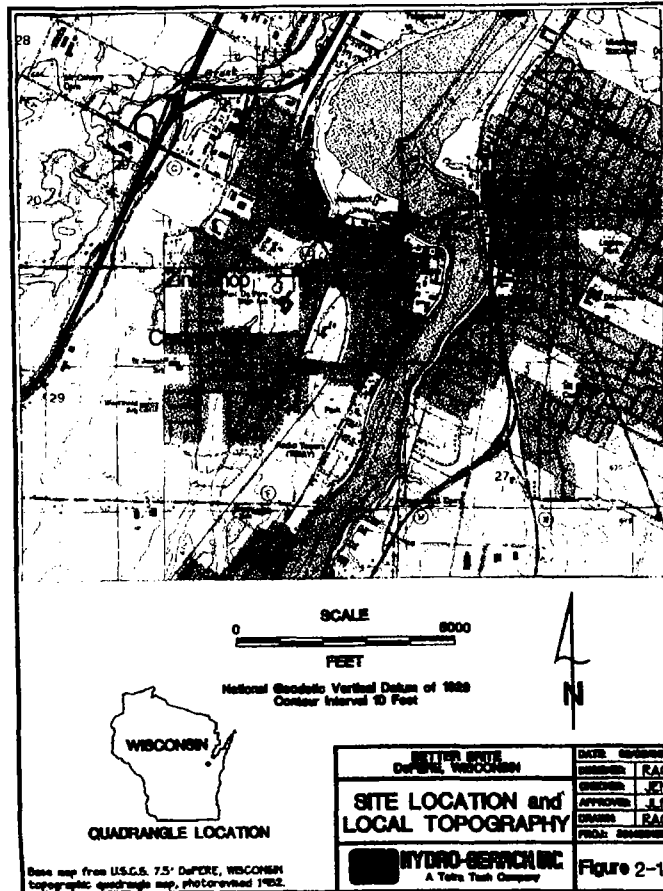


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SUPERFUND PRELIMINARY CLOSEOUT REPORT

Better Brite Superfund Site De Pere, Brown County, Wisconsin *w/ SL*



I. INTRODUCTION

This Preliminary Closeout Report documents that the U.S. Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have completed oversight of all major construction activities for the Better Brite Superfund Site. The WDNR completed a pre-final inspection on November 8, 1999 and determined that the remedy was constructed in accordance with remedial design plans and specifications.

The Better Brite site consists of two separate properties where Better Brite formerly operated a metal plating business. The properties are known as the Chrome Shop and Zinc Shop. The Better Brite Chrome and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The sites are approximately 2,000 feet apart in Sections 21 and 28 De Pere Township (T23N, R20E).

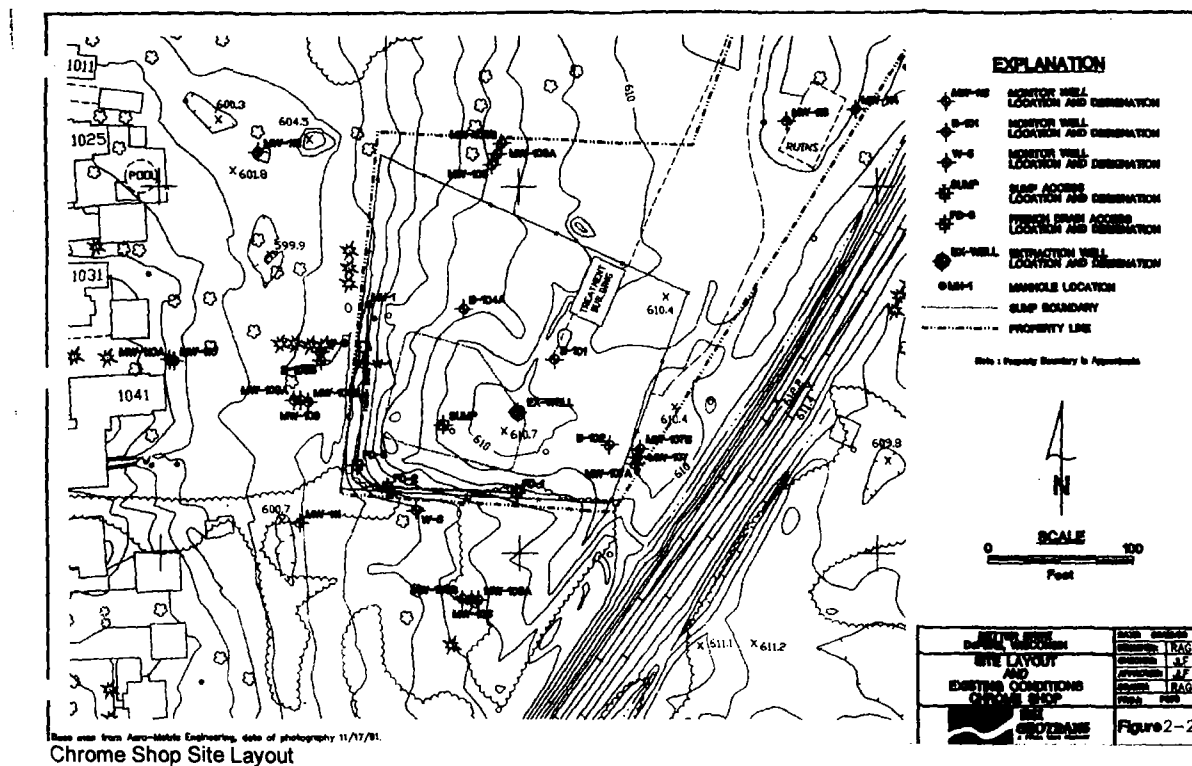
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II. SUMMARY OF SITE CONDITIONS

Chrome Shop



Site History and Enforcement Activities

Initial investigation work at the Better Brite Chrome Shop site was conducted in September and October 1979. Soil samples indicated the area of contamination was south and west of the plating building extending to a surface drainage ditch. The depth of contaminated soil was estimated at 6.5 to 9 feet below ground surface (bgs). Total chromium was detected in groundwater samples ranging from 62 to 429 milligrams per liter (mg/L). Hexavalent chromium was detected in the groundwater samples at levels ranging from 60 to 280 mg/L. Surface water concentrations of total chromium and hexavalent chromium were 1,511mg/L and 1,440mg/L, respectively.

A Remedial Action Plan (RAP) was prepared for the site in April 1980. The proposal included a drainage trench, a surface water control system, and limited contaminated soil excavation. Plans were made to discharge groundwater with concentrations of chromium greater than 0.5 mg/l to the De Pere sanitary sewer. Groundwater containing less than 0.5 mg/L chromium would be discharged to the storm sewer. Better Brite implemented the proposals.

In May of 1984, the EPA conducted an inspection of the site. The EPA noted that groundwater collecting in the drainage trench was discharged to the storm sewer. Also noted was a black "tarry"

substance leaking from the building and the ventilation system. The black "tarry" substance was found to contain chromium at concentrations up to 550,000 mg/kg.

The EPA conducted two site inspections of the Chrome Shop in 1986. Physical observations of the property were made and soil samples were collected during the first site inspection on April 22, 1986. During the second inspection on June 20, 1986, EPA noted that four vertical underground plating tanks were removed and discolored groundwater was collecting in the voids.

Removal Actions and Interim Remedial Action

Based on the results of the inspections a Site Assessment and Emergency Action Plan was prepared in September 1986. The plan concluded that the Chrome Shop posed an immediate threat to human health. A Phase 1 removal action was conducted at the Chrome Shop between September and December 1986. Chromic acid, cyanide and other hazardous materials were removed and disposed. Additional groundwater monitoring wells and bedrock piezometers were installed in October 1987.

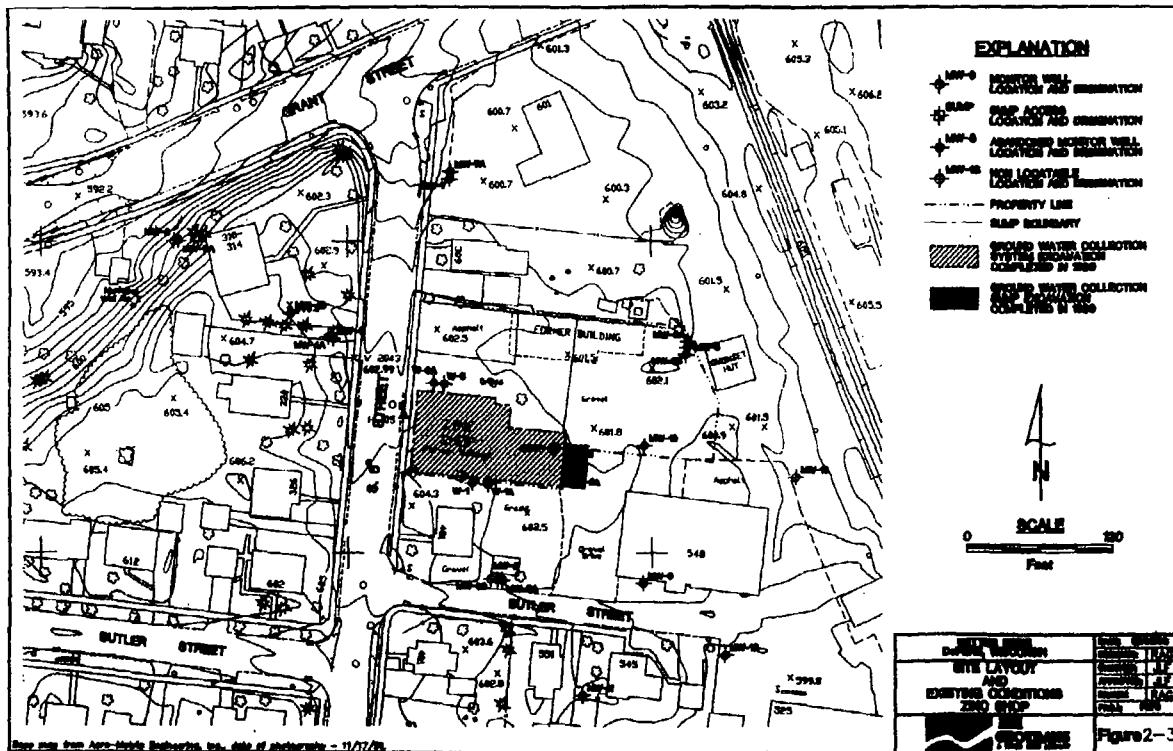
The EPA constructed an on-site water treatment system in September 1990. By November of 1990 the treatment facility at the Better Brite Chrome facility was functional. Treatment of recovered groundwater consists of precipitation of the chromium followed by settling and filtration. The remaining cake is hauled away for further treatment and disposal.

A Record of Decision (ROD) for an interim remedial action was issued by the WDNR and EPA on June 28, 1991. The major components of the ROD to address the Chrome Shop site included:

- Continued operation of the groundwater extraction system and pretreatment facility installed in 1990.
- Enlargement of the groundwater recovery system and construction of berms at the Chrome Shop.
- Improvement of existing fences at the Chrome Shop to limit site access.

The EPA implemented the interim remedial action at the Chrome Shop in 1993. Approximately 5,000 tons of contaminated soil was removed from the southwest corner of the property. The groundwater collection system was enlarged to include the entire excavation cavity created by the removal of contaminated soils and the fencing surrounding the Chrome Shop Site was improved. Groundwater has been recovered from the Chrome Shop site since 1993.

Zinc Shop



Zinc Shop Site Layout

Site History and Enforcement Activities

A series of site investigations were conducted at the Zinc Shop and surrounding properties. The EPA conducted a site assessment in October 1986. Chromium and zinc contamination was detected in water samples collected from the Zinc Shop sump and the sump located in the residence south of the site. The EPA also conducted an inventory of materials and storage units on site.

In June 1987 the WDNR conducted a site screening evaluation. Site activities included performing soil borings and installing groundwater monitoring wells to characterize site soils, determine the direction of groundwater flow, and analyze soil and groundwater samples for contamination. Various contaminants, primarily chromium, were detected in soil and groundwater at the site, on properties surrounding the site, and in the sumps of adjacent homes.

Removal Actions and Interim Remedial Action

The EPA performed a second site assessment at the Zinc Shop in October 1989. The assessment confirmed the WDNR report of contamination and illegally stored hazardous substances. Based on the results of the site assessment, the EPA conducted a removal action consisting of sampling and sorting hazardous materials, securing and heating the building, removal of wastes, decontaminating the building and compiling the analytical results of previous investigations.

The EPA constructed a groundwater recovery sump along the east side of the building in 1990. Approximately 350 cubic yards of chromium contaminated soil was excavated and disposed of during the installation of the sump. The EPA conducted additional decontamination of the building and investigation beneath the concrete slab foundation in 1991.

The major components of the June 28, 1991 ROD for an interim remedial action at the Zinc Shop site included installing a fence surrounding the Zinc Shop to limit site access.

The Zinc Shop burned down in September 1992. The EPA removed the building and the slab foundation in November 1992. Contaminated soil was excavated from beneath the slab and the groundwater collection sump was enlarged to include the area beneath the building.

Approximately 6,032 tons of chromium-contaminated soil, concrete, and building debris was removed from the site and disposed. The excavation and sump construction activities were completed in January 1993. Contaminated groundwater is extracted from a sump regularly and trucked to the Chrome Shop for treatment.

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

The remedial investigation and feasibility study (RIFS) for the site was finalized in September 1995. The RI concluded that releases of contaminants occurred resulting in impacts to soil, groundwater, and possibly air and surface water. Contaminants relating to the plating operation, including metal plating solutions and solvents, were discharged primarily from leaking underground plating tanks, drum and roll-off box storage areas, and surface spills. As a result, both inorganic and VOC contaminants are present at the sites.

Chromium is the primary contaminant of concern in groundwater at both the Zinc Shop and the Chrome Shop. A large percentage is present in the form of hexavalent chromium, which is the most mobile and most dangerous form of chromium. Antimony, arsenic, beryllium, cadmium, cyanide, iron, lead, nickel, silver, and thallium were also detected in groundwater at one or more locations at concentrations in exceedance of Wisc. Admin. Code NR 140 regulatory limits.

Contaminants at both sites are limited to the upper portion (top 25 feet) of the unconsolidated deposits. Groundwater is the primary migration pathway of concern. Contaminants are present in groundwater at levels that exceed regulatory limits for safe drinking water.

1996 RECORD OF DECISION

On September 24, 1996 the WDNR and EPA issued a ROD for a final remedial action. The major components of the remedy include:

- Extraction of groundwater at the Zinc Shop from the existing groundwater extraction sump.
- Relocation of the treatment plant, which is currently located at the Chrome Shop, to the Zinc Shop.
- Stabilization of hexavalent chromium (change to trivalent) in soil/groundwater by addition of an iron sulfate compound to the soil to prevent further migration of chrome contamination.
- Construction of new exterior foundation drains at two properties near the Zinc Shop site with collected water pumped to the pretreatment facility at the Zinc Shop site.
- Continued groundwater monitoring at the Chrome Shop and the Zinc Shop to evaluate the effectiveness of the remedial action. Groundwater monitoring will include the replacement of select monitoring wells at the Chrome Shop that were removed during soil stabilization activities.

The Final Design Report (FDR), prepared by HSI Geotrans, was completed in January 1999. This is the final remedial design for the remedy selected in the ROD.

CONSTRUCTION ACTIVITIES

Soil Stabilization

Remedial activities began at the Chrome Shop on August 23, 1999. Approximately 15,000 yards of chromium contaminated soil and groundwater were stabilized by physically mixing a proprietary iron sulfate compound in 18-inch lifts with a roto-tiller backhoe attachment to approximately 20-feet below grade.

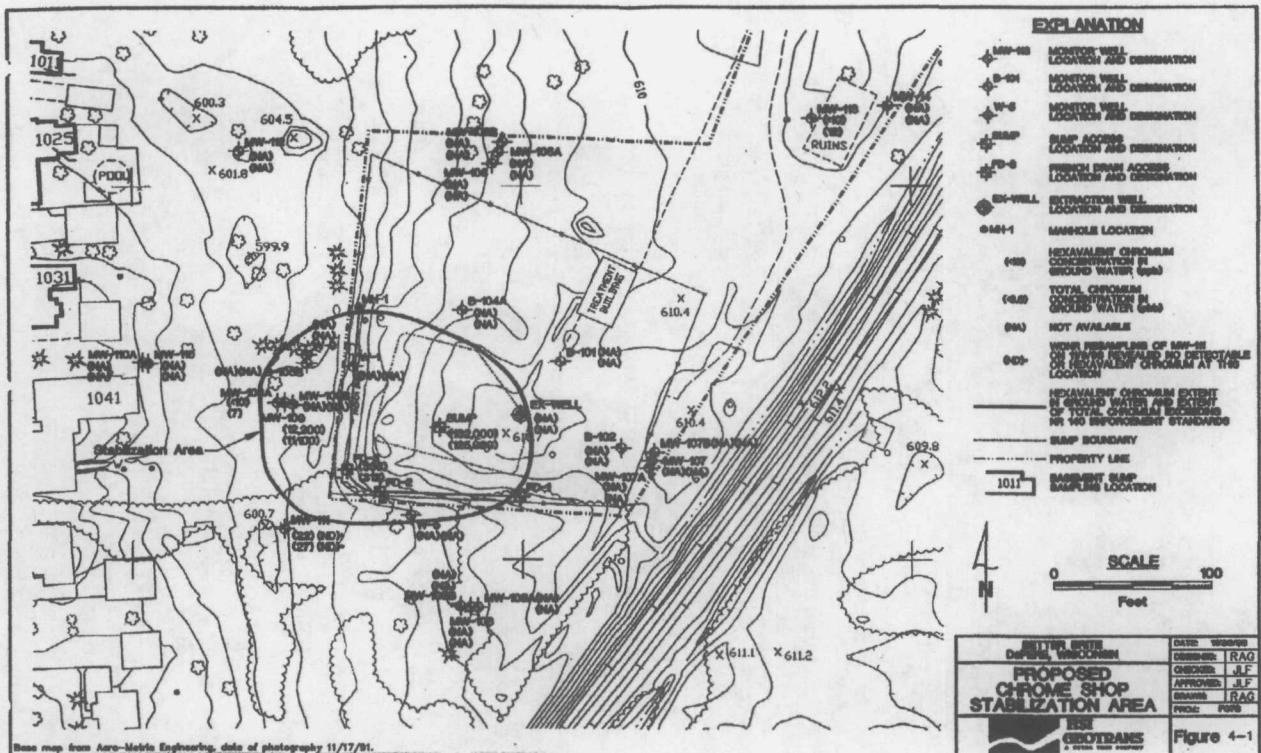


Backhoe with roto-tiller attachment

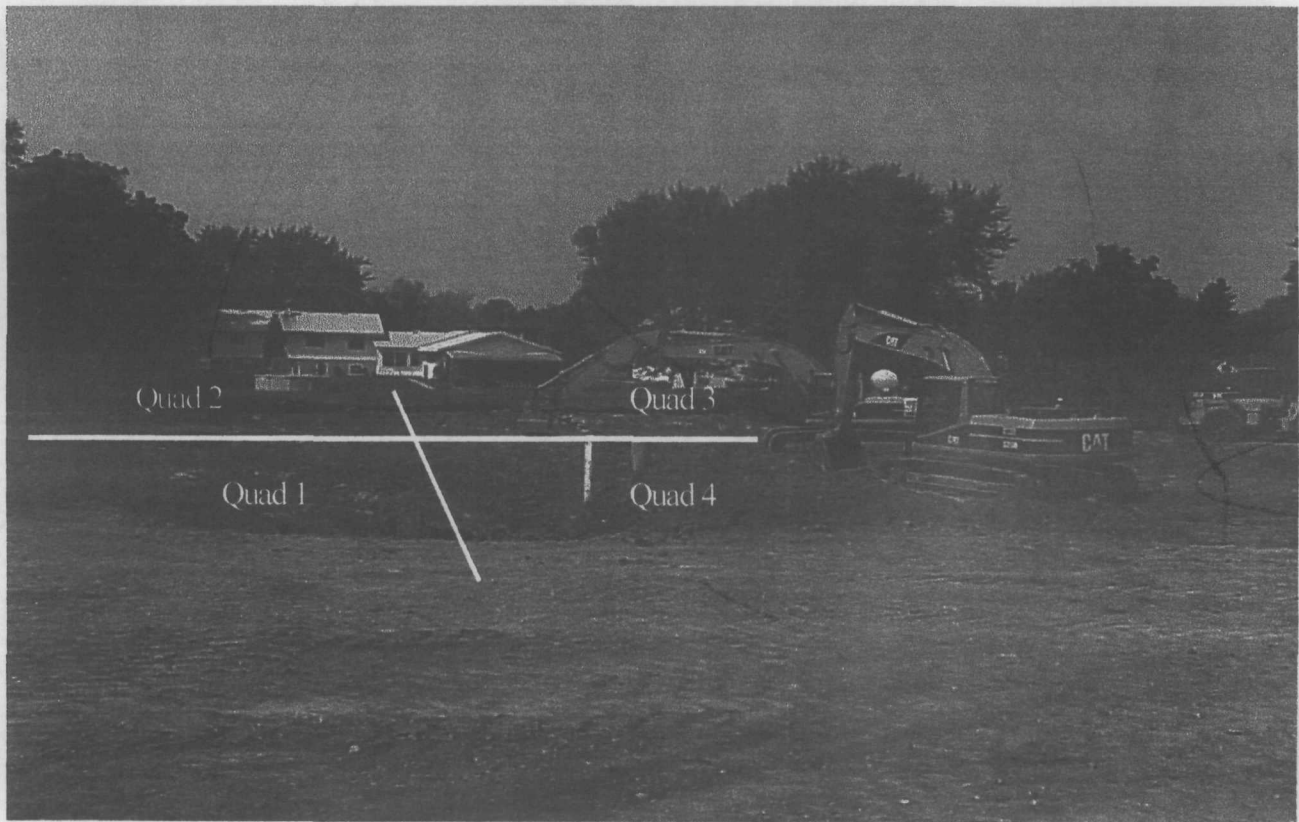


Iron Sulfate Stabilization compound

The soil stabilization area was divided into four quadrants. The soil was treated in place and removed and stockpiled pending confirmation soil sample results. Soil samples were collected from the treated soil and analyzed by SPLP for total chrome. Soil was treated until the SPLP total chrome results were below 10ug/L. Soil stabilization at the Chrome Shop was completed on October 29, 1999.



Base map from Aero-Metric Engineering, date of photography 11/17/91.
Stabilization area at Chrome Shop (indicated by heavy line)



Extent of excavation at Chrome Shop Site with approximate excavation quadrants indicated



Excavated area at Chrome Shop looking northeast from southwest property corner. Treated soil in foreground (Quad. 2) prior to stockpiling.



Chrome Shop excavation nearing completion. Quadrants 1, 2, and 3 partially backfilled. Quadrant 4 excavated to depth. Gravel sump area installed by the EPA in the early 1990s visible on left.

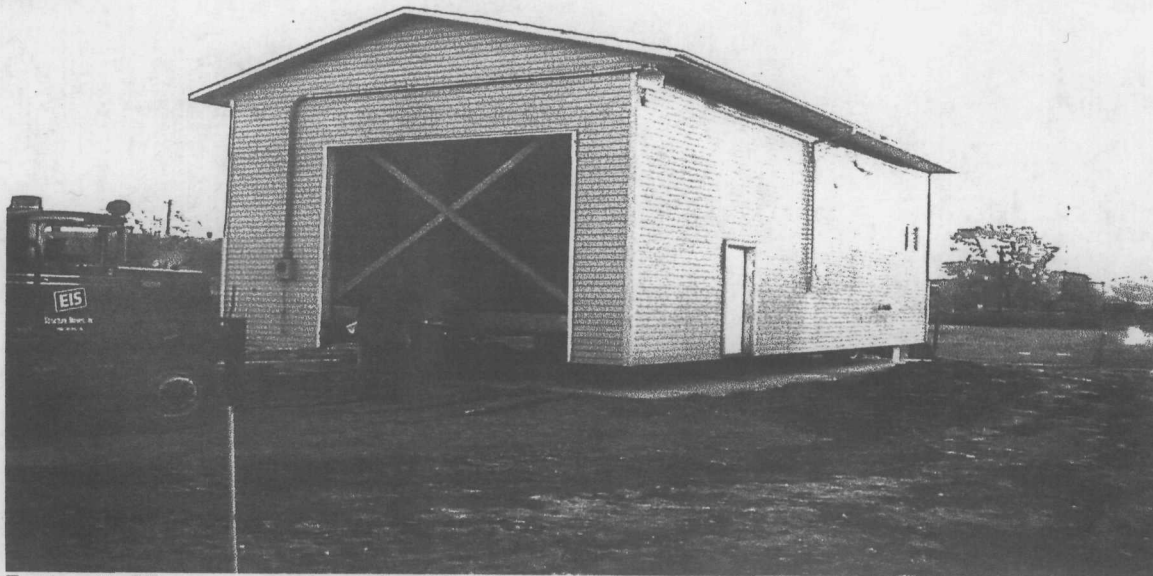
Zinc Shop Foundation Drain Installation and Treatment System Relocation

The foundation drains were installed at the Zinc Shop during the week of September 13, 1999. One drain was installed at the progressive Farmers Coop building southeast of the Zinc Shop. The second drain was installed along the north and east side of the residence south of the Zinc Shop property. Both drains were installed to approximately 10-feet below grade. A sump was installed at the corner of each drain. The bottom 1-foot of each drain is filled with gravel and a 4-inch drain tile terminating at the sump. A submersible pump is installed at the bottom of each sump and will pump collected water to the treatment system.

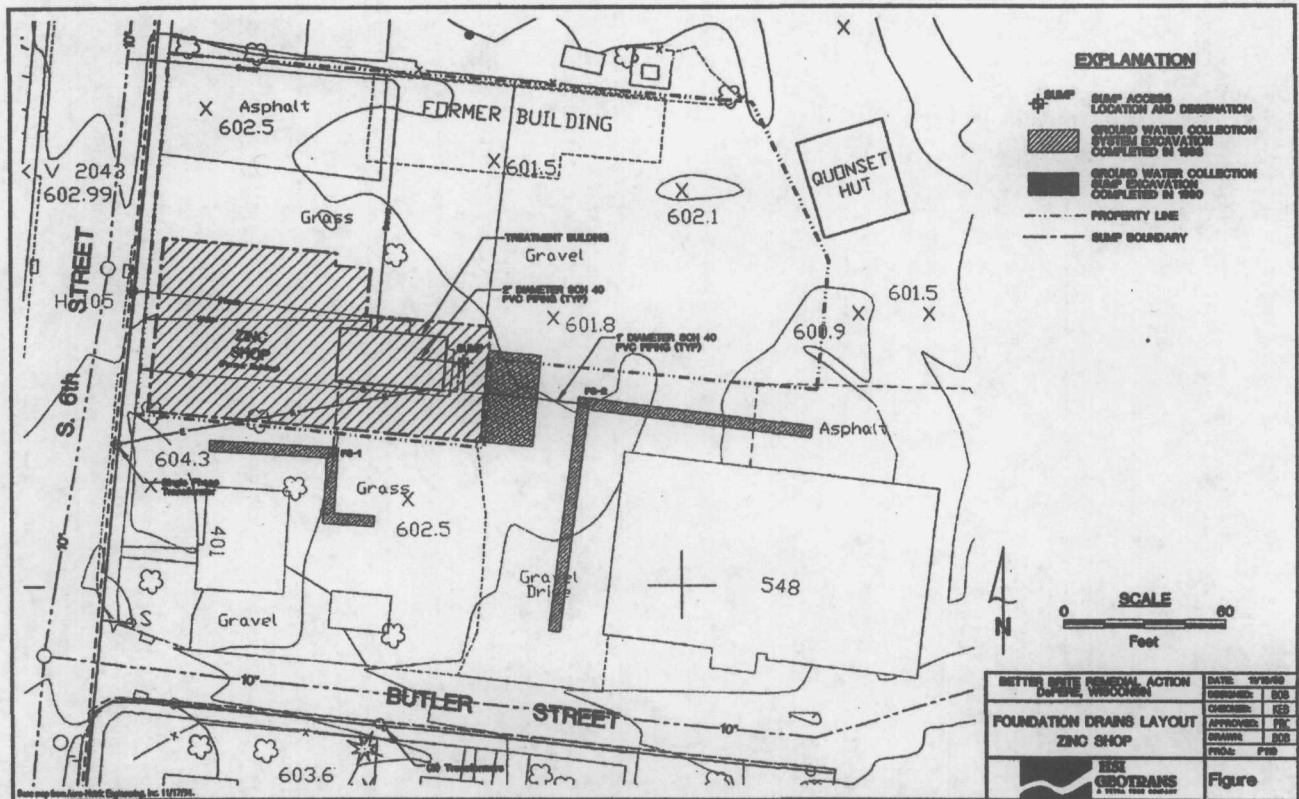
The treatment building and system was relocated and reinstalled at the Zinc Shop beginning on October 20, 1999. The two mixing vats, filter press, and associated treatment system equipment was removed from the building. The building was raised onto dollies and moved to a new foundation constructed at the Zinc Shop property. The vats and equipment were subsequently moved to the Zinc Shop site and installed in the relocated building.



Treatment building moved off foundation at Chrome Shop



Treatment building on new slab foundation at Zinc Shop



Zinc Shop site layout following groundwater recovery sump installation and treatment system relocation.

Pre-Final Inspection

On November 8, 1999 the WDNR, HIS Geotrans, Inc., RMT, Inc., and the City of DePere conducted a pre-final inspection of the construction conducted during the remedial action.

In attendance at the pre-final inspection were the following individuals:

- Judy Fassbender, HSI Geotrans, Inc.
- Paula Chang, HSI Geotrans, Inc.
- Keith Becker, HSI Geotrans, Inc.
- Robin Becker, RMT, Inc.
- Bob Kennedy, City of DePere (Treatment System only)
- John Sager, WDNR

Chrome Shop

Work was completed at the Chrome Shop at the time of the pre-final inspection. The final grade, seeding and mulching of the site was adequate. No further work is necessary at the Chrome Shop. Replacement of the monitoring wells removed during the remedial action is tentatively scheduled for the winter of 1999-2000.



Final grade at Chrome Shop looking north from MW-107.



Final grade at Chrome Shop looking west from MW-107.

Zinc Shop

The treatment system building and the water treatment equipment installation were complete at the time of the pre-final inspection. The foundation drains were installed and the majority of the utility installation was completed. The following items that required completion were noted during the pre-final inspection of the Zinc Shop site:

- Repair a broken potable water supply line.
- Repair the foundation drain line from the treatment building to the residence.
- Sawcut the foundation slab around the exterior of the treatment building flush with the exterior building wall.
- Repair the joint between the base plate and the concrete foundation to minimize leakage of rainwater into the building.
- Repair the concrete floor of the treatment building to eliminate areas of puddling.
- Landscape around building and in area of the foundation drain water lines where settling has occurred.
- Complete the grading, topsoil replacement, and seeding surrounding the treatment building.
- Install the blacktop apron to the overhead door.
- Replace the 90 angle on the discharge of the filter press to a 45 to increase the efficiency of the discharge.
- Install a moisture sensor connected to the auto dialer.
- Install and test a new auto dialer system.



Relocated treatment building at Zinc Shop.

III. DEMONSTRATION OF QUALITY ASSURANCE /QUALITY CONTROL(QA/QC) FROM CLEANUP ACTIVITIES

The remedial design and construction specifications for the remedial action were carefully reviewed by USEPA and WDNR staff for compliance with all requirements of the ROD, any applicable plan modifications and Part 201 procedures. The QA/QC program utilized throughout the remedial action were sufficient and enabled the USEPA and the State of Wisconsin to determine the testing results reported were accurate to the degree needed to assure satisfactory completion of the remedial action consistent with the ROD and WDNR plan modifications.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The punch list items noted during the pre-final inspection must be completed before a final inspection is conducted.

Chrome Shop

The replacement monitoring wells at the Chrome Shop will be installed during the winter of 1999-2000.

Cleanup goals for groundwater contamination at the Chrome shop are the Wisc. Admin. Code NR140 preventive action limits (PALs). The January 14, 1999 Monitoring Program Plan, prepared by HSI Geotrans, Inc., proposes biannual groundwater monitoring for the first six years following soil stabilization. The sampling plan will be modified to sample once every four years for the following twelve years. The proposed monitoring plan will be completed in 2018.

Zinc Shop

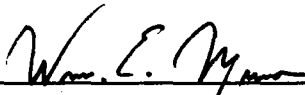
Relocation and restart of the groundwater recovery and treatment system is complete.

Goals for the groundwater contamination at the Zinc Shop site are containment of groundwater contamination and a reduction of contaminant concentration. The monitoring program for the Zinc Shop includes semi-annual groundwater monitoring for two years followed by annual monitoring. It is unknown how long groundwater pumping and treatment will be necessary to reduce contaminant concentration to the PALs at the Zinc Shop. Estimates are greater than 30 years.

A Final Site Closeout Report will be prepared upon the completion of groundwater removal and monitoring activities in 2030. The report may be submitted earlier if cleanup levels are reached in groundwater.

Five Year Review

Upon completion of this remedy, hazardous substances will remain on site above levels allowing for unlimited use and unrestricted exposure. Thus, a statutory five-year review will be conducted in August 2004 pursuant to OSWER directive 9355.7-02, "Structure and Components of Five-Year Reviews" (May 23, 1991) by the U.S. EPA.

 2/8/00

William E. Muno, Director
Superfund Division