ppm</i> <i>unit 3:30 PM</i> <i>1-29-96</i> <i>1-29-96</i> <i>1-29-96</i>					
LOCATION					

HYDROGEN SULFIDE READING:

1-29-96

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

(AM) B: North (DW)
A: Northwest (DW)

(PM) Northwest
A & B
2:00 PM

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R TIME (PPM)	TWA
NOR AFD	NORTHEAST	12:05	—	2.1 PPM	—
"	"	12:40	—	2.2 PPM	—
"	"	1:15	—	2.1 PPM	—
"	"	1:45	—	2.1 PPM	—
"	"	2:15	—	2.1 PPM	—
"	"	2:45	—	2.4 PPM	—
"	"	3:15	—	2.4 PPM	—
"	"	3:45	—	2.4 PPM	—
"	"	4:15	—	2.1 PPM	—

[Handwritten scribbles]

Oil Muffin

LOCATION

HYDROGEN SULFIDE READING: 1-26-96

SOLUCOMP UNIT

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

A: / SOUTH
B: / SOUTHWEST
DOWNWIND

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
W AREA	SOUTHEAST →	10:00	—	< 1 PPM	—
WORK AREA	SE	10:30	—	< 1 PPM	—
W AREA	SE	11:00	—	< 1 PPM	—
WORK AREA	SE	11:30	—	< 1 PPM	—

* NYSDOC REPRESENTATIVE RELOCATED THERMOCouples TO THE E. ~~Other~~ ~~more~~ ~~direction~~ ~~change~~ ~~were~~ ~~the~~ ~~residual~~ ~~exposure~~ ~~from~~ ~~unit~~ ~~due~~ ~~to~~ ~~the~~ ~~problem~~.

11:15 AM

Shut down

1:30 PM

Advised unit.

c/c w

1-25-96

LOCATION

HYDROGEN SULFIDE READING: 1-25-96

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

N/B: / WIND
NE/Q: / DIRECTION

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORM CREEK	NORTHEAST	1:00	—	< 1 PPM	—
		1:30	—	< 1 PPM	—
		2:00	—	< 1 PPM	—
		2:30	—	< 1 PPM	—
		3:00	—	< 1 PPM	—
		3:30	—	< 1 PPM	—
		3:45	—	< 1 PPM	—
NOTE: NE SITE PERIMETER WERE STRUCK DOWN 10 PPM OPERATIONS AT 3:45 PPM 1-24-96					
WORM CREEK					
LOCATION					

HYDROGEN SULFIDE READING:

1-24-96

~~PERMITTED~~

JEROME NO: 2 - 1395 (N)

NO: 1 - 1374 (NE)

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

#	LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
2	WORK AREA	NORTHEAST	12:30	—	1 PPM >	—
	~~Chop units filter units unit~~		Shut-down treatment unit work area greater than 1 PPM and permit at 50-80 PPM			
1	WORK AREA		1:50 PM	—	1 PPM >	—
	second shutdown due to high perimeter reading at 50-80 PPM					
~~Shut-down due to contact unit for the perimeter of shut unit to replace filter units~~						
1-22-96						
LOCATION						

HYDROGEN SULFIDE READING: 1-22-96

JEROME #1 (NE) 01144/1374 SITE PERMITTER BG ~ 4 PPB
 #2 (N) 01245/1385 " " BG ~ 4 PPB

10:00 PM
 Start up

ERNST STEEL SITE NO: 915022, CHEEKTOWAGA, N.Y.

(NE) PM (wind direction)

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
NORTH EAST	NORTH EAST	10:00	—	2.1 PPM	—
" "	North	10:35	—	2.1 PPM	—
" "	" "	11:05	—	2.1 PPM	—
" "	" "	11:40	—	2.1 PPM	—
" "	" "	12:00	—	2.1 PPM	—
" "	" "	12:44	—	2.1 PPM	—
" "	" "	1:28	—	2.1 PPM	—
" "	" "	1:59	—	2.1 PPM	—
" "	" "	2:30	—	2.1 PPM	—
" "	" "	3:00	—	2.1 PPM	—
" "	" "	3:29	—	2.1 PPM	—
Recent nullified 1-18-96 E & E					
LOCATION					

HYDROGEN SULFIDE READING: 1-10% 96

NO 1295 (SITE AREA) (SE) (BG) 1294b
1396
2, CHEEKTOWAGA, N.Y.
N(10)

N(9m)

LOCATION	WIND DIRECTION	TIME	PEAK (PPM)	R/TIME (PPM)	TWA
WORK AREA	SE	10:12	—	< 1 ppm	—
" "	SE	10:45	—	< 4 ppm	—
11 "	S	11:15	—	± 1 ppm	—
12 "	S	11:45	—	± 1 ppm	—
" "	N / WIND CHANGE	12:15	—	1 ppm	—
" "	N	12:45	—	± 1 ppm	—
11 "	N	1:15	—	< 1 ppm	—
11 "	N	1:45	—	± 1 ppm	—
4 "	N	2:15	—	± 1 ppm	—
11 "	N	2:45	—	± 1 ppm	—
" "	N	3:15	—	< 1 ppm	—

Shed down
treatment operations
due to high sulfate
precipitation
see memo
1-16-96
Enamel stock pile
3:30 PM

[illegible]

HYDROGEN SULFIDE READING:

1-16-96

ERNST STEEL SITE NO: 815022, CHEEKTOWAGA, N.Y.

word
area

Stop work / water is frozen to waste...

1. Belmuth - 15-16

HYDROGEN SULFIDE READING: 1-15-96

APPENDIX D

ERNST STEEL MONITORING WELL ANALYTICAL RESULTS

WASTE STREAM TECHNOLOGY

Laboratory Chronicle

Report Date : 7-12-95
Revised Report Date: 8-11-95
Group Number : 9501-309

Prepared For :
Mr. Rick Crouch
Buffalo Drilling
10440 Main St.
Clarence, NY 14031

Site : U. S. Steel

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
Monitoring Well NW Corner	WS19399	Water	7/11/95	7/11/95	1610
Monitoring Well NW Corner	WS19400	Water	7/11/95	7/11/95	1610
Monitoring Well NW Corner DUP	WS19401	Water	7/11/95	7/11/95	1610
Monitoring Well NW Corner DUP	WS19402	Water	7/11/95	7/11/95	1610
Sample Status Upon Receipt : No irregularities.					

Analytical Services

Analytical Parameters

Total Metals
Cyanide

Number of Samples

4
2

Turnaround Time

One Business Day
One Business Day

Report Released By : Daniel W. Voe

ENVIRONMENTAL LABORATORY ACCREDITATION
CERTIFICATION NUMBER (ELAP) 11179

Waste Stream Technology Inc

Metals Analysis Result Report

Site : U. S. Steel
Date Sampled : 7-11-95
Date Received : 7-11-95 @ 1610

Group Number : 9501-309
Report Units : mg/L
Matrix : Water

	Lab ID Number	WS19401	WS19402	Analysis Method
	Client ID	Monitoring Well NW Corner DUP GW1	Monitoring Well NW Corner DUP GW1A	
	Date Extracted	7/11 & 7/12/95		
	Date Analyzed	7/11, 7/12, & 7/13/95		
	Method			
Analyte	Detection Limit			
Zinc	0.005	< 0.005	0.028	200.7
Lead	0.026	< 0.026	< 0.026	200.7
Cadmium	0.003	< 0.003	< 0.003	200.7
Cobalt	0.014	< 0.014	< 0.014	200.7
Nickel	0.011	< 0.011	0.013	200.7
Barium	0.013	0.041	0.049	200.7
Manganese	0.002	0.129	0.207	200.7
Iron	0.027	0.153	3.73	200.7
Chromium	0.014	< 0.014	< 0.014	200.7
Magnesium	0.062	164	138	200.7
Vanadium	0.008	< 0.008	< 0.008	200.7
Aluminum	0.056	0.193	3.42	200.7
Beryllium	0.002	< 0.002	< 0.002	200.7
Calcium	0.030	107	102	200.7
Copper	0.002	< 0.002	< 0.002	200.7
Silver	0.010	< 0.010	< 0.010	200.7
Potassium	0.250	4.27	4.15	200.7
Sodium	0.023	60.4	45.5	200.7
Arsenic	0.001	0.004	0.004	206.2
Antimony	0.002	< 0.002	< 0.002	204.2
Selenium	0.001	< 0.001	< 0.001	270.2
Thallium	0.001	< 0.001	< 0.001	279.2
Mercury	0.0008	< 0.0008	< 0.0008	245.2

Waste Stream Technology Inc

Metals Analysis Result Report

Site : U. S. Steel
Date Sampled : 7-11-95
Date Received : 7-11-95 @ 1610

Group Number : 9501-309
Report Units : mg/L
Matrix : Water

	Lab ID Number	WS19399	WS19400	Analysis Method
	Client ID	Monitoring Well NW Corner GW1	Monitoring Well NW Corner GW1A	
	Date Extracted	7/11 & 7/12/95		
	Date Analyzed	7/11, 7/12, & 7/13/95		
	Method			
Analyte	Detection Limit			
Zinc	0.005	< 0.005	0.018	200.7
Lead	0.026	0.028	< 0.026	200.7
Cadmium	0.003	< 0.003	< 0.003	200.7
Cobalt	0.014	< 0.014	< 0.014	200.7
Nickel	0.011	< 0.011	< 0.011	200.7
Barium	0.013	0.041	0.047	200.7
Manganese	0.002	0.128	0.198	200.7
Iron	0.027	< 0.027	3.58	200.7
Chromium	0.014	< 0.014	< 0.014	200.7
Magnesium	0.062	165	141	200.7
Vanadium	0.008	< 0.008	< 0.008	200.7
Aluminum	0.056	< 0.056	3.28	200.7
Beryllium	0.002	< 0.002	< 0.002	200.7
Calcium	0.030	107	105	200.7
Copper	0.002	< 0.002	< 0.002	200.7
Silver	0.010	< 0.010	< 0.010	200.7
Potassium	0.250	3.89	3.80	200.7
Sodium	0.023	59.7	46.2	200.7
Arsenic	0.001	0.003	0.006	206.2
Antimony	0.002	< 0.002	< 0.002	204.2
Selenium	0.001	< 0.001	< 0.001	270.2
Thallium	0.001	< 0.001	< 0.001	279.2
Mercury	0.0008	< 0.0008	< 0.0008	245.2

Waste Stream Technology Inc

Metals Analysis Result Report

Site : U. S. Steel
Date Sampled : NA
Date Received : NA

Group Number : 9501-309
Report Units : mg/L
Matrix : Water

Lab ID Number		MB071195-5	
Client ID		NA	
Date Extracted		7/11 & 7/12/95	
Date Analyzed		7/11, 7/12, & 7/13/95	
Method			
Analyte	Detection Limit		Analysis Method
Zinc	0.005	< 0.005	200.7
Lead	0.026	< 0.026	200.7
Cadmium	0.003	< 0.003	200.7
Cobalt	0.014	< 0.014	200.7
Nickel	0.011	< 0.011	200.7
Barium	0.013	< 0.013	200.7
Manganese	0.002	< 0.002	200.7
Iron	0.027	< 0.027	200.7
Chromium	0.014	< 0.014	200.7
Magnesium	0.062	< 0.062	200.7
Vanadium	0.008	< 0.008	200.7
Aluminum	0.056	< 0.056	200.7
Beryllium	0.002	< 0.002	200.7
Calcium	0.030	< 0.030	200.7
Copper	0.002	< 0.002	200.7
Silver	0.010	< 0.010	200.7
Potassium	0.250	< 0.250	200.7
Sodium	0.023	< 0.023	200.7
Arsenic	0.001	< 0.001	206.2
Antimony	0.002	< 0.002	204.2
Selenium	0.001	< 0.001	270.2
Thallium	0.001	< 0.001	279.2
Mercury	0.0008	< 0.0008	245.2

MB denotes Method Blank
NA denotes Not Applicable

[illegible]

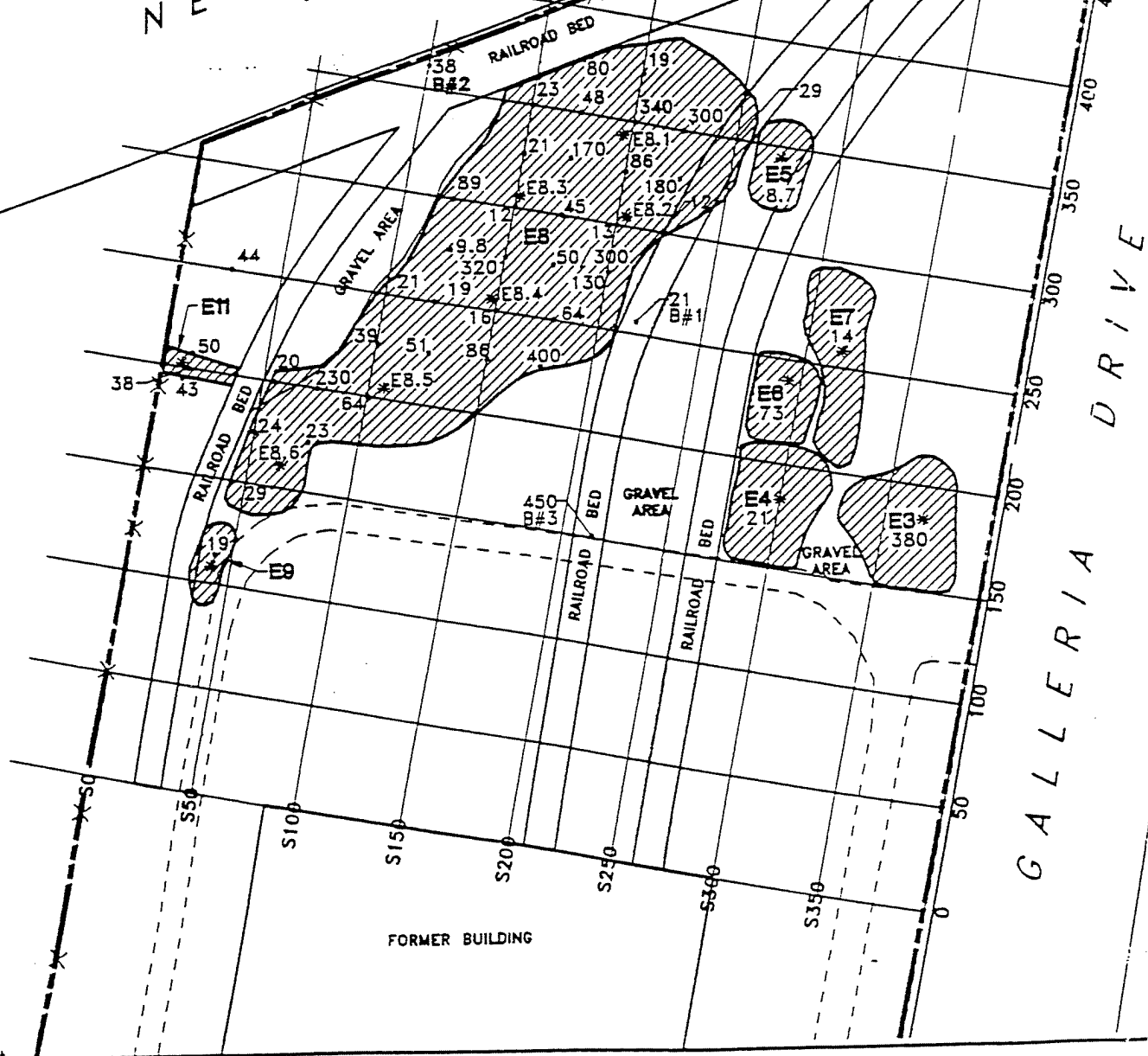
LAB USE: REFRIGERATOR # _____ SHELF # _____

APPENDIX E

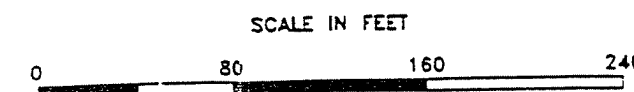
ERNST STEEL E&E'S FIGURES



NEW YORK CONSOLIDATED RAIL CORPORATION
CENTRAL R. R.

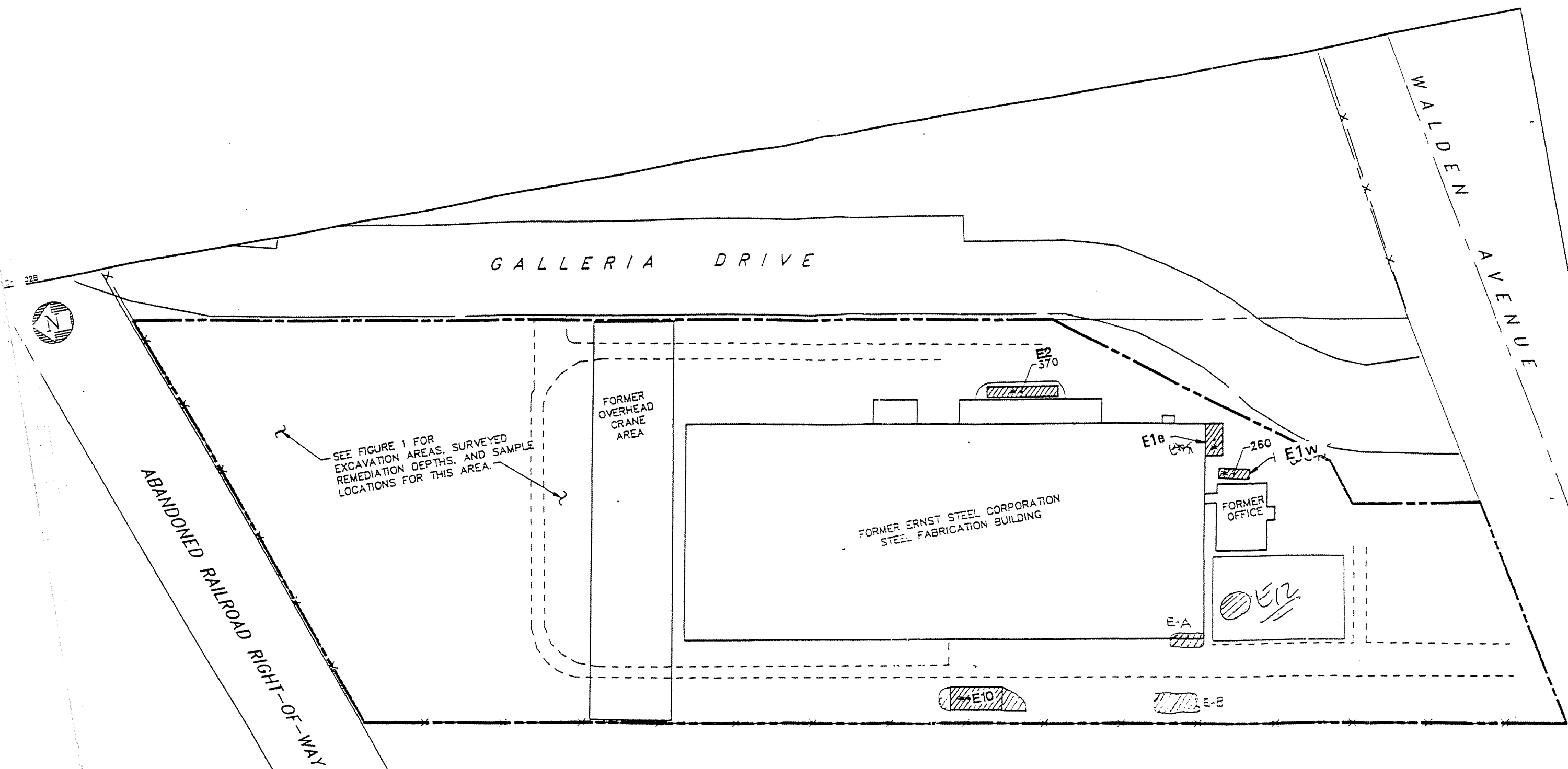


ERNST STEEL SITE 915022 ELEVATION MEASUREMENTS		
EXCAVATION AREA LABEL	ORIGINAL GRADE (Ft.)	EXCAVATED GRADE (Ft.)
E2	100.32	98.32
E4	100.00	98.00
E5	99.61	97.61
E6	99.65	97.65
E7	99.32	97.32
E8.1	100.01	97.01
E8.2	99.82	96.82
E8.3	99.89	97.89
E8.4	100.25	98.25
E8.5	100.51	98.51
E8.8	100.15	98.15
E9	100.54	98.54
E11	100.72	98.72



LEGEND	
-10	CONFIRMATION SOIL SAMPLE LOCATION/ CONCENTRATION (ppm)
*	ELEVATION LOCATION
E2	EXCAVATED AREA LABEL
	EXCAVATION AREA
—X—	FENCE/SITE BOUNDARY
----	PROPERTY LINE/SITE BOUNDARY

Figure 1 ERNST STEEL CORPORATION
EXCAVATION AREAS, SURVEYED
REMEDIATION DEPTHS, AND
SAMPLE LOCATIONS

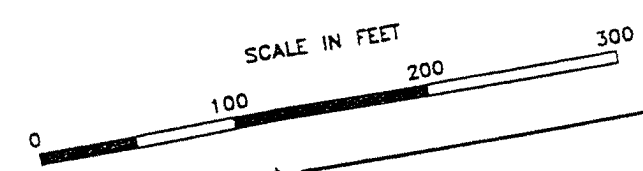


ERNST STEEL SITE 915022 ELEVATION MEASUREMENTS		
EXCAVATION AREA LABEL	ORIGINAL GRADE (Ft.)	EXCAVATED GRADE (Ft.)
E1 (E1W)	99.38	95.38
E1 (E1B)	99.38	96.38
E2	99.59	96.59
E10	0	0

- LEGEND
- 10 CONFIRMATION SOIL SAMPLE LOCATION/ CONCENTRATION (ppm)
 - * ELEVATION LOCATION
 - E2 EXCAVATION AREA
 - EXCAVATED AREA
 - X— FENCE
 - PROPERTY LINE/SITE BOUNDARY

Original Figure 2 prepared by Ecology and Environment, Inc. was modified by Barron & Associates, P.C. on September 18, 1996 with the addition of locating excavations E-A and E-B and expanding the area covered by E-10.

Figure 2
ERNST STEEL CORPORATION
EXCAVATION AREAS, SURVEYED
REMEDATION DEPTHS, AND
SAMPLE LOCATIONS



APPENDIX F

E&E'S SEPTEMBER 29, 1995 LETTER TO NYSDEC



ecology and environment, inc.

International Specialists in the Environment

BUFFALO CORPORATE CENTER

368 Pleasantview Drive, Lancaster, New York 14086

Tel: 716/684-3060, Fax: 716/684-0844

RECEIVED

OCT - 2 1995

NYSDEC-REG. 0
FOIL
REL UNREL

September 29, 1995

Jaspal S. Walia, P.E.
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

RE: 1746 Walden Inc. Site
Cheektowaga, New York
NYSDEC Site No. 9-15-022

Dear Mr. Walia:

The excavation of contaminated soils from the northern portion of the former Ernst Steel site at 1746 Walden Avenue has been completed (see attached map). Confirmation sampling has shown that the areas of concern in this area meet cleanup goals (see attached tables). It is our understanding, based on discussions with you, that you agree excavation of contaminated soils in this area has been completed.

Only small amounts of contaminated soil remain to be excavated in the area around the former building. We have and will continue to inspect the activities at the site as they relate to the contaminated soils to ensure cleanup is conducted in accordance with the approved plan.

Please confirm in writing that our understanding is correct as soon as possible. If you have any questions, call me at 851-7220.

Sincerely,

David P. Albers, P.E.
Project Manager

Attachments

xc: C. Martens/Benderson
C. Slater/S & D

TABLE 1		
INTERIM REMEDIAL MEASURES REMOVAL ACTION IMPLEMENTATION REPORT		
ERNST STEEL SITE NYSDEC SITE NO. 9-15-022 VERIFICATION SAMPLE ANALYTICAL RESULTS		
Sample ID	Total Lead Concentration (mg/kg)	Comments
Excavation #1		
E1-BE-SW	260	Further remediation planned
E1-BE-SE	16,000	
Excavation #2		
E2-PN	6,600	Further remediation planned
E2-PS	1,200	
E2-PE	1,800	
E2-BE	370	
Excavation #3		
E3-BE	420	Remediation complete
Excavation #4		
E4-BE	25	Remediation complete
Excavation #5		
E5-BE	9.9	Remediation complete
Excavation #6		
E6-BE	82	Remediation complete
Excavation #7		
E7-BE	17	Remediation complete
Excavation #8 See Table 2		
Excavation #9		
E9-BE	22	Remediation complete
Excavation #10		
E10-BE	15,000	Further remediation planned
Excavation #11		
S 12/200 (E11-BE)	38	Remediation complete
E11-PN	50	
E11-PS	43	

Notes: Excavation areas 1, 2, and 10 are around former building.

TABLE 2

INTERIM REMEDIAL MEASURES
REMOVAL ACTION IMPLEMENTATION REPORT
ERNST STEEL SITE
NYSDEC SITE NO. 9-15-022

VERIFICATION SAMPLE ANALYTICAL RESULTS
EXCAVATION #8

Sample Coordinate/ID	Total Lead Concentration (mg/kg)
S 50/150	29
S 50/175	24
S 50/200	25
S 75/175	28
S 75/200	230
S 100/200	64
S 100/225	47
S 100/250	24
S 125/225	51
S 125/250	23
S 125/275	11
S 125/300	110
S 150/225	97
S 150/250	18
S 150/275	320
S 150/300	14
S 150/325	21
S 150/350	23
S 175/225	440
S 175/250	77
S 175/275	50/300
S 175/300	50
S 175/325	170
S 175/350	48
S 175/375	80

Sample Coordinate/ID	Total Lead Concentration (mg/kg)
S 200/275	130
S 200/300	16
S 200/325	91
S 200/350	340
S 200/375	26
S 225/300	14
S 225/325	180
S 225/350	300
S 250/350	36

TABLE 3 INTERIM REMEDIAL MEASURES REMOVAL ACTION IMPLEMENTATION REPORT ERNST STEEL NYSDEC SITE NO. 9-15-022 SITE PERIMETER SAMPLE ANALYTICAL RESULTS (FORMER TRENCH AREA)	
Sample Coordinate/ID	Total Lead Concentration (mg/kg)
S-12/250	47
S-15/200*	970

*Note: Remediated as Excavation #11,
See Table 1

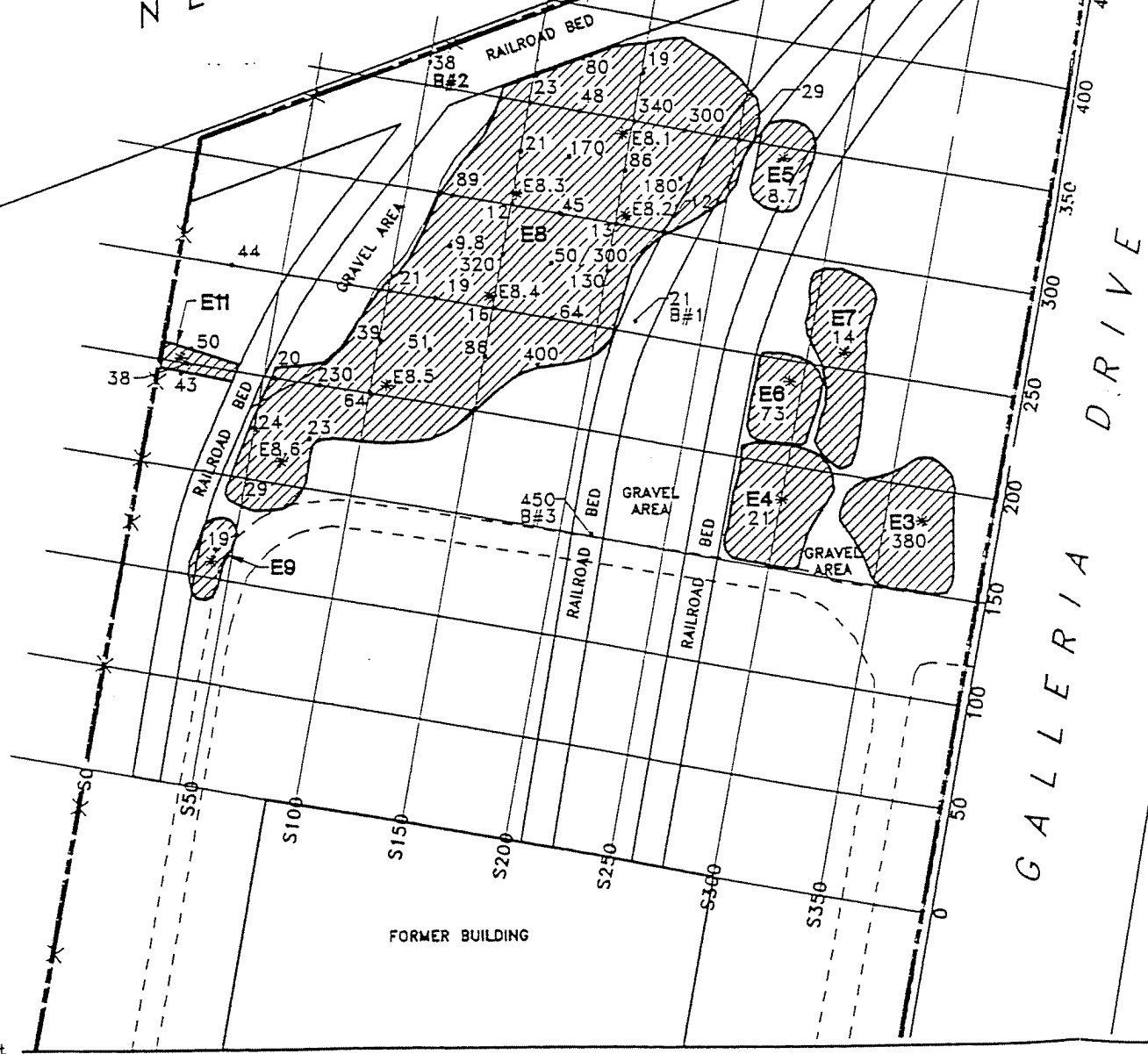
TABLE 4 INTERIM REMEDIAL MEASURES REMOVAL ACTION IMPLEMENTATION REPORT ERNST STEEL NYSDEC SITE NO. 9-15-022 RAILROAD EMBANKMENT SAMPLE ANALYTICAL RESULTS	
Sample ID	Total Lead Concentration (mg/kg)
B #1	21
B #2	38
B #3	460

Note:

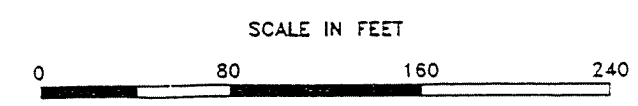
Samples Collected on 8/29/95 from on-site railroad beds.



NEW YORK CONSOLIDATED RAIL CORPORATION
CENTRAL R. R.



ERNST STEEL SITE 915022 ELEVATION MEASUREMENTS		
EXCAVATION AREA LABEL	ORIGINAL GRADE (Ft.)	EXCAVATED GRADE (Ft.)
E3	100.32	98.32
E4	100.00	98.00
E5	99.61	97.61
E6	99.65	97.65
E7	99.32	97.32
E8.1	100.01	97.01
E8.2	99.82	96.82
E8.3	99.89	97.89
E8.4	100.25	98.25
E8.5	100.51	98.51
E8.6	100.15	98.15
E9	100.54	98.54
E11	100.72	98.72



- LEGEND
- 10 CONFIRMATION SOIL SAMPLE LOCATION/
CONCENTRATION (ppm)
 - * ELEVATION LOCATION
 - E2 EXCAVATED AREA LABEL
 - [Hatched Box] EXCAVATION AREA
 - X— FENCE/SITE BOUNDARY
 - - - - - PROPERTY LINE/SITE BOUNDARY

Figure 1
ERNST STEEL CORPORATION
EXCAVATION AREAS, SURVEYED
REMEDATION DEPTHS, AND
SAMPLE LOCATIONS