US EPA RECORDS CENTER REGION 5
1000380

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

DATE:

SUBJECT: Request for Concurrence on Statement of Basis
Techalloy Company, Inc.
Union, Illinois
IlD 005 178 975

FROM: Paul Little, Chief
MI/WI Section
Enforcement Compliance and Assurance Branch
Waste, Pesticides and Toxics Division

TO: Joseph M. Boyle, Chief
Enforcement Compliance Assurance Branch

Attached for your review is a Statement of Basis and a CAMU Designation Request for the Techalloy Company Inc. Also, a summary of the CAMU Designation Request is provided in Attachment B of the Statement of Basis.

Techalloy proposes to apply on-site soil stabilization technology to soils contaminated with metals. This alternative remedy is included in the Statement of Basis as part of the Agency's proposed remedy for the Facility. The CAMU Designation is requested by Techalloy in order to meet the regulatory requirements of 40 CFR 264.552 for handling remedial waste soil. The waste handling activities for the soil stabilization would be performed within the CAMU designated area.

We believe that the CAMU meets the seven decision criteria of 40 CFR 264.552(c) for this Alternative, and that the Agency's proposed remedy for the Facility as presented in Statement of Basis provides proper protection to human health and the environment. If you concur, please initial the sign off sheet and the Statement of Basis will be presented to the public for comment.

Attachments

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

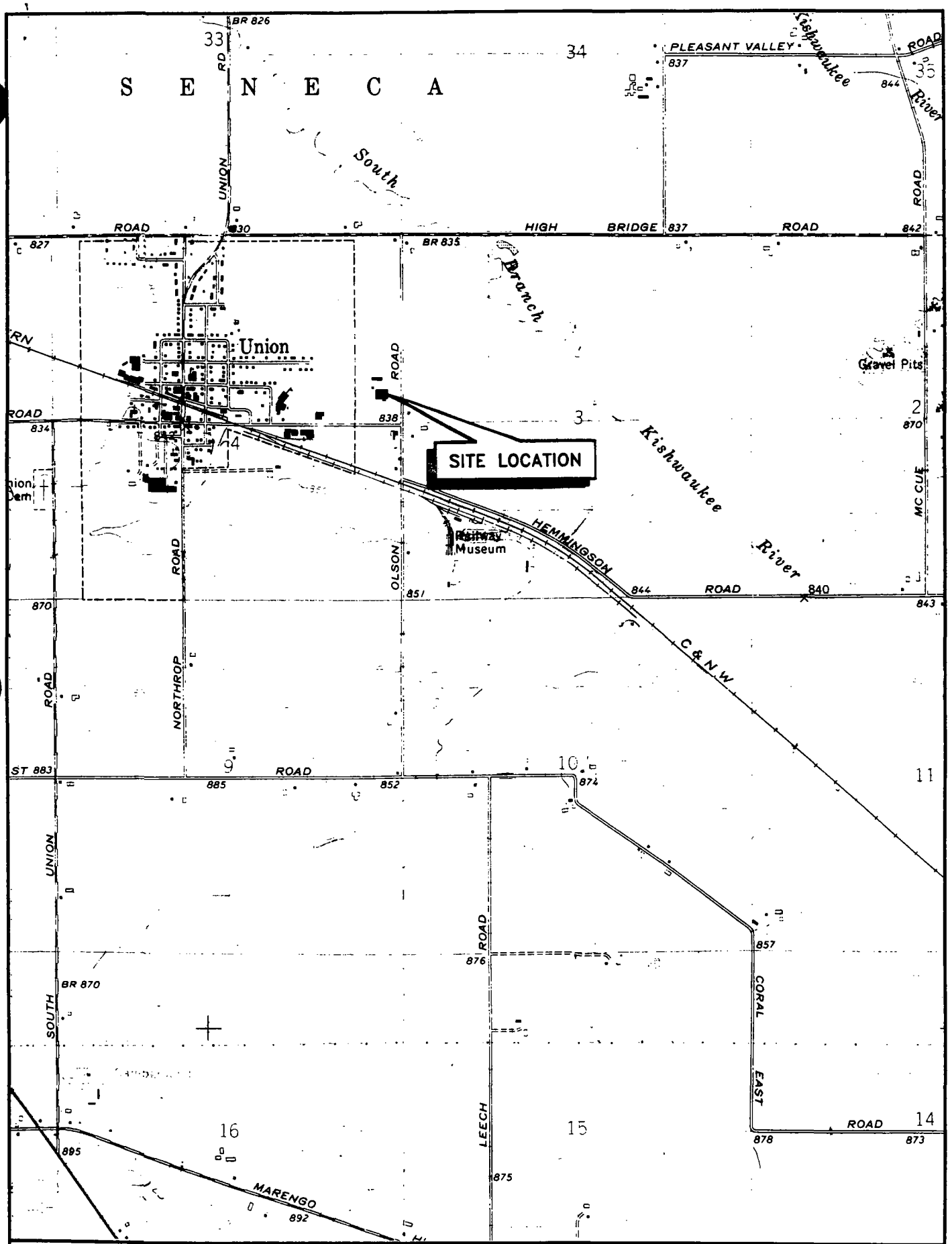
SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
				NP 12/22/97	
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
NP 12/19/97		NP 12/22/97		RZ for JB 12-24-97	

12/23/97

STATEMENT OF BASIS

Techalloy Company, Inc
Union, Illinois
IlD 005 178 975

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
(U.S. EPA)



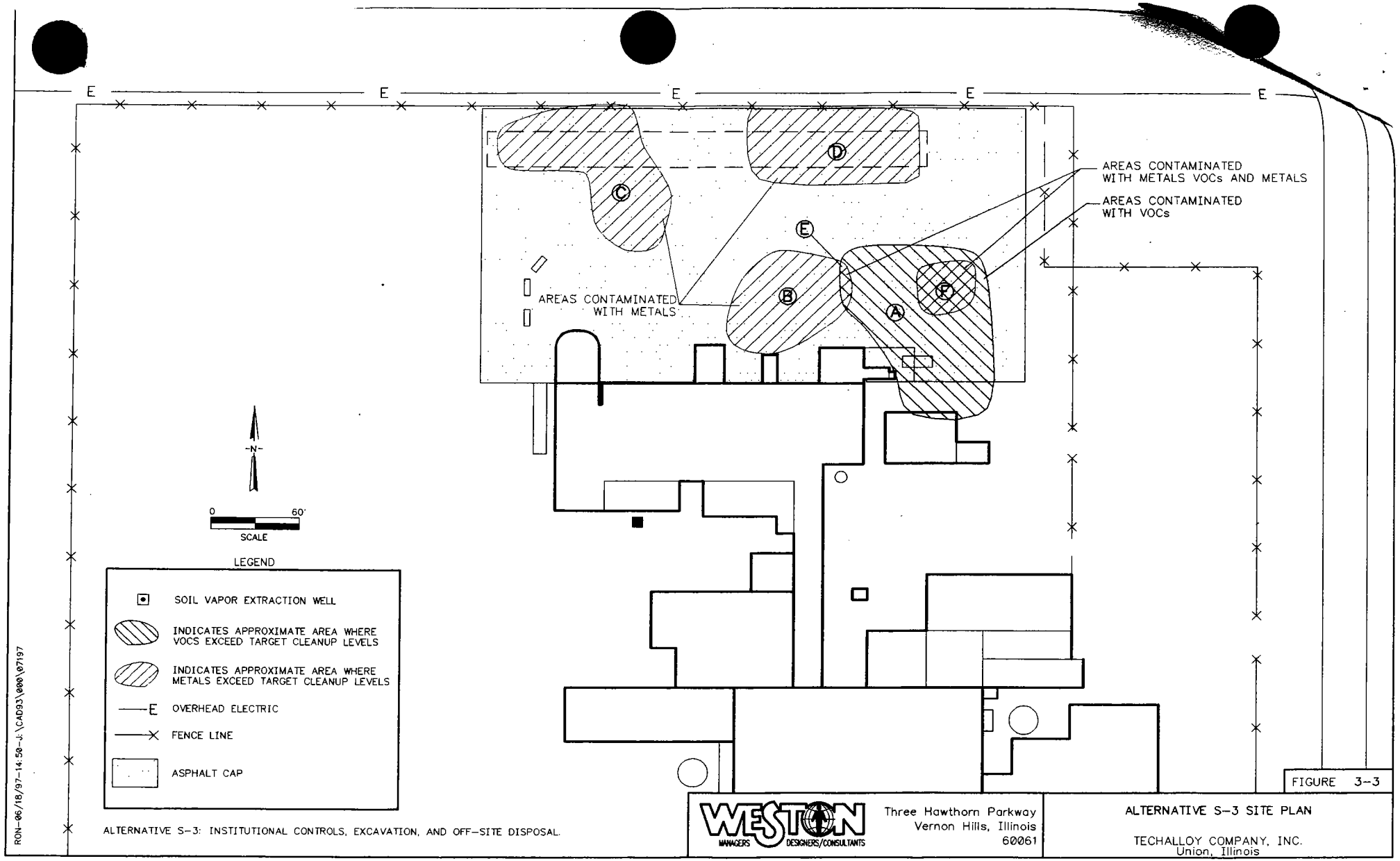
WESTON
MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

FIGURE
1-1

SITE LOCATION
TECHALLOY COMPANY. INC.
Union, Illinois

REV.



ALTERNATIVE S-3: INSTITUTIONAL CONTROLS, EXCAVATION, AND OFF-SITE DISPOSAL.

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

FIGURE 3-3

ALTERNATIVE S-3 SITE PLAN

TECHALLOY COMPANY, INC.
Union, Illinois

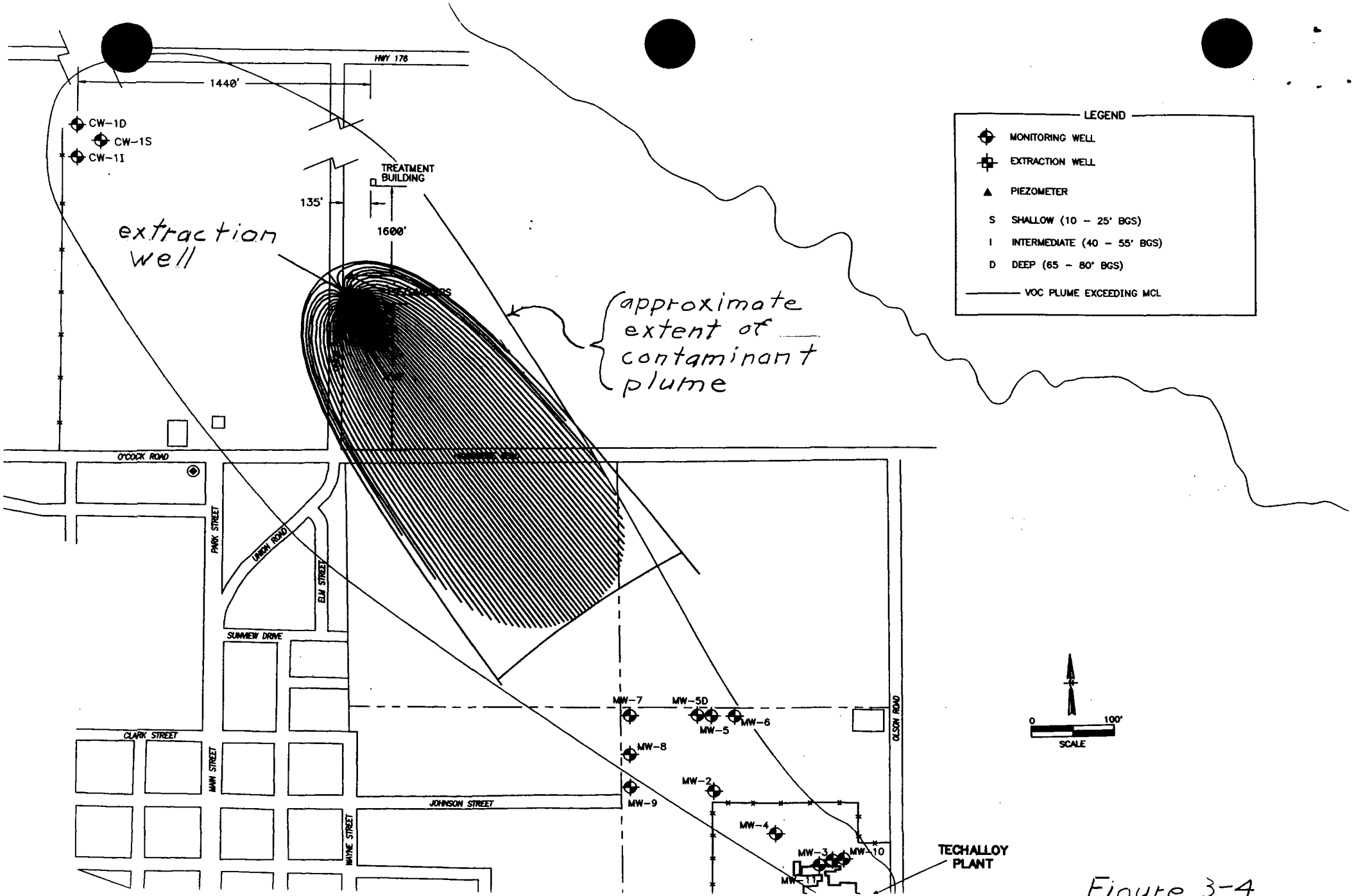
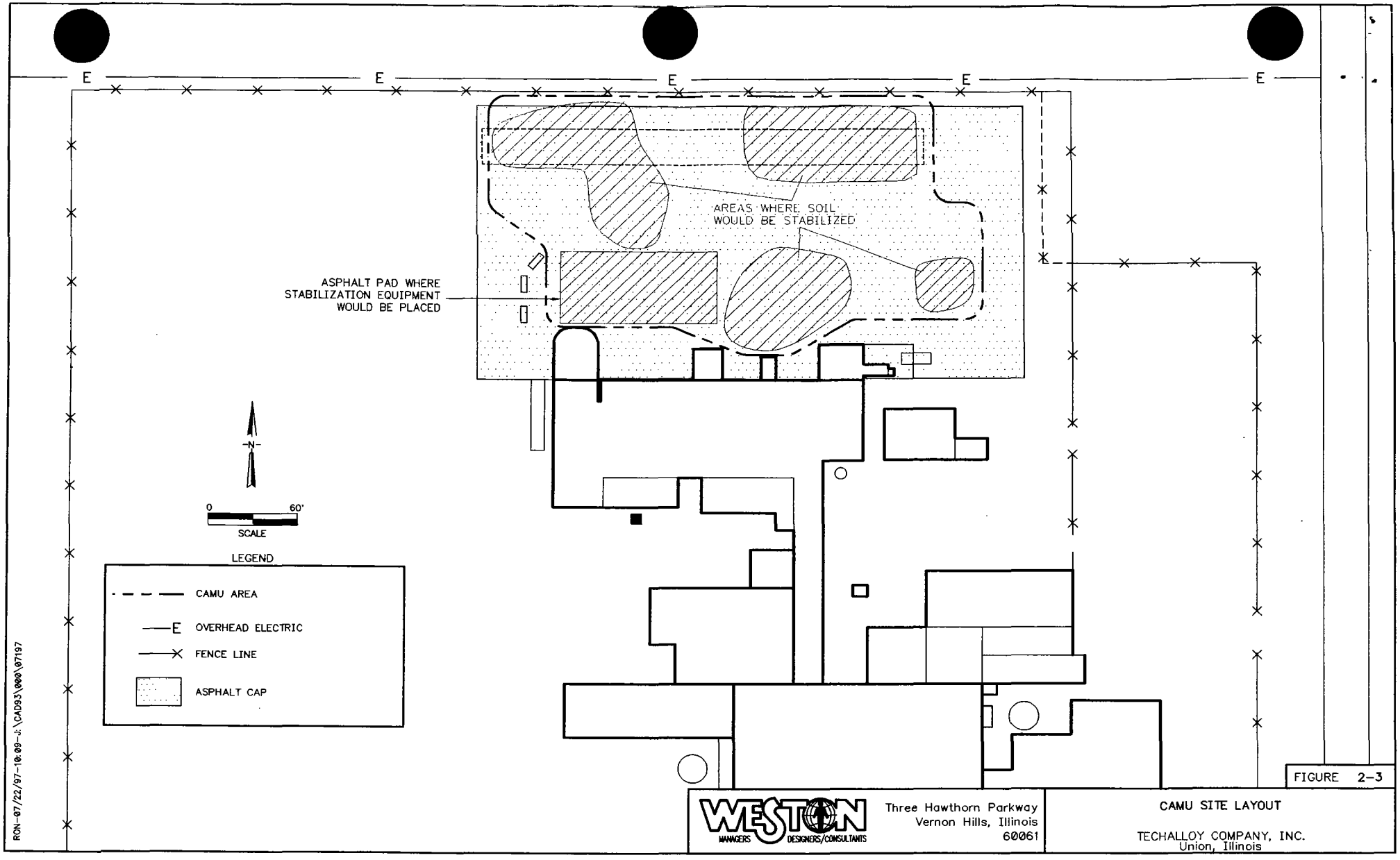

HWY 176
1440'
CW-1D
CW-1S
CW-1I
TREATMENT BUILDING
135'
1600'
extraction well
approximate extent of contaminant plume
LEGEND
MONITORING WELL
EXTRACTION WELL
PIEZOMETER
S SHALLOW (10 - 25' BGS)
I INTERMEDIATE (40 - 55' BGS)
D DEEP (65 - 80' BGS)
VOC PLUME EXCEEDING MCL
O'COCK ROAD
PARK STREET
UNION ROAD
ELM STREET
SUNVIEW DRIVE
CLARK STREET
MAIN STREET
WAYNE STREET
JOHNSON STREET
OLSON ROAD
MW-7
MW-5D
MW-5
MW-6
MW-8
MW-9
MW-2
MW-4
MW-3
MW-10
MW-11
TECHALLOY PLANT
0
100'
SCALE

Figure 3-4


E
AREAS WHERE SOIL WOULD BE STABILIZED
ASPHALT PAD WHERE STABILIZATION EQUIPMENT WOULD BE PLACED
N
0
60'
SCALE
LEGEND
CAMU AREA
OVERHEAD ELECTRIC
FENCE LINE
ASPHALT CAP
RON-07/22/97-10:09-J:\CAD93\000\07197
WESTON
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 2-3

STATEMENT OF BASIS

Techalloy Company, Inc
Union, Illinois
IlD 005 178 975

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
(U.S. EPA)

STATEMENT OF BASIS

Techalloy Company, Inc. Facility
Union, Illinois
ILD 005 178 975

INTRODUCTION

This Statement of Basis for the Techalloy facility discusses several viable remedies for site remediation and explains the remedy proposed by the United States Environmental Protection Agency (U.S. EPA) to clean up the site. U.S. EPA will select a final remedy for the facility only after the public comment period has ended and the information submitted by the public has been reviewed and considered.

This Statement of Basis is being issued by U.S. EPA as part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). This Statement of Basis summarizes information that can be found in greater detail in the final RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS) reports and other pertinent documents contained in the Administrative Record for this facility. U.S. EPA and the State of Illinois encourage the public to review these documents in order to gain a more comprehensive understanding of the facility and the activities that have been conducted under the authority of RCRA.

U.S. EPA may modify the proposed remedy or select another remedy based on public comments or new information obtained. Therefore, the public is encouraged to review and comment on the alternatives proposed. If a public meeting is requested, U.S. EPA will publish a newspaper notice of the meeting prior to the meeting date.

SUMMARY OF PROPOSED REMEDY

U.S. EPA proposes to remediate soils contaminated with toxic metals by soil stabilization technology, and to remediate soil and groundwater contaminated with volatile organic compounds by air sparging/soil vapor extraction. The proposed remedy also

includes the operation of a groundwater recovery system to minimize migration of contaminated groundwater, institutional controls to minimize the potential for contact with contaminants, and monitoring to evaluate the corrective measures.

FACILITY BACKGROUND

Facility Operations Waste Handling

The Techalloy facility, located at the intersection of Olson and Jefferson Roads in Union, Illinois, is comprised of a five acre fenced in plant area and an additional 29 acres of agricultural land adjacent to the plant area. The location of the Techalloy facility is shown in Figure 1-1 of Attachment A. The facility produces steel wire of varying strengths and diameters. A variety of cleaners including acidic and caustic cleaners, coating solutions, dyes, and rinses have been utilized at the facility to produce the wire product.

The following hazardous wastes have been handled at the facility: spent acids; pickling rinse water: plating waste water generated from copper cyanide and nickel sulfate plating processes, spent degreasers and solvents consisting of volatile organic compounds.

Areas where wastes were stored or disposed of at the facility and designated as Solid Waste Management Units are:

(1) wire slag disposal area;
(2) BG-5 oil drum storage area (deactivated);
(3) concrete evaporation pad (deactivated);
(4) spent acid holding pond area (deactivated);
(5) plating wastewater disposal area (deactivated);
(6) Copper Cyanide Waste Destruction Unit;
(7) Hazardous Waste Treatment Facility;
(8) Acid Tank Room.

The wire slag disposal area is currently used for a dumpster holding area. The hazardous waste managements units, Copper Cyanide Waste Destruction Unit, and the Hazardous Waste Treatment Facility are currently undergoing closure under RCRA. The Acid Tank Room has been closed, retrofitted and remains active.

RCRA FACILITY INVESTIGATION (RFI)

The RCRA Facility Investigation, the investigative activities performed under the authority of RCRA, included soil sampling and analysis; analysis of groundwater collected from monitoring wells; description of soil and geologic material by well logging of drill holes; and measurement of water levels in monitoring wells. A significant number of groundwater samples were also collected for analysis by geoprobe and lead auger screen methods which do not require well construction. The RCRA Facility Investigation provided the data base to describe the site geology and aquifer characteristics, and the nature and extent of soil and groundwater contamination at the site.

Geologic/Hyrologic Conditions

The uppermost strata at the site consists of a thin layer of top soil or fill which is underlain by a sand and gravel layer. The sand and gravel layer is about 30 feet in thickness at the fenced in plant area and increases to about 80 feet in thickness near the northern boundary of the facility. A dense compact silty layer called till ranging in thickness from 35 feet to 80 feet underlies the sandy gravel deposit. Shale occurs at a depth of about 115 feet and forms the upper bedrock layer at the site.

The sandy gravel layer forms a highly productive aquifer with a shallow water table about ten feet in depth. The water table delineates the top of the saturated zone in which pore spaces are completely filled with water. Below the water table, the water flows readily to wells or excavations and is generally referred to as groundwater. Above the water table, the soil is unsaturated and the soil moisture is in the form of water vapor or droplets. Groundwater seeps or flows in the direction of the natural gradient of the aquifer. Water level measurements of wells at the site indicate the groundwater flow is to the northwest and ultimately discharges to the Kishwaukee River and its South Branch.

Nature and Extent of Contamination

Sample analytical results show that significant soil and groundwater contamination exists at the facility property (on-site), and that extensive groundwater contaminant migration has occurred off-site. To define the degree of contamination,

constituent concentrations in soils and groundwater are generally expressed in parts per million (metal constituents), or parts per billion (volatile organic compounds). A constituent concentration of one part per million [or its equivalents of 1 milligram per kilogram (soil concentration) and 1 milligram per liter (water concentration)] means that one million pounds of soil or water contains one pound of the constituent.

Soil Contamination - Soil analysis included testing for metals, volatile organic compounds (VOC.), semi-volatile organic compounds, and cyanide. The principal metal constituents found in soil at the facility were arsenic, lead, chromium, and nickel with lead having the highest concentration at 77,000 parts per million. The highest cyanide concentration was 36 parts per million.

The principal volatile organic compounds found in soil samples were tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, and xylene. Trichloroethene had the highest concentration at 1,600,000 parts per billion. The volatile organic compounds, which have a high tendency to vaporize, are remnants of degreasers and solvents used at the facility. Semi-volatile organic compounds were also identified in soils but at much lower levels. Naphthalene was the most prevalent of these constituents with a high concentration of 5,600 parts per billion.

The risk imposed, or the potential for harm by the contaminant constituents, is discussed under the Risk Summary Section.

Groundwater contamination - Data indicates that extensive migration of contaminated groundwater has occurred. A contaminant plume of volatile organic compounds extends from the facility to the open field west of Union Road. Trichloroethane had the highest concentration of the volatile compounds with a concentration of 51,000 parts per billion at an on-site well. An off-site monitoring well located at the Union-Highbridge Road intersection (MW-HBR) had a trichloroethane concentration of 1,900 parts per billion. The extent of groundwater contamination is shown in Figure 3-4.

Data indicates that the extent of metal contamination in groundwater is much less extensive than contamination by volatile compounds. Though initial sampling results indicated

rather high metal concentration, high sediment content in the sample likely caused erroneous results. Monitoring wells located near the facility boundary (MW-6, MW-7, and MW-9), and the well at the Union-Highbridge Road intersection (MW-HBR) were resampled. Except for lead, metal concentrations in these samples did not exceed drinking water limits. Lead concentrations in the facility wells ranged from 0.044 to 0.098 parts per million, and the off-site well had a lead concentration of 0.0052 parts per million (action level/limit for lead is 0.015 parts per million). All samples collected from residential wells have had lead concentrations below the action level.

Only trace levels of semi-volatile organic compounds were found in groundwater samples with naphthalene having the highest constituent concentration at 9 parts per billion.

RISK SUMMARY

To evaluate the health risk imposed by contaminants at a site and to provide a basis for management of such risk, a risk assessment is generally performed. The development of appropriate cleanup standards that provide long term protection for human health and the environment is also part of the risk assessment process. The risk resulting from cancer causing compounds is expressed as a probability; a risk quantified as 1 in 1 million is a risk level at which one additional person in one million would develop cancer due to exposure to the compound. Non-Cancer causing risks are expressed as a hazard index. U.S. EPA generally recognizes a cancer risk of less than 1 in 1 million as acceptable for residential sites, and a risk of 1 in 10,000 as acceptable for industrial sites. A total hazard below 1.0 is recognized as an acceptable non-cancer risk.

Since less stringent cleanup standards are applied to industrial sites than residential sites, the first step in performing risk assessments is to establish the future land use projection for the site. Facilities performing corrective action under RCRA are typically industrial properties, however these facilities may eventually be converted to residential or other non-industrial properties. To establish the future land use projection for a facility, current zoning laws, deed restrictions, population projections, and surrounding land use are important

considerations.

An industrial land use projection for the Techalloy facility was established based on the following facts:

(1) the facility property is currently zoned as general/heavy industrial land use under a McHenry County Ordinance;

(2) a property deed restriction specifying perpetual industrial use only has been recorded;

(3) the Northeastern Illinois Planning Commission projects a population increase (1994-2020) of 11% for the City of Union, McHenry County Department of Planning and Development projects a population increase (1990-2010) of 12.5% for the four surrounding townships; and

(4) facility property is located in a rural area and is almost entirely encompassed by farm land or small industrial properties.

Screening procedures were applied to sort out those site constituents for which concentrations were below a base concentration level at which remediation clearly is not required. The metal constituents in soils at the facility plant area that were not screened out and that were determined to require remediation are chromium, lead, and nickel. Applying U.S. EPA and State approved methodology, the cleanup standards shown in Table 1 were established for these metals.

TABLE 1
Cleanup Standards

chromium	1960 mg/kg (parts per million)
lead	1500 mg/kg
nickel	2665 mg/kg

Cyanide, with a concentration high of 36 (parts per million) ppm is below the soil screening level of 40 ppm and does not require remediation.

Ten volatile compounds (principally dichloroethene, tetrachloroethene, trichloroethane, and trichloroethene) exceeded target cleanup standards. Cleanup standards for the ten volatile

compounds range from 0.07 to 30 ppm. Figure 3-3 of Attachment A shows the areas where metals and volatile compound concentrations in soils exceed cleanup standards and require remediation. The cleanup standards reduce the cancer risk for workers to 1 in 10,000.

To evaluate the need for groundwater remediation, groundwater contaminant concentrations are generally compared to drinking water standards (maximum contaminant levels) for constituents. The volatile compound 1,1,1-trichloroethane, with a concentration as high as 51,000 parts per billion (ppb) at the facility, greatly exceeds the drinking water standard for this constituent. Volatile compounds also exceed the standards at off-site locations. Maximum concentrations of volatile compounds in off-site monitoring wells and the drinking water standard for the constituent are shown in Table 2.

TABLE 2
Concentration in parts per billion

	MW-HBR	Standard
1,1,1-trichloroethane	1900	200
1,1-dichloroethene	180	7
tetrachloroethene	150	5
trichlorothene	1100	5
1,1-Dichloroethane	450	*

* Standard not developed

Data indicates that the metal constituents in groundwater have not migrated extensively. Metal concentrations in groundwater at the facility exceeded drinking water limits but did not exceed the limits at the MW-HBR well. A detailed discussion of the risk assessment procedure is provided in Section 2-2 of the Corrective Measures Study Report.

It is emphasized that protective measures have been implemented to avoid consumption of contaminated groundwater. The City of Union has a public water supply system which is used by the majority of citizens, and critically located private wells are sampled periodically (discussed under Interim Corrective Measures) to monitor the water quality of these wells.

Consequently, the groundwater does not pose an immediate risk to human health; the reduction of groundwater contaminants to drinking water standards is viewed as a long term goal.

Ecological assessment - Most of the 5 acre plant area is covered by asphalt or gravel, or occupied by buildings, and does not provide a good habitat for wildlife. Consequently the potential for contaminant exposure to wildlife is minimal. Data indicates that there is very low potential for contaminated groundwater to migrate to surface water and impact aquatic life.

SCOPE OF CORRECTIVE ACTION

Interim Corrective Measures

Two Interim Corrective Measures were implemented to provide early protection to human health and the environment.

Private Well Sampling Program - A private water well sampling program was initiated in 1993. The program entails semi-annual sampling/analysis of residential wells that might be affected by the contaminated groundwater. The semi-annual analytical results are provided to the well owners. The program requires that if contamination is found, the property be provided with a connection to the municipal water system or installation of a filtering system, unless refused by the owner. Upon confirming contamination in a private well located near the Highbridge-Union Road intersection, the property was provided with a well that draws uncontaminated water from a deep aquifer.

Except for the private well noted above, only an occasional slight exceedance of drinking water standards (which were not confirmed by follow-up sampling and analysis), has been detected. In consideration of the four year sampling results and the control provide by operation of a groundwater recovery system, the initial sampling program consisting of 11-12 residential wells was recently reduced to six wells. The modified sampling program includes those wells nearest the contaminant plume which have the highest potential for being impacted. Also, sulfate and nitrate analysis has been discontinued. Though nitrate was found in some well samples in concentrations exceeding drinking water standards, evaluation of the data indicates the source of nitrate is localized and the facility is not the source.

Groundwater Pump and Treat System - A pump and treat (groundwater recovery) system located at Union Road, which acts as a barrier to down gradient migration of contaminated groundwater, became operational in December 1996. The groundwater recovery system consists of a high production well (extraction well), a pipeline, and a water treatment system. The water pumped from the extraction well is transferred to the water treatment system by a double walled pipeline with a leak detection system. An air stripper treatment system removes the volatile organic compounds which are discharged to the atmosphere under a State joint construction/operating permit. The treated water is discharged to the South Branch of the Kishwaukee River under a State "National Pollution Discharge Elimination System" permit.

Upon thorough evaluation of the pump and treat system, it was determined that the design pumping rate does not have the impact on the aquifer system as projected. The recovery system at its current capacity of 350 gallons per minute does not capture a critical portion of the contaminant plume that extends southwest of the Highbridge-Union Road intersection. The approximate extent of the contaminant plume, and the recovery system and its approximate extent of capture (depicted by groundwater flow lines) are shown in Figure 3-4. The recovery system will be upgraded by installing an additional extraction well and increasing the capacity of the treatment system. The upgrade is expected to be completed by fall of 1998.

SUMMARY OF ALTERNATIVE CORRECTIVE MEASURES

Viable alternative remedies for the site were discussed by Techalloy in the Corrective Measures Study Report and are summarized below.

Alternatives for Soil Remediation

Alternative S-1 - No action
This alternative is provided as a basis for comparison with the other Alternatives. No cost incurred.

Alternative S-2 - Institutional control; soil stabilization; asphalt capping; and soil vapor extraction.

Institutional control consists of a deed restriction which was recorded on December 17, 1996, that restricts use of the property to industrial use only. A chain link security fence encompasses the plant area.

Soil stabilization technology would be applied to four separate areas where metal concentrations in soils exceed cleanup levels (see Figure 3-3). The soils would be excavated and mixed with stabilizing agents. In the stabilization process metals are not actually removed but converted to less soluble, leachable, and toxic forms to achieve effective remediation. A bench-scale study would be performed to establish the appropriate amount of additives to mix with the soil. The soil excavation at the facility would extend to a depth just above the water table (9-10 feet below ground surface). Estimated excavation volume is 8,500 cubic yards. To assure all soil exceeding cleanup levels is addressed, verification sampling would be performed at the perimeter of the excavation. To assure that stabilization goals have been achieved, verification sampling and analysis of treated material would be performed before returning the soil to the excavation. The treated areas would then be capped by a 200 by 360 foot asphalt cover that extends over all excavated areas. The asphalt cover would be resurfaced every two years.

If volatile compounds in the soils cause significant interference with the stabilization process, or other persistent problems develop, the problem soil would be disposed off-site in accordance with applicable RCRA regulations.

Under RCRA regulations the metal contaminated soil upon removal and treatment constitutes a hazardous waste and must be handled in accordance with applicable regulations. A "Corrective Action Management Unit (CAMU) Designation" provides the regulatory framework to assure proper handling of the wastes that are generated during implementation of a corrective measure. A CAMU Designation Request - August 1, 1997, (Addendum to Corrective Measures Study Report) submitted by Techalloy has been approved by U.S. EPA. The remedial activities for Alternative S-2 would be performed in accordance with this document. This document is summarized in Attachment B.

After completion of the soil stabilization process and installation of the asphalt cap, a soil vapor extraction system

would be implemented in the unsaturated soil zone where volatile compounds exceed cleanup levels (see Figure 3-3). To remove the volatile compounds in the soil, clean air would be injected into the soil and a vacuum applied to vapor extraction wells. A pilot study would be performed to optimize the system design. Treatment of the off-gas would likely be required initially until the removal rate of volatile compounds declines. The cost estimates presented below are based on general time frames to provide comparative costs of the alternatives and do not necessarily represent the completion time for the remedy.

Costs

Capital	$ 876,000
O & M*	264,000
Total	1,140,000

* 5 years for SVE system operation; 30 years for asphalt cap maintenance

Alternative S-3 - Institutional controls; soil excavation with off-site disposal.

This alternative includes the institutional controls of S-2, and soil excavation with subsequent treatment and disposal at off-site facilities. Soil would be excavated to just above the water table.

Soils contaminated with volatile compounds - Soil contaminated with volatile compounds would be excavated and hauled to an off-site permitted hazardous waste incinerator and treated to meet the Land Disposal Restrictions requirements of RCRA. Following treatment, the soil would be transported to a permitted landfill for disposal. Soil volume requiring remediation is estimated to be 2000 cubic yards.

Soils contaminated with metals - Contaminated soil would be excavated and taken to an off-site permitted landfill where it would be treated to meet the Land Disposal Restrictions requirements and then disposed in the landfill. Soil volume is estimated to be 7500 cubic yards.

Metal/volatile compound contaminated soil - Two small areas (about 1000 cubic yards) in which both metals and volatile

compounds exceed cleanup levels would be excavated and transported to a facility for incineration to remove volatile compounds, and then taken to a landfill for treatment of the metals and disposal.

Verification sampling/analysis would be performed at the perimeter of excavated areas to assure the soil is removed to cleanup levels, and then filled with clean soil.

Costs

Capital	$ 7,349,000
0 & M	0
Total	7,349,000

Groundwater Remediation Alternatives

Alternative GW-1 - No Action. This Alternative serves as a basis for comparison. No cost involved.

Alternative GW-2 - Institutional controls; operation of groundwater recovery system (pump and treat system); groundwater monitoring; soil vapor extraction; and contingent operation of an air-sparging system (air injection to the water bearing zone) depending on the results of 5 year evaluation period.

Institutional control consists of a restriction on water well permits for wells constructed in the contaminated area of the aquifer. This alternative remedy includes operation of the existing groundwater recovery/treatment system at Union Road which is to be upgraded as discussed previously, and contingent implementation of an air sparging system. If groundwater sampling results do not show a significant decrease in contaminant concentrations after a 5 year evaluation period, an air sparging/soil vapor extraction system would be implemented.

The impact on groundwater by soil vapor extraction (S-2 Alternative) as applied to the unsaturated soil zone would be evaluated by the 5 year monitoring period. Reduction of volatile compounds in the unsaturated soil zone will minimize the leaching of these contaminants to the groundwater. By reduction of contaminant source input, coupled with the natural processes of dilution and contaminant biodegradation, there is some potential for significant reduction of volatile compound concentrations in

the groundwater.

Air sparging/soil vapor extraction (AS/SVE) system includes a series of air diffusion wells in which air is injected into the water bearing zone. This process creates an underground air stripper causing the volatile compounds in the soil and groundwater to vaporize and move upward. Vapor extraction or vent wells remove the vapors from the soil generated by the air sparging.

Groundwater monitoring - Strategically located monitoring wells would be sampled and analyzed for volatile compounds and metals. The CAMU Designation, as discussed in Attachment B, provides for a specific groundwater monitoring program to assess the mobility of metals.

COSTS

Capital	$ 1,035,000
O & M*	685,000
Total	1,720,000

*30 years of groundwater recovery system operation and monitoring (cost of contingent AS/SVE system not included)

Alternative GW-2A - Alternative includes the same corrective measures as GW-2, but provides for the immediate implementation of the AS/SVE System.

Following completion of the soil stabilization process, the AS/SVE system would be initiated to remediate groundwater contaminated with volatile compounds. The AS/SVE treatment would be applied to the highly contaminated area at the facility where volatile compound concentrations in groundwater exceed 10,000 parts per billion.

Costs

Capital	$ 1,792,000
O & M*	1,217,000
Total	3,009,000

*10 years of AS/SVE system operation; 30 years for recovery system operation and monitoring

Alternative GW-3 - Institutional controls; operation of the

groundwater recovery system; monitoring; and contingent operation of a bioremediation system.

In addition to institutional controls and operation of an upgraded groundwater recovery system, this alternative includes contingent implementation of a bioremediation system depending on the results of a five year monitoring program.

Volatile compounds generally undergo a natural degradation process in which the compounds are transformed to less toxic or nontoxic forms by microorganisms. The bioremediation system of this alternative would enhance this process by introducing nutrients to the subsurface and stimulating the transformation of the volatile compounds. The bioremediation system would consists of a recovery (extraction) well located near the northwest corner of the property, and three injection wells located up gradient of the recovery well. The recovery well would be pumped at a rate so as to capture the entire width of the contaminant plume. Nutrients would be added to the water withdrawn from the recovery well and the water then returned to the aquifer through shallow injection wells. The recovered water may require treatment to reduce volatile compounds concentrations before reinjection.

Costs

Capital	$ 1,035.000
O & M*	685,000
Total	1,720,000

*30 years for recovery system operation and monitoring (cost of contingent bioremediation system not included)

Alternative GW-3A - Includes the same corrective measures as GW-3 but requires the immediate implementation of the bioremediation system.

Following completion of the soil stabilization process, the bioremediation system as described above would be implemented.

Costs

Capital	$ 1,498,600
O & M*	1,813,000
Total	3,311.600

*10 years for bioremediation system operation; 30 years for

recovery system operation and monitoring.

Alternative Proposed by Techalloy Company The alternatives proposed by Techalloy Company are Alternative S-2 to remediate contaminated soils, and Alternative GW-2 to remediate contaminated groundwater.

EVALUATION OF THE ALTERNATIVES

In order for U.S. EPA to determine the most appropriate alternative remedy for the site, the corrective measure alternative remedies presented in the Corrective Measures Study Report are evaluated pursuant to the nine criteria presented below. The no action Alternatives, S-1 and GW-1, were determined to be highly deficient in satisfying the evaluation criteria and were eliminated from consideration.

1. Short-term Effectiveness - This criterion addresses the effect of the remedial alternative on human health and the environment during the construction and implementation phase of the remedial action. Short-term effectiveness is based on the following factors:

- protection of community during remedial actions;
- protection of the worker during remedial actions:
- potential for adverse impacts on the environment due to implementing the remedial action; and
- time required to meet the remedial response objectives.

Well drilling, building and pipeline construction, and soil excavation are conventional activities that do not result in a community or worker risk greater than normally incurred at construction sites. Nor are such activities expected to cause an adverse impact on the environment. The development of the CAMU for Alternative S-2 provides tight control for the entire soil stabilization process and is protective of workers and the community. The time to complete the soil stabilization process is not expected to exceed 3 months. Alternative S-3, with direct removal of soil, could be completed in even less time. However, the haulage of wastes poses the risk normally incurred with transportation of heavy loads. The bioremediation system of Alternatives GW-3/GW-3A has the potential to adversely impact

the environment if the re-injection process is not properly controlled and expansion of the contaminant plume occurs. The AS/SVE system of GW-2/GW-2A creates less control problems; the vapors generated by the systems would be monitored and treated as needed. The GW-2A and GW-3A Alternatives would take the least time to achieve satisfactory remediation.

2. Long term Reliability and Effectiveness - This criterion addresses the results of remedial alternatives in terms of the risks remaining to human health and the environment after remediation has been completed. The following factors characterize these potential risks:

- magnitude of risk due to treated waste or treatment
- residuals remaining after completion of the remedy; and
- adequacy and reliability of controls used to manage remaining untreated wastes or treatment residuals after remedy completion.

Alternative S-3 would leave the least residual contamination at the facility since soils exceeding cleanup levels would be removed. The S-2 Alternative with re-placement of the treated soil at the site, leaves some potential for leaching of contaminants as the stabilizing effect may eventually degrade over time. Alternatives GW-2A and GW-3A, in comparison with Alternatives GW-2 and GW-3, will leave the least residual contamination in groundwater since these proactive corrective measures would be immediately implemented. All alternatives, other than the no action alternatives, include institutional controls which minimize potential contact with contaminant residuals.

3. Implementability - This criterion refers to the ease of implementation with the following factors taken into consideration:

- ability to construct and operate the technology
- reliability of the technology;
- ease of undertaking additional corrective measures if necessary;
- availability to monitor effectiveness of remedy;
- coordination with other agencies;
- availability of off-site treatment, storage and disposal

services; and
- availability of prospective technologies.

Alternative S-3, which entails off-site treatment and disposal of soil, is the most implementable since development of a treatment process is not required. However, the soil stabilization remedy of Alternative S-2 is a widely used technology and should be readily adaptable to the facility. Alternatives GW-3/GW-3A, which incorporate the bioremediation/reinjection system, pose greater difficulty in implementation than do Alternatives GW-2/GW-2A. Treatment of the recovered water would likely be required to reduce the volatile compound content, and the addition of nutrients would require testing and likely considerable adjustment during operation. Groundwater withdrawal rates must be balanced with reinjection rates and sufficient monitoring employed to assure that this process does not expand the groundwater contamination. Clogging of the injection system may cause operational difficulties. Alternatives GW-2/GW-2A, though requiring a pilot study, is expected to involve considerably less development and maintenance than the GW-3/GW-3A Alternatives.

All alternatives appear to be open to the application of additional remedies or modification. For example, should soils with high levels of volatile compounds cause interference with the soil stabilization process, the process could be modified, or if necessary, the problem soil disposed off-site. All alternatives are amenable to monitoring programs and to coordination with the State.

4. Reduction of Mobility, Toxicity, or Volume/Mass of Wastes or Contaminants - This criterion assesses the level to which the remedial alternative reduces the toxicity, mobility, or volume of wastes or contaminants based on the following factors:

- treatment process used and materials treated;
- amount of hazardous material destroyed or treated;
- degree of expected reductions in toxicity, mobility, and volume;
- degree to which treatment is irreversible; and
- type and quantity of residuals remaining after treatment.

Among the soil remediation alternatives, implementation of Alternative S-3 would result in the greatest reduction of mobility, toxicity, and volume of contaminants at the facility since contaminated soil is directly removed and disposed off-site. However, Alternative S-2, which prescribes verification sampling/analysis of the stabilized soil, and asphalt capping to minimize infiltration of water and leaching of the treated soil, should greatly minimize toxicity and mobility of contaminants.

Alternatives GW-2A and GW-3A would result in greater reduction of mobility, toxicity, and mass of VOCs in groundwater since remedial action for groundwater would be immediately implemented.

5. Cost - This criteria assesses capital (construction) costs, operating and maintenance costs, and total cost.

The cost of the S-3 Alternative, which entails off-site disposal of soil, is over six times the cost of Alternative S-2. The costs for the GW-2 and GW-3 Alternatives are the same since both include operation of the groundwater recovery system and monitoring, but costs for contingent implementation of the AS/SVE and bioremediation systems are not included. The cost of the GW-3A Alternative is about 10 percent higher than the GW-2A Alternative.

6. Overall Protection of Human Health and the Environment - This criterion assesses how the alternatives provide protection to human health and the environment.

The institutional controls currently in effect coupled with the private well sampling program provide protection to human health for the immediate future. The deed restriction restricts the facility property to industrial use only and guards against the excess exposure to contaminants that would be incurred under residential use. The water well permit restriction requires that water withdrawn from the contaminated part of the aquifer be treated. However, long term protection to human health and the environment must be considered and the alternatives are evaluated in this light.

Among the soil remediation alternatives, Alternative S-3 would provide the greatest long term protection to human health and the

environment since soils exceeding cleanup levels at the facility would be removed and either incinerated or disposed in a landfill designed to contain contaminants. The S-2 Alternative, by soil stabilization and the asphalt cover also provides a high degree of protection. The groundwater alternatives, GW-2A and GW-3A, provide the greatest protection to human health and the environment as compared to Alternatives GW-2 and GW-3 in that proactive remediation is immediately applied to contaminated groundwater thereby expediting the restoration of the aquifer.

7. Attain Media Cleanup Standards - This criterion assesses the alternatives' ability to achieve the media cleanup standards prescribed in the enforcement order.

Alternatives GW-2A and GW-3A have the greatest potential for early attainment of remediation goals and restoration of the aquifer since either treatment system would be immediately implemented rather than delaying implementation for 5 years. Both Alternative S-3 and S-2 are expected to attain cleanup standards.

8. Control of Sources of Releases - This criterion assesses the ability of alternatives to reduce or eliminate to the maximum extent possible further releases.

Current generation and handling of wastes at the facility are subject to RCRA regulations and the waste handling practices that caused the primary releases to the environment have been corrected. Alternatives S-2 and S-3 provide control of past releases by remediating contaminated soils. Operation of the existing groundwater recovery system (all groundwater remedies except GW-1) minimizes further down gradient migration of contaminated groundwater. Implementation of either Alternative GW-2A or GW-3A would provide additional control by reducing groundwater contaminant concentrations at the central area of contamination.

9. Comply with Standards for Management of Wastes - This criterion assesses how alternatives assure that management of wastes during corrective measures is conducted in a protective manner.

Environmental regulations provide for the proper management of

the wastes that would be generated by implementation of any of the remedial alternatives. The existing off-site groundwater recovery system discharges volatile compounds to the atmosphere under a State construction/operating permit. The treated water is discharged to the South Branch of the Kishwaukee river under a National Pollution Discharge Elimination System (NPDES) permit issued by the State. Discharge of volatiles to the atmosphere by a AS/SVE system would be controlled as needed to meet State standards. The soil stabilization process would be performed under the Corrective Action Management Unit Designation which assures compliance with RCRA regulations. Off-site treatment and disposal of soils would be in compliance with RCRA regulations. Thus, all alternative remedies comply with this criterion.

REMEDY PROPOSED BY U.S. EPA

Alternative S-2 and a modification of the GW-2A Alternative are deemed to best satisfy the nine evaluation criteria, and is the remedy U.S. EPA proposes to cleanup the site. The proposed remedy includes: institutional controls; soil stabilization to treat soils contaminated with metals; implementation of a focused AS/SVE system to treat soil and groundwater contaminated with volatile compounds; operation of the groundwater recovery system near Union road; and groundwater monitoring. The proposed remedy is in keeping with Agency policy which prescribes that contaminated groundwater be contained and restored to the greatest extent practicable, and that soils which act as a contaminant feed source to groundwater be treated to minimize such effect. The remedial actions will be performed in accordance with a Health and Safety Plan.

The soil stabilization corrective measure presents several advantages and was selected to remediate metals in soils. The remedy greatly minimizes the leachate potential of the constituents, eliminates the risk involved in transporting the soil to off-site facilities, does not infringe on coveted landfill space, and addresses the contamination at considerably less cost than off-site disposal. Though the stabilization process does not actually destroy or remove the metal constituents, the immobilizing affect on contaminants by the process, coupled with the asphalt cap, will provide long term protection for the relatively low metal concentrations. The CAMU Designation provides for proper handling of the soil during the

soil stabilization process.

In contrast to soil contamination which can be remediated by relatively direct methods, large scale groundwater contamination cannot be quickly or easily remediated. In this case, a large part of the groundwater contaminant plume extends off-site and full remediation of the plume would require extensive construction of a remediation system on land not owned by Techalloy. U.S. EPA proposes to remediate groundwater by a AS/SVE system that focuses on a localized area at the facility where a major portion of the volatile compound contaminants occur. Data indicate that the site is suitable for AS/SVE treatment, and the AS/SVE technology is advantageous to the bioremediation technology in that it provides for direct contaminant removal in the subsurface eliminating the need to withdraw, treat and re-inject groundwater.

U. S. EPA's proposed AS/SVE system is less expansive than that of the GW-2A Alternative. The extent of these two AS/SVE systems are shown in Figure 3-5. The focused AS/SVE system addresses the highly contaminated area where volatile compounds in surface soils exceed target cleanup levels and total volatile concentrations in groundwater have exceeded 50,000 ppb. This AS/SVE system would consist of about four-five air sparge wells and about four-five soil vapor extraction wells. Air emissions would be controlled as needed.

Significant groundwater restoration can be obtained by focusing the AS/SVE treatment on the central area of contamination where a large part of the contaminant mass exists and feeds the groundwater contaminant plume. Based on the existing data, it is estimated that as much as 40 percent of the total contaminant mass in the subsurface is contained within the designated treatment area (the contaminant mass contained in the GW-2A designated treatment area is estimated to be 50-55 percent of the total subsurface mass). The cost of this focused AS/SVE system ($150,000 capital costs and 3 years O & M)costs) would be about one fifth the cost of the larger AS/SVE system of the GW-2A Alternative ($800,000). The focused AS/SVE system, which is considerably more implementable than the expanded GW-2A system, has a high potential to achieve significant contaminant reduction and aquifer restoration. The focused AS/SVE system can readily be adapted from a pilot study to a highly effective and

maintainable system for the designated area.

The proposed remedy includes the continued operation of the groundwater recovery system located near Union Road. This system serves a dual purpose in that it withdraws contaminated groundwater and removes the contaminants by treatment, and also acts as a barrier to further down gradient contaminant migration by drawing the contaminated water to the extraction well. As noted previously, the recovery system is to be upgraded by installing an additional recovery well; the upgrade is expected to be completed by the Fall of 1998.

The proposed remedy also relies on natural attenuation processes to contain and ultimately restore the aquifer. These processes include dilution through infiltration of precipitation, biodegradation of the compounds to non-toxic compounds, volatilization, and sorption of contaminants to soil particles. These processes, coupled with the implementation of the AS/SVE and groundwater recovery systems, are expected to prevent expansion of the contaminant plume's peripheral areas.

The time to achieve full remediation of the aquifer by the proposed remedy is difficult to predict but is expected to take at least thirty years and may be considerably longer. Sparging/soil vapor extraction systems tend to achieve high contaminant reduction during the initial period of operation with contaminant reduction generally declining thereafter. U.S. EPA does not intend that either the AS/SVE or groundwater recovery systems continue to operate if they no longer are effective. The system operations may eventually be converted to alternate periods of operation and ultimate shutdown when monitoring data indicates a satisfactory cleanup standard has been achieved, or system operations no longer produce appreciable results.

A groundwater monitoring program to assess the effectiveness of the corrective measures will be developed and continued until U.S. EPA determines that monitoring is no longer required. The private well sampling program which consists of semi-annual sampling of residential wells will be an integral part of the monitoring program. In addition, current groundwater monitoring includes semi-annual sampling/analysis of a well cluster (3 wells set at different depth increments) located about 2000 feet northwest of the Union-Highbridge Road intersection. This

sampling provides critical monitoring of the down gradient far end of the contaminant plume not captured by the groundwater recovery system.

Data indicates that metal concentrations in groundwater are relatively low in spite of long term exposure of the metal constituents in the soils to leaching conditions. Therefore remediation of metals in groundwater is not warranted. However, the CAMU Designation includes a groundwater sampling program to assess metal migration in groundwater as part of Post-Closure requirements for the CAMU. Generally, a thirty year monitoring period is specified by the State for Post-Closure care. If metal concentrations increase significantly, appropriate remedial action will be required.

Institutional controls provide protection against human exposure to contaminants. A deed restriction for the facility was recorded on December 17, 1996. The deed restriction limits future land use of the facility property to industrial use and guards against the higher exposure to contaminants which would be incurred by residential occupancy. In addition, the McHenry County Health Department has initiated a restriction on water well permits requiring that water drawn from the contaminated aquifer be treated.

In summary, the proposed remedy which includes groundwater recovery and containment near the end of the contaminant plume, soil and groundwater treatment at the central area of contamination, monitoring, and institutional controls to prevent contact with contaminants, provides long term protection of human health and the environment.

FUTURE CORRECTIVE ACTION

Upon final selection of the overall remedy, a new Administrative Order will be developed requiring implementation of the remedy. Under this new Order, corrective measure design details, monitoring program specifics, and performance standards as applicable will be established.

PUBLIC PARTICIPATION

U.S. EPA solicits input from the community on the cleanup methods proposed for each of the corrective measure alternatives discussed and also invites the public to comment on alternatives not addressed in this Statement of Basis. If requested, U.S. EPA will hold a public meeting at Union, Illinois to discuss the alternatives.

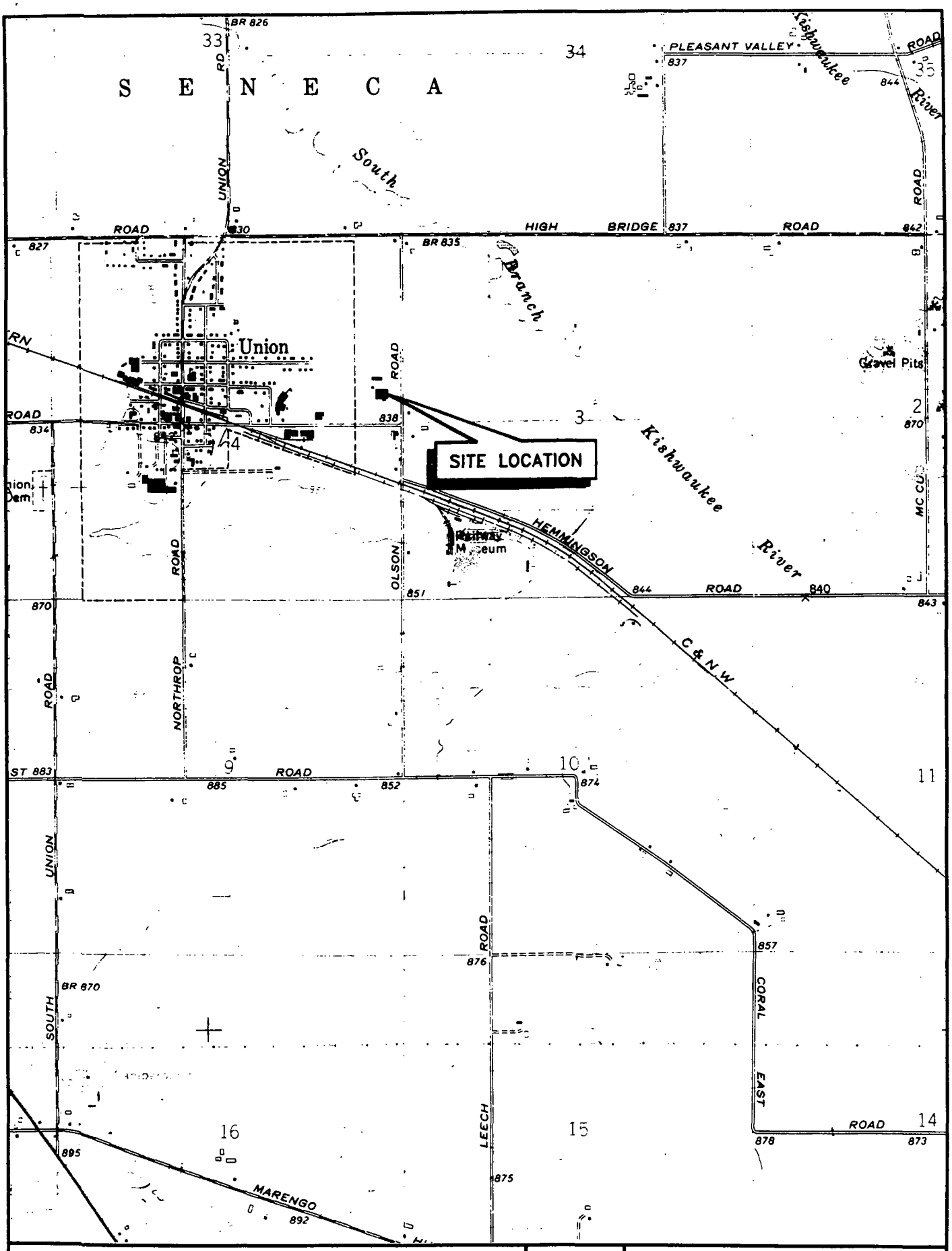
The Administrative Record for the Techalloy facility is available at the following locations:

Marengo Public Library
200 South State Street
Marengo, Illinois

U.S. EPA, Region 5
Waste, Pesticides and Toxics Division Record Center
77 West Jackson Boulevard, 7th Floor
Chicago, Illinois 60604
(312) 353-5821
Hours: Mon-Fri, 8a.m.- 4p.m.

After consideration of the comments received, U.S. EPA will summarize the comments and its responses to the comments, and select and document the remedial selection in a Response to Comments document. The Response to Comments will be incorporated into the Administrative Record. To send written comments or obtain further information, contact:

Gordon Blum
Community Relations Coordinator
U.S. Environmental Protection Agency
77 West Jackson Boulevard, P-19J
Chicago, Illinois 60604
(312) 886-9749



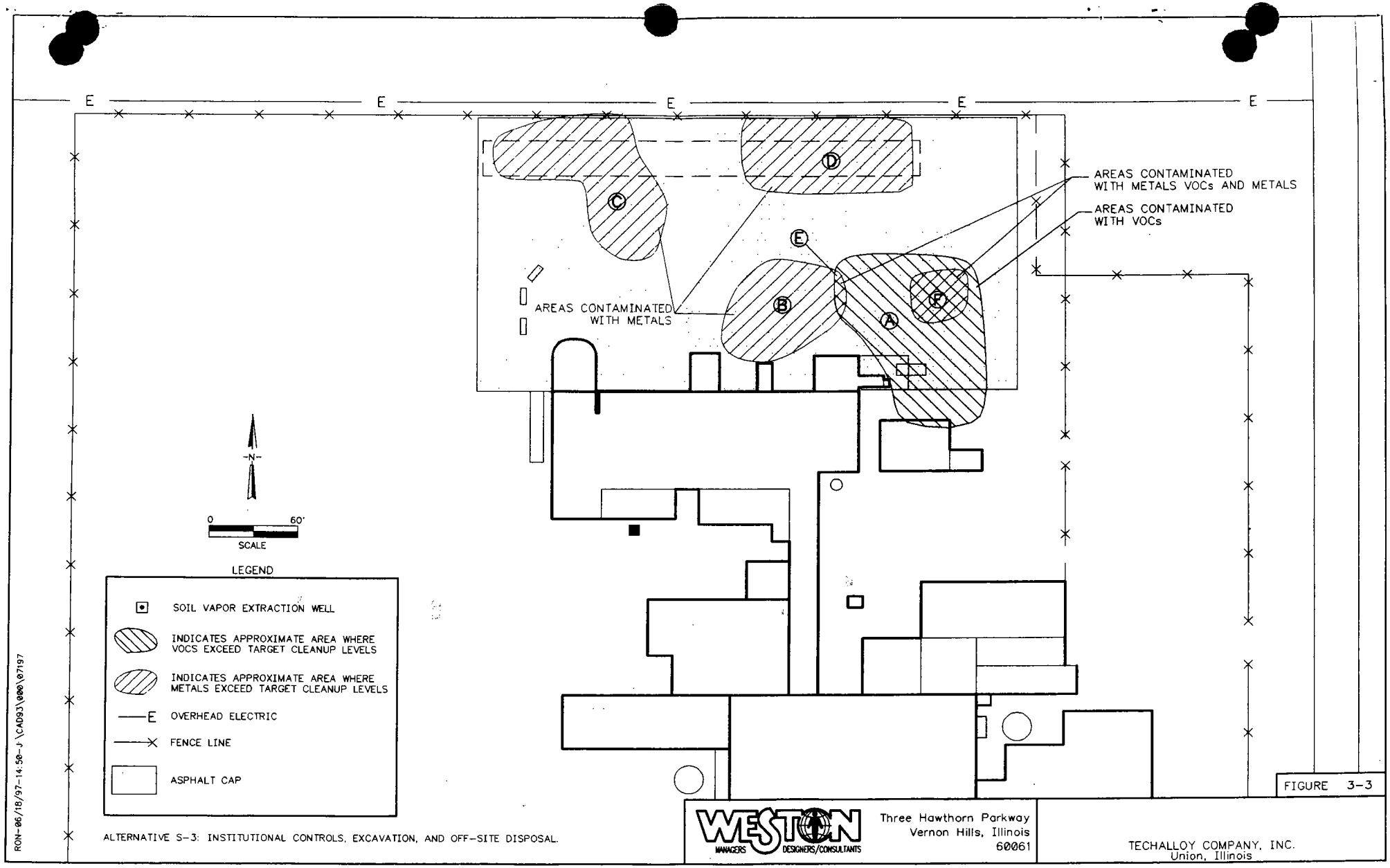
WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

FIGURE 1-1

SITE LOCATION
TECHALLOY COMPANY. INC.
Union, Illinois

REV.



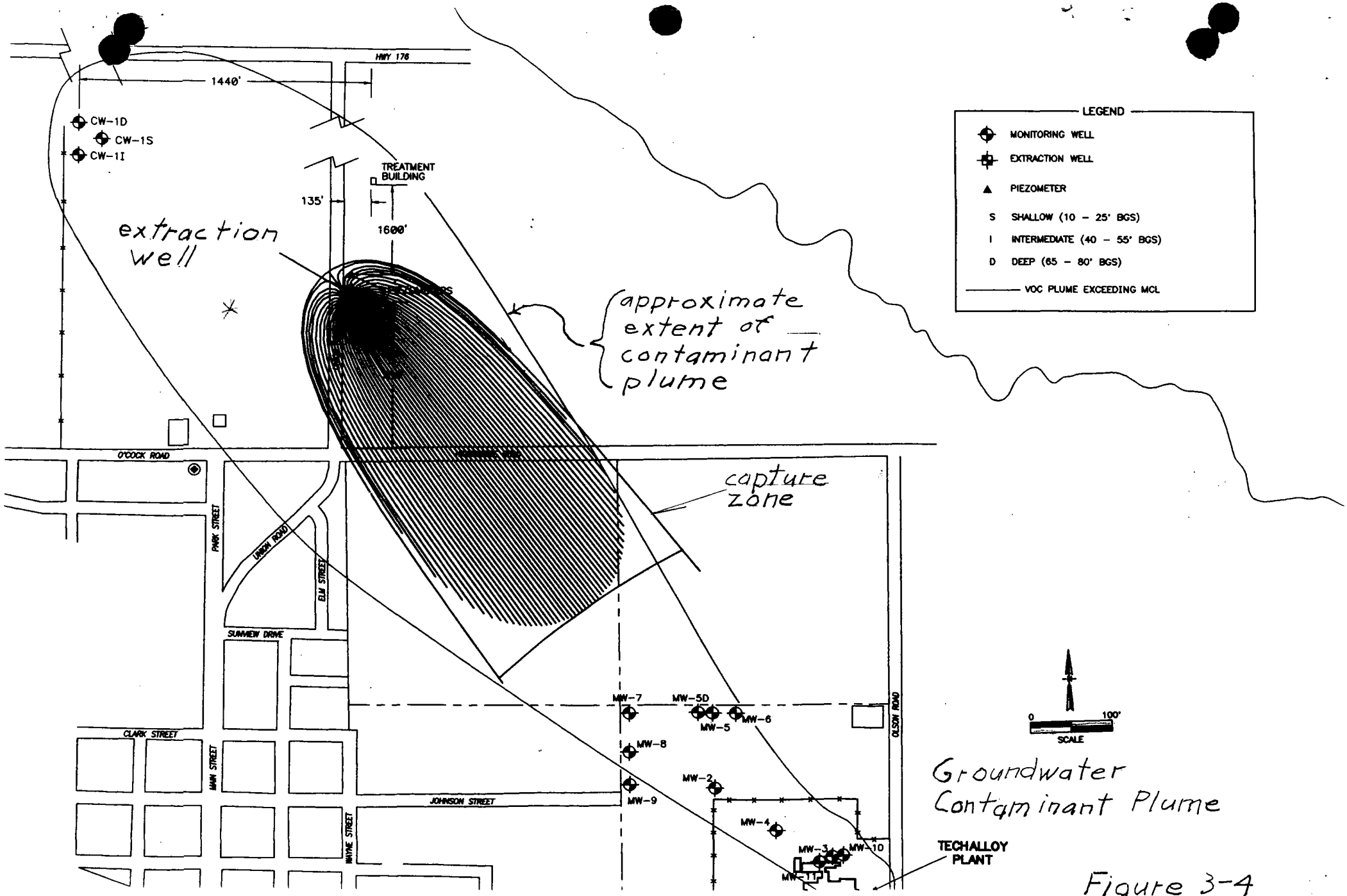
ALTERNATIVE S-3: INSTITUTIONAL CONTROLS, EXCAVATION, AND OFF-SITE DISPOSAL.

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

TECHALLOY COMPANY, INC.
Union, Illinois

FIGURE 3-3



Groundwater Contaminant Plume

Figure 3-4

- pump for bi-bypass - natural alternative - wetlands

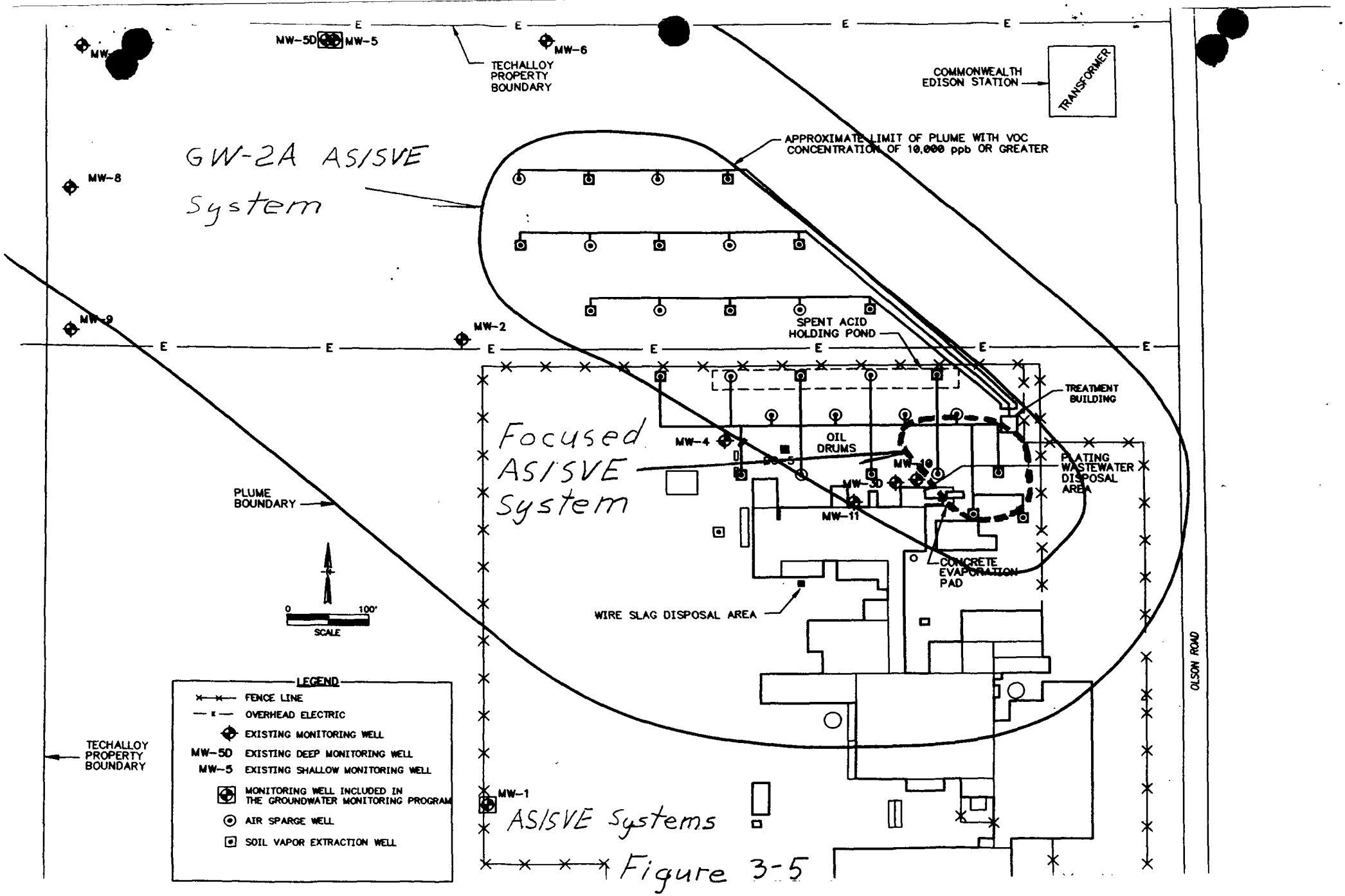

MW-5D
MW-5
MW-6
MW-8
MW-9
MW-2
MW-1
MW-4
MW-10
MW-3D
MW-11
TECHALLOY PROPERTY BOUNDARY
COMMONWEALTH EDISON STATION
TRANSFORMER
APPROXIMATE LIMIT OF PLUME WITH VOC CONCENTRATION OF 10,000 ppb OR GREATER
GW-2A AS/SVE System
SPENT ACID HOLDING POND
TREATMENT BUILDING
OIL DRUMS
Focused AS/SVE System
PLATING WASTEWATER DISPOSAL AREA
PLUME BOUNDARY
CONCRETE EVAPORATION PAD
WIRE SLAG DISPOSAL AREA
0
100'
SCALE
OLSON ROAD
LEGEND
FENCE LINE
OVERHEAD ELECTRIC
EXISTING MONITORING WELL
MW-5D EXISTING DEEP MONITORING WELL
MW-5 EXISTING SHALLOW MONITORING WELL
MONITORING WELL INCLUDED IN THE GROUNDWATER MONITORING PROGRAM
AIR SPARGE WELL
SOIL VAPOR EXTRACTION WELL
TECHALLOY PROPERTY BOUNDARY
AS/SVE Systems

Figure 3-5

ATTACHMENT B

SUMMARY
CORRECTIVE MEASURES STUDY ADDENDUM
CAMU DESIGNATION REQUEST, TECHALLOY COMPANY, INC.
August 1, 1997

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CAMU DESIGNATION REQUEST, TECHALLOY COMPANY, INC.
August 1, 1997

Introduction

In accordance with 40 CFR 264.552, a Corrective Action Management Unit (CAMU) Designation provides a regulatory framework to assure that hazardous wastes generated by remediation activities are properly handled. The CAMU designation also provides that such wastes can be placed on the land without invoking the additional RCRA regulations of the Land Disposal Restriction (LDR) Requirements and Minimum Technology Requirements. A CAMU Designation for the Techalloy Facility is proposed to accommodate the Alternative S-2 remedy which involves excavation of contaminated soil, treatment and return of the soil to the excavation. This Attachment to the Statement of Basis summarizes the information of the Corrective Measures Study Report Addendum - CAMU Designation Request, Techalloy Company, Inc. (August 1, 1997).

Regulatory status of Soils

Soil samples were collected at targeted cleanup areas and analyzed for metals by the Toxic Characteristic Leaching Procedure (TCLP) test. The TCLP test simulates the leachate process that naturally occurs as water moves down through the soil. The TCLP results showed some samples had lead concentrations in the leachate which exceeded the regulatory limits, thereby establishing the soil as Lead Toxicity Characteristic Hazardous Waste (Hazardous Waste Code D008).

S-2 Alternative Remedy Description

The S-2 remedy incorporates soil stabilization technology to address soils at the facility where concentrations of the metals, chromium, nickel, and lead, exceed cleanup levels. The remedy involves excavation of the soils, treatment by stabilization technology, and return of the treated soil to the excavation. Upon completion of the stabilization process, an asphalt cover would be installed that covers the entire CAMU designated area.

Stabilizing Procedures - The soils to be treated would be mixed with stabilizing agents by either a pug mill, ribbon blenders, extruders, or screw conveyors converting the metal contaminants in the soil to less soluble, leachable and toxic forms. Bench-scale testing would be performed to establish the appropriate additives and amounts to mix with the soil. Formulations of cement kiln dust, portland cement, quicklime, and flyash would be evaluated. The soil would also be tested for physical characteristics including moisture content, bulk density, grain size distribution, Atterberg limits, and specific gravity.

CAMU Specifics - The designated CAMU area is shown in Figure 2-3. The CAMU area includes the four areas that are to be stabilized, and an asphalt containment pad where the stabilization equipment and materials as well as untreated and treated soil would be stored. The containment area would be sloped and constructed with a 4 inch berm to contain runoff. Water or plastic covers would be used to minimize fugitive dust emissions.

To accommodate the increase of soil volume created by the stabilization process, some treated soil would be placed in the deactivated spent acid holding pond that is below grade and included in the CAMU designated area. The treated soil would be placed in 12-inch lifts and compacted to reduce long-term settlement.

Verification Sampling - Verification sampling of treated soil would be performed to assure that the stabilization process achieved the remediation goal. Since the stabilization process immobilizes the metals rather than actually removing the metals, the TCLP analysis would be applied to evaluate the treatment results. Samples of both untreated and treated soil would be collected from each 400 cubic yard treatment batch and analyzed for chromium, nickel and lead by the TCLP test. The test results of the treated and untreated soil would be compared to determine the percent reduction of the metals. The treatment goal is to achieve a 95-99.9 percent reduction of chromium, nickel and lead as defined by the TCLP tests. The actual percent reduction required prior to returning the soil to the excavation is to be established in the bench-scale testing.

Although attainment of the specific treatment standards of the LDR regulations is not required due to the CAMU designation, the LDR standards would be viewed as a secondary goal of the

stabilization process. Based on the results of the TCLP tests of the untreated soil, it is expected that the LDR standards can be readily achieved.

Project Schedule - Project schedule includes four weeks for mobilization and setup, four weeks for soil stabilization, and four weeks for demobilization and installation of the asphalt cover.

Closure and Post Closure

Closure procedures for the CAMU include decontamination of the equipment and the containment pad, and off-site disposal of the residual contaminants.

Post Closure procedures include maintenance of the asphalt cover and groundwater monitoring. The asphalt cover would be inspected periodically and resurfaced every two years. Groundwater monitoring would entail annual sampling of six down gradient monitoring wells and analysis for chromium, nickel, and lead. The analytical data from the down gradient wells would be statistically compared to analytical data obtained by an initial sampling of an up gradient well. If a significant increase in the metal concentrations is determined, the sampling frequency will be increased, and if needed, additional corrective measures employed to control the contaminant source. Generally a thirty year monitoring period is specified by the State for Post-Closure requirements.

Justification of CAMU

Pursuant to 40 CFR 264.552(c)(1), seven criteria must be satisfied to justify a CAMU designation.

Criterion 1 - The CAMU shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies.

Stabilization technology is a proven and reliable technology. The asphalt capping of treated areas minimizes infiltration of water and provides additional protection. The cost of the stabilization remedy is less than one-sixth of the off-site disposal remedy. The Alternative S-2 remedy provides an effective, reliable, and protective remedy at reasonable cost.

Criterion 2 - Waste management activities of the CAMU shall not create unacceptable risks to humans or the environment.

Dust and runoff containment is provided to prevent undue risks. Unless some portions of the soil present excessive treatment difficulty, no off-site transport of contaminated materials (except decontamination residuals) will occur thereby avoiding the risk involved in hauling. The work will be performed in accordance with a Health and Safety Plan.

Criterion 3 - The CAMU shall include uncontaminated areas of the facility only if including such areas for managing remediation waste is more protective than management of such wastes at contaminated areas.

To facilitate the remedial operation, the designated CAMU area encompasses a contiguous area that encompasses the four separate areas to be treated and the containment pad for the stabilization treatment process. The CAMU includes small areas which will not be stabilized, however the CAMU does not include any area where metal concentrations are not elevated to some degree.

Criterion 4 - Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable.

The stabilizided areas where the treated soil will be placed will be protected by the low-permeability asphalt cap. The cap will be resurfaced regularly and properly maintained.

Criterion 5 - The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable.

Though the stabilization process requires more time to complete than the off-site disposal remedy, the estimated time frame of three months for completing the process is not excessive and presents a practicable remedy for addressing contaminated soils.

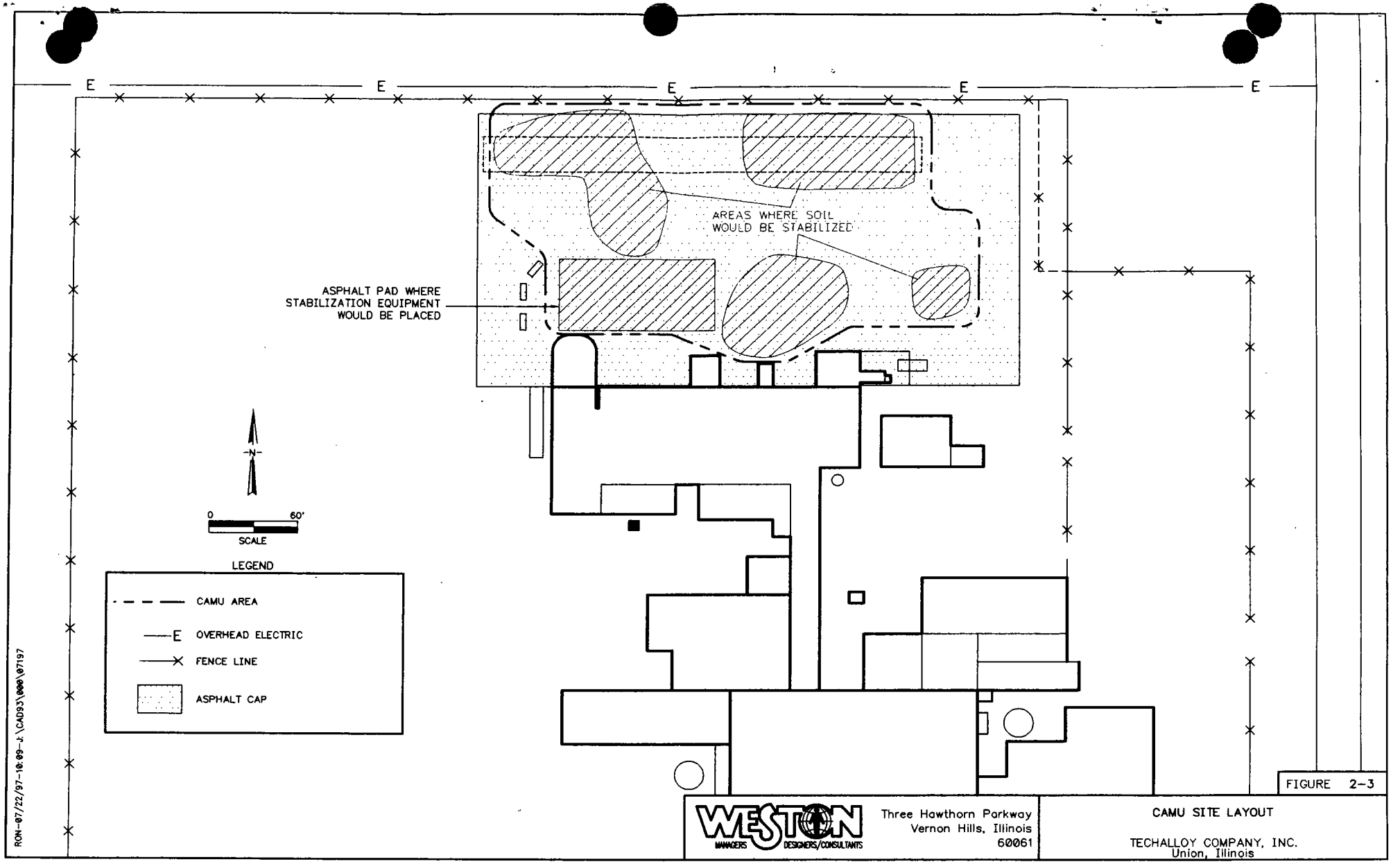
Criterion 6 - The CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU.

Performance data provided by U.S. EPA's Risk Reduction Engineering Laboratory Treatability Database (1996) shows that stabilization technology applied to metal contaminated soils can achieve a 95 to 99.9 per cent reduction, as based on TCLP

analysis. The asphalt cap prevents infiltration of water and adds additional control of contaminant mobilization.

Criterion 7 - The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

To minimize disturbance of earth material, the soil will be placed back into the original excavations (except for soil placed in the spent acid holding pond) instead of consolidating the soil in one location. All stabilized soil will be covered by the 200 by 360 foot asphalt pad.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AREAS WHERE SOIL
WOULD BE STABILIZED
ASPHALT PAD WHERE
STABILIZATION EQUIPMENT
WOULD BE PLACED
N
0
60'
SCALE
LEGEND
CAMU AREA
OVERHEAD ELECTRIC
FENCE LINE
ASPHALT CAP
RON-07/22/97-10:09-J:\CAD93\000\07197
WESTON
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 2-3

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
				MP 12/22/97	
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
MP 12/19/97		MP 12/22/97		PZ for JB 12-24-97	

12/23/97

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

DATE:

SUBJECT: Request for Concurrence on Statement of Basis
Techalloy Company, Inc.
Union, Illinois
IlD 005 178 975

FROM: Paul Little, Chief
MI/WI Section
Enforcement Compliance and Assurance Branch
Waste, Pesticides and Toxics Division

TO: Joseph M. Boyle, Chief
Enforcement Compliance Assurance Branch

Attached for your review is a Statement of Basis and a CAMU Designation Request for the Techalloy Company Inc. Also, a summary of the CAMU Designation Request is provided in Attachment B of the Statement of Basis.

Techalloy proposes to apply on-site soil stabilization technology to soils contaminated with metals. This alternative remedy is included in the Statement of Basis as part of the Agency's proposed remedy for the Facility. The CAMU Designation is requested by Techalloy in order to meet the regulatory requirements of 40 CFR 264.552 for handling remedial waste soil. The waste handling activities for the soil stabilization would be performed within the CAMU designated area.

We believe that the CAMU meets the seven decision criteria of 40 CFR 264.552(c) for this Alternative, and that the Agency's proposed remedy for the Facility as presented in Statement of Basis provides proper protection to human health and the environment. If you concur, please initial the sign off sheet and the Statement of Basis will be presented to the public for comment.

Attachments

ATTACHMENT B

SUMMARY
CORRECTIVE MEASURES STUDY ADDENDUM
CAMU DESIGNATION REQUEST, TECHALLOY COMPANY, INC.
August 1, 1997

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To accommodate the increase of soil volume created by the stabilization process, some treated soil would be placed in the deactivated spent acid holding pond that is below grade and included in the CAMU designated area. The treated soil would be placed in 12-inch lifts and compacted to reduce long-term settlement.

Verification Sampling - Verification sampling of treated soil would be performed to assure that the stabilization process achieved the remediation goal. Since the stabilization process immobilizes the metals rather than actually removing the metals, the TCLP analysis would be applied to evaluate the treatment results. Samples of both untreated and treated soil would be collected from each 400 cubic yard treatment batch and analyzed for chromium, nickel and lead by the TCLP test. The test results of the treated and untreated soil would be compared to determine the percent reduction of the metals. The treatment goal is to achieve a 95-99.9 percent reduction of chromium, nickel and lead as defined by the TCLP tests. The actual percent reduction required prior to returning the soil to the excavation is to be established in the bench-scale testing.

Although attainment of the specific treatment standards of the LDR regulations is not required due to the CAMU designation, the LDR standards would be viewed as a secondary goal of the

stabilization process. Based on the results of the TCLP tests of the untreated soil, it is expected that the LDR standards can be readily achieved.

Project Schedule - Project schedule includes four weeks for mobilization and setup, four weeks for soil stabilization, and four weeks for demobilization and installation of the asphalt cover.

Closure and Post Closure

Closure procedures for the CAMU include decontamination of the equipment and the containment pad, and off-site disposal of the residual contaminants.

Post Closure procedures include maintenance of the asphalt cover and groundwater monitoring. The asphalt cover would be inspected periodically and resurfaced every two years. Groundwater monitoring would entail annual sampling of six down gradient monitoring wells and analysis for chromium, nickel, and lead. The analytical data from the down gradient wells would be statistically compared to analytical data obtained by an initial sampling of an up gradient well. If a significant increase in the metal concentrations is determined, the sampling frequency will be increased, and if needed, additional corrective measures employed to control the contaminant source. Generally a thirty year monitoring period is specified by the State for Post-Closure requirements.

Justification of CAMU

Pursuant to 40 CFR 264.552(c)(1), seven criteria must be satisfied to justify a CAMU designation.

Criterion 1 - The CAMU shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies.

Stabilization technology is a proven and reliable technology. The asphalt capping of treated areas minimizes infiltration of water and provides additional protection. The cost of the stabilization remedy is less than one-sixth of the off-site disposal remedy. The Alternative S-2 remedy provides an effective, reliable, and protective remedy at reasonable cost.

Criterion 2 - Waste management activities of the CAMU shall not create unacceptable risks to humans or the environment.

Dust and runoff containment is provided to prevent undue risks. Unless some portions of the soil present excessive treatment difficulty, no off-site transport of contaminated materials (except decontamination residuals) will occur thereby avoiding the risk involved in hauling. The work will be performed in accordance with a Health and Safety Plan.

Criterion 3 - The CAMU shall include uncontaminated areas of the facility only if including such areas for managing remediation waste is more protective than management of such wastes at contaminated areas.

To facilitate the remedial operation, the designated CAMU area encompasses a contiguous area that encompasses the four separate areas to be treated and the containment pad for the stabilization treatment process. The CAMU includes small areas which will not be stabilized, however the CAMU does not include any area where metal concentrations are not elevated to some degree.

Criterion 4 - Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable.

The stabilizided areas where the treated soil will be placed will be protected by the low-permeability asphalt cap. The cap will be resurfaced regularly and properly maintained.

Criterion 5 - The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable.

Though the stabilization process requires more time to complete than the off-site disposal remedy, the estimated time frame of three months for completing the process is not excessive and presents a practicable remedy for addressing contaminated soils.

Criterion 6 - The CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU.

Performance data provided by U.S. EPA's Risk Reduction Engineering Laboratory Treatability Database (1996) shows that stabilization technology applied to metal contaminated soils can achieve a 95 to 99.9 per cent reduction, as based on TCLP

analysis. The asphalt cap prevents infiltration of water and adds additional control of contaminant mobilization.

Criterion 7 - The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

To minimize disturbance of earth material, the soil will be placed back into the original excavations (except for soil placed in the spent acid holding pond) instead of consolidating the soil in one location. All stabilized soil will be covered by the 200 by 360 foot asphalt pad.

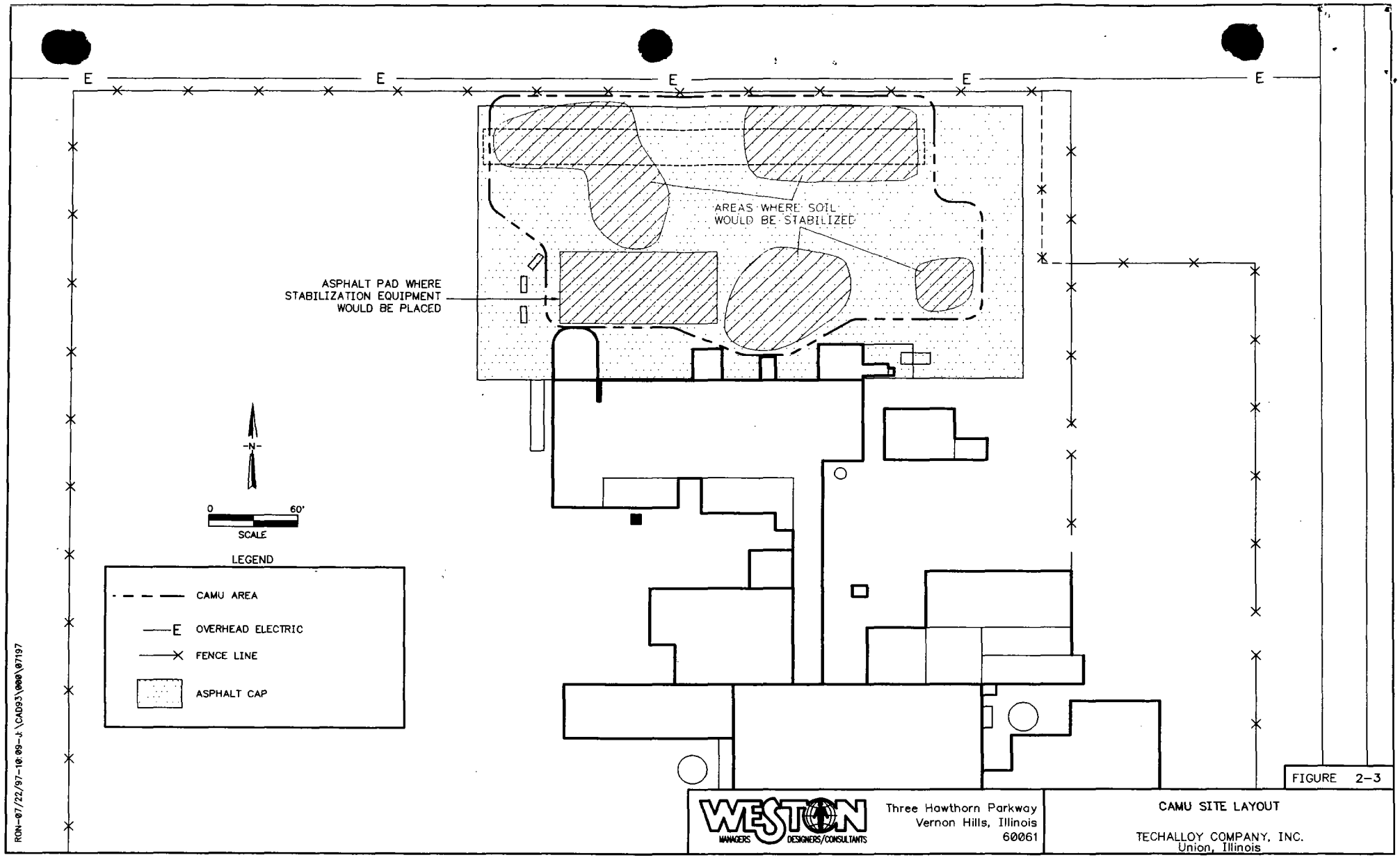
E
AREAS WHERE SOIL WOULD BE STABILIZED
ASPHALT PAD WHERE STABILIZATION EQUIPMENT WOULD BE PLACED
N
0
60'
SCALE
LEGEND
CAMU AREA
OVERHEAD ELECTRIC
FENCE LINE
ASPHALT CAP
RON-07/22/97-10:09-J:\CAD93\000\07197
WESTON
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois

FIGURE 2-3

ATTACHMENT I

STATEMENT OF BASIS

FOR

SELECTION OF REMEDIAL ALTERNATIVE

AMERICAN METALS CORPORATION

WESTLAKE, OHIO

OHD 004 528 873

United States Environmental Protection Agency

Region 5

January 1997

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system. The treatment system removes the volatile organic compounds in the groundwater by the air stripping methodology. The volatile compounds are discharged to the atmosphere under a State joint construction/operating permit, and the treated water is discharged to the South Branch of the Kishwaukee River under a State "National Pollution Discharge Elimination System" permit.

Critical evaluation of the recovery system determined that a significant portion of the contaminant plume southwest of the Union-Highbridge Road intersection was not being recovered. The system will be upgraded to expand the capture of the groundwater contaminant plume. An additional extraction well located opposite Park Street and about four hundred feet north of O'Cock Road will be installed. The new well will be connected to the existing pipeline with a double walled/leachate collection system pipeline. The necessary permits applications have been submitted and the installations are to be completed within 140 days of approval of all permits.

Groundwater monitoring

Groundwater monitoring is included in the remedy to assure that consumption of contaminated water does not occur, to evaluate the impact of the remedial actions, and identify any additional remedial action that may be needed. The private well sampling program will be continued in its present form with semi-annual sampling/analysis until data indicates that modification of the program is appropriate. Monitoring will also include sampling and analysis of the monitoring wells northwest of the Union-Highbridge Road intersection located near the far end of the contaminant plume. In addition, the Post-Closure requirements for the CAMU include annual sampling of six monitoring wells for metal analysis.

In summary, the selected remedy, which includes remediation of soils contaminated with metals and volatile compounds, groundwater containment and treatment near the down gradient limit of the contaminant plume, a AS/SVE system directed at the focal point of groundwater contamination, and institutional controls with monitoring to prevent contact with contaminants, provides protection to human health and the environment.

COMMENTS/RESPONSES

Comment - (telephone conversation) Citizen questioned the regulatory applicability of the CAMU Designation for the soil stabilization treatment process. Citizen also questioned the suitability of soil stabilization technology for metal

contaminated soils overlying a highly productive aquifer.

Response - Currently, 40 CFR 264.552 provides for the designation of CAMUs for remedial hazardous wastes if the seven criteria specified are satisfied. The Facility Statement of Basis presents a discussion of each of the seven criteria and how the proposed soil stabilization alternative remedy satisfies each criterion.

Soil stabilization is a proven technology with broad application for soils contaminated with metals. Data indicates that the metal constituents in the underlying groundwater are only slightly elevated, however long term monitoring of metal concentrations in groundwater will be required.

(no other comment received)

FUTURE CORRECTIVE ACTION ACTIVITIES

A new Administrative Order on Consent will be developed requiring implementation of the selected remedy. Under the new Order, corrective measure design details, monitoring program specifics, and implementation schedules will be established. Solid Waste Management Units at the facility are undergoing closure, and as appropriate, the remedial action required by the Order will be integrated with the closure requirements. To keep the public informed during the corrective measures implementation, information will be provided to the public through press releases or other appropriate means.

DECLARATION

Based on the administrative record compiled for this corrective action, I have determined that the selected remedy to be ordered at this site is appropriate and will be protective of human health and the environment.

Don B Ken for
Acting Regional Administrator
U.S. EPA, Region 5

5/26/98
Date

p.3.1

MAY 29 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DE-9J

Mr. Edwin C. Bakowski, P.E.
Manager, Permit Section
Bureau of Land
Illinois Environmental Protection Agency
2200 Churchill Road
Rock Island, Illinois 62794-9276

Re: Techalloy Company Inc.
Union Illinois
ILD 005 178 975

Dear Mr. Bakowski:

Please find enclosed a copy of the Final Decision/Response to Comments which describes the remedy selected for the Techalloy Company Facility by the United States Environmental Protection Agency (U.S. EPA). U.S. EPA will continue to inform the public, through press releases or other appropriate means, about the corrective measures implementation for the facility.

United States Environmental Protection Agency

FACT SHEET
FOR
STATEMENT OF BASIS

TECHALLOY COMPANY, INC.
UNION, ILLINOIS

INTRODUCTION

Techalloy Company, Inc. is performing environmental corrective action at their Facility located at the corner of Olson and Jefferson Roads in Union, Illinois. The corrective action is performed under the authority of the Resource Conservation Recovery Act (RCRA) and in accordance with a United States Environmental Protection Agency (U.S. EPA) Consent Order. The Statement of Basis prepared by U.S. EPA provides a summary of Techalloy's investigation to define the nature and extent of contamination, Techalloy's study to evaluate viable remedies for the facility, and also specifies the corrective measures (overall remedy) proposed by U.S. EPA to clean up the facility. The Statement of Basis is presented to the public for review and comment. U.S. EPA may modify the proposed remedy based on the public comments, therefore public comment is encouraged. Written comments should be sent to:

Gordon Blum
Community Relations Coordinator
U.S. Environmental Protection Agency
77 West Jackson boulevard, P-19J
Chicago, Illinois 60604
E MAIL blum.gordon@epamail.epa.gov

You may also call William Buller, U.S. EPA Project Coordinator, at (312) 886-4568 for questions concerning the site, or to

sampled and analyzed semi-annually to monitor this critical area of the aquifer. Institutional controls (regulatory or legal restraints) are also part of the overall remedy. These controls include the current restriction on water well permits which requires treatment of water withdrawn from the contaminated area; and a deed restriction that limits use of the plant site to industrial use only. A security fence encompasses the plant site.

INFORMATION REPOSITORY

An information repository for the facility has been established at the Marengo City Library, 200 South State Street, Marengo, Illinois. The repository includes the following documents:

- Administrative Order on Consent, January 27, 1993
- Statement of Basis - U.S. EPA
- Private Well Sampling Plan
- Techalloy Company Inc. Groundwater Treatment System Interim Measures, Union, Illinois
- RCRA Facility Investigation Final Report - Techalloy Company, Inc., Union, Illinois
- Corrective Measures Study Report - Techalloy Company, Inc., Union, Illinois
- Future Land Use Determination for Implementing a Corrective Measures Study

The above documents are also available at U.S. EPA's RCRA Record Center at the Metcalfe building, 77 West Jackson Boulevard, Chicago, Illinois. The public is encouraged to review the Facility Reports to gain a more comprehensive understanding of the site.

Statement of Basis - Corrective Action
~~RCRA CONSENT AGREEMENT AND FINAL ORDER SIGN-OFF~~

PART I **BACKGROUND**

Facility Name Techalloy Co. Inc.

Facility EPA ID Number ILD 005 178 975

Docket Nmber V-W-007-93

ECAB Assignee/Phone W Buller 6-4568 ORC Assignee/Phone J. Kline 6-7167

Summary of Agreement Statement of Basis for Corrective Action

PART II **CONCURRENCES ON PROPOSED CAFO (PROPOSAL NO. _____)**

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		10 29/97	✓	
2.	CAPM Chief, ECAB Section		12/9/97 12/12/97	✓	
3.	Asst. Regional Counsel		12/17/97	✓	
4.	Chief, ECAB	JMB	12/23/97 12/29/97	✓	

PART III **RETURN TO ORC ASSIGNEE FOR TRANSMITAL OF TWO ORIGINAL COPIES OF DRAFT TO RESPONDENT.**

PART IV **FINAL CAFO APPROVAL, AFTER RESPONDENT HAS SIGNED BOTH COPIES OF PROPOSED CAFO**

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		/ /		
2.	Chief, ECAB Section		/ /		
3.	Asst. Regional Counsel		/ /		
4.	ORC Section Chief		/ /		
5.	Chief, ECAB		/ /		
6.	Director, WPTD		/ /		
7.	Regional Administrator		/ /		

PART V **RETURN TO A. PERRY, DRE-8J, FOR MAILING**

☐ **HAVE YOU COMPLETED THE CASE CONCLUSION DATA SHEET? DO NOT FORWARD IF IT IS NOT INCLUDED IN SIGN-OFF PACKAGE.**

WPT

4-24-98

Final Decision/Response to Comments

~~RCRA CONSENT AGREEMENT AND FINAL ORDER SIGN-OFF~~

PART I **BACKGROUND**

Facility Name Techalloy Co. Inc. Union, Ill

Facility EPA ID Number ILD 005 178 975

Docket Nmber V-W-007-93

ECAB Assignee/Phone W Balber 6-4568 ORC Assignee/Phone K Peaceman 3-5751

Summary of Agreement 3008(h) Corrective action Final Decision/Response to Comments

PART II **CONCURRENCES ON PROPOSED CAFO (PROPOSAL NO. _____)**

		Initials	Date	Agree	Disagree
1.	ECAB Assignee	WB	04/12/98	X	
2.	Chief, ECAB Section	PL	4/16/98	X	
3.	Asst. Regional Counsel		/ /		
4.	Chief, ECAB	JMB	4/22/98		

~~PART III RETURN TO ORC ASSIGNEE FOR TRANSMITAL OF TWO ORIGINAL COPIES OF DRAFT TO RESPONDENT.~~

~~PART IV FINAL CAFO APPROVAL, AFTER RESPONDENT HAS SIGNED BOTH COPIES OF PROPOSED CAFO~~

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		/ /		
2.	Chief, ECAB Section		/ /		
3.	Asst. Regional Counsel		/ /		
4.	ORC Section Chief		/ /		
5.	Chief, ECAB		/ /		
6.	Director, WPTD		4/24/98	✓	
7.	Regional Administrator		/ /		

PART V **RETURN TO A. PERRY, DRE-8J, FOR MAILING**

☐ **HAVE YOU COMPLETED THE CASE CONCLUSION DATA SHEET? DO NOT FORWARD IF IT IS NOT INCLUDED IN SIGN-OFF PACKAGE.**

RESPONSES TO EPA COMMENTS

REVIEW OF REMEDIATION PHASE II
AIR SPARGE/ SOIL VAPOR EXTRACTION SYSTEM
TECHALLOY COMPANY
UNION, ILLINOIS
EPA ID NO. ILD 005 178 975

RESPONSE TO GENERAL COMMENTS

1. Full-scale soil stabilization activities will take place the year following installation of the AS/SVE system. All Task 2 items will be formally documented and submitted for review at that time prior to initiation of construction. Approximately 10% of the total volume of soil to be stabilized will require removal and treatment in order to facilitate installation of the AS/SVE system. Much of the information required for completion of Task 2 is available in raw form but has not been formally documented. Soil stabilization and treatment bench scale and pilot studies will be summarized and included in the AS/SVE System Design Summary. Material management processes and construction details will also be included in summary.

2. The information requested has been submitted in the past, either in the RFI, the CMS, the Draft Pilot Scale Air Sparge/SVE Study or Air Sparge/SVE System Design Summary, but not in one unified map. For purposes of clarification, a figure (Figure 1) will be added to the AS/SVE System Design Summary to show combined nature and extent of contamination, sample locations and concentrations, boundaries of clean-up for VOC's and metals, along with design influence of the various treatment technologies.

3. Discussion of AS/SVE system effective area of influence, sparge well spacing and extraction well spacing is included in both the pilot test report and the Design Summary. The design summary will be revised to include the aspect of how the design will meet the remedial goals.

4. System performance parameters are discussed in general on page 3 of the Design Summary, however, specific system performance criteria are not discussed. Specific system performance criteria will be included in the Design Summary.

5. Field results of FID and PID readings are presented for all Tests, including Test 4, in the Draft Pilot Scale AS/SVE Study, Appendix B, Figure 5. This will be identified in the text so that this data can be more easily located.

   Test 3 was a stand alone sparge test (i.e. the SVE system was off and not discharging) and as such, VOC concentration was not a parameter for this test.

   As indicated in the text, a combined PID/FID unit, (specifically a Foxboro TVA-1000, which has a range of 0-50,000 ppm) will be used for field sampling to address the unexpectedly high concentrations of VOC's discovered during the pilot test. Air samples

will be acquired using EPA methods 2 and 18 for lab analysis of VOC's and will be correlated with FID field readings. Further explanation of the AS/SVE system monitoring, how use of the TVA-1000 will eliminate the need for a field gas chromatograph and how the identified data issues shall be addressed will be included in the Design Summary.

6. A table of alarm conditions, set points and further explanation of the control system will be included in the Specifications.

7. No claims were made that biodegradation is in fact occurring at this site, only an observation that biological activity may be occurring. The primary vehicle for remediation at this site is volitilization of the COC's both in groundwater and in soils. As indicated in the first paragraph of the AS/SVE System Design Summary this remediation effort is directed at source reduction of the plume. This is to be accomplished via sparging of the groundwater and vacuum vapor extraction of the soils. As such, monitoring will be limited to quantification of parameters affecting volitilization of the COC's.

8. The Specifications and the AS/SVE System Design Summary will be revised to more comprehensively address dust exposure taking into consideration the VOC's and metals from a public health perspective.

9. The four-hour cycle time is given as an example to illustrate the flexibility of a PLC based control system. Any cycle time or grouping of sparge wells can be configured by programming the PLC. A short cycle time, however, in a conductive aquifer such as this may promote distribution of air through the pulsing effect. The performance of the sparge system cycle will be monitored and optimized for site conditions. Further discussion will be included in the AS/SVE System Design Summary.

10. A formal CQA Plan was not required in the Administrative Order on Consent Attachment I and as such will not be submitted as a separate document for review. However, a discussion of construction oversight responsibilities, construction and system performance criteria will be included in the AS/SVE System Design Summary and, as appropriate, in the specifications. Required quality control elements are present in the Specifications such as compaction requirements, equipment requirements, materials requirements, pipe testing requirements, etc.

11. Page numbers will be added to the Draft Pilot Scale AS/SVE Study.

RESPONSE TO SPECIFIC COMMENTS

DRAFT DESIGN DRAWINGS

1., 2., & 3 (Drawings G-1, G-2, G-3)

Limits of remediation, extent of contamination, target clean-up levels, and AS/SVE system influence will be shown as Figure 1, which will be added to the AS/SVE System Design Summary. Historical data and dates of sampling have previously been submitted in the RI and CMS. Drawing G-2 will be modified to further identify the heavy dashed line with target clean-up levels and limits of remediation.

4. Drawing G-3: Symbols will be changed to reflect the depth of the sparge wells by adding a S to indicate shallow and a D to indicate deep.

5. Drawing G-3: The pilot test horizontal vent will be removed from the drawing for clarification purposes.

6. Drawing G-3: Trench dimensions will be added.

7. Drawing G-3: Electrical conduit is shown on E-2 but will be added to G-3.

8. Drawing G-3: The monitoring wells to be used for AS/SVE system operations will be designated observation wells. Change designation for monitoring well MP-6 to OW-6.

9. Drawing G-4: Will indicate that retrofit design of well MW-100 is same as that for the new observation well. MW-100 will be renamed as OW-100.

10. Drawing G-4: Three layers of 8-mil polyethylene plastic sheeting were specified because this material is much easier to install, is appropriate to the design life of the treatment system and will meet the requirements of the design. This design has been field proven and will provide an adequate vapor barrier and prevent siltation of the pea gravel by the overlying sand backfill. Having 3 layers of polyethylene combine to make a 24-mil barrier, which can be more durable than a single 20-mil sheet of polyethylene. The two outer sheets protect the middle sheet against direct contact and abrasion, making it less susceptible to tearing. This discussion will be included in the AS/SVE System Design Summary.

DRAFT TECHNICAL SPECIFICATIONS

11. Table of Contents

Instrumentation specifications will be included in Division 13 of the Specifications.

12. Section 01000 – Summary of Work

The summary will be revised to clarify the number and type of sparge wells that will be installed. There are 9 deep sparge wells, and a total of 7 shallow sparge wells, which include 1 existing shallow sparge well previously installed for the pilot test and 6 new shallow sparge wells.

13. Specification 01010 - Special Requirements, Page 01010-2

Dust control monitoring requirements for the COC's both in the work zone and downwind of site periphery will be added to the specification and the Weston Health and Safety Plan.

14. Specification 01010 –Environmental Protection, Page 0110-1

The specification will be revised to allow for EPA review of the Environmental Protection Plan.

15. Specification 01010 –Environmental Protection, Page 0110-3

The specification will be revised to reflect the changes in the dust control measures cited in response to Comment No. 13.

16. Specification 01300- Construction progress and Schedules, Page 01300-4

The specification will be revised to allow for the opportunity for U.S. EPA to participate in select progress meetings.

17. Specification 01400-Quality Control, Page 01400-2

Submission of the Construction Quality Control (CQC) Plan to U.S. EPA was not a requirement of the ROD and as such will not be submitted to EPA for review. Design performance criteria for quality control will be included in the Design summary and the Specifications.

18. Specification 02200-Earthwork-General Provisions- Quality Assurance, Page 02200-2

The specification will be revised to include two moisture density tests, per lift of trench length per day.

19. Specification 02200-Earthwork-General Provisions, Page 02200-5

Subpart 3.01.G will be modified in accordance with changes described in response to Specific Comment 13.

20. Specification 02200-Earthwork-General Provisions, Page 02200-6

The specification will be revised to reflect that no active dewatering of the excavations will be allowed, only passive measures to prevent surface water run-on into trenches. Management of the minimal amount of wet materials from the bottom of the trenches will be discussed in the Design summary.

21. Specification 02210 – Soil Stabilization- Excavation, Page 02210-2

Subpart 3.01.F (not 3.01.G) will be modified in accordance with changes described in response to Specific Comment 13.

22. Specification 02670 – Air Sparging Wells, subpart 1.01, page 02670-1

Sparge well designations will be changed in the Specifications to S-1 through S-17.

23. Specification 02670 – Air Sparging Wells, subpart 3.02, page 02670-4

Test holes will not be used on this project and references to them will be eliminated from the Specifications.

24. Specification 02670 – Air Sparging Wells, subpart 3.03.B., page 02670-5

Well development criteria specifications will be included in this subpart.

25. Specification 02670 – Air Sparging Wells, subpart 3.05.A., page 02670-6

A discussion of the impacts and the general criteria for location of a new well if replacing an abandoned well will be included in the Design Summary.

DRAFT PILOT SCALE AIR SPARGE/SVE STUDY

26. Section 2- Site location and description

Figure 2-Site Map will be added to report.

27. Section 3- Previous Work, Section 3.1

Delineation of the soils impacted by metal constituents will be included in Figure 1 of the Design Summary.

28. Section 5-Pilot Test Activities, 5.1.6

The date of well development will be provided.

29. Section 6.4 - Vertical Vent SV-1 SVE Pilot Test 1 Results

The AS/SVE System Design Summary will be revised to more fully discuss and clarify how the vacuum surge or rise in water table elevation has been accounted for in the current design.

30. Section 6.4 - Vertical Vent SV-1 SVE Pilot Test 1 Results

The AS/SVE System Design Summary will be revised to more fully discuss and clarify that this system is designed as an on-site source reduction/removal measure utilizing volitilization of VOC's as a primary means of treatment, not as a bioremediation effort.

31. Section 6.5 – Air Sparge Pilot Test 1 Results

See response to Comment # 30.

32. Section 6.5 – Air Sparge Pilot Test 1 Results

See response to Comment # 30. Dissolved Oxygen will be monitored as an AS system influence parameter, which will be discussed in the Design summary.

33. Section 6.5 – Air Sparge Pilot Test 1 Results

See response to Comment # 29.

34. Figure 5

The heavy bold line in Fig. 5 is the limit of treatment and will be included on Figure 1 of the AS/SVE System Design Study. Discussion of the correlation of this information with that presented in Figure 3-"Total VOC Concentrations In Soil" will be included in the discussion of Figure 1 of the Design Study.

35. Figure 4

Information from this figure will also be included in Figure 1 of the Design Study.

36. Summary of Remedial Technologies- Task 2

Soil stabilization activities and treatment bench scale and pilot studies will be summarized and included in the AS/SVE System Design Summary. See response to comment #1.

37. AS/SVE System Design Summary- SVE design, page 8.

A typical cross section of the SVE trench including the seal design will be added to the design drawings and further discussion included in the Design Summary.

38. AS/SVE System Design Summary-SVE design, page 8.

The AS/SVE System Design Summary will be revised to further explain and discuss SVE manifold controls, sampling points and instrumentation functions, monitoring frequency and monitoring parameters.

39. AS/SVE System Design Summary-SVE design, page 9.

Air emissions monitoring will be discussed and clarified in more detail.

40. AS/SVE System Design Summary- SVE design, page 9.

Details of system start-up field and lab testing will be included in the Design Summary as well as system performance standards required to meet As-built Design performance specifications.

41. AS/SVE System Design Summary-AS system design, page 10

The Design Summary will be clarified as to the number and type of sparge wells that will be installed, which will be 9 deep, and 7 shallow sparge wells with 1 existing shallow sparge well to be connected to the system.

42. AS/SVE System Design Summary-AS system design, page 10

Sparge well numbers will be included in the discussion of the well groupings and designated "S" for shallow and "D" for deep. Further discussion of the criteria used for making the distinction between the groupings along with installation quality control issues for assurance of proper construction and performance will be addressed in this section of the Design Summary.

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

26 May 2000

Mr. Allen T. Wojtas
Project Manager
Enforcement and Compliance Assurance Branch
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Dear Mr. Wojtas:

Enclosed is Roy F. Weston's line-by-line response to U.S. EPA's comments on the Remediation Phase II design deliverables per your request. The responses describe revisions and clarifications that will be made to the Technical Specifications and Plans, the Summary of Remedial Technologies, Draft Pilot Scale Air Sparge/SVE Study and the Air Sparge/Soil Vapor Extraction System Design Summary.

Please do not hesitate to contact me at (847) 918-4002 if you have any questions or require further information.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk

cc: Scott Carr, Techalloy
Cathy Dare, TechLaw

I:\WO\W1500\TECHALL\28688LTR.DOC

Memorandum
Modification to Soil Remediation Alternative
Techalloy Company, Inc.
Union, Illinois
ILD 005 178 975

This memorandum provides a summary of the soil remediation approach to be implemented at Techalloy Company, Inc. (Techalloy) facility located at the intersection Olson and Jefferson Roads in Union, Illinois (herein referred to as the subject property). Corrective Measures Implementation is currently being conducted at the subject property as a requirement of a RCRA Section 3008(h) Administrative Order on Consent between the United States Environmental Protection Agency (U.S. EPA) and Techalloy issued September 30, 1999 and modification to the Order dated March 9, 2000.

In order to provide a clear understanding of the rationale and scope of this modification to the remedial approach for metal constituents in soil, the following sections present a discussion of project background, soil remediation rationale and implementation issues.

Background Information

The subject property is located at the intersection of Olson and Jefferson Roads near the Village of Union, Coral Township, McHenry County, Illinois. The developed portion of the property occupies five acres. The subject property includes an additional 35 acres of agricultural land surrounding the facility. A property boundary map is presented in Figure 1.

Techalloy has completed both a RCRA Facility Investigation (RFI) and the Corrective Measure Study (CMS) at the subject property. The RFI was conducted between August/September 1994 and March/April 1996 and involved investigations that determined the extent of potential releases of hazardous waste and/or constituents at potential source areas. The CMS was completed in August 1997 and recommended remedial alternatives for both soil and groundwater. A Statement of Basis was prepared, and a Final Decision and Response to Comments was signed by the U.S. EPA on May 26, 1998. The Final Decision included off-site groundwater extraction/treatment, on-site groundwater sparging, on-site soil vapor extraction to address volatile organic compounds (VOCs) in the soil and groundwater, and on-site soil stabilization and asphalt capping to minimize the leaching of soil contaminants into the groundwater, and to prevent direct human exposure to the contaminated soil.

Currently, there are two groundwater extraction wells pumping a total of approximately 600 gallons per minute from the aquifer. Techalloy is then treating VOCs in water prior to discharging the clean water in to the South Branch of the Kishwaukee River. This remediation technology is preventing the VOCs in groundwater from migrating further. In addition to off-site groundwater extraction, Techalloy has implemented an air sparging system that injects air into the aquifer, which removes VOCs from the groundwater. The

on-site soil remediation technology that has been implemented for remediation of VOCs in the soil is accomplished through the soil vapor extraction system. This system is removing VOCs by simply vacuuming the VOCs from the unsaturated soil.

In March 2001, an investigation at the subject property was conducted to more accurately assess the detailed extent of metals contamination in the soil. The investigation determined that the area of metals impacted soil was approximately half the size of what was originally assessed from the RFI data. The area of metals contamination consisted of four discreet areas totaling approximately 100 feet by 100 feet to a depth of approximately 7 feet below the ground surface (Figure 2).

In addition, in May 2001, Techalloy conducted a round of groundwater sampling from wells located on-site and off-site for metal constituents (Figure 3). Metals were not detected in the off-site groundwater monitoring well at the intersection of Union and Highbridge Roads. Comparing the concentrations from the same wells collected in 1994 and 1996 indicate that metal concentrations have decreased. This indicates that although the metal constituents in soil are leaching to groundwater, they have not migrated to the off-site well location. This lack of metal migration in groundwater is likely the result of the metals adsorbing to the clay particles in the soils.

Currently, McHenry County has restricted the use of groundwater as a potable source of drinking water within the area of the groundwater plume. Also, residents that were incorporated in the groundwater-sampling program required by the 1999 Consent Order (west of the subject property), have been connected to the City of Union public water supply. Techalloy has incorporated within its Property Deed a restriction that the property will only be used for industrial purposes. These measures ensure that groundwater within the area of the groundwater plume is not being used as a drinking water source and that the subject property will only be used for industrial purposes. These measures are considered institutional controls that provide further protection to the public and the environment.

Soil Remediation Rationale

Since metal constituents are leaching from soil to groundwater and are found at the surface at concentrations which would result in an unacceptable risk due to direct contact, a remediation technology is necessary that will minimize precipitation from leaching the metals from the soil and that will place a physical barrier between the contaminated soil and receptors.

The Administrative Order on Consent stipulated the use of soil stabilization and an asphalt cap to minimize the leaching of metals and eliminating any threat due to direct contact. By letter dated July 6, 2001, Techalloy proposed an alternative of constructing an engineered barrier (asphalt cap) that would minimize precipitation from infiltrating in the areas of elevated metal impacted soil, and would eliminate the direct contact threat. U.S EPA agrees that this alternative would be equally protective of human health and the environment.

The alternative to soil stabilization is to solely implement an engineered asphalt cap that will act as a barrier and minimize the infiltration of precipitation, and consequently, minimize the leaching of metals in the soil. This technology will also effectively eliminate the potential for contact with the contaminated soil. At this property, use of this technology is as protective to human health and the environment as would be using stabilization technology with an asphalt cap. Also, by eliminating soil stabilization there will be no need for a Corrective Action Management Unit (CAMU), since impacted soil will not be removed from the subsurface. The benefit of not digging the contaminated subsurface soil is the elimination of the short-term risk of exposure to workers. Further, this modified remediation can be implemented more quickly and economically than could soil stabilization followed by capping.

To further ensure that metal constituents are not migrating in groundwater, Techalloy will be required to monitor on-site and off-site monitoring wells for metal constituents twice a year for a duration of time U.S. EPA considers appropriate (minimum five years). If at any time MCLs for metals in groundwater are exceeded at the off-site well, Techalloy will notify U.S. EPA, and will implement those measures deemed appropriate at the time by U.S. EPA. After five years, if conditions remain stable or metal concentrations in groundwater continue to decrease, Techalloy may request that U.S. EPA extend the duration between sampling events.

Technical Implementation and Schedule

The asphalt cap has been designed to be a strong and reasonably impervious layer. The cap incorporates two design types with specific purposes. The majority of the area of the cap has been designed to cover the metal impacted soil and secondly a smaller area of the cap has been designed for roadway purposes to provide access around the subject property. The majority of the cap has been designed to include 2.5 inches of Class 1 IDOT Type 3 asphalt, 2.5 inches of Class 1 IDOT Type 2 asphalt, 4 inches CA-6 aggregate, and lastly an 8-ounce geotextile membrane. The roadway design includes 2.5 inches Class 1 Type 3 asphalt, 4 inches IDOT Class 1 Type 2 asphalt, 6 inches CA-8 aggregate, 4 inches CA-6 aggregate, and lastly 6-ounce geotextile membrane. The roadway has been constructed to hold a heavier load to accommodate forklifts and trucks. The condition of the asphalt cap will be evaluated by Techalloy each spring, and resurfaced/sealed every two years, as necessary.

The boundary of the asphalt cap in relation to the identified impacted metal constituents in soil is presented in Figure 2. The cap will cover all areas of metal impacted soil.

The implementation of the cap has been initiated with the site grading and design plan. The construction of the cap is to start on or about October 13, 2001 and to be completed on or about November 15, 2001.

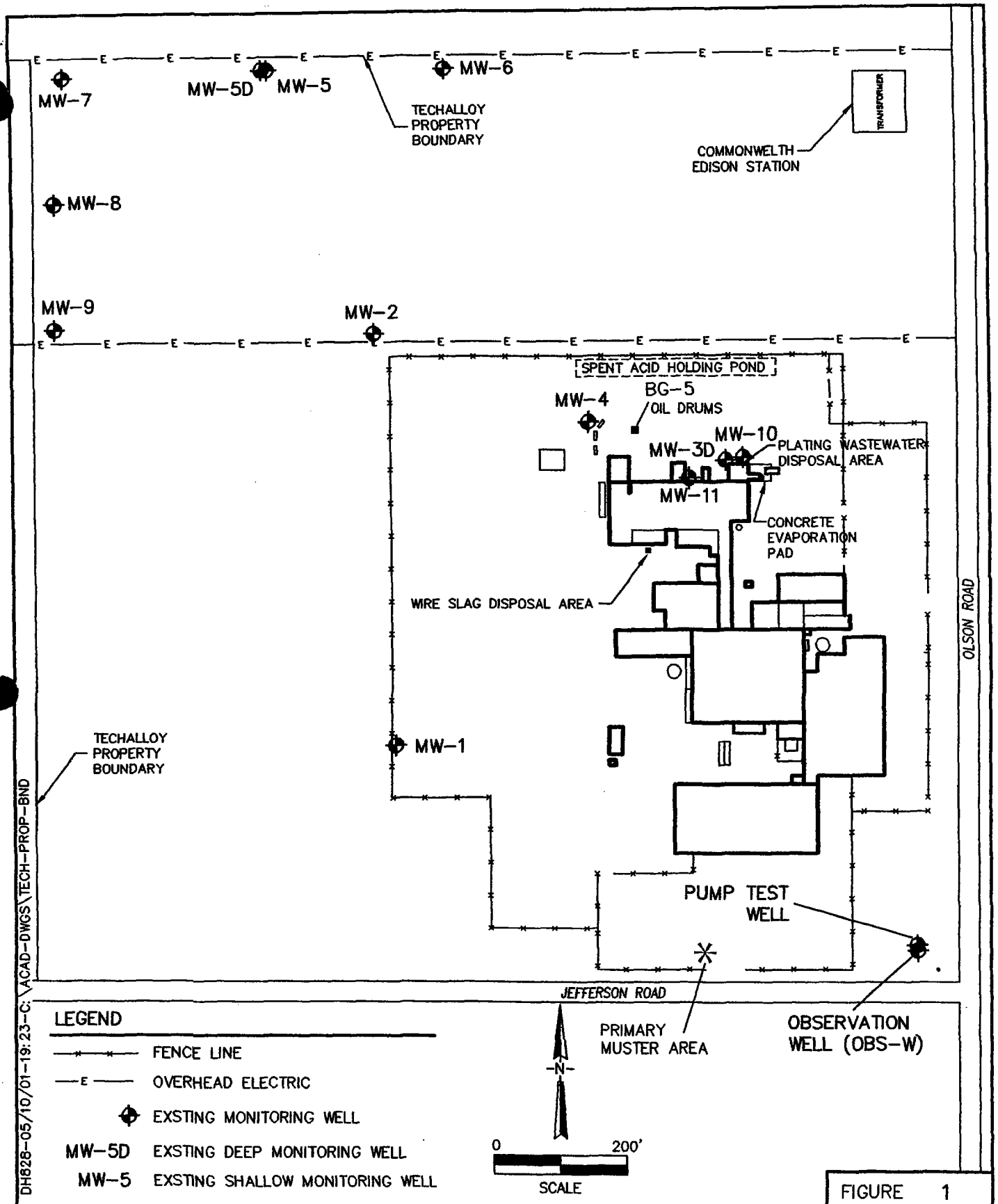


FIGURE 1

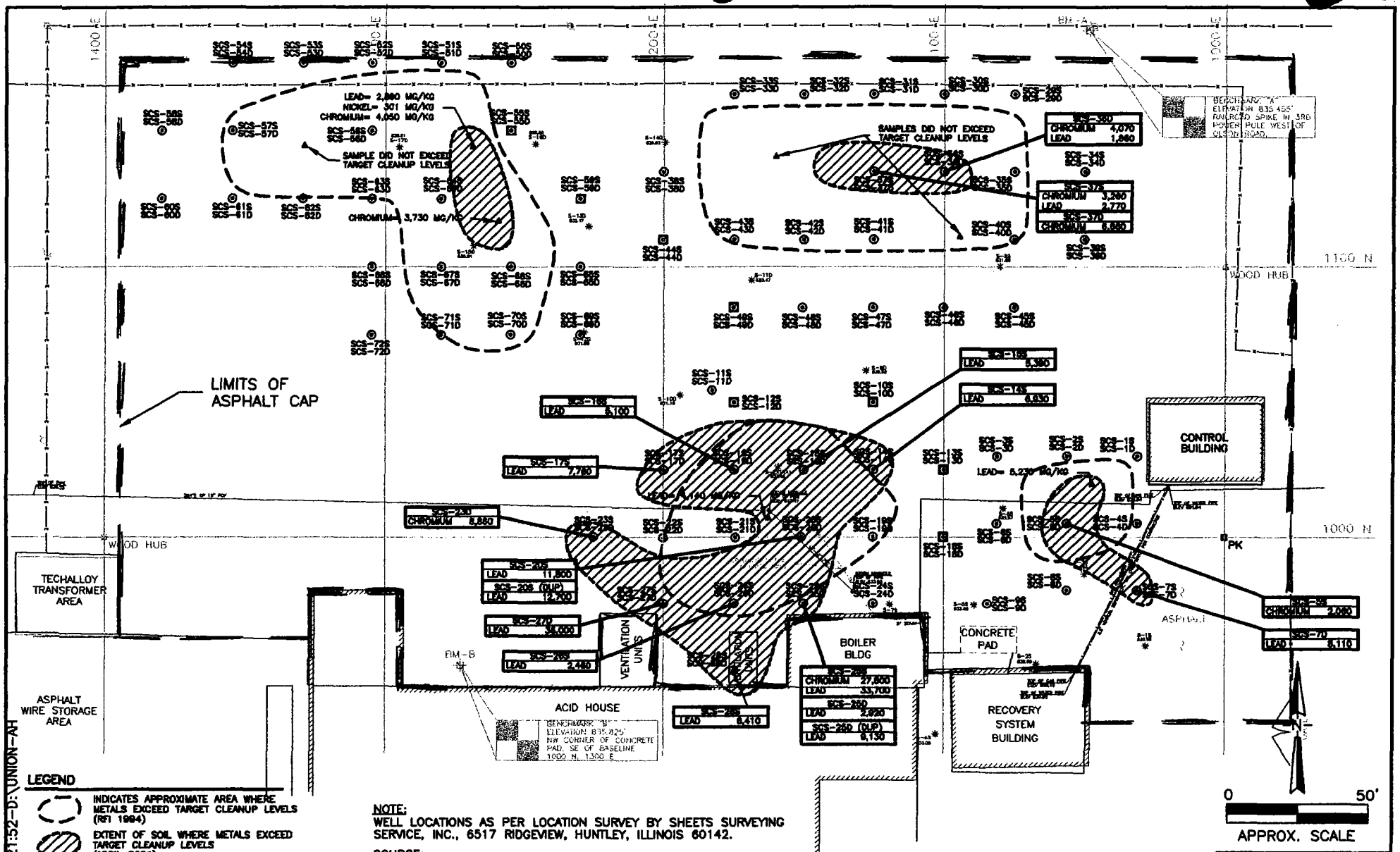
InteGreyted consultants

1590 S. Milwaukee Ave.
Suite 312
Libertyville, IL 60048

TECHALLOY PROPERTY BOUNDARY

TECHALLOY COMPANY, INC.

Union, Illinois



LEGEND

- INDICATES APPROXIMATE AREA WHERE METALS EXCEED TARGET CLEANUP LEVELS (RFI 1994)
- EXTENT OF SOIL WHERE METALS EXCEED TARGET CLEANUP LEVELS (APRIL 2001)
- SAMPLED BY INTEGREYTED CONSULTANTS
- SAMPLES NOT COLLECTED DUE TO ITS PROXIMITY TO THE SVE SYSTEM
- ▲ SAMPLED BY ROY F. WESTON INC.
- SCS-1S INDICATES SHALLOW SOIL SAMPLE (2-4 FEET BGS)
- SCS-1D INDICATES DEEP SOIL SAMPLE (6-8 FEET BGS)
- NOTE: ALL CONCENTRATIONS IN mg/kg (ppm)

NOTE:
WELL LOCATIONS AS PER LOCATION SURVEY BY SHEETS SURVEYING SERVICE, INC., 6517 RIDGEVIEW, HUNTLEY, ILLINOIS 60142.

SOURCE:
BASE MAP BY R.F. WESTON, INC.
USED BY PERMISSION OF TECHALLOY.

FIGURE 2

InteGreyted

1590 S. Milwaukee Ave.
Suite 312
Libertyville, IL 60048

Location of Asphalt Cap and Impacted Soil

TECHALLOY COMPANY, INC.
Union, Illinois

DR828-09/05/01-21:52-D:\UNION-AH

ABBREVIATIONS

AOC - Area of Concern

CMS - Corrective Measures Study

Ohio EPA - Ohio Environmental Protection Agency

AMC - American Metals Corporation

RCRA - Resource Conservation and Recovery Act

RTC - Response to Comments

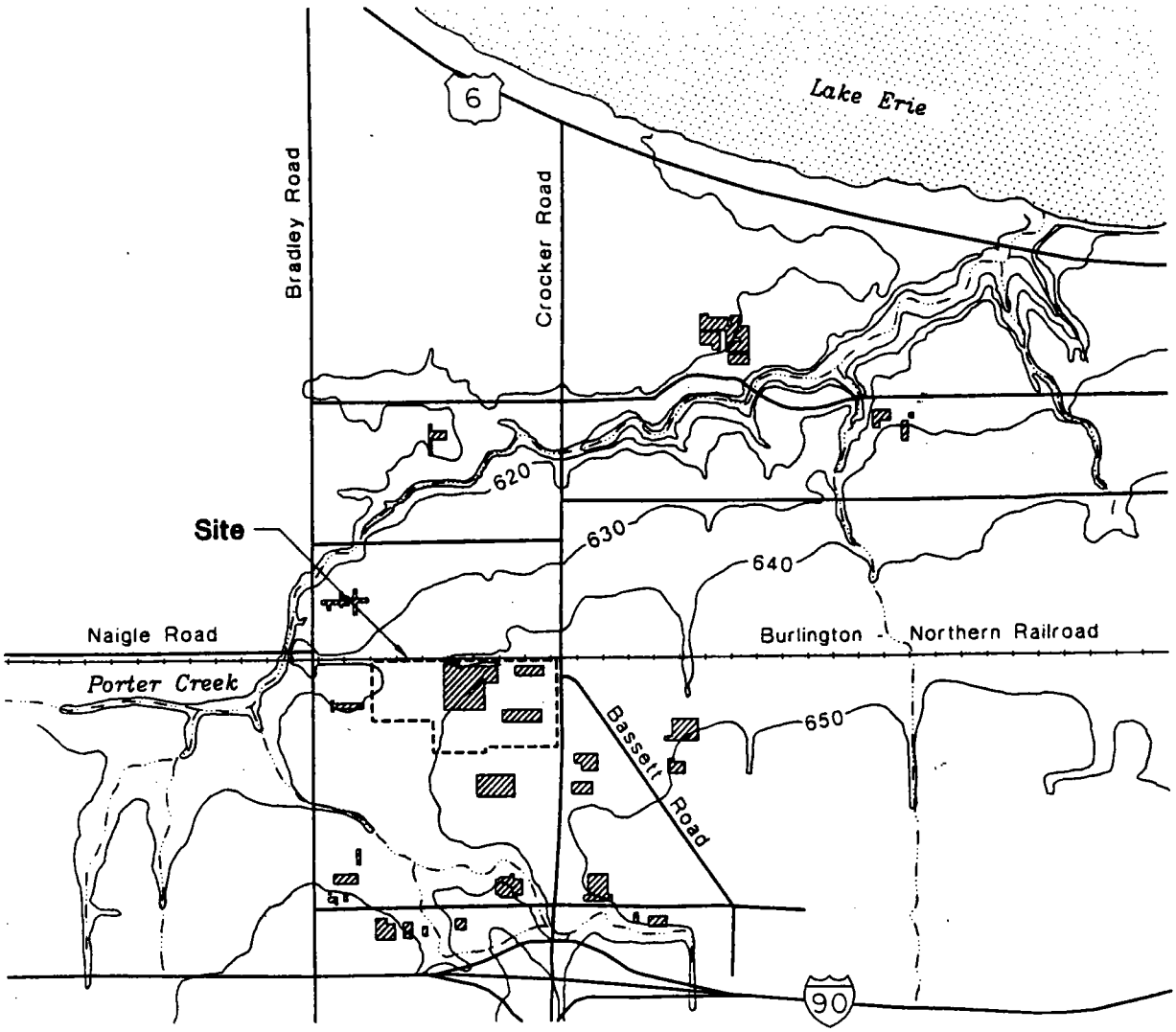
RFI - RCRA Facility Investigation

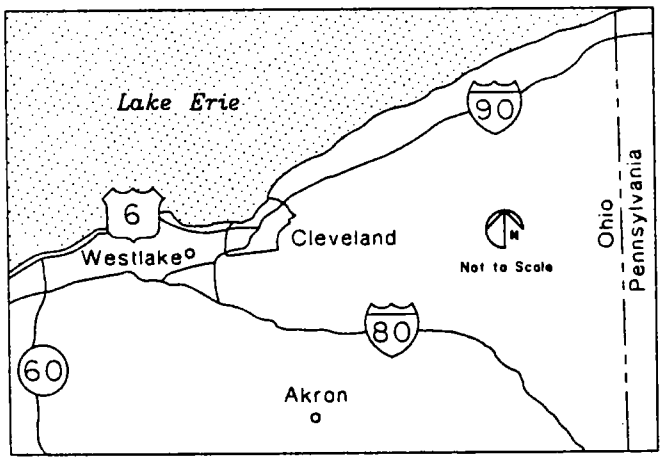
SB - Statement of Basis

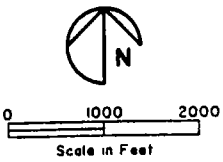
SWMU - Solid Waste Management Unit

U.S. EPA - United States Environmental Protection Agency

USG - USG Corporation







Reference: U.S. Geological Survey topographic map 41081-D8-TF-024, 1963, photorevised 1985.

AGI TECHNOLOGIES

Vicinity Map

American Metals Corporation CMS
Westlake, Ohio

FIGURE 1.1

PROJECT NO.	DRAWN	DATE	APPROVED	REVISED	DATE
14,937.123	JFL	13 Apr 94	MSC		

INTRODUCTION

This statement of basis (SB) for the American Metals Corporation (AMC) facility in Westlake, Ohio, explains the proposed remedy for addressing contamination at the facility. In addition, the SB includes summaries of all corrective measure alternatives analyzed by the facility. U.S. EPA will select a final remedy for the facility only after the public comment period has ended and the information provided by the public during this period has been reviewed and substantive comments considered.

This SB is being issued by U.S. EPA as part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). The document summarizes information that can be found in greater detail in the final RCRA Facility Investigation (RFI) and Final Corrective Measures Study (CMS) Reports and other pertinent documents. The RFI and CMS reports may be reviewed in order to gain a more comprehensive understanding of the facility and the RCRA activities that have been conducted.

U.S. EPA may modify the proposed remedy or select another remedy based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives. The public can be involved in the remedy selection process by reviewing the documents contained in the Administrative Record and submitting written comments.

PROPOSED REMEDY

The U.S. EPA is proposing the following remedy to address all contaminated media at the Westlake, Ohio, facility:

- Excavation and off-site disposal of the landfill contents and contaminated soils/weathered shale at the facility.

- Treatment of contaminated groundwater to meet Maximum Contaminant Levels (MCL); An MCL is the maximum permissible level of a chemical which can be present in water delivered to a user of a public water system.

- Monitoring of surface water

- Containment of sediment in the Northern Drainage Ditch

- Provide and maintain deed/land use restrictions to ensure that future land use is consistent with current land use.

- Maintenance of access controls to prevent exposure of human receptors to any contaminated soils remaining at the facility.

FACILITY BACKGROUND

U.S. EPA's Preliminary Review/Visual Site Inspection Report (PR/VSI) dated July 16, 1987 identified 26 Solid Waste Management Units (SWMUs) at the Facility. The PR/VSI recommended investigation of soil, groundwater and sediments. On May 22, 1991, U.S. EPA and AMC entered into an Administrative Order on Consent (Consent Order) requiring AMC to conduct an RFI and a CMS for the facility. USG Corporation, on behalf of its subsidiary USG Interiors, Inc. (AMC was acquired by USG Interiors, Inc. in 1986), retained AGI Technologies to perform the RFI and CMS. The RFI was performed to determine the nature and extent of releases of hazardous constituents at the facility. The CMS was conducted to determine alternatives to address the contamination at the facility.

The AMC facility is located in Westlake, Ohio in Cuyahoga County. The site location is shown on Figure 1.1. The facility address is as follows:

USG Interiors
1000 Crocker Road
Westlake, Ohio 44145-1031

The site consists of a 24-acre parcel of land which contains three separate buildings. AMC occupies the building located in the site's southeast corner.

Land surrounding the site is used for light industrial, commercial, and residential purposes. The land use bordering the facility is depicted on Figure 1.2. The Norfolk and Western Railroad operates one active set of tracks along the site's northern property line. North of these tracks (approximately 100 feet), between Crocker and Bradely Roads, are a church, five single-family residences, and an area of multi-family dwellings. Land west of the site contains a Cleveland Electric Illumination Co. field office and an electrical power substation. Mr. Frank

Dindia owns undeveloped land southwest of the site, and a Bonne Bell cosmetics manufacturing plant is located south of the site. Approximately 100 feet to the east, on the opposite side of Crocker Road, are four private residences, a branch office of the Lorain County Bank, an office housing a commercial furnishing consultant, and the Metal Equipment Company building.

SUMMARY OF FACILITY INVESTIGATION RESULTS

The RFI was performed during 1993 and additional investigation was performed during the implementation of interim measures. Risk assessments were performed for the landfill contents, soils/weathered shale, groundwater, surface water and sediments based on RFI sampling results. Risk assessment is a methodology used to estimate or predict the potential for adverse health effects from exposure to chemical contaminants in various environmental media. The risk assessments were presented in the CMS Report. Based upon the risk assessments, protection standards were developed for the chemicals detected at the facility. Protection standards are levels of chemicals that are deemed to pose minimal risk to a human receptor under the most likely exposure pathways. The following is a summary of the major findings and conclusions which were formulated based upon the analytical database developed for and presented in the RFI.

- Levels of contaminants in **landfill contents** exceed protection standards for bis (2-ethylhexyl) phthalate, Aroclor 1260, octachlorodibenzo-p-dioxin (OCDD), heptachlorodibenzo-p-dioxin (HpCDD), and zinc.

- Levels of contaminants in **soil/Weathered Shale** exceed protection standards for methylene chloride, 1,1,1-trichlorethane, cadmium, and lead.

- Levels of contaminants in **groundwater** exceed protection standards for cadmium, chromium, lead, nickel, thallium, zinc, cis-1,2-dichloroethene, vinyl chloride, and trichloroethene.

- Levels of contaminants in **surface water** do not exceed protection standards.

- As a result of interim measures performed during the fall of 1994 and spring of 1995, levels of contaminants in **sediments**

do not exceed human health protection standards. Levels of contaminants in the northern drainage ditch exceed ecological protection standards for zinc, lead, and chromium.

SUMMARY OF FACILITY RISKS

The environmental fate and transport of hazardous constituents were assessed in the exposure and risk assessments detailed in the RFI and CMS Reports. Upon consideration of the anticipated future use of the facility supported by proposed deed restrictions, U.S. EPA expects future land use to be consistent with current land use. Residential development of the facility is not considered likely. The exposure pathways presented in the risk assessment are based upon these assumptions.

Ecological Assessments

The RFI ecological assessment identified potential threats to ecological receptors. The potential threat was to aquatic and terrestrial organisms from levels of contaminants in surface water and to benthic organisms from levels of contaminants in surface water and sediments. To mitigate this potential threat an interim measure was performed in the fall of 1995 and spring of 1996. The interim measure included removal of sediments from the southern and western drainage ditches and the settling basin. Sediments were allowed to remain in place in the northern drainage ditch and are addressed by the proposed remedy.

Human Health Risk Assessment

A screening process was used to identify chemicals requiring protection standards. A screening process compares maximum detected concentrations of constituents of potential concern to promulgated standards and/or risk-based concentrations. The screening process focussed the development of protection standards on the specific chemicals posing the greatest potential threat. Chemicals not eliminated during the screening process are termed constituents of concern. Individual protection standards were calculated for each constituent of concern based upon the most stringent promulgated standard and risk-based concentration. Risk-based concentrations were developed by calculating levels of constituents that would result in a cumulative lifetime cancer risk of 1.0E-4 or a cumulative hazard index of 1.0, under the assumption that potential exposure is based on future industrial land use. The risk-based

concentrations meet U.S. EPA's target cancer risk range of 1.0E-06 to 1.0E-04 and U.S. EPA's target non-cancer hazard index of 1.0. A cancer risk of 1.0E-6 represents 1 new case of cancer in 1,000,000 exposed individuals, and a cancer risk of 1.0E-4 represents 1 new case of cancer in 10,000 exposed individuals. A cumulative hazard index of 1.0 or less means that long-term exposure to potentially toxic constituents should not result in an adverse health effect. All exceedances of protection standards are addressed by the proposed remedy.

U.S. EPA believes the level of risk posed by contamination at the facility after implementation of the selected remedy will be minimal. The actual cumulative media site risk will be less than 1.0E-4 and is not merely assumed to be achieved through the implementation of institutional controls. There are no significant uncertainties in the calculation of the 1E-4 risk level.

SUMMARY OF CORRECTIVE MEASURE ALTERNATIVES

The potential corrective measures alternatives presented in the CMS Report for **landfill contents** are as follows:

- Alternative 1 includes deed/land use restrictions, fencing, and monitoring.
- Alternative 2 includes excavation with subsequent disposal on-site using a liner that meets RCRA's Minimum Technology Requirements, deed/land use restrictions, fencing, short-term groundwater controls, single barrier cap with stormwater controls.
- Alternative 3 includes deed/land use restrictions, fencing, excavation, solidification (if necessary), short-term groundwater controls, on-site consolidation in an engineered cell, single barrier cap with stormwater controls.
- Alternative 4 includes excavation and off-site disposal, short-term groundwater controls, backfilling, grading, and stormwater controls.

The potential corrective measures alternatives presented in the CMS Report for **soil/weathered shale** are as follows:

- Alternative 1 includes surface cover, deed/land use restrictions, fencing, and stormwater controls.

- Alternative 2 includes deed/land use restrictions, short-term groundwater controls, excavation, on-site treatment, backfilling, surface cover, and stormwater controls.
- Alternative 3 includes excavation and off-site disposal short-term groundwater controls, backfilling, surface cover, and stormwater controls.

The potential corrective measures alternatives presented in the CMS Report for **groundwater** were as follows:

- Upper Zone Alternative 1 includes deed/land use restrictions, access restrictions, groundwater and surface water monitoring, and source controls.
- Upper Zone Alternative 2 includes access restrictions, groundwater monitoring, groundwater extraction in source areas and disposal/off-site treatment.
- Upper Zone Alternative 3 includes access restrictions, groundwater monitoring, groundwater extraction and diversion trenches, treatment and treated water disposal.
- Lower Zone Alternative 1 includes deed/land use restrictions, access restrictions, groundwater monitoring.
- Lower Zone Alternative 2 includes Lower Zone Alternative 1 technologies, extraction wells, groundwater treatment, treated water disposal, and monitoring.

The potential corrective measures alternatives presented in the CMS Report for **surface water** are as follows:

- Alternative 1 includes surface water monitoring.
- Alternative 2 includes surface water collection and treatment.

The potential corrective measures alternatives presented in the CMS Report for **sediments** are as follows:

- Alternative 1 includes signs and surface water monitoring.
- Alternative 2 includes signs and sediment control barriers.
- Alternative 3 includes temporary surface water controls and diversion, excavation, off-site disposal, and restoration.

PROPOSED REMEDY

The proposed remedy for the facility includes the following: deed/land use restrictions and access controls for the entire facility (see discussion of Alternative 1 for landfill contents); Alternative 4 for the landfill contents; Alternative 3 for soil/weathered shale; a combination of Upper Zone Alternative 2 and Lower Zone Alternative 1 for groundwater; Alternative 1 for surface water; and Alternative 2 for northern drainage ditch sediments.

EVALUATION OF THE PROPOSED REMEDY

1. **Technical Criteria.**
   Performance was evaluated based on effectiveness and useful life. The proposed remedy consists of source control activities and monitoring. Additional controls or treatment will be implemented if exceedences of protection standards are found during monitoring.

2. **Human Health Criteria.**
   The overall protection of human health is addressed most effectively by proposed remedy. The remedy prevents dermal contact and ingestion exposures associated with contaminated media. Access controls including fencing and security guards would be maintained at the facility to prevent exposure to contaminated soils.

3. **Environmental Criteria.**
   The remedy provides the greatest improvement to the environment over a reasonable period of time. Many potential impacts have been mitigated through implementation of interim measures. The remaining potential impacts of contaminants in the northern drainage ditch sediments and surface water from groundwater discharges will be controlled and monitored.

4. **Institutional.**
   Deed/land use restrictions would be subject to approval by U.S. EPA and recorded with the Cuyahoga County Recorder's Office. Such restrictions would be maintained to ensure that future land use is consistent with current land use.

Grading and excavating permits are expected to have little effect on the proposed remedy.

5. **Cost Estimate.**
Although cost is not considered an evaluation criterion, it may be considered when deciding between two or more alternatives which are equally acceptable when evaluated under the four evaluation criterion. By removing most of the sources of contamination and monitoring the remaining sources, the selected alternatives are the most cost effective alternatives. Detailed cost information is provided in Appendix B of the CMS report.

In summary, the proposed remedy will achieve substantial risk reduction at the facility. Based on information currently available, the proposed remedy provides the best balance among the alternatives with respect to the evaluation criteria. U.S. EPA and Ohio EPA believe that the proposed remedy is protective of human health and the environment.

COMMUNITY INVOLVEMENT

U.S. EPA is seeking input from the community on the proposed remedy for the AMC facility. U.S. EPA has set a public comment period of forty-five (45) days from January 27, 1997, to March 13, 1997, to encourage public participation. During the comment period, U.S. EPA will accept written comments on the proposed remedy and alternatives. If significant comment is received, U.S. EPA will schedule a public meeting.

The Administrative Record containing the RFI and CMS reports and other relevant documents is available at the following locations:

Westlake Public Library
27333 Center Ridge Rd.
Westlake, Ohio 44145-3947
(216) 871-2600

and

U.S. EPA, Region 5
Waste, Pesticides, and Toxics Division

AGI TECHNOLOGIES

APPENDIX B

Media-Specific Corrective Measure Alternative Costs

APPENDIX B

Media-Specific Corrective Measure Alternative Costs

UNCERTAINTIES IN COST ESTIMATES

Traditionally, cost estimates in feasibility/corrective measure studies use single "point" estimates of task variables, such as unit costs and total volumes to predict the cost to perform a specific task. The estimated costs are then summed over the tasks in an alternative, and a somewhat arbitrary cost distribution of plus or minus 50 percent of the estimated cost of the alternative is assumed to reflect actual costs. Unfortunately, the arbitrary range does not usually reflect actual uncertainties in costing.

Feasibility/corrective measure studies are usually performed with fairly accurate unit costs, and incomplete site- or waste-specific data, for the following reasons:

- Accurate unit costs are usually available for construction, permitting, engineering, and most treatment tasks, unless the task includes innovative technologies or must be performed under difficult conditions (extreme weather, operating facilities, etc.).

- Gathering necessary data for potential alternatives prior to a fairly detailed screening would often be prohibitively expensive and unnecessary, because many of the alternatives would be eliminated during the preliminary evaluation.

- Complete characterization of the site prior to beginning the FS/CMS typically adds 1 to 4 years to the FS/CMS process. This may be unacceptable to meet regulatory, corporate, or public concerns; it may be unnecessary if sufficient data can be collected to evaluate and rank the alternatives.

- For many cleanups, it is far more efficient in terms of both time and money to determine accurate volumes of contaminated media during remediation.

Increasingly, FS/CMS are being performed as soon as the minimum amount of necessary data have been collected. FS/CMS performed at this stage can usually successfully rank alternatives, but may be unable to select specific technologies.

Costing procedures capable of reflecting actual uncertainties are valuable for several reasons:

- They allow for more accurate ranking and evaluation of the alternatives, because the uncertainties are more clearly identified.

- They help focus discussions of data needs during remedial design by identifying those data gaps that have profound effects on the costing and selection of the preferred alternative.

- They allow for more accurate input of what is known (or unknown) about costs or quantities, as well as for proper modeling of their interrelationships (e.g., higher quantities of excavated soil correlate to lower unit costs).

- They provide a more accurate and usually narrower range of costs than "worst case/best case" estimates, because all of an alternative's uncertainties are combined by effectively running hundreds of "what-if" scenarios simultaneously. This is graphically shown by a probability distribution curve, where each outcome is plotted versus its likelihood of occurrence.

Note that although this discussion focuses on uncertainties in costs, these uncertainties are almost always reflected in other evaluation criteria, such as implementability or effectiveness.

USING MONTE-CARLO-TYPE SIMULATIONS TO ESTIMATE UNCERTAINTIES

The task of estimating the uncertainty in cost estimates can be thought of as a form of propagation of errors. Each parameter in the cost estimate has an uncertainty associated with it. The goal is to propagate the effect of all of these uncertainties through the calculations to obtain an estimate of the uncertainty in the total cost.

Some parameters, such as unit costs, can have symmetric uncertainties; for example, a cubic yard of pit run gravel will cost plus or minus 10 percent. Some parameters, such as the number of extraction wells, may be best defined as a cumulative probability distribution.

A probability distribution can be defined for each parameter. Because many of these distributions may be nonsymmetric, the easiest way to estimate the total uncertainty in the cost is usually to perform a large number of simulations of the total cost. In each simulation, each parameter is pulled randomly from its distribution and inserted into the cost equation to estimate the total cost. Each parameter is assumed to be independent of all other parameters. The simulation can be performed many times (500 to 5,000 simulations are typical) and a frequency distribution plotted of the total cost outcomes. The distribution is used to define the most likely total cost of the alternative and the uncertainty in the estimated cost.

This general approach is referred to as Monte Carlo simulation and is available as a computer add-in program for popular computer spreadsheets. We used a commercially available program called @RISK (Palisade Corp., Newfield, New York) as an add-in to Microsoft's Excel spreadsheet program. A specific approach called "Latin Hypercube" was used to randomly select parameter values from their distribution. The following description is taken from the @RISK manual (Version 1.1 of @RISK for Windows).

LATIN HYPERCUBE SAMPLING

Latin Hypercube sampling is a recent development in sampling technology designed to accurately recreate the input distribution through sampling in fewer iterations when compared with the classical Monte Carlo method. The key to Latin Hypercube sampling is stratification of the input probability distributions. Stratification divides the cumulative curve into equal intervals on the cumulative probability scale (0 to 1.0). A sample is then randomly taken from each interval or "stratification" of the input distribution. Sampling is forced to represent values in each interval and, thus, is forced to recreate the input probability distribution.

The technique being used during Latin Hypercube sampling is "sampling without replacement." The number of iterations of the cumulative distribution is equal to the number of iterations performed. A sample is taken from each interval. However, once a sample is taken from an interval, this interval is not sampled again--its value is already represented in the sampled set.

Latin Hypercube helps the analysis of situations where low probability outcomes are represented in input probability distributions. By forcing the sampling of the simulation to include these outlying events, Latin Hypercube samples assure they are accurately represented in the simulation output.

NOTE ON AMC-WESTLAKE COSTING TABLES

The uncertainties associated with unit costs and site parameters have been implemented herein and are clearly shown on the following costing tables. The level of effort used is appropriate to the CMS stage, at which alternatives are compared and cost/benefit impacts are determined.

SUMMARY OF MEDIA-SPECIFIC ALTERNATIVE COSTS

Landfill Contents Alternatives

• *Alternative 1*	$ 54,300
• *Alternative 2*	$2,084,000
• *Alternative 3*	$1,400,000
• *Alternative 4*	$1,700,000 *

Soil Alternatives

• *Alternative 1*	$ 68,000
• *Alternative 2*	$ 440,000
• *Alternative 3*	$ 350,000 *

UZ Groundwater Alternative

• *Alternative 1*	$ 552,000
• *Alternative 2*	$ 631,000 *

LZ Groundwater Alternatives

• *Alternative 1*	$ 398,000 *
• *Alternative 2*	$ 564,000

Surface Water Alternatives

• *Alternative 1*	$ 147,000 *

AGI TECHNOLOGIES

Northern Drainage Sediment Alternatives

• *Alternative 1*	$ 23,000
• *Alternative 2*	$ 48,000 *
• *Alternative 3*	$ 502,000

3,074,000

GLOSSARY OF TERMS

UNIT COSTS

Unit costs are input using triangular probability distributions (if appropriate) based on defining the costs associated with the following three probabilities:

- Low 10 percent (there is only a 10 percent probability that actual costs will be below this cost).
- Mostly likely cost.
- High 90 percent (there is a 90 percent probability that actual costs will be at or below this value or only a 10 percent chance that this value will be exceeded).

EXPECTED VALUES VS. PRESENT VALUE TOTALS

The expected values and the present value totals are closely related. The expected values shown in the following tables are calculated using a triangular distribution from the cumulative distribution values of 10 percent, most likely, and 90 percent. @RISK uses an internal iterative function based on similar triangular areas to arrive at the expected value that is displayed.

The total present value is calculated using the mean value derived from the Latin Hypercube simulation (1,000 iterations). Thus, the difference between the expected value and the mean value is the rigorous simulation.

All future cash flows are converted to present value using an interest rate of 5 percent.

UNIT ABBREVIATIONS

cy	cubic yards
ea	each
ft	feet
ls	lump sum
qtr	quarterly
sy	square yards
yr	year

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 1								
INSTITUTIONAL CONTROLS								
Deed Notification								
Deed notification		1 ls		3,000	5,000	10,000		
Subtotal				**4,000**	**5,600**	**9,000**		Present Value (low, likely, high)
Fencing								
Fencing (maintenance of existing)		1 ls		1,900	3,000	5,300	20 *	Assumes replacement in 20 years
Subtotal				**29,600**	**39,200**	**60,100**		Present Value (low, likely, high)
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					**20%**			
Institutional Controls Total Present Values*								Includes capital plus operation & maintenance costs
Institutional Controls				**42,700**	**54,300**	**79,900**		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2								
EXCAVATION, STABILIZATION, AND SURFACE CAP								
Deed Notification								
Deed notification		1 ls		3,000	5,000	10,000		
Subtotal				**3,900**	**5,500**	**9,000**		Present Value (low, likely, high)
Fencing								
Fencing (maintenance of existing)		1 ls		1,900	3,000	5,300	20 *	Assumes replacement in 20 years
Subtotal				**29,100**	**38,800**	**59,100**		Present Value (low, likely, high)
Short Term Site Controls								
Short term site controls		1 ls		20,000	35,000	50,000		
Subtotal				**23,800**	**35,100**	**45,800**		Present Value (low, likely, high)
Excavation								
Excavate (existing clean top fill)	9,000	10,000 cy	11,000	1.50	1.75	3.00		
Excavate (existing landfill)	12,000	15,000 cy	17,000	3.00	5.00	6.00		Excavate to stockpile, includes some impacted soil
Placement in cell (after stabilization)	15,300	19,000 cy	21,300	4.00	4.75	5.75		Includes volume increase from stabilization
Subtotal				**157,000**	**180,700**	**202,900**		Present Value (low, likely, high)
Haul and Dispose								
Haul and dispose (screened debris)	300	500 cy	800	48.00	55.00	65.00		Assume disoposal as solid waste RCRA D Landfill
Subtotal				**20,500**	**31,000**	**40,900**		Present Value (low, likely, high)
Stabilization								
Bench scale testing/mix design		1 ls		20,000	30,000	40,000		
Stabilization	12,000	15,000 cy	17,000	25.00	35.00	50.00		Assumes approximately 30% of total excavation required
Subtotal				**446,500**	**585,500**	**727,800**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2(cont.)								
Minimum Technology Liner and Backfill (Landfill Cavity)								
Aggregate Drainage Layer	2,500	3,000 cy	3,500	12.00	16.00	18.00		
60 mil HDPE Liner		106,000 sf		0.44	0.55	0.66		
Leachate Systems		1 ls		75,000	100,000	150,000		
Material (import)	12,000	15,000 cy	17,000	15.00	20.00	25.00		Assume top 10,000 cy of excavation can be used for fill
Place & compact (onsite & import)	21,000	25,000 cy	28,000	1.25	1.40	2.00		
Subtotal				**356,100**	**397,000**	**440,700**		Present Value (low, likely, high)
Short Term Groundwater Controls								
Pumping system groundwater containment		1 ls		15,000	20,000	30,000		Temporary tanks
Disposal/offsite treatment	200,000	400,000 gal	800,000	0.15	0.25	0.35		Assume disposal at off-site facility
Subtotal				**93,100**	**121,000**	**150,200**		Present Value (low, likely, high)
Single Barrier Cap								
8 oz. protective fabric		106,000 sf		0.09	0.12	0.15		
60 mil geomembrane liner		106,000 sf		0.44	0.55	0.66		
Synthetic drainage layer		106,000 sf		0.44	0.55	0.66		
24" Topsoil protective layer		8,000 cy		4.00	6.00	8.00		Topsoil, common borrow
Revegetation		106,000 sf		0.30	0.38	0.44		Hydroseed, mulch, fertilize
Yearly maintenance		1 yr		2,000	3,000	6,000	20 *	
Major maintenance @ 5th year		1 ls		15,000	20,000	30,000	1 *	Geomembrane repair, contingency for breaching and settlement
Subtotal				**261,500**	**283,400**	**309,000**		Present Value (low, likely, high)
Grading								
Regrade non-cell area		32,800 sy		0.15	0.30	0.45		
Revegetation		32,800 sy		0.30	0.35	0.45		Material, spread, and compact
Subtotal				**18,000**	**21,700**	**25,500**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
Indirect Costs (as a % of costs)								
Engineering & Project Management					25%			
Excavation, Stabilization, and Surface Cap Total Present Values*								Includes capital plus operation & maintenance costs
Excavation, Stabilization, and Surface Cap				1,896,600	2,083,700	2,278,300		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3								
EXCAVATION AND ON SITE DISPOSAL								
Deed Notification								
Deed notification		1 ls		3,000	5,000	10,000		
Subtotal				**4,000**	**5,600**	**9,000**		Present Value (low, likely, high)
Fencing								
Fencing (maintenance of existing)		1 ls		1,900	3,000	5,300	20 *	Assumes replacement in 20 years
Subtotal				**29,600**	**39,200**	**60,100**		Present Value (low, likely, high)
Short Term Site Controls								
Short Term Site Controls		1 ls		20,000	35,000	50,000		
Subtotal				**24,000**	**35,000**	**46,000**		Present Value (low, likely, high)
Excavation								
Excavate(existing clean top fill)	9,000	10,000 cy	11,000	1.50	1.75	3.00		
Excavate (existing landfill)	12,000	15,000 cy	17,000	3.00	5.00	6.00		Excavate to stockpile, includes some impacted soil
Placement in engineered cell	15,300	19,000 cy	21,300	4.00	4.75	5.75		Includes volume increase from solidification
Subtotal				**152,000**	**182,000**	**209,000**		Present Value (low, likely, high)
Haul and Dispose								
Haul and dispose(screened debris)	300 cy	500 cy	800 cy	48.00	55.00	65.00		Assume disposal as solid waste RCRA D Landfill
Subtotal				**21,000**	**31,000**	**41,000**		Present Value (low, likely, high)
Backfill (Landfill Cavity)								
Material (imported)	12,000	15,000 cy	17,000	6.50	7.50	9.00		Assume top 10,000 cy of excavation can be used for fill
Place & compact(onsite & import)	21,000	25,000 cy	28,000	1.25	1.40	2.00		
Subtotal				**129,000**	**152,000**	**173,000**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3(cont.)								
Solidification Contingency								Includes mixing, material, and equipment
Solidification	3,600	4,500 cy	5,100	20.00	25.00	30.00		Assume approximately 30% of total excavation requires solidificaition
Subtotal				**92,000**	**111,000**	**130,000**		Present Value (low, likely, high)
Short Term Groundwater Controls								
Pumping system groundwater containment		1 ls		15,000	20,000	30,000		Temporary tanks
Disposal/offsite treatment	200,000	400,000 gal	800,000	0.15	0.25	0.35		Assumes disposal at offsite facility
Subtotal				**93,000**	**121,000**	**151,000**		Present Value (low, likely, high)
Engineered Cell								
Grading		13,500 sf		0.60	0.67	0.75		
Excavate		3,500 cy		5.50	6.05	7.50		
Base fill and compaction (import)		8,000 cy		7.75	8.90	11.00		Material, spread,and compact low permeability clay
Subtotal				**97,000**	**103,000**	**116,000**		Present Value (low, likely, high)
Single Barrier Cap								
8 oz. protective fabric		106,000 sf		0.09	0.12	0.15		
60 mil geomembrane liner		106,000 sf		0.44	0.55	0.66		
Synthetic drainage layer		106,000 sf		0.44	0.55	0.66		
24" Topsoil protective layer		8,000 cy		4.00	6.00	8.00		Topsoil, common borrow
Revegetation		106,000 sf		0.30	0.38	0.44		
Yearly maintenance		1 yr		2,000	3,000	6,000	20 *	
Major maintenance @ 5th year		1 ls		15,000	20,000	30,000	1 *	Geomembrane repair, contingency for breaching and settlement
Subtotal				**261,000**	**283,000**	**309,000**		Present Value (low, likely, high)
Grading								
Regrade non cell area		32,800 sy		0.15	0.30	0.45		
Revegetation		32,800 sy		0.30	0.35	0.45		Material, spread,and compact
Subtotal				**18,000**	**21,000**	**26,000**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3(cont.)								
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					25%			
Excavation and On Site Disposal Total Present Values*								Includes capital plus operation & maintenance costs
Removal and On Site Disposal				1,300,000	1,400,000	1,490,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 4								
EXCAVATION AND OFF SITE DISPOSAL								
Short Term Site Controls								
Short term site controls		1 ls		20,000	35,000	50,000		
Subtotal				**24,000**	**35,000**	**46,000**		Present Value (low, likely, high)
Excavation								
Excavate(existing clean top fill)	9,000	10,000 cy	11,000	1.50	1.75	3.00		
Excavate/Load(landfill)	12,000	15,000 cy	17,000	4.00	8.00	12.00		
Subtotal				**95,000**	**138,000**	**184,000**		Present Value (low, likely, high)
Solidification Contingency								Includes mixing, material, and equipment
Solidification	3,600	4,500 cy	5,100	20.00	25.00	30.00		Assume approximately 30% of total excavation requires solidificaition
Subtotal				**92,000**	**111,000**	**130,000**		Present Value (low, likely, high)
Short Term Groundwater Controls								
Pumping system & containment		1 ls		20,000	30,000	40,000		
Disposal/offsite treatment	200,000	400,000 gal	800,000	0.15	0.25	0.35		Assume off site disposal company
Subtotal				**93,000**	**121,000**	**151,000**		Present Value (low, likely, high)
Backfill (Landfill Cavity)								
Material (import)	12,000	15,000 cy	17,000	6.50	7.50	9.00		Assume top 10,000 cy of excavation can be used for fill
Place & compact (onsite & import)	21,000	25,000 cy	28,000	1.25	1.40	2.00		
Subtotal				**129,000**	**152,000**	**173,000**		Present Value (low, likely, high)
Grading								
Site grading for storm water control		50,000 sy		0.15	0.30	0.45		
Revegetation		50,000 sy		0.30	0.35	0.45		
Subtotal				**18,000**	**21,000**	**26,000**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B1
Landfill Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

LANDFILL	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
Haul and Dispose								
Haul and dispose in RCRA D landfil	12,000	15,000 cy	17,000	48.00	55.00	65.00		
Subtotal				700,000	843,000	960,000		Present Value (low, likely, high)
ALTERNATIVE 4(cont.)								
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					20%			
Excavation and Off Site Disposal Total Present Values*								Includes capital plus operation & maintenance costs
Excavation and Disposal in RCRA D Landfill				1,520,000	1,700,000	1,870,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B2
Soil Alternative Costs
American Metals Corporation
Westlake, Ohio

Soil	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 1								
CONTAINMENT								
Fencing								
Fencing (Maintain Existing)		1 ls		1,900	3,000	5,300	20 *	Assumes replacement in 20 years
Subtotal				30,000	39,000	60,000		Present Value (low, likely, high)
Excavation Restrictions								
Excavation Restrictions		1 ls		3,000	5,000	10,000		
Subtotal				4,000	5,600	9,000		Present Value (low, likely, high)
Surface Cap								
Grading & Paving	2,000	2,500 sy	4,000	8.50	10.00	12.00		Grading, Soil Sterilization, 4"CRB, 3"AC, or 1' clay
Subtotal				23,000	28,000	38,000		Present Value (low, likely, high)
Grading								
Storm Water Drainage Improvements		1 ls		15,000	20,000	30,000		
Subtotal				17,000	20,000	28,000		Present Value (low, likely, high)
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					20%			
Containment Total Present Values*								Includes capital plus operation & maintenance costs
Containment				58,000	68,000	81,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B2
Soil Alternative Costs
American Metals Corporation
Westlake, Ohio

Soil	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2								
SOIL EXCAVATION AND ON SITE TREATMENT WITH SOME LANDFILL DISPOSAL								
Short Term Site Controls								
Short term site controls		1 ls		10,000	15,000	20,000		Excavate to stockpile
Subtotal				**11,400**	**15,000**	**18,600**		Present Value (low, likely, high)
Excavation								
Excavate	3,000	4,500 cy	6,000	6.00	8.00	10.00		Excavate to stockpile(some soil would be disposed offsite)
Placement in biodegradation treatment pad		2,000 cy		4.00	5.00	6.00		
Subtotal				**37,000**	**46,000**	**56,000**		Present Value (low, likely, high)
Short Term Groundwater Controls								
Pumping system & containment		1 ls		10000	15000	20000		
Disposal/off site treatment	20,000	40,000 gal	60,000	0.15	0.25	0.35		
Subtotal				**21,000**	**25,000**	**29,000**		Present Value (low, likely, high)
On Site Biological Treatment for Organics								
Treatability study		1 ls		6,000	10,000	15,000		
Treatment pad(construct & dispose)		1 ls		5,000	9,000	12,000		Line using 20 mil geomembrane
Treatment process		2,000 cy		20.00	30.00	60.00		Includes maintenance and analytical
Subtotal				**71,000**	**88,000**	**127,000**		Present Value (low, likely, high)
Backfill (Post-Treatment)								
Material import		2,500 cy		6.50	7.50	9.00		
Material handling		4,500 cy		1.00	2.00	3.00		
Spread and compact		4,500 cy		2.00	3.00	4.00		
Subtotal				**38,000**	**42,000**	**46,000**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B2
Soil Alternative Costs
American Metals Corporation
Westlake, Ohio

Soil	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2(cont.)								
Grading								
Storm water drainage improvements		3,000 sy		0.15	0.30	0.45		
Revegetation		3,000 sy		0.30	0.35	0.40		
Subtotal				17,100	20,500	27,900		Present Value (low, likely, high)
Offsite Landfill Disposal(Metals)								
Haul and dispose in RCRA D landfill		2,500 cy		48.00	55.00	60.00		
Subtotal				124,000	135,000	146,000		Present Value (low, likely, high)
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					25%			
Soil Excavation and On Site Treatment Total Present Values								Includes capital plus operation & maintenance costs
Soil Removal and On Site Treatment				410,000	440,000	490,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B2
Soil Alternative Costs
American Metals Corporation
Westlake, Ohio

Soil	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3								
SOIL EXCAVATION AND OFF SITE DISPOSAL								
Short Term Site Controls								
Short term site controls		1 ls		10,000	15,000	20,000		
Subtotal				**11,400**	**15,000**	**18,600**		Present Value (low, likely, high)
Excavate								
Excavate/Load		4,500 cy		6.00	8.00	10.00		
Subtotal				**30,000**	**36,000**	**42,000**		Present Value (low, likely, high)
Short Term Groundwater Controls								
Pumping system & containment		1 ls		10,000	15,000	20,000		
Disposal/off site treatment	20,000	40,000 gal	60,000	0.15	0.25	0.35		
Subtotal				**21,000**	**25,000**	**29,000**		Present Value (low, likely, high)
Backfill								
Material (Import)		4,500 cy		6.50	7.50	9.00		
Place and compact		4,500 cy		2.00	3.00	4.00		
Subtotal				**44,000**	**48,000**	**53,000**		Present Value (low, likely, high)
Grading								
Site grading for storm water control		3,000 sy		0.15	0.30	0.45		
Revegetation		3,000 sy		0.30	0.35	0.45		
Subtotal				**17,100**	**20,500**	**27,900**		Present Value (low, likely, high)
Haul and Dispose								
Haul and dispose in RCRA D landfill		3,000 cy		48.00	55.00	60.00		
Subtotal				**149,000**	**162,000**	**175,000**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B2
Soil Alternative Costs
American Metals Corporation
Westlake, Ohio

Soil	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3 (cont.)								
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					20%			
Soil Excavation and Off Site Disposal Total Present Values*								Includes capital plus operation & maintenance costs
Removal and Disposal in RCRA D Landfill				330,000	350,000	360,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B3
Upper Zone Groundwater Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

Upper Zone Groundwater	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 1								
MONITORING/INSTITUTIONAL CONTROLS								
Groundwater Use Restrictions								
Formulation & Implementation		1 ls		3,500	5,000	10,000		
Subtotal				**4,000**	**6,000**	**9,000**		Present Value (low, likely, high)
Groundwater Monitoring (utilize twelve existing wells)								
Sampling		4 qtr		2,000	2,500	3,000	20 *	2 technicians - 2 days
Analytical		4 qtr		4,000	4,500	5,000	20 *	Metals, VOCs
Report for analytical & water levels		4 qtr		1,500	2,000	3,000	20 *	
Annual well maintenance		1 yr		2,880	3,200	3,520	20 *	Redevelopment, abandonment, & replacement
Subtotal				**464,000**	**495,000**	**531,000**		Present Value (low, likely, high)
Indirect Costs (as a % of costs)								
Engineering & Project Management					**10%**			
Monitoring/Institutional Controls Total Present Values*								Includes capital plus operation & maintenance costs
Monitoring/Institutional Controls				**517,000**	**552,000**	**591,000**		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B3
Upper Zone Groundwater Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

Upper Zone Groundwater	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2								
SHORT TERM GROUNDWATER EXTRACTION AND TREATMENT								
Groundwater Use Restrictions								
Formulation & Implementation		1 ls		3,500	5,000	10,000		
Subtotal				**4,000**	**6,000**	**9,000**		Present Value (low, likely, high)
Short Term Groundwater Extraction and Treatment/Disposal								
Pump and Storage		1 ls		40,000	50,000	60,000		
Discharge/Treatment		50,000 gal		0.40	0.45	0.50		
Subtotal				**65,000**	**72,000**	**80,000**		Present Value (low, likely, high)
Groundwater Monitoring (utilize twelve existing wells)								
Sampling		4 qtr		2,000	2,500	3,000	20 *	2 technicians - 2 days
Analytical		4 qtr		4,000	4,500	5,000	20 *	Metals, VOCs
Report for analytical & water levels		4 qtr		1,500	2,000	3,000	20 *	
Annual well maintenance		1 yr		2,880	3,200	3,520	20 *	Redevelopment, abandonment, & replacement
Subtotal				**464,000**	**495,000**	**531,000**		Present Value (low, likely, high)
Indirect Costs (as a % of costs)								
Engineering & Project Management					**10%**			
Short term Groundwater Extraction and Treatment Total Present Values*								Includes capital plus operation & maintenance costs
Short term Groundwater Extraction and Treatment				**597,000**	**631,000**	**674,000**		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B4
Lower Zone Groundwater Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

Lower Zone Groundwater	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALT 1								
MONITORING/INSTITUTIONAL CONTROLS								
Groundwater Use Restrictions								
Formulation & Implementation		1 ls		3,500	5,000	10,000		
Subtotal				4,000	6,000	9,000		Present Value (low, likely, high)
Groundwater Monitoring (utilize six existing wells)								
Sampling		4 qtr		1,200	1,500	2,000	20 *	2 technicians - 1 day
Analytical		4 qtr		2,500	2,800	3,500	20 *	Metals, VOCs
Report for analytical & water levels		4 qtr		1,500	2,000	3,000	20 *	
Annual well maintenance		1 yr		1,500	2,000	2,500	20 *	Redevelopment, abandonment, & replacement
Subtotal				326,000	355,000	393,000		Present Value (low, likely, high)
Indirect Costs (as a % costs)								
Engineering & Project Management					10%			
Monitoring/Institutional Controls Total Present Values*								Includes capital plus operation & maintenance costs
Monitoring/Institutional Controls				365,000	398,000	439,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B4
Lower Zone Groundwater Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

Lower Zone Groundwater	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2								
LOWER ZONE GROUNDWATER EXTRACTION AND TREATMENT/INSTITUTIONAL CONTROLS								
Groundwater Use Restrictions								
Formulation & Implementation		1 ls		3,500	5,000	10,000		
Subtotal				4,000	6,000	9,000		Present Value (low, likely, high)
Groundwater Monitoring (utilize six existing wells)								
Sampling		4 qtr		1,200	1,500	2,000	20 *	2 technicians - 1 day
Analysis		4 qtr		2,500	2,800	3,500	20 *	Metals, VOCs
Report for analytical & water levels		4 qtr		1,500	2,000	3,000	20 *	
Annual well maintenance		1 yr		1,500	2,000	2,500	20 *	Redevelopment, abandonment, & replacement
Subtotal				326,000	355,000	393,000		Present Value (low, likely, high)
Groundwater Extraction								
Groundwater extraction wells & pumps		2 ea		5,000	7,500	9,000		Includes drilling, materials, developing, etc.,
Pump test and modeling		1 ls		2,000	4,000	6,000		
Piping and installation		1 ls		8,000	12,000	20,000		
Subtotal				27,000	31,000	37,000		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B4
Lower Zone Groundwater Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

Lower Zone Groundwater	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2(cont.)								
Groundwater Treatment VOCs								
Air Stripper @ 5 gpm								
Capital, installation, & controls		1 ls		10,000	12,000	15,000		
System monitoring								
Field technicians		1 yr		10,000	12,000	15,000	2 *	Technician 1/2 time
Analytical		1 yr		4,500	6,000	8,000	2 *	Metals, VOCs - monthly
Reporting		1 yr		1,500	2,000	3,000	2 *	
Operation & maintenance								
Operation & maintenance		1 yr		5,000	7,000	10,000	2 *	
Discharge Costs		1 yr		3,000	5,000	10,000	2 *	
Subtotal				70,000	77,000	83,000		Present Value (low, likely, high)
Indirect Costs (as a % of costs)								
Engineering & Project Management					20%			
Lower Zone Groundwater Total Present Values								Includes capital plus operation & maintenance costs
Extraction and Treatment				527,000	564,000	611,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B5
Surface Water Alternative Costs
American Metals Corporation CMS
Westlake, Ohio

Surface Water	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 1								
MONITORING								
Surface Water								
Sampling		4 qtr		600	800	1,000	10 *	2 technicians - 1 day
Analysis		4 qtr		1,000	1,200	2,000	10 *	Metals, VOCs
Report for analytical & water flows		4 qtr		1,500	2,000	3,000	10 *	
Subtotal				118,000	134,000	158,000		Present Value (low, likely, high)
Indirect Costs (as a % of costs)								
Engineering & Project Management					10%			
Surface Water Total Present Values*								Includes capital plus operation & maintenance costs
Monitoring/Institutional Controls				130,000	147,000	173,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B6
Sediment(North Ditch) Alternative Costs
American Metals Corporation
Westlake, Ohio

Sediment(North Ditch)	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 1								
NO ACTION/INSTITUTIONAL CONTROLS								
Institutional Controls								
Coordination with offsite property owners		1 ls		10,000	15,000	20,000		
Warning Signs		40 ea		50	80	100		
Subtotal				14,500	18,100	21,700		Present Value (low, likely, high)
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					20%			
No Action Total Present Values*								Includes capital plus operation & maintenance costs
No Action/Institutional Controls				18,000	23,000	34,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B6
Sediment(North Ditch) Alternative Costs
American Metals Corporation
Westlake, Ohio

Sediment(North Ditch)	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 2								
SEDIMENT CONTAINMENT								
Institutional Controls								
Coordination with offsite property owners		1 ls		10,000	15,000	20,000		
Warning Signs		40 ea		50	80	100		
Subtotal				**14,500**	**18,100**	**21,710**		Present Value (low, likely, high)
Sediment Control Barriers								
Material & Placement	10	15 ea	20	1,000	1,500	2,500		
Subtotal				**18,000**	**23,000**	**34,000**		Present Value (low, likely, high)
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					**15%**			
Sediment Containment Total Present Values*								Includes capital plus operation & maintenance costs
Sediment Containment				**41,000**	**48,000**	**60,000**		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B6
Sediment(North Ditch) Alternative Costs
American Metals Corporation
Westlake, Ohio

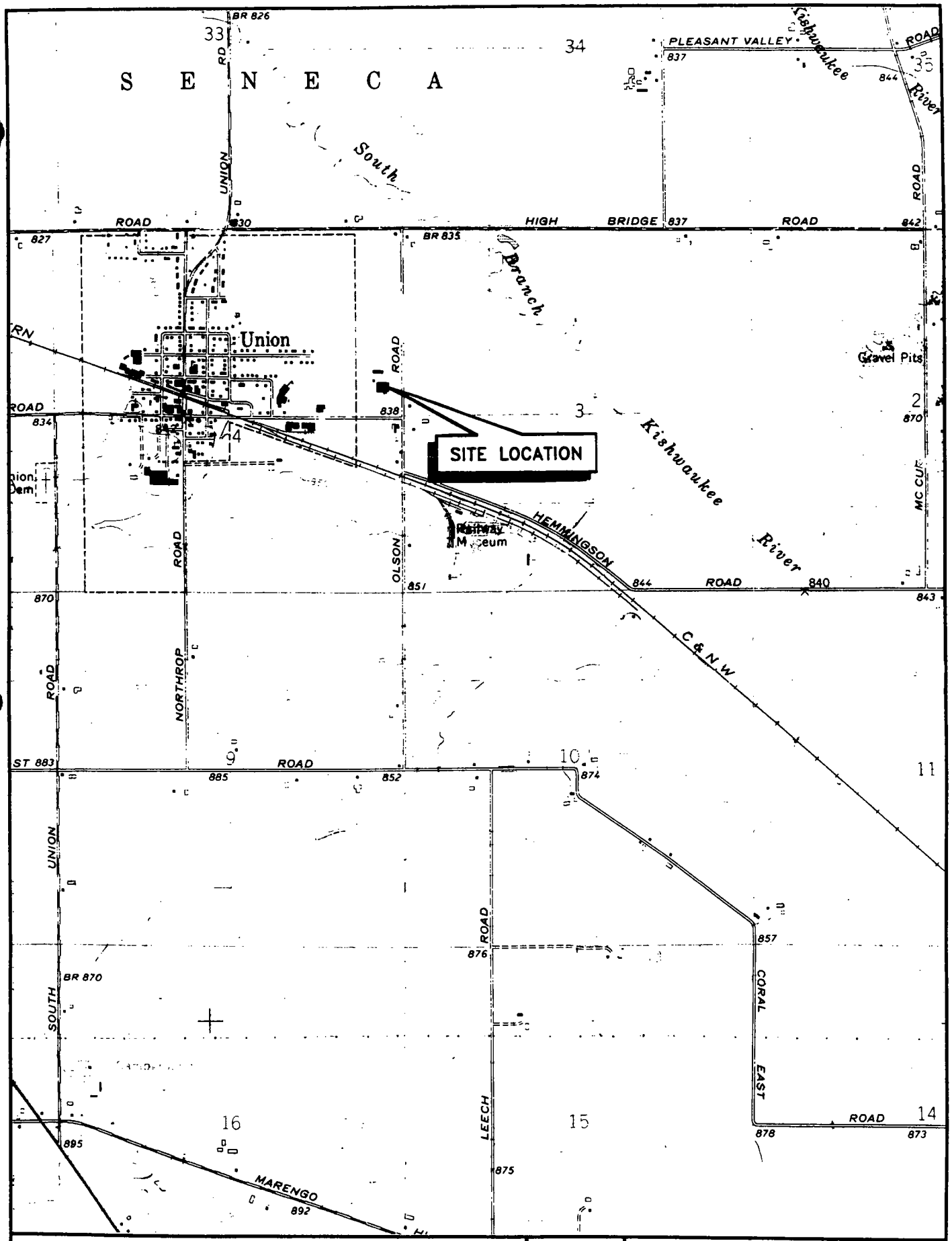
Sediment(North Ditch)	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3								
SEDIMENT EXCAVATION								
Short Term Site Controls								
Coord. with offsite property owners/permitting		1 ls		30,000	40,000	50,000		
Short term site controls		1 ls		20,000	35,000	50,000		Surface water control dams, silt fences, etc.
Subtotal				**63,300**	**75,000**	**87,000**		Present Value (low, likely, high)
Excavate								
Clear & remove brush, cattails, etc.		1 ls		8,000	10,000	15,000		
Excavate & load	200 cy	500 cy	600 cy	15.00	20.00	40.00		Use suction line
Subtotal				**19,500**	**23,800**	**29,400**		Present Value (low, likely, high)
Temporary Surface Water Controls								
Piping to reroute flow		1 ls		5,000	8,000	12,000		Includes materials & installation
Treatment of remaining water	500,000	800,000 gal	1,000,000	0.15	0.25	0.30		Assumes approx. 10 gpm for 60 days
Subtotal				**145,000**	**205,000**	**232,000**		Present Value (low, likely, high)
Ditch Restoration								
Quarry Rock	100	200 cy	400	15.00	20.00	35.00		
Place Rock	100	200 cy	400	10.00	20.00	30.00		
Side Slopes and Revegetation	1,000	1,500 sy	2,000	0.30	0.35	0.45		
Subtotal				**7,500**	**9,200**	**11,300**		Present Value (low, likely, high)
Haul & Dispose(sediment)								
Dewatering of sediment	400	500 cy	600	75.00	100.00	125.00		
Haul and dispose in RCRA D landfill	400	500 cy	800	40.00	50.00	60.00		
Subtotal				**66,000**	**75,000**	**84,400**		Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs

Table B6
Sediment(North Ditch) Alternative Costs
American Metals Corporation
Westlake, Ohio

Sediment(North Ditch)	Quantities (# of units)			Costs ($/unit)			Years	Comments
	Low	Likely	High	Low	Likely	High		
ALTERNATIVE 3(cont.)								
Indirect Costs (as a % of capital costs)								
Engineering & Project Management					30%			
Sediment Excavation Total Present Values*								Includes capital plus operation & maintenance costs
Excavation and Disposal in RCRA D landfill				427,000	502,000	543,000		Total Present Value (low, likely, high)

* Assumes a discount rate of 5% for future costs



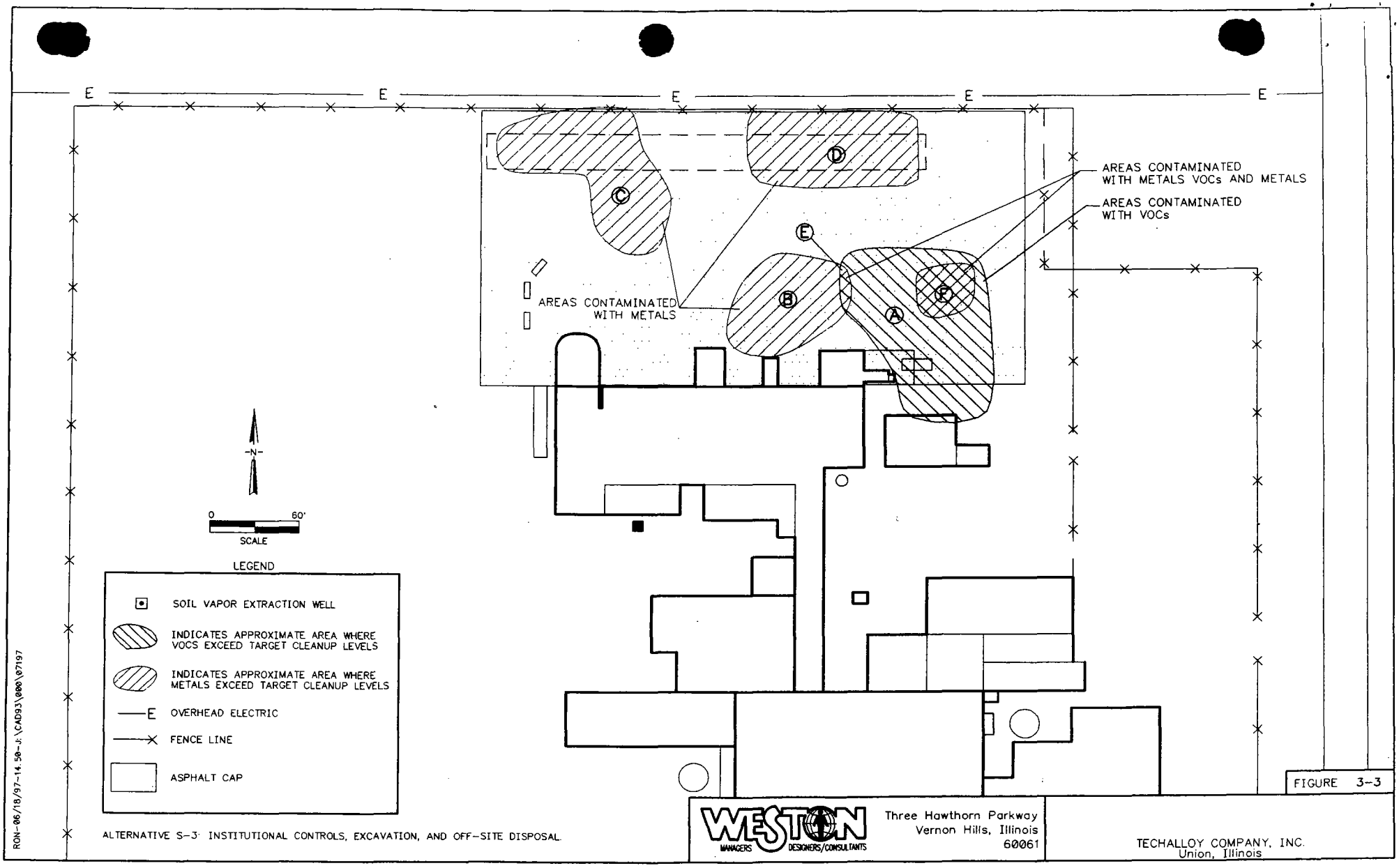
WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

FIGURE 1-1

SITE LOCATION
TECHALLOY COMPANY. INC.
Union, Illinois

REV.



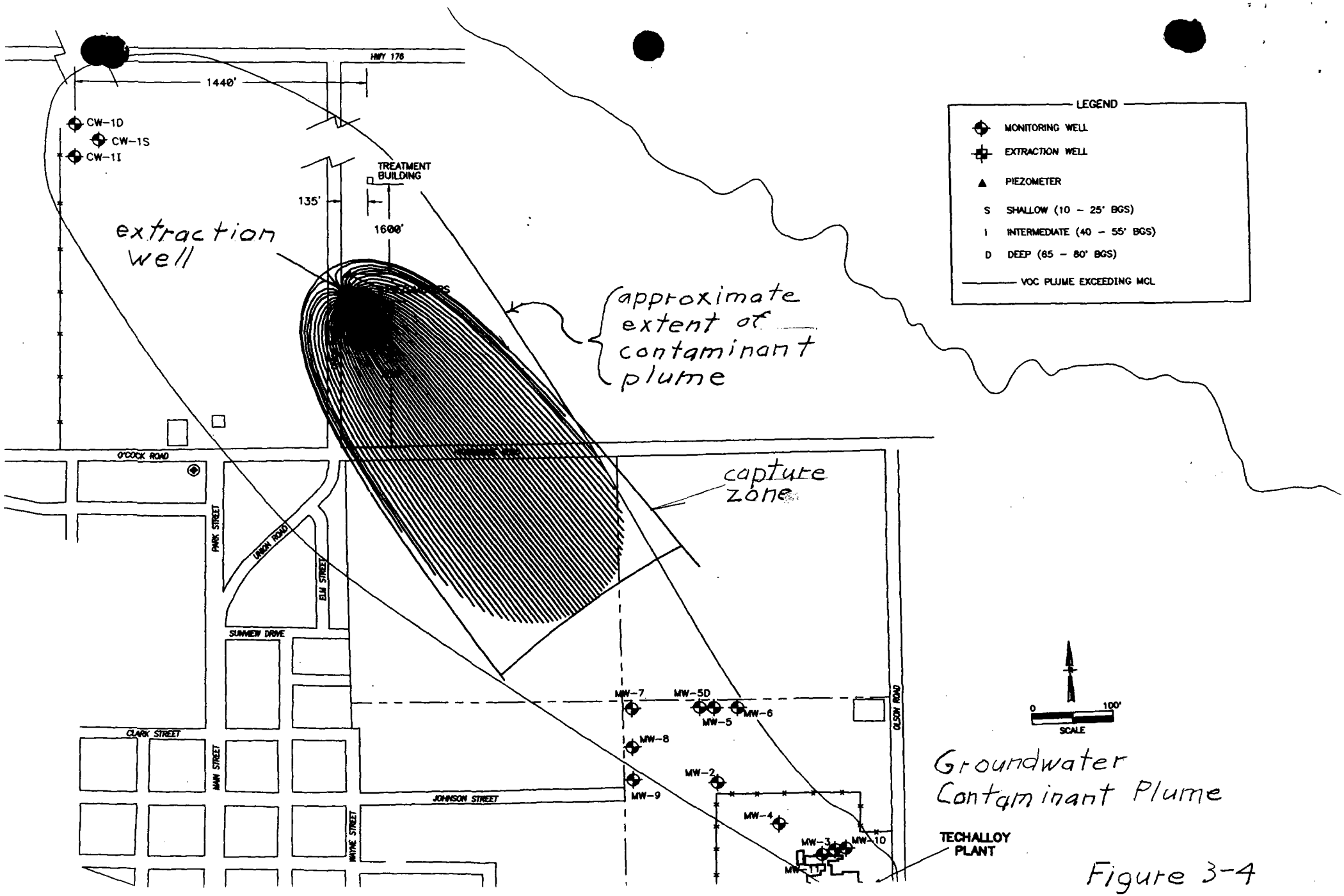
ALTERNATIVE S-3: INSTITUTIONAL CONTROLS, EXCAVATION, AND OFF-SITE DISPOSAL.

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

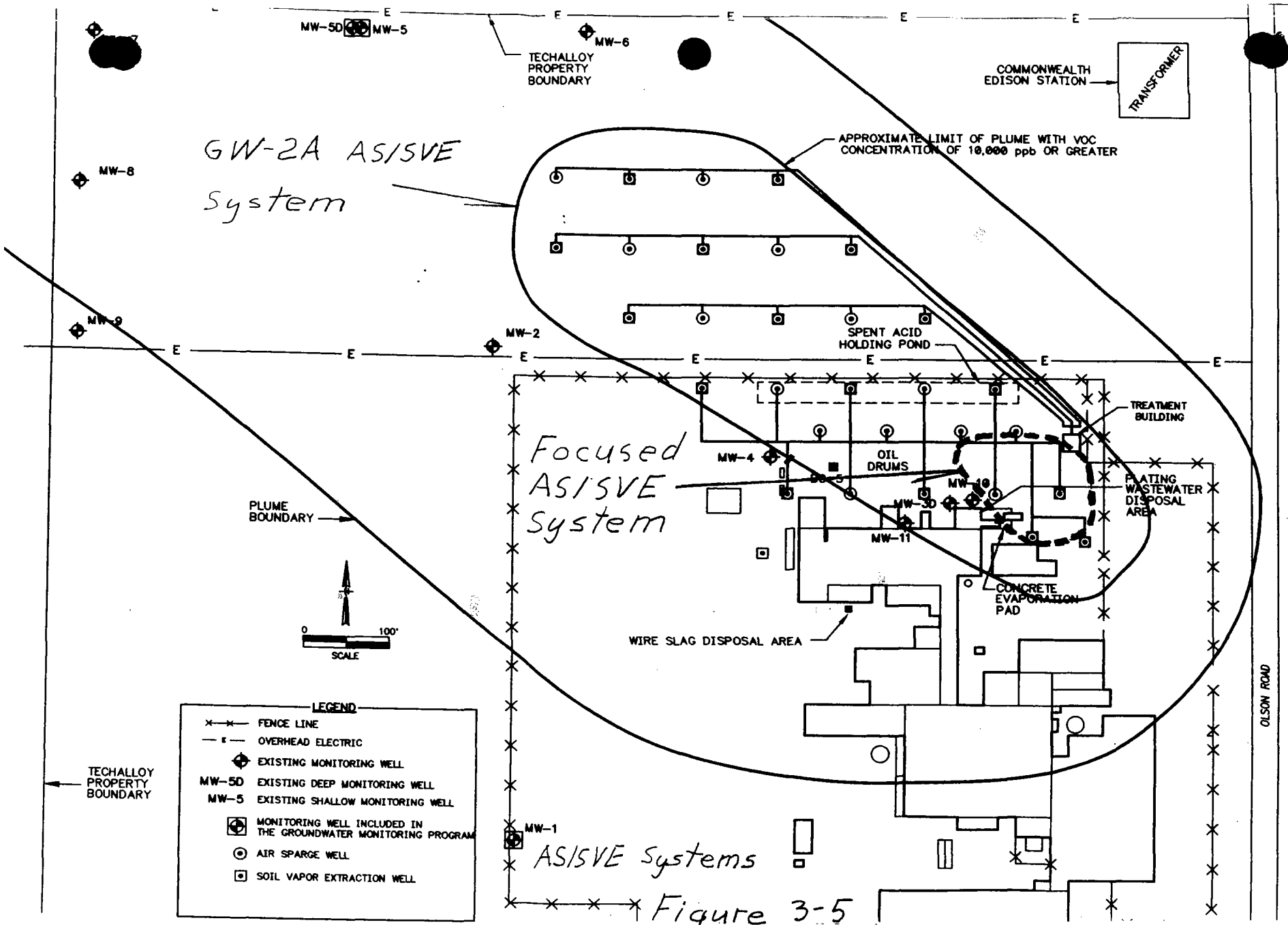
TECHALLOY COMPANY, INC.
Union, Illinois

FIGURE 3-3



Groundwater Contaminant Plume

Figure 3-4



AS/SVE Systems

Figure 3-5

D.3.7
12-97

Statement of Basis-Corrective Action
~~RCRA CONSENT AGREEMENT AND FINAL ORDER SIGN-OFF~~

PART I **BACKGROUND**

Facility Name Techalloy Co. Inc.

Facility EPA ID Number ILD 005 178 975

Docket Nmber V-W-007-93

ECAB Assignee/Phone W. Buller 6-4568 ORC Assignee/Phone T. Kline 6-7167

Summary of Agreement Statement of Basis for Corrective Action

PART II **CONCURRENCES ON PROPOSED CAFO (PROPOSAL NO. _____)**

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		10/21/97	✓	
2.	Chief, ECAB Section		10/21/97	✓	
3.	Asst. Regional Counsel		10/27/97	✓	
4.	Chief, ECAB		10/27/97	✓	

PART III **RETURN TO ORC ASSIGNEE FOR TRANSMITAL OF TWO ORIGINAL COPIES OF DRAFT TO RESPONDENT**

PART IV **FINAL CAFO APPROVAL, AFTER RESPONDENT HAS SIGNED BOTH COPIES OF PROPOSED CAFO**

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		/ /		
2.	Chief, ECAB Section		/ /		
3.	Asst. Regional Counsel		/ /		
	ORC Section Chief		/ /		
	Chief, ECAB		/ /		
6.	Director, W[illegible]		/ /		
7.	Regional Administrator		/ /		

PART V **RETURN TO A. PERRY, DRE-8J, FOR MAILING**

☐ **HAVE YOU COMPLETED THE CASE CONCLUSION DATA SHEET? DO NOT FORWARD IF IT IS NOT INCLUDED IN SIGN-OFF PACKAGE.**

Statement of Basis - Corrective Action

~~RCRA CONSENT AGREEMENT AND FINAL ORDER SIGN-OFF~~

PART I BACKGROUND

Facility Name Techalloy Co. Inc.

Facility EPA ID Number ILD 005 178 975

Docket Nmber V-W-007-93

ECAB Assignee/Phone W Buller 6-4568 ORC Assignee/Phone J. Kline 6-7167

Summary of Agreement Statement of Basis for Corrective Action

PART II CONCURRENCES ON PROPOSED CAFO (PROPOSAL NO. _____)

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		/ /		
2.	Chief, ECAB Section		10 Dec 97		
3.	Asst. Regional Counsel		11/4/97		
4.	Chief, ECAB		/ /		

PART III RETURN TO ORC ASSIGNEE FOR TRANSMITAL OF TWO ORIGINAL COPIES OF DRAFT TO RESPONDENT.

PART IV FINAL CAFO APPROVAL, AFTER RESPONDENT HAS SIGNED BOTH COPIES OF PROPOSED CAFO

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		/ /		
2.	Chief, ECAB Section		/ /		
3.	Asst. Regional Counsel		/ /		
	ORC Section Chief		/ /		
	Chief, ECAB		/ /		
6.	Director, WPTD		/ /		
7.	Regional Administrator		/ /		

PART V RETURN TO A. PERRY, DRE-8J, FOR MAILING

☐ **HAVE YOU COMPLETED THE CASE CONCLUSION DATA SHEET? DO NOT FORWARD IF IT IS NOT INCLUDED IN SIGN-OFF PACKAGE.**

FINAL DECISION/RESPONSE TO COMMENTS
Techalloy Company, Inc.
Union, Illinois
ILD 005 178 975

INTRODUCTION

The Statement of Basis developed by the United States Environmental Protection Agency (U.S. EPA) for the Techalloy Facility was presented for public comment from February 10, 1998 to March 30, 1998. The facility is located at the corner of Jefferson and Olson Roads in Union, Illinois. The Statement of Basis discussed several viable remedies for cleaning up the facility and presented the remedy proposed by U.S. EPA. This Final Decision/Response to Comments document presents the comments provided by the public and the remedy selected by U.S. EPA after reviewing the public comments. Upon careful consideration of the public comments, the remedy proposed in the Statement of Basis is deemed to be appropriate and is the remedy selected by U.S. EPA.

SELECTED REMEDY

The selected remedy includes the following:
(1) Institutional controls to prevent contact with contaminants;
(2) Soil Stabilization technology to address soils contaminated with metals;
(3) Implementation of a focused air sparge/soil vapor extraction system to address soil and groundwater contaminated with volatile organic compounds;
(4) Groundwater Recovery System, with an upgrade, to treat and control contaminated groundwater; and
(5) Groundwater monitoring to evaluate the impact of the remedy.

Institutional Controls

A deed restriction for the Techalloy facility was recorded on December 17, 1996. The deed restriction limits future land use of the facility property to industrial use and guards against the higher exposure that would be incurred in residential occupancy. In addition, the McHenry County Health Department has initiated a restriction on water well permits requiring that water withdrawn from the contaminated aquifer be treated.

Soil Stabilization for Soils Contaminated with Metals

In soil stabilization technology metals are converted to less soluble, leachable, and toxic forms. Soil stabilization will be

applied to four separate areas at the facility plant site where metal concentrations in soils exceed cleanup levels. The soils will be excavated, placed on an asphalt pad, and mixed with the stabilizing agent determined by the bench-scale study to be most suitable. Verification sampling and analysis will be performed at the perimeter of the excavations to assure that all soils exceeding cleanup levels are removed. Soils will be returned to the excavation after the post-treatment verification sampling/analysis establish that satisfactory treatment has been achieved. Soils presenting persistent treatment problems will be disposed off-site in accordance with RCRA regulations. The treated areas will be capped by a 200 by 360 foot asphalt cap that will be resurfaced every two years.

Absent relevant RCRA rule changes, the stabilization activities will be performed under a Corrective Action Management Unit (CAMU) Designation. Pursuant to 40 CFR 264.552, a CAMU Designation provides a regulatory framework to assure that hazardous wastes generated by remediation activities are properly handled. The CAMU Designation also provides that such wastes can be placed on the land without invoking the RCRA regulations of the Land Disposal Restriction Requirements and Minimum Technology Requirements. The designated CAMU area encloses the areas to be treated as well as a containment pad working area. As part of the RCRA closure requirements for the CAMU, monitoring wells at the facility property will be sampled and analyzed periodically for metal constituents. If a significant increase in metal concentrations is determined, appropriate corrective action will be required.

Focused air sparge/soil vapor extraction (AS/SVE)

In AS/SVE technology, air is injected into the water bearing zone though diffusion wells and vapor extraction wells remove the volatile organic compound vapors in the soil generated by the air sparging. The AS/SVE system will be implemented upon completion of the soil stabilization process. The focused AS/SVE will be applied to the highly contaminated area at the facility plant site where volatile organic compounds in soils exceed cleanup levels and volatile compound concentrations in the underlying groundwater have exceeded 50,000 parts per billion. Air emissions will be controlled as needed.

Groundwater Recovery/Treatment System and Upgrade

The selected remedy includes the continued operation of the existing groundwater recovery/treatment system. The existing recovery system consists of an extraction well, a double walled pipeline with a leak detection system, and a water treatment

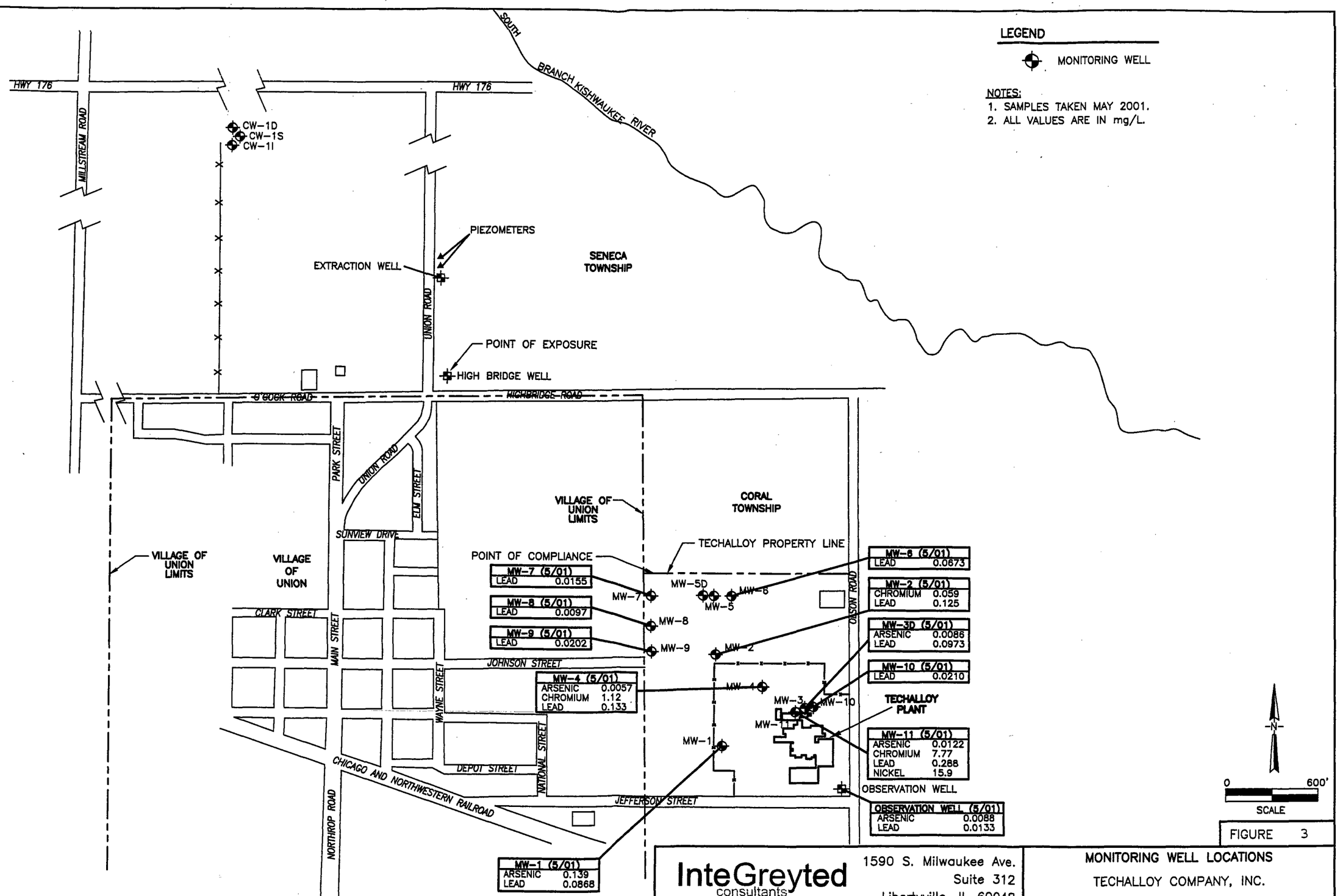


FIGURE 3

InteGreyted consultants
1590 S. Milwaukee Ave.
Suite 312
Libertyville, IL 60048

MONITORING WELL LOCATIONS
TECHALLOY COMPANY, INC.
Union, Illinois

DH828-07/18/01-19:18-C:\ACAD-DWGS\TECH-GWMAP

MODIFICATION TO STATEMENT OF BASIS

~~RCRA CONSENT AGREEMENT AND FINAL ORDER SIGN OFF~~

PART I **BACKGROUND**

Facility Name TECHALLOY COMPANY, INC

Facility EPA ID Number ILD 005 178 975

Docket Nmber R8H-5-99-008

ECAB Assignee/Phone A. Wojtas 6-6194 ORC Assignee/Phone J. Kline

Summary of Agreement Modification of Remedial Alternative

~~**PART II** **CONCURRENCES ON PROPOSED CAFO (PROPOSAL NO. _____)**~~

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		10/9/01	✓	
2.	Chief, ECAB Section		10/10/01	✓	
3.	Asst. Regional Counsel		10/11/01	✓ w/comments	Corrected 10/15/01
4.	Chief, ECAB		for WB 10/15/01	✓	

PART III **RETURN TO ORC ASSIGNEE FOR TRANSMITAL OF TWO ORIGINAL COPIES OF DRAFT TO RESPONDENT.**

PART IV **FINAL CAFO APPROVAL, AFTER RESPONDENT HAS SIGNED BOTH COPIES OF PROPOSED CAFO**

		Initials	Date	Agree	Disagree
1.	ECAB Assignee		/ /		
2.	Chief, ECAB Section		/ /		
3.	Asst. Regional Counsel		/ /		
4.	ORC Section Chief		/ /		
5.	Chief, ECAB		/ /		
6.	Director, WPTD		/ /		
7.	Regional Administrator		/ /		

N/A

PART V **RETURN TO A. ~~PERRY, DRE-8J, FOR MAILING~~** WOJTAS

☐ **HAVE YOU COMPLETED THE ~~CASE~~ CONCLUSION ~~DATA SHEET~~? DO NOT ~~FORWARD IF~~ IT IS ~~NOT INCLUDED~~ IN ~~SIGN-OFF PACKAGE~~.**

U.S. ENVIRONMENTAL
PROTECTION AGENCY

OCT 11 2001

OFFICE OF REGIONAL
COUNSEL

Ready for Anticipated Use?? 5/31/07

Techalloy Company (Central Wire)
EPA ID : ILD 005 178 975

The Techalloy facility located in Union, Illinois is comprised of a five acre fenced in plant area and an additional 29 acres of agricultural land adjacent to the plant area. The facility produces steel wire of varying strengths and diameters. A variety of cleaners including acidic and caustic cleaners, coating solutions, dyes and rinses have been utilized at the facility to produce the wire product.

Institutional controls: A deed restriction for the facility was recorded on Dec 17, 1996. The deed restriction limits future land use of the facility property to industrial use and guards against the higher exposure to contaminants which would be incurred by residential occupancy. In addition, the McHenry County Health Department has initiated a restriction on water well permits requiring that water withdrawn from the contaminated aquifer be treated.

The selected remedy for the site based RCRA facility investigation included the following:

- Institutional controls to prevent contact with contaminants;
- Soil stabilization technology to address soils contaminated with metals
- Implementation of a focused air sparge /soil vapor extraction system to address soil and groundwater contaminated with volatile organic compounds
- Groundwater recovery system, with an upgrade, to treat and control contaminated groundwater; and
- Groundwater monitoring to evaluate the impact of the remedy.

Based on the recent land revitalization and reuse potential survey conducted for the facility, the facility is supposed to remain 100% industrial in future with the deed restriction in place since 1996. With the Institutional controls in place and CA 725 and CA 550 completed, Techalloy ideally should fall under the category of "Ready for Anticipated Use". However, in the past two years, the groundwater plume in the offsite subjected to extraction and treatment by groundwater recovery system is interrupted by the use of 2 irrigation wells down gradient of the plume. The pumping capacity of the 2 irrigation wells significantly exceeds the pumping capacity of the extraction wells from Techalloy. As a result, the plume boundary is expanded and Techalloy is in the process of collecting multiple groundwater samples at off-site properties to track the current extent of the groundwater plume. As of July 2006, residential wells are not affected by the migrating plume. Due to the change in the boundary of the plume line, Techalloy has drafted a modified deed restriction on groundwater use which is currently under McHenry County health department's review.

It is not clear at this point, if the OSW definition of Ready for anticipated use for RCRA corrective action site refers only to the onsite portion of the facility. If so, Techalloy could be qualified as having completed the CA 725, CA550 and CA772. On the other hand, if the medium of contamination is of concern and poses uncertainty in protecting human health and subject to continued monitoring, CA550 and CA 772 is considered incomplete for offsite contamination.

-Scio Pottery OHD 004 465 084 (Don)
-CECOS OHD 087 433 744 (Ken)
-DIC Imaging Reichold Chem WID 055 301 055 (Gerry)
-Safety Kleen Madison WID 980 896 633 (Trish)

-Safety Kleen LaCrosse WID 980 896 641(Trish)
-Safety Kleen Waukesha WID 981 097 769 (Trish)
-GM Flint V8 MID 005 356 951 (Gerry)(I think this one would meet RAU)
-Henkel Surface Technologies MID 058 723 867 (Brian) (Brian, your recent write-up sounds like this one is RAU)

I would really appreciate it if you could reply to my message over the next couple of weeks -- and let me know if you think any of these sites seem to meet the definition of Ready for Anticipated Use.
Thanks very much.
--Gary

----- Forwarded by Gary Victorine/R5/USEPA/US on 05/16/2007 12:48 PM -----

Gary Victorine/R5/USEPA/US
03/15/2007 04:23 PM

To Corrective Action Managers

cc Jose Cisneros/R5/USEPA/US@EPA, Hak Cho/R5/USEPA/US@EPA, George Hamper/R5/USEPA/US@EPA

Subject Fw: Final Guidance for Documenting & Reporting RCRA Corrective Action Land Revitalization Indicators & Performance Measures

Greetings Corrective Action Project Managers--

At the very bottom of the attached memo is OSW finalized guidance for documenting and reporting RCRA corrective action reuse/revitalization measures.
Background:

As some of you might remember, this all started some years ago with OSWER wanting to develop a way to communicate what the different OSWER cleanup programs were doing, in terms of preparing sites for reuse, in simple easy-to-understand terms. It was eventually decided that each of the programs (RCRA Corrective Action; RCRA UST/LUST; SF; Federal Facilities) would tabulate and track *total site acres made ready for reuse.* And then OSWER would collect and assemble this information into some sort of master "cross-program" database.
An earlier, more general, guidance for collecting and reporting info under this so-called "Cross Program Revitalization Measures", or CPRM, project was issued in October 2006, but it really didn't get down to the dirty details of how each individual program would document and report the measures info. In the October CPRM guidance, those kinds of details were deferred to some future program-specific guidances.

Well, the attached document is that very program-specific guidance for the RCRA Corrective Action Program

Back in the October 2006 guidance, it was decided that instead of measuring acres "ready for reuse", we would instead use the term "Ready for Anticipated Use" (or "RAU"). This responded to the RCRA program's concern that many RCRA sites continue to be used for their original industrial purpose the whole time they are being cleaned up.... therefore, they are "used" rather than "reused". Secondly, it was decided in the October 2006 guidance that we should also track the number of total site acres that, while not yet cleaned up, have at least been stabilized in such a way as to be protective of human health. This responded to a concern that we be able to demonstrate that, even thought many cleanups are not yet done, we have at least ensured that the sites are stable and safe. This became the measure known as acres "Protective for People under Current Conditions" (or "PfP").

Both the October 2006 and March 2007 guidances also address the collection of additional "optional" information, such as Type of Use and Status of Use for each site, as well as the potential for counting the RAU and PfP acres on a partial-facility basis if desired. Right now, I see this as being sort of a second phase of the project.

I think that some time soon, after we have had a chance to read over the final version of this new guidance, we should probably set up a meeting among ourselves to talk about how can we can start to implement this stuff. But I do have some initial impressions on the most painless ways to do this:

Reader's Digest version of task ahead :

We here in Region 5 can take the spreadsheet I pulled together last year with your help (which shows acres for every facility on the 2008 list), and then consider which fed-lead facilities fall into the category of "Ready for Anticipated Use", as defined in the guidance. I think that boils down to about five different scenarios:

a) sites that have institutional controls in place, and that also have completed construction of the remedy. This sounds to me like CA-772 plus CA-550.

b) sites that have institutional controls in place, and that have the remedy at least to the point where any remaining contamination would not interfere with the anticipated use. This sounds like CA772 plus "other information" and perhaps CA750 to make sure releases are controlled, plus CA725 to ensure protectiveness. This would seem to apply to sites that are still cleaning up but where cleanup is not interfering with normal plant operations. But I suspect very few of these would have ICs in place. It sounds to me like RCRA-Info won't give us all the information we need to identify sites that are in this situation.

c) sites that only need institutional controls, but don't need any actual cleanup, and where those institutional controls are in now place. This sounds like CA772 plus something to indicate no remediation required (is this called CA550-NR? I don't know this RCRA-Info stuff all that well!)

d) sites that don't need institutional controls -- and that have remedy construction complete. This sounds to me like CA999, or at least ready for CA999.

e) sites that don't need institutional controls -- and don't need any remediation at all. Would this be something like CA-070? Do we even deal with sites like this?

Although the guidance talks about "less-than-facility-wide" tracking to the extent we want to do this, I wonder if this "parcel" approach should be put off until a second (third?) phase, after we have first tested this all out on a facility-wide basis. RCRA-Info still doesn't have the ability to track CA725 and several other important codes on anything other than a facility-wide basis, so figuring out parcel cleanup acres could be time consuming.

The bad news: For those facilities that we identify as RAU candidates, we will have to fill out the 2-page RAU form in the guidance.

EPA-TECHALLOY Meeting

Metcalfe Building

August 7, 2006, 10.00 a.m. – 12.00 Noon

Participants:

George Hamper, Jacqueline Miller, Gary cygan, Bhooma Sundar – EPA
Scott Carr – TechAlloy
Carlos Serna – Matrix Environmental

Agenda

1. Introduction and problem statement.

2. Review of semi annual sampling results.

3. Review of analytical data and well log information of sampled wells.

   - Well log information of other private wells in the current and future path of the plume.

4. Discussion on the impact of plume on human exposure pathways

   - J and E modeling for vapor intrusion at the Slais Property
   - J and E modeling for vapor intrusion at the OCock and Elms intersection

5. Discussion of site geology and the influence of river on Sod well pumping and Techalloy well pumping.

6. Future sampling and possible steps to be taken to minimize the expansion of groundwater plume.

7. Discontinue air sparging onsite following the drop in contaminant level below MCL in groundwater.

Bhooma Sundar/R5/USEPA/US
07/18/2006 12:42 PM

To

Subject Techalloy Groundwater plume expansion

Hi Everyone,

It is a great news that private residential wells tested negative for chlorinated solvents. While we wait for the next round of sampling, which is possibly three to six months from now, we need to decide what out next course of action is. We need to delineate the extent of plume contamination. Meanwhile, it should be absolutely made certain that none of the residential wells at the immediate north of RT176 do not pump the GW from intermediate and deeper aquifer. Carlos, the consultant to Techalloy mentioned that the well log information for the residential wells will be provided to us with in a week. Carlos is also looking at the vertical profile of contaminated groundwater . Are you all available for a meeting at Metcalfe building (EPA office, Chicago) either on August 1st or 7th, so Carlos could explain to us the influence of river, pumping fromTechalloy and Sod Farm on the contaminated plume and suggest possible solutions to address the problem.

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10 March 2006

Ms. Bhooma Sundar
U.S. Environmental Protection Agency
Region V
RCRA Enforcement and Compliance Assurance Branch (DE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re Remediation System Performance Monitoring:
Annual Performance for Fourth Quarter 2004

Dear Ms Sundar:

Matrix Environmental, Inc (Matrix) on behalf of the Techalloy Company Inc. (Techalloy) is pleased to present the system performance monitoring results for the environmental remediation systems at the Techalloy Union, Illinois facility. This letter report was originally prepared in March 2005 and recently edited. This letter report describes the performance of both the soil vapor extraction (SVE) and the air sparging systems as well as the operation of the off-site downgradient groundwater extraction system. Techalloy installed the SVE and air sparging systems in March 2001 and the groundwater extraction system in 1998. This performance evaluation was conducted during the fourth quarter of 2004 and is constitutes the 4-year evaluation of the SVE and air sparging systems.

The objective of this evaluation is determining the effectiveness the remediation systems have had in reducing and eliminating the contaminated soil and groundwater.

The following sections present the objectives, analytical results, and recommendations.

SAMPLING AND ANALYSIS

Evaluations of the remediation systems performance include the collection and analyses of soil, groundwater, and air samples.

Soil

A total of five subsurface soil samples were collected within the area of the air sparging and SVE system (Figure1). The SVE system was the technology selected to remediate the subsurface soil. The soil samples were collected along the axis of the SVE system starting where the highest historical solvent concentrations were detected. Samples were analyzed for Volatile Organic

Compounds (VOCs) using EPA Method 8260. Figure 1 and the following paragraphs present a brief description of the soil samples collected:

- Soil 1 – Soil sample S-1 was collected at the southwest side of the reclamation building in the area of the former concrete solvent evaporation solid waste management unit (SWMU). This sample was collected within close proximity to the solvent source area and within the area of the highest concentration detected during the RCRA Facility Investigation (RFI). The soil sample was collected at a depth interval of three feet to four feet below ground surface (bgs) and the soil consisted of black stained fine sand.

- Soil 2 – Soil sample S-2 was collected approximately 40 feet north of soil sample S-1 and approximately 20 feet east of the boiler room building. The sample was collected just outside the solvent source area, but still within an area the RFI indicated as having detected elevated solvent concentrations. The sample was collected at a depth interval of 3 to 4 feet and the soil was slightly black stained silty fine sand.

- Soil 3 – Soil sample S-3 was collected approximately 50 feet northwest of soil sample S-2 and along the axis of the solvent contaminate plume. This soil sampling location is within the SWMU designated as the wastewater discharge area. Elevated chlorinated solvent contaminants were also detected in this location as reported in the RFI. The sample was also collected at a depth of 3 to 4 feet and the soil was slightly stained black and consisted of a silty fine sand.

- Soil 4 – Soil sample S-4 was collected approximately 140 feet northwest of soil sample S-2 and at the center of the remediation area in the RFI designated BG (drum storage area) SWMA. Only slightly elevated solvent contaminants were identified in this area and were the least contaminated area as indicated in the RFI Report. The sample was collected at a depth of 6 to 7 feet bgs. This sample was collected slightly deeper since fill material had been added at this location to provide a grade surface during the construction of the asphalt cap. The soil collected was described as brown silty fine sand.

- Soil 5 – Soil sample S-5 was collected at the northern portion of the remediation area and within the RFI designated acid pit area. Slightly elevated solvent contaminants were identified in this area as indicated in the RFI Report. The sample was collected at a depth of 3 to 4 feet bgs. The soil collected was described as brown silty fine sand.

Groundwater

Groundwater samples were colleted from four observation wells that were installed during the installation of the air sparging system. The air sparging system was the technology selected to remediate the groundwater. The groundwater samples were collected along the axis of the system starting where the highest historical solvent concentrations were detected. The groundwater samples were analyzed for VOCs using EPA Method 6010B. The observation well locations are presented in Figure 1 and the following paragraphs present a brief description of the groundwater samples collected:

- Observation well #2 – Groundwater sample OB-2 is located just north of the reclamation building in the area of the former concrete solvent evaporation SWMU. This well was installed within close proximity to the solvent source area and within the area of the highest concentration detected during the RCRA Facility Investigation. This well is approximately 50 feet deep and is screened from the water table to the bottom of the sand and gravel aquifer.

- Observation well #5 – Groundwater sample OB-5 is located north of the reclamation building and adjacent to the boiler room building. This observation well is located north of the solvent source area and within the area of historically identified elevated groundwater concentrations. This well is approximately 51 feet deep and is screened from the water table to the bottom of the sand and gravel aquifer.

- Observation well #9 – Groundwater sample OB-9 is located north of the boiler room building and in the center of the remediation area. This observation well is located within the identified chlorinated solvent groundwater plume and where elevated solvent concentrations were detected. This well is approximately 67 feet deep and is screened from the water table to the bottom of the sand and gravel aquifer.

- Observation well #14 – Groundwater sample OB-14 is located approximately 80 feet northwest of Observation well #9 and at the northern portion of the remediation area. The observation well is located within the identified chlorinated solvent groundwater plume. This well is approximately 71 feet deep and screened from the water table to the bottom of the sand and gravel aquifer.

Air

Air samples were colleted from three venting and sparging locations in the remediation area. These three locations were evaluated while just the soil venting system was operating and then again while both the soil venting and the air sparging systems were operating. The air samples

were collected from the soil venting system alone to evaluate if the soil just was emitting volatile organic compounds to the atmosphere. Both systems were then operating to observe if volatiles were coming from either soil or groundwater and were being emitted to the atmosphere. Air samples were then analyzed for volatile organic compounds using Method NIOSH 1003. The air samples were collected while the following vents and sparge wells were operating:

- Vents #1 and #2 – This air sample was collected while vents #1 and #2 were operating. These vents are located in the primary solvent source area near the solvent evaporation pad. A duplicate of this sample was also collected.

- Vents #3 and #4 – This air sample was collected while vents #3 and #4 were operating. These vents are the next series of vents downgradient away from the source area.

- Vents #5 through #7 – This air sample was collected while #5, #6, and #7 vents were operating. These vents are located further downgradient from the source area and near the northern portion of the remediation area.

- Vents #1 and #2 and sparge wells 5 and 6 – This air sample was collected while vent #1 and #2 were operating and sparge wells 5 and 6 were injecting air. These vents and sparge wells are located in the primary solvent source area near the solvent evaporation pad. A duplicate of this sample was also collected.

- Vent #3 and #4 and sparge wells 7 through 9 – This air sample was collected while vents #3 and #4 were operating and sparge wells 7 through 9 were injecting air. These vents and sparge wells are the series of vents downgradient away from the source area.

- Vent #5 through #7 and sparge wells 8 through 13 – This air sample was collected while #5 through #7 vents were operating and sparge wells 8 through 13 were injecting air. These vents and sparge wells are located further downgradient from the source area and near the northern portion of the remediation area.

RESULTS

Environmental media were sampled in November 2004. Soil and groundwater samples were analyzed by Seven Trent Laboratories and air was analyzed by Test America Corporation. The following paragraphs present the results of soil, groundwater, and air.

Soil

Soil 1 – Soil sample S-1 was collected at the southwest side of the reclamation building in the area of the former concrete solvent evaporation solid waste management unit (SWMU). A total of eight volatile organic compounds (VOCs) were detected in sample S-1 (Table 1). The detected values were compared to the Illinois Environmental Protection Agency (IEPA) Tier I soil remediation objectives for industrial property. A comparison to the Tier I industrial standards, indicated that three chlorinated solvent compounds (1,1,1 trichloroethane, trichloroethene, and tetrachlorethene) were detected above the Tier I standards. The area of S-1 is the area that had been identified as the chlorinated solvent source area with the highest detections of VOCs. The compound 1,1,1 trichloroethane (detected at 29,000 μg/kg) did not exceed the commercial/construction exposure-specific values for soils, but did exceed the groundwater ingestion rout of exposure. The compound tetrachloroethene was detected in sample S-1 at 13,000 μg/kg, which also did not exceed the commercial/construction exposure-specific values for soils, but did exceed the groundwater ingestion rout of exposure.

Soil 2 – Soil sample S-2 was collected just outside the solvent source area, but still within an area the RFI indicated as having detected elevated solvent concentrations. A total of nine VOCs were in sample S-2 (Table 1). When the results are compared to the Tier I industrial standard, one chlorinated solvent compounds, tetrachlorethene was detected at a concentration of 160 μg/kg. This compound does not exceed the commercial/construction exposure-specific values for soils, but does exceed the groundwater ingestion rout of exposure.

Soil 3 – Soil sample S-3 was located within the SWMU designated as the wastewater discharge area. Elevated chlorinated solvent concentrations were also detected in this location as reported in the RFI. A total of four VOCs were detected in sample S-3 (Table 1); however, when the results are compared to the Tier I industrial standard no detection exceeded any Tier I standards.

Soil 4 - Soil sample S-4 was collected at the west side of the remediation area in the RFI designated BG (drum storage area) SWMA. Only slightly elevated solvent concentrations were identified in this area as indicated in the RFI Report. One VOC was detected in sample S-4 (Table 1); however, when the result was compared to the Tier I industrial standard it did not exceeded any Tier I standards.

Soil 5 – Soil sample S-5 was collected at the northern portion of the remediation area and within the RFI designated acid pit area. Only slightly elevated solvent concentrations were identified in this area as indicated in the RFI Report. Slightly elevated solvent concentrations were identified in this area as indicated in the RFI Report. Four VOCs were detected in sample S-3 (Table 1); however, when the results are compared to the Tier I industrial standard three compounds1,1 dichloroethane, cis-1,2 dichloroethene, and, tetrachloroethene were at was detected at 930 μg/kg, 3100 μg/kg. and 350 μg/kg, respectively. These compounds do not exceed the

commercial/construction exposure-specific values for soils, but does exceed the groundwater ingestion rout of exposure.

Groundwater

The results of the groundwater analysis did not detect VOCs in the investigative samples, but did detect methylene chloride at 2.6 μg/l in the trip blank sample (Table 2).

Air

The results of the air analysis indicated only the detection of tetrachloroethene. This detection was identified in the air sample collected while vents 3# and 4# were operating and sparge wells 7 through 9 were operating. Tetrachloroethene was detected at 0.74 parts per million (ppm), which was detected just above the detection limit of 0.57 ppm.

CONCLUSIONS AND RECOMMENDATION

The results of the performance evaluation indicate that soil near the solvent source area does exceed the protection to groundwater standards, but does not exceed worker protection standards. The original contaminated soil levels were in the hundreds of parts per million range and soil remediation has resulted in significant reduction in concentrations; however residual concentrations do remain. In addition to the solvent area near the reclamation building, the area downgradient and near soil sample S-5 was identified with detections of degradation or daughter products (cis-1,2 dichloroethene and 1,1 dichloroethane) this is an indication of dechlorination of the solvent mass.

The groundwater results are very encouraging and only identified the detection of one constituent; it is understood that beyond the limited sparging area the groundwater is contaminated and is currently being captured by the groundwater extraction system.

The air results only identify the detection of one chlorinated solvent just above the detection limit.

Based on these results it is evident that soil and groundwater has been significantly remediated from the implemented technologies; however soil at the source area and downgradient at potential isolated locations may require additional remediation. It appears that groundwater has been significantly remediated throughout the entire remediation area.

It is recommended that the soil within the solvent source area continue to be remediated by continuing to operate the SVE system. It is also recommended that the sparging system be turned off at this time, while the venting system continues. Matrix wants to try and increase the effectiveness of the SVE system by solely operating the SVE without the sparge system. The

attenuated constituents may be stripped easier from the soil particles without the sparge system operating.

It appears that the on-site groundwater plume has been remediated; however the off-site plume still exist and is be controlled by the downgradient groundwater extraction system. The groundwater extraction system has removed 297,780,700 gallons of contaminated groundwater this year (fourth quarter 2004). Groundwater concentrations being extracted from the system have been decreasing over the last several years. It is expected that with the removal of elevated on-site groundwater concentrations that the off-site groundwater concentrations will now start to decrease even more significantly.

Respectfully,

Carlos Serna P.G.
Matrix Environmental, Inc.

cc:	Ms. Joyce L. Munie, P.E.	IEPA
	Mr. Henry Lopes	Techalloy
	Mr. Scott Carr	Techalloy

encl

Table 1
Techalloy Company Union, Illinois
October 2004 Soil Analyses
Volatile Organic Compound Results

	Sampling Location		S-1	S-2	S-3	S-4	S-5
	Sampling Date:		Oct-04	Oct-04	Oct-04	Oct-04	Oct-04
Parameter	Units	Reporting Limit					
1,1,1,2-Tetrachloroethane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,1,1-Trichloroethane	ug/Kg	1100	29000	27	41 *	ND *	ND
1,1,2,2-Tetrachloroethane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,1,2-Trichloroethane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,1-Dichloroethane	ug/Kg	110	600	15	ND *	ND *	930
1,1-Dichloroethene	ug/Kg	110	190	10	ND *	ND *	ND
1,1-Dichloropropene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2,3-Trichlorobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2,3-Trichloropropane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2,4-Trichlorobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2,4-Trimethylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2-Dibromo-3-chloropropane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2-Dibromoethane (EDB)	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2-Dichlorobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2-Dichloroethane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,2-Dichloropropane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,3,5-Trimethylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,3-Dichlorobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
1,3-Dichloropropane	ug/Kg	110	ND	ND	ND *	ND *	ND
1,4-Dichlorobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
2,2-Dichloropropane	ug/Kg	110	ND	ND	ND *	ND *	ND
2-Butanone (MEK)	ug/Kg	110	ND	ND	18 *	ND *	ND
2-Chlorotoluene	ug/Kg	110	ND	ND	ND *	ND *	ND
2-Hexanone	ug/Kg	110	ND	ND	ND *	ND *	ND
4-Chlorotoluene	ug/Kg	110	ND	ND	ND *	ND *	ND
4-Methyl-2-pentanone (MIBK)	ug/Kg	110	ND	ND	ND *	ND *	ND
Acetone	ug/Kg	230	ND	28	160 *	23 *	ND
Benzene	ug/Kg	28	ND	ND	ND *	ND *	ND
Bromobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
Bromochloromethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Bromodichloromethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Bromoform	ug/Kg	110	ND	ND	ND *	ND *	ND
Bromomethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Carbon disulfide	ug/Kg	110	ND	ND	ND *	ND *	ND
Carbon tetrachloride	ug/Kg	110	ND	ND	ND *	ND *	ND
Chlorobenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
Chloroethane	ug/Kg	110	ND	ND	ND *	ND *	810
Chloroform	ug/Kg	110	ND	ND	ND *	ND *	ND
Chloromethane	ug/Kg	110	ND	ND	ND *	ND *	ND
cis-1,2-Dichloroethene	ug/Kg	110	200	210	ND *	ND *	3100
cis-1,3-Dichloropropene	ug/Kg	110	ND	ND	ND *	ND *	ND
Dibromochloromethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Dibromomethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Dichlorodifluoromethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Ethylbenzene	ug/Kg	28	ND	ND	ND *	ND *	ND
Hexachlorobutadiene	ug/Kg	110	ND	ND	ND *	ND *	ND
Isopropylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
m&p-Xylenes	ug/Kg	57	ND	ND	ND *	ND *	ND
Methylene chloride	ug/Kg	110	ND	22	ND *	ND *	ND
Methyl-tert-butyl-ether (MTBE)	ug/Kg	110	ND	ND	ND *	ND *	ND
Naphthalene	ug/Kg	110	ND	ND	ND *	ND *	ND
n-Butylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
n-Propylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
o-Xylene	ug/Kg	28	ND	ND	ND *	ND *	ND
p-Isopropyltoluene	ug/Kg	110	ND	ND	ND *	ND *	ND
sec-Butylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
Styrene	ug/Kg	110	ND	ND	ND *	ND *	ND
tert-Butylbenzene	ug/Kg	110	ND	ND	ND *	ND *	ND
Tetrachloroethene	ug/Kg	1100	13000	160	68 *	ND *	350
Toluene	ug/Kg	28	ND	ND	ND *	ND *	ND
trans-1,2-Dichloroethene	ug/Kg	110	ND	8.5	ND *	ND *	ND
trans-1,3-Dichloropropene	ug/Kg	110	ND	ND	ND *	ND *	ND
Trichloroethene	ug/Kg	110	1200	17	ND *	ND *	ND
Trichlorofluoromethane	ug/Kg	110	ND	ND	ND *	ND *	ND
Vinyl chloride	ug/Kg	110	ND	ND	ND *	ND *	ND

Key: ND = Non-detect

Table 2
Techalloy Company Union, Illinois
October 2004 Observation Well Groundwater Analyses
Volatile Organic Compound Results

	Sampling Location		OB-2	OB-5	OB-9	OB-14
	Sampling Date:		Oct-04	Oct-04	Oct-04	Oct-04
Parameter	Units	Reporting Limit				
1,1,1,2-Tetrachloroethane	µg/L	1	ND	ND	ND	ND
1,1,1-Trichloroethane	µg/L	1	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	µg/L	1	ND	ND	ND	ND
1,1,2-Trichloroethane	µg/L	1	ND	ND	ND	ND
1,1-Dichloroethane	µg/L	1	ND	ND	ND	ND
1,1-Dichloroethene	µg/L	1	ND	ND	ND	ND
1,1-Dichloropropene	µg/L	1	ND	ND	ND	ND
1,2,3-Trichlorobenzene	µg/L	1	ND	ND	ND	ND
1,2,3-Trichloropropane	µg/L	1	ND	ND	ND	ND
1,2,4-Trichlorobenzene	µg/L	1	ND	ND	ND	ND
1,2,4-Trimethylbenzene	µg/L	1	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	µg/L	1	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	µg/L	1	ND	ND	ND	ND
1,2-Dichlorobenzene	µg/L	1	ND	ND	ND	ND
1,2-Dichloroethane	µg/L	1	ND	ND	ND	ND
1,2-Dichloropropane	µg/L	1	ND	ND	ND	ND
1,3,5-Trimethylbenzene	µg/L	1	ND	ND	ND	ND
1,3-Dichlorobenzene	µg/L	1	ND	ND	ND	ND
1,3-Dichloropropane	µg/L	1	ND	ND	ND	ND
1,4-Dichlorobenzene	µg/L	1	ND	ND	ND	ND
2,2-Dichloropropane	µg/L	1	ND	ND	ND	ND
2-Butanone (MEK)	µg/L	5	ND	ND	ND	ND
2-Chlorotoluene	µg/L	1	ND	ND	ND	ND
2-Hexanone	µg/L	5	ND	ND	ND	ND
4-Chlorotoluene	µg/L	1	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	µg/L	5	ND	ND	ND	ND
Acetone	µg/L	5	ND	ND	ND	ND
Benzene	µg/L	1	ND	ND	ND	ND
Bromobenzene	µg/L	1	ND	ND	ND	ND
Bromochloromethane	µg/L	1	ND	ND	ND	ND
Bromodichloromethane	µg/L	1	ND	ND	ND	ND
Bromoform	µg/L	1	ND	ND	ND	ND
Bromomethane	µg/L	1	ND	ND	ND	ND
Carbon disulfide	µg/L	5	ND	ND	ND	ND
Carbon tetrachloride	µg/L	1	ND	ND	ND	ND
Chlorobenzene	µg/L	1	ND	ND	ND	ND
Chloroethane	µg/L	1	ND	ND	ND	ND
Chloroform	µg/L	1	ND	ND	ND	ND
Chloromethane	µg/L	1	ND	ND	ND	ND
cis-1,2-Dichloroethene	µg/L	1	ND	ND	ND	ND
cis-1,3-Dichloropropene	µg/L	1	ND	ND	ND	ND
Dibromochloromethane	µg/L	1	ND	ND	ND	ND
Dibromomethane	µg/L	1	ND	ND	ND	ND
Dichlorodifluoromethane	µg/L	1	ND	ND	ND	ND
Ethylbenzene	µg/L	1	ND	ND	ND	ND
Hexachlorobutadiene	µg/L	1	ND	ND	ND	ND
Isopropylbenzene	µg/L	1	ND	ND	ND	ND
m&p-Xylenes	µg/L	2	ND	ND	ND	ND
Methylene chloride	µg/L	1	ND	ND	ND	ND
Methyl-tert-butyl-ether (MTBE)	µg/L	1	ND	ND	ND	ND
Naphthalene	µg/L	1	ND	ND	ND	ND
n-Butylbenzene	µg/L	1	ND	ND	ND	ND
n-Propylbenzene	µg/L	1	ND	ND	ND	ND
o-Xylene	µg/L	1	ND	ND	ND	ND
p-Isopropyltoluene	µg/L	1	ND	ND	ND	ND
sec-Butylbenzene	µg/L	1	ND	ND	ND	ND
Styrene	µg/L	1	ND	ND	ND	ND
tert-Butylbenzene	µg/L	1	ND	ND	ND	ND
Tetrachloroethene	µg/L	1	ND	ND	ND	ND
Toluene	µg/L	1	ND	ND	ND	ND
trans-1,2-Dichloroethene	µg/L	1	ND	ND	ND	ND
trans-1,3-Dichloropropene	µg/L	1	ND	ND	ND	ND
Trichloroethene	µg/L	1	ND	ND	ND	ND
Trichlorofluoromethane	µg/L	1	ND	ND	ND	ND
Vinyl chloride	µg/L	1	ND	ND	ND	ND

Key: ND = Non-detect

In addition, there is some evidence of natural degradation due to dechlorination of the solvent products and daughter products such as 1,1-dichloroethene.

The three well cluster downgradient from the extraction wells were sampled in the last two semi-annual sampling events (June and December 2005). Matrix has collected 78 data points on these three wells after two rounds of sampling for thirteen parameters. Of these 78 data points, eight have exceeded the MCLs, so Matrix and Techalloy have looked into this situation and have learned that Central Sod Farms has installed two high capacity agricultural wells, one about a half mile and the other about a mile downgradient from the plume that Techalloy is remediating (see Figure 2). While there is an environmental land use control to prohibit the placement of new potable wells in proximity to the plume, these wells are outside the designated area and they are not being used as potable water. However, they each have twice the capacity of the two pumps in Techalloy's groundwater extraction and treatment system and may have each pumped the aquifer at their reported 1,500 gallons per minute capacity, which could pull the contaminant plume past the extraction wells and into or past the downgradient monitoring well cluster. We have no information on the times of operation or the rate of pumping from either well.

Please feel free to contact me at (847) 367-6835 or Mr. Scott Carr at Techalloy at (815) 923-2131 (Ext. 130) if you have any questions, or need additional information.

Sincerely,

Carlos J. Serna
Matrix Environmental, Inc

cc:	Ms. Joyce L. Munie, P.E.	IEPA
	Mr. Henry Lopes	Techalloy
	Mr. Scott Carr	Techalloy

encl

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28 November 2005

Ms. Bhooma Sundar
U.S. Environmental Protection Agency
Region V
RCRA Enforcement and Compliance Assurance Branch (DE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Removal of Mercury from Semi Annual Groundwater Monitoring Analytes

Dear Ms. Sundar:

Techalloy has been monitoring selected wells to measure the progress of the downgradient groundwater extraction and treatment for several years. I noted when reviewing the June 2005 sampling results (attached) that mercury has been detected only once since 2002 in MW-4 at 25% or ¼ of the MCL (0.52ug/L vs. the MCL of 2 ug/L). Sampling for mercury when it has not been detected is an unnecessary cost burden to Techalloy.

Techalloy respectfully requests that we be allowed to eliminate mercury as a contaminant of concern. If you have any comments or questions regarding this request, please do not hesitate to call me at (847) 367-6835.

Sincerely,

Carlos J. Serna, P.G.
Matrix Environmental, Inc.

CJS:sk

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Joyce Munie, IEPA

S:\Projects\Techalloy\UNION\GW DATA\2005\D-05 Sampling\Sundar Req Remove Hg 11-28-05.doc

Matrix Environmental, Inc.
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27 September 2004

Ms. Bhooma Sundar
U.S. Environmental Protection Agency
Region V
RCRA Enforcement and Compliance Assurance Branch (DE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Techalloy Company
Estimate Operation of Groundwater Extraction System

Dear Ms. Sundar:

The Techalloy Company, Incorporated (Techalloy) has requested that the U.S. Environmental Protection Agency (U.S. EPA) grant a reduction in the financial assurance relating to the RCRA Corrective Action at the Techalloy Union, Illinois facility. Currently Corrective Measures have been implemented and the only financial responsibility remaining is operation and maintenance. The Corrective Measures that have been implemented include groundwater extraction and treatment system, air sparging, soil vapor extraction (SVE), and installation of an asphalt cap. The proposed financial assurance estimate is provided in the enclosed table.

The asphalt cap was installed in 2002 and maintenance has been estimated for 30 years, resulting in 28 years of remaining maintenance. The SVE and air sparging system have been operating for several years and recent testing of the air emissions, groundwater and soil have indicated that the contaminant levels have significantly reduced. Techalloy anticipated that the on-site source area will be remediated by the SVE and sparging systems within the next three years. The systems will be shut off, but will remain in place for contingency purposes.

The groundwater extraction system operation and maintenance has been estimated at 14 remaining years and has been operating for approximately 5 years. This results in a total operation and maintenance of the system for 19 years. It was estimated that approximately three volumes of the aquifer would be needed to remove the contaminants. Estimating the volume of the aquifer based on the total area presented in the capture zone analysis (attached figure) of the two extraction wells, and conservative porosity of the aquifer of 30%, results in a total of 1.335 billion gallons of water would need to be removed to account for one aquifer volume. Using the Monthly Discharge Reports (DMRs) the calculated volume of water removed to date is 1.982 billion gallons. This concludes that after five years of operation, 1.48 volumes of the aquifer will have been removed and that in five more years three volumes (2.96 volumes) of the aquifer will be removed. Techalloy understands that extraction of contaminants is not an exact science and that additional groundwater extraction may be required. Techalloy has proposed that the

Matrix Environmental, Inc.

extraction system operate for an additional 14 years, resulting in a total operation of 19 years. Operation and maintenance of the system for 19 years will result in removal of approximately 6 volumes (5.92 volumes) of the aquifer and an estimated extraction of 7.9 billion gallons. The operation and maintenance of the groundwater extraction system for a total of 19 years provides sufficient operation contingency. The system operation and maintenance may be shorter or may incorporate intervals of shut down and restarting the system during the last 9 years of operation. Regardless, 14 years of remaining operation and maintenance of the extraction and treatment system is considered sufficient for purposes of estimating financial assurance.

If you have any comments or questions regarding this matter, please do not hesitate to call me.

Sincerely,

Carlos J. Serna, P.G.
Matrix Environmental, Inc.

CJS:sk

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy

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If you have any comments or questions regarding this matter, please do not hesitate to call me.

Sincerely,

Carlos J. Serna, P.G.
Matrix Environmental, Inc.

CJS:sk

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy

Techalloy Company, Inc.
Union, Illinois

Union, IL - 2004 Environmental Financial Assurance Cost Estimate					
Task	Operation and Maintenance Task	2004 Cost	Capital	Number of Years	Total Expense
1	Asphalt Cap	$ 10,000	$ -	28	$ 280,000
2	SVE and Sparging Systems	$ 10,000	$ 2,000	3	$ 36,000
3	Groundwater Extraction system	$ 15,000	$ 2,500	14	$ 245,000
	TOTAL	$ 35,000	$ 4,500	--	$ 561,000

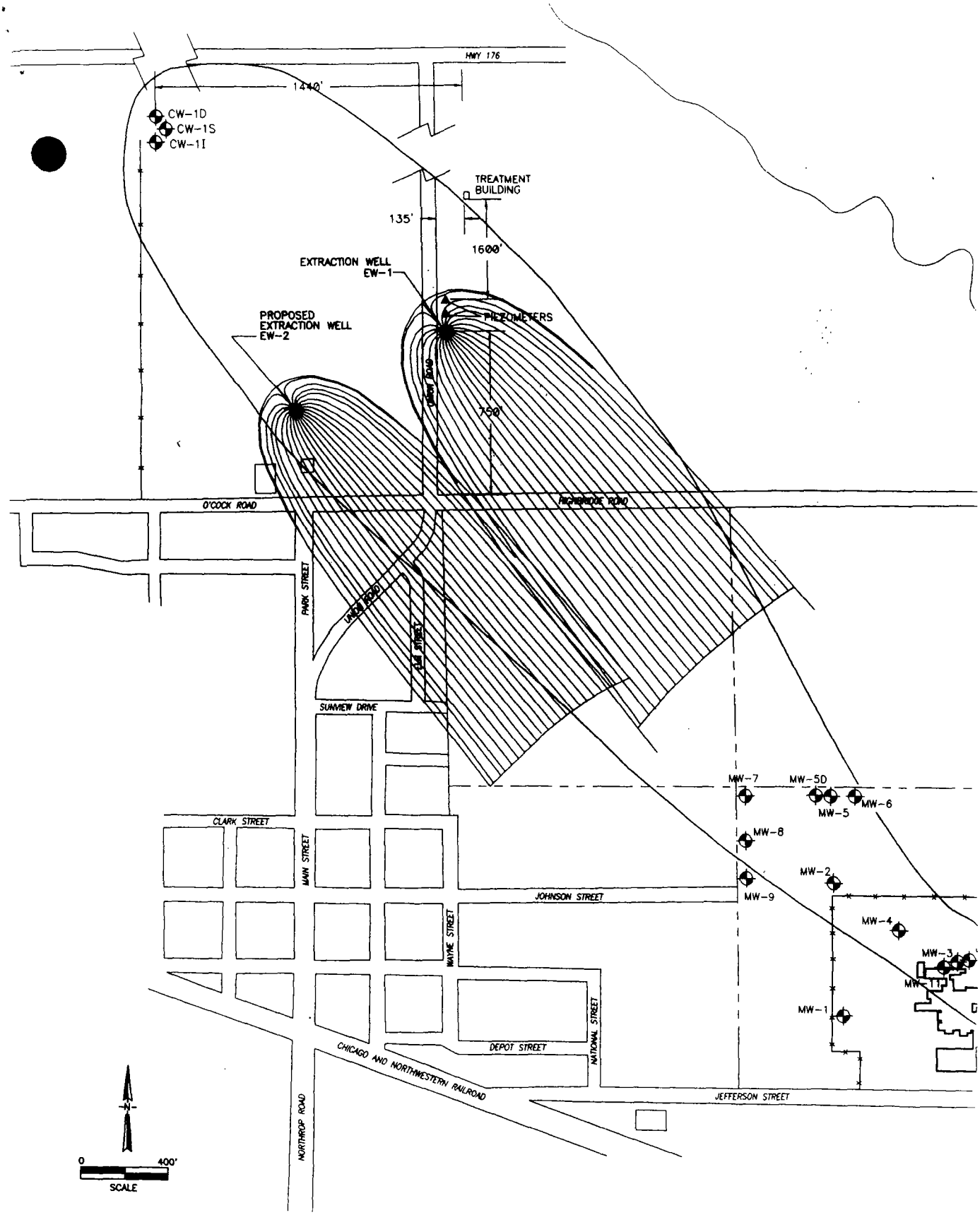

EXHIBIT C GROUNDWATER RECOVERY CAPTURE ZONE

Matthew M. Litvak, Esq.
155 N. Harbor Drive
Suite 4301
Chicago, IL 60601
312-337-8131
FAX 240-0405

July 4, 2004

Jacqueline Miller, ARC
USEPA
77 W Jackson Blvd.
Chicago, IL 60604-3590

Re: Techalloy, Union Illinois

Dear Ms. Miller:

In your letter of June 9, 2004, you indicated that Techalloy would be submitting analytical results of ground water sampling by the end of June. Would you please forward those results to me as soon as they are available.

I am in the process of finalizing an agreement for the sale of the subject property. The purchaser is aware of the presence of the contaminants, the extraction well and the test wells. Is there an agreement or other acknowledgment that the purchaser will be obligated to enter into with respect to the continuing operation of the extraction well and the test wells?

Sincerely,

Matthew M. Litvak

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

June 9, 2004

Matthew Litvak
155 N. Harbor Drive
Suite 4301
Chicago, Illinois 60601

Re: Property in Union, Illinois

Dear Mr. Litvak:

This letter responds to the questions which you asked in your letter of April 3rd. Because Techalloy and its corrective action contractor, Matrix Environmental, Inc., are most familiar with the Techalloy site and its impact on neighboring properties, U.S. EPA provided a copy of your letter to Techalloy and asked for its responses. Carlos Serna of Matrix Environmental provided responses to a number of your questions; Bhooma Sundar, the U.S. EPA toxicologist currently assigned to the Techalloy matter, reviewed Mr. Serna's responses and concurred with the information provided. In the responses provided below in this letter, I indicate those responses that were provided by Mr. Serna.

1. *Question – Aside from tetrachloroethylene, are there any other organic compounds that are above screening criteria that are within the plume of contaminants on the Property?*

   Response – As per the December 2003 semi-annual ground water sampling data, tetrachloroethylene in the Highbridge Road monitoring well is the only volatile organic compound that exceeds the indoor vapor intrusion screening criteria. The Highbridge Road monitoring well is located east of Union Road and represents a worst case scenario because it captures the majority of the contaminated plume. As per U.S. EPA's directions, Techalloy has sampled extraction well 2 and multi-depth wells at the downgradient edge of the property to assess the current ground water conditions in the development area in question. Techalloy will submit analytical results of this ground water sampling data to U.S. EPA by the end of June.

   It should be noted that constituents such as tetrachloroethylene, trichloroethylene

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and 1,1,1 trichloroethane exceed the screening criteria for drinking water in the Highbridge Road monitoring well. The screening criteria known as the Maximum Contaminant Level is the maximum permissible level of a chemical in water that is delivered to any user of a public water system. These exceedances are not considered significant with respect to the property in question because the Village of Union receives its water supply from a production well in a sandstone formation at a depth of 760 feet below ground surface located 3000 feet southwest of the Techalloy property.

2. *Question – Has the EPA identified the extent to which the plume of contaminants has invaded the Property. (If a map exists, I would like a copy of it.)*

Response [provided by C. Serna] – Prior to the installation of the extraction well located on Mr. Litvak's property, an investigation was conducted to determine the extent of groundwater impact [from operations at the Techalloy facility]. As a result of this investigation, concentrations of constituents of concern were identified above the Maximum Contaminant Levels (MCLs) at the southeastern portion of the property. The extraction well was therefore located at the southeast quadrant of the property. Techalloy also installed three monitoring wells at the furthest downgradient location on the property to monitor at the downgradient edge of the property. Sampling at these monitoring wells indicates that chlorinated solvent constituents are present at the downgradient edge of the property, but do not exceed MCLs (February 1998 Data, Attachment 1).

An investigation of this property was done in December 1995 and December 1996. A figure presenting the groundwater concentrations is available and will be recovered from [Techalloy's] archives and provided.

3. *Question – It is my understanding that the concentrations of contaminants varies and is greatest at the bottom of the aquifer, is this correct?*

Response [provided by C. Serna] – Yes, that is correct. Constituents of volatile organic compounds are more frequently detected in the deeper portions of the aquifer. The concentrations and frequency of constituents detected in the three well cluster downgradient of the property indicate that solvent constituents are more frequently detected in the intermediate and deep zones of the aquifer, while only one constituent was detected in the shallow well.

4. *Question - Based on your letter, the current level of tetrachloroethylene (130ug/L) was measured at the Highbridge Road well, does this represent a historical decline or increase at this well?*

Response [provided by C. Serna] – The concentration of tetrachloroethylene at

the Highbridge Road well has varied between 73 ug/L and 130 ug/L. This compound has remained in this range for approximately the last eight years. The compounds 1,1,1 trichloroethane and trichloroethene have experienced a reduction in concentrations at this well location from 1900 ug/L to 49 ug/L and from 16 ug/L to 3.4 ug/L, respectively.

4(a). *Question – How far does this concentration extend into the Property?*

Response [provided by C. Serna] – Groundwater data collected for the shallow portion of the aquifer in 1995 indicated that the compound tetracloroethylene extends approximately 400 feet northwest of the Highbridge and Union intersection.

4(b). *Question – Have samples been taken from the multi depth wells at the West end of the Property and if so what are the current and historical results.*

Response [provided by C. Serna] – Yes, they have. The most recent data was collected in April 2002 and the historic data was collected in February 1998. The data collected from 1998 indicated that no chlorinated solvent constituents exceeded the MCLs. In April 2002, data from the shallow zone were below MCLs, but trichloroethene exceeded the MCL in the intermediate portion of the aquifer.

5. *Question – Given the results of water sampling at Highbridge, has the EPA and/or Techalloy determined the duration of continued water extraction from the property, in other words is there a discernable drop in the levels of contaminants that can be attributed to the water extraction process and how long will this process continue?*

Response [provided by C. Serna] – The extraction system was designed to contain the groundwater contaminants and prevent its migration further downgradient. The duration of operation of the groundwater extraction system is dependent on the duration of the source remediation (soil vapor extraction and groundwater air sparging) [being performed at the Techalloy site]. The on-site remediation will significantly reduce the solvent concentrations at the source area. With the source area contaminants removed and the continued operation of the extraction system, off-site groundwater concentrations will continue to decline. It is anticipated that the on-site remediation system will continue to operate for approximately two to three years, at which point a better evaluation of the time required to operate the off-site extraction system can be conducted.

6. *Question - The current screening level of tetrachloroethylene is 11 ppb, once groundwater testing indicates that the compound is below this level (Assuming the*

EPA does not change its regulatory guidelines) will the restrictions on development of the property be removed?

Response – U.S. EPA is unaware of any existing "restrictions on development of the property." In framing your question you may have been thinking about the following three issues.

- U.S. EPA advises that development neither damage the extraction and monitoring wells on the property nor interfere with the effective operation of the groundwater extraction system (e.g., by installing a new well that will pump groundwater and influence the plume's movement). To prevent such activities from occurring at other sites, U.S. EPA has invoked its authorities under CERCLA and RCRA. Technically, though, this is not a "restriction" on development.

- As I mentioned in my March 17th letter – and as you may have known independently – McHenry County has banned the installation of drinking water wells within the contaminated groundwater plume emanating from the Techalloy property. The County will have to decide whether contaminant levels in the plume underneath the property have reached levels that justify allowing use of the groundwater for drinking purposes. Also, it may be possible for future buildings on the property to connect to the Union municipal water supply. I believe that Patrick McNulty at the County is familiar with this issue.

- In my March 24th letter to you, I mentioned the emerging concern that contaminated groundwater, in general, may pose a human health threat via the pathway of indoor vapor intrusion. U.S. EPA has not restricted development based on this concern, however; the web sites to which I referred you discuss draft U.S. EPA guidance to be used only as a screening tool when assessing the human health risks posed by RCRA and CERCLA contaminated sites. Of course, the lower the contaminant levels in the groundwater under this particular property (which also has a high groundwater table), the lower will be the potential for a health risk from indoor vapor intrusion if buildings are constructed at the property.

6(a). *Question – Once groundwater testing indicates that the compound is below the applicable screening level, (Assuming the EPA does not change its regulatory guidelines) will it be necessary to disclose the existence of this compound to the potential purchasers?*

Response – U.S. EPA cannot advise the property owner on issues of disclosure to potential buyers of the property. This issue probably is governed by State law,

ATTACHMENT 1

Recra LabNet - Chicago
METHOD 8260 VOLATILES

RFW Batch Number: 9802G468 Client: RFW-Techalloy Work Order: 01989-031-001-9 Report Date: 03/12/98 15:57 Page: 2a

	Cust ID:	RW-JEN-DUP		FB-01		TB021898		MW-S		MW-I		MW-D	
Sample Information	RFW#:	013		015		017		018		019		020	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1		1		1		1		1		1	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	1,2-Dichloroethane-d4	95	%	100	%	85	%	98	%	100	%	100	%
	Toluene-d8	100	%	101	%	98	%	100	%	102	%	102	%
	4-Bromofluorobenzene	102	%	101	%	92	%	101	%	99	%	100	%
			fl		fl		fl		fl		fl		fl
Chloromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	
Bromomethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	
1,1-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	6		4	
Acetone		2	U	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide		2	U	2	U	2	U	2	U	2	U	2	U
Methylene Chloride		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethene (total)		0.5	U	0.5	U	0.5	U	0.5	U	1		2	
1,1-Dichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.6		2	
Vinyl acetate		2	U	2	U	2	U	2	U	2	U	2	U
2-Butanone		2	U	2	U	2	U	2	U	2	U	2	U
Chloroform		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	13		0.5	U
Carbon Tetrachloride		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene		0.5	U	0.5	U	0.5	U	0.6		4		0.5	U
1,2-Dichloropropane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
4-Methyl-2-pentanone		2	U	2	U	2	U	2	U	2	U	2	U
Toluene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

*= Outside of EPA CLP QC limits.

United States Environmental Protection Agency

Solid Waste and Emergency Response (5305W)

EPA530-F-99-018
July 1999

RCRA CLEANUP REFORMS

Faster, Focused, More Flexible Cleanups

The U.S. Environmental Protection Agency (EPA) is implementing a set of administrative reforms, known as the RCRA Cleanup Reforms, to the Resource Conservation and Recovery Act (RCRA) Corrective Action program. The reforms are designed to achieve faster, more efficient cleanups at RCRA sites that treat, store, or dispose of hazardous waste and have potential environmental contamination. Although these reforms will emphasize flexibility and trying new approaches to clean up these facilities, EPA and the states will continue to ensure protection of human health and the environment.

Why Is EPA Doing the RCRA Cleanup Reforms?

When the RCRA law and regulations governing proper hazardous waste management went into effect around 1980, thousands of facilities became newly subject to these federal regulations. This RCRA regulatory structure has helped ensure that hazardous waste generated from ongoing industrial operations is properly managed and does not contribute to a future generation of toxic waste sites. However, many of these facilities had existing soil and groundwater contamination resulting from historical waste management practices. The RCRA Corrective Action program addresses cleanup of existing contamination at these operating industrial facilities.

Congress, the general public, EPA, and state agencies all believe the pace and progress of RCRA cleanups must be increased. In reviewing the program, EPA and other stakeholders identified several factors that were impeding timely and cost-effective RCRA cleanups. In some instances, RCRA cleanups have suffered from an emphasis on process steps and a lack of clarity in cleanup objectives. An additional complication is that the application of certain RCRA requirements, such as the land disposal restrictions (LDR), minimum technological requirements, and permitting, can create impediments to cleanup.

What Are the RCRA Cleanup Reforms?

The RCRA Cleanup Reforms are EPA's comprehensive effort to address the key impediments to cleanups, maximize program flexibility, and spur progress toward a set of ambitious national cleanup goals. The national cleanup goals focus on 1,712 RCRA facilities identified by EPA and the states warranting attention over the next several years because of the potential for unacceptable exposure to pollutants and/or for groundwater contamination. The goals, set by EPA under the Government Performance and Results Act (GPRA), are that by 2005, the states and EPA will verify and document that 95 percent of these 1,712 RCRA facilities will have "current human exposures under control," and 70 percent of these facilities will have "migration of contaminated groundwater under control." To ensure that these ambitious goals are achieved, the RCRA Cleanup Reforms outline aggressive national cleanup goals for each of the next several years. Implementation of the proposed reforms will help us achieve the national RCRA cleanup goals. Specifically, the RCRA Cleanup Reforms will:

U.S. Environmental Protection Agency

Chief Financial Officer

Budget
Strategic Plan
Financial Statements
Working Capital Fund
EPA Management Integrity
Financial Services and Support
Environmental Finance Program
Government Performance and Results Act (GPRA)
About the Chief Financial Officer
CFO Council
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Careers

Government Performance and Results Act

How should we use our limited resources to achieve the most environmental gains? This is perhaps the key question that U.S. Environmental Protection Agency (EPA) managers face in determining how to use taxpayers' money most effectively to carry out our mission: To protect human health and safeguard the natural environment - air, water, and land - upon which life depends. "Managing for results" is an approach to our work that can help us increase our focus on "outcomes" — actual environmental results such as cleaner air — rather than on more process-oriented "outputs" such as numbers of permits written. In managing for results, we set a strategic course, plan and budget to achieve environmental results, measure our progress to see if our programs are really working to accomplish what we intended, and make adjustments to improve our performance.

Government Performance and Results Act. Recent management reform initiatives, like the 1993 Government Performance and Results Act (GPRA), hold federal agencies accountable for using resources wisely and achieving program results. GPRA requires agencies to develop plans for what they intend to accomplish, measure how well they are doing, make appropriate decisions based on the information they have gathered, and communicate information about their performance to Congress and to the public.

GPRA requires agencies to develop a five-year **Strategic Plan**, which includes a mission statement and sets out long-term goals and objectives; **Annual Performance Plans**, which provide annual performance commitments toward achieving the goals and objectives presented in the Strategic Plan; and **Annual Performance Reports**, which evaluate an agency's progress toward achieving performance commitments.

GPRA requirements - a long-range Strategic Plan, Annual Performance Plans, and Annual Performance Reports - forge links between several activities:

- Planning, to achieve goals and objectives;
- Budgeting, to ensure that resources are available to carry out plans;
- Measuring, to assess progress and link resources actually used to results achieved; and
- Reporting, to present progress achieved and impacts on future efforts.

To comply with certain GPRA requirements and further enable the Agency to manage for results, EPA has built a framework that aligns planning, budgeting, analysis, and accountability (PBAA) in an integrated system.

Planning

Strategic Planning. GPRA requires every agency to develop a long-range strategic plan that presents the agency's mission and establishes clear goals and objectives against which performance can be measured. EPA developed its current Strategic Plan in 2000 in consultation with our partners and stakeholders, including states, tribes, and local governments; other federal agencies; and public interest

groups. GPRA requires agencies to update their strategic plans at least once every 3 years.

Our Strategic Plan presents EPA's mission and establishes ten Goals, which identify the overall environmental results that EPA is working to attain. Each of these ten Goals is supported by a series of Objectives that identify, as precisely as possible, what environmental outcomes or results the Agency seeks to achieve within a defined time frame using resources we reasonably expect to be available. EPA managers established these Objectives based on their potential to reduce risk, their responsiveness to statutory mandates, and their contribution to pollution prevention and deterrence. The structure of the Goals and Objectives established in EPA's Strategic Plan is the "architecture" that is used to support all components of the PBAA process and link them together.

Goal Planning. To achieve the Goals and Objectives established in our Strategic Plan, EPA must plan its work and resources over a period of years. "Goal Planning" refers to the process by which EPA programs determine what activities they will carry out year-by-year to achieve the desired environmental outcomes and how they will measure their performance. Goal planning is not an exercise in preparing additional documents; rather, it is a dynamic, flexible process. As we work toward our long-range strategic goals, goal planning will help Agency managers make mid-course corrections based on performance feedback, program evaluations, & other information and target resources towards high-priority activities.

Annual Plan & Budgeting

Annual Performance Plans. To translate goal planning into specific actions to be conducted and resources to be allocated for the fiscal year, the Agency prepares Annual Performance Plans as required under GPRA. For each Objective established in the Strategic Plan, the Annual Performance Plan describes (1) specific performance goals and measures and (2) activities that will be carried out during the year to achieve the performance goals. Using the Goals/Objectives structure, the Annual Performance Plan presents the Agency's budget linked to our performance commitments for the fiscal year.

Analysis

EPA analysts are evaluating the availability and quality of data that managers can use both to set Agency priorities and allocate resources and to assess our performance. Risk analyses, to determine how EPA's activities address risks to public health and the environment, and economic analyses, to compare costs and benefits of programs and activities, yield information that EPA managers can consider, along with other factors, in making program and resource decisions. In addition, EPA solicits information on possible future public health and environmental issues. This futures analysis helps the Agency plan strategically to address emerging ecological, human health, and quality of life issues.

Accountability

Did we accomplish what we planned? Did we keep within our budget? Did we achieve the environmental results we desired? What did the Agency spend to achieve those results? To plan strategically and budget for results, managers need information on program performance and costs.

Performance Results. GPRA requires agencies to report each year on their progress towards achieving their strategic goals. Annual Performance Reports, which will assess Agency accomplishments against annual performance goals and

measures, are due to Congress six months after the end of each fiscal year, beginning in March 2000. We will compile our Annual Performance Report using performance data submitted by states, tribes, regions, and national programs. EPA managers will be able to consider performance results, together with cost/benefit and risk assessment/risk management information, to help them evaluate and adjust strategies, program directions, and resource allocations to achieve program results.

Cost Accounting. One of the keys to managing for results at EPA is determining the full costs of our programs. To enable us to link the resources we have actually used to the results we have achieved, EPA is changing the way we account for the resources we spend. Beginning with the FY99 Annual Performance Plan and Budget, the Agency's accounting system links resources to our strategic Goals and Objectives architecture. This system will provide managers with cost information they can use to assess how resources are spent to achieve expected results and to help them make future budgeting decisions.

The PBAA System

EPA's restructured planning, budgeting, analysis, and accountability system integrates performance measurement, resource management, and policy-making. Over the next several years, however, EPA's success in achieving environmental results for the American public will depend not on the PBAA system itself, but on all of us in headquarters, regions, laboratories, and field offices working together to improve the way we do the Agency's business.

By planning strategically to achieve results, measuring our performance, analyzing the data, and using what we have learned to make sound decisions about where and how we use our resources, we can better serve our customers - the American public - and make a real difference in protecting human health and the environment.

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Statement of Basis for DuPont Circleville Facility Located in Circleville, Ohio

INTRODUCTION

This Statement of Basis (SB) explains the proposed remedy for contaminated soil and groundwater at the DuPont Circleville Facility. In addition, the SB includes summaries of all corrective measure scenarios evaluated by DuPont. The United States Environmental Protection Agency (U.S. EPA) will select a final remedy for the DuPont Circleville Facility only after the public comment period has ended and the information provided by the public has been reviewed and substantive comments considered.

This SB is being issued by U.S. EPA as part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). The document summarizes information that can be found in greater detail in the final RCRA Facility Investigation (RFI) and Corrective Measure Study (CMS) Reports and other pertinent documents contained in the Administrative Record. U.S. EPA encourages the public to review these documents in order to gain a more comprehensive understanding of the DuPont Circleville Facility and the RCRA activities that have been conducted.

U.S. EPA may modify the proposed remedy or select another remedy based on new information or public comments. Therefore, the public is encouraged to review and comment on all corrective measure scenarios. The public can be involved in the remedy selection process by reviewing the documents contained in the Administrative Record.

PROPOSED REMEDY

The U.S. EPA is proposing the following remedy to address the contaminated media at and from the DuPont Circleville Facility:

ERROR: MemoryFull
OFFENDING COMMAND: imagemask

STACK:

Matthew M. Litvak, Esq.
155 N. Harbor Drive
Suite 4301
Chicago, IL 60601
312-337-8131
FAX 240-0405

April 3, 2004

Jacqueline Miller, ARC
USEPA
77 W Jackson Blvd.
Chicago, IL 60604-3590

Re: Techalloy, Union Illinois

Dear Ms. Miller:

This is in response to your letter of March 24, 2004. For reference I have enclosed a map of the property ("Property") that is being considered for development; this is the property where the second extraction well is located. There are several multi depth monitoring wells located on the Northwest side of this Property. As for current development plans, there are none and it is my guess that any development in this area is at least five years in the future.

After speaking with Mr. Carlos Serna and reviewing the materials that you have provided I have several questions and comments:

1. Aside from tetrachloroethylene, are there any other organic compounds that are above the screening criteria that are within the plume of contaminants on the Property?

2. Has the EPA identified the extent to which the plume of contaminants has invaded the Property? (If a map exists, I would like a copy of it)

3. It is my understanding that the concentration of contaminants varies and is greatest at the bottom of the aquifer, is this correct?

4. Based on your letter, the current level of tetrachloroethylene (130 ppb) was measured at the Highbridge road well, does this represent a historical decline or an increase at this well?

4(a) How far does this concentration extend into the Property?

4(b) Have samples been taken from the multi depth wells at the West end of the Property and if so what are the current and historical results?

5. Given the results of water sampling at Highbridge, has the EPA and/or Techalloy determined the duration of continued water extraction from the Property, in other words is there a discernable drop in the levels of contaminants that can be attributed to the water extraction process and how long will this process continue?

6. The current screening level of tetrachloroethylene is 11ppb, once groundwater testing indicates that the compound is below this level (Assuming the EPA does not change its regulatory guidelines) will the restrictions on development of the Property be removed?

6(a) Once groundwater testing indicates that the compound is below the applicable screening level, (Assuming the EPA does not change its regulatory guidelines) will it be necessary to disclose the existence of this compound to potential purchasers?

(Neither 6 or 6(a) should be interpreted as asking whether the ground water on the Property would ever be considered usable for human consumption.)

7. The materials that you provided to me indicated a modification in the cleanup procedure at Techalloy's plant which eliminated the excavation and treatment of contaminated soil and allowed the less costly alternative of installing an asphalt cap over the contaminated soil, is this true?

7(a) Will this present the possibility of additional releases of contaminants into the aquifer in the future?

7(b) Will this result in an lengthening of the need for offsite water extraction?

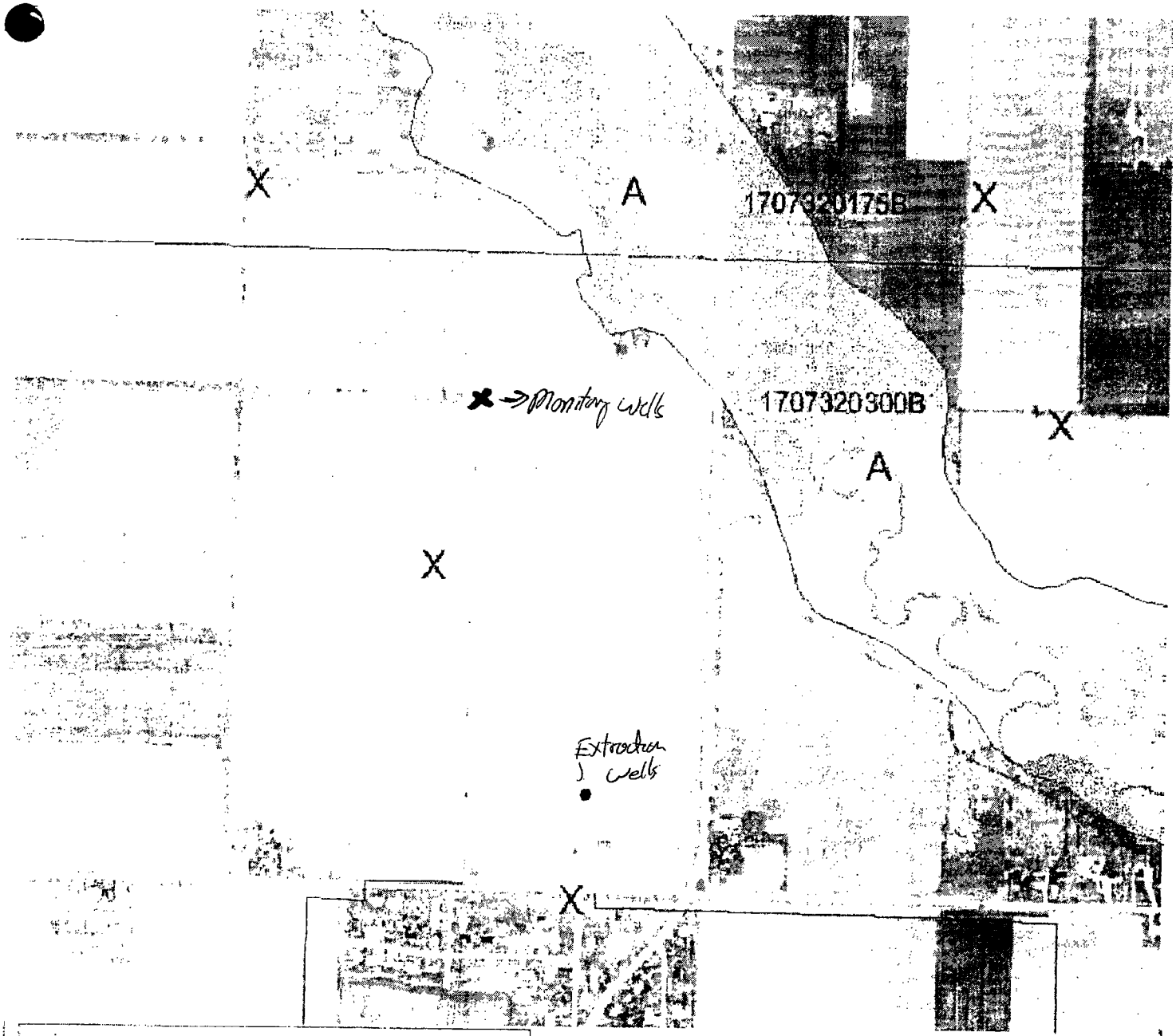
8. Has Techalloy eliminated from the soil on its own premises the material that is the source of the tetrachloroethylene that created this plume of contaminants?

9. Do your records indicate when the existence of the plume of contaminants became a matter of public knowledge?

Your answers and comments would be greatly appreciated.

Sincerely,

Matthew M. Litvak



FEMA Flood

- 100 yr
- 100 yr with base flood elevation determined
- 100 yr with 1-3 foot flood depths
- area not included
- 100 yr usually sheet flow
- outside floodplain
- 500 yr floodplain

N

1998/1999 Aerial Photograph

Produced by:
McHenry County Soil & Water Conservation District

1000 0 1000 2000 Feet

Matrix Environmental, Inc.
357 Milwaukee Ave. Suite A
Libertyville, Illinois 60048
Phone: 847-367-6835
Fax: 847-367-6845

9 April 2004

Ms. Bhooma Sundar
U.S. Environmental Protection Agency
Region V
RCRA Enforcement and Compliance Assurance Branch (DE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Techalloy Site Progress Report for March 2004

Dear Ms. Sundar:

Enclosed please find the Monthly Progress Report for the Techalloy Company located in Union, Illinois for the month of March 2004. Also, enclosed are the effluent analytical results for this month.

If you have any comments or questions regarding the progress of this project, please do not hesitate to call me at (847) 367-6835.

Sincerely,

Carlos J. Serna, P.G.
Matrix Environmental, Inc.

CJS:sk

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Steve Hughes, Techalloy
Kevin Lesko, IEPA

Carlos,

~~Could~~ would you se

2, 3, 4, 49, 45.

2 – 8

ATTY-CLIENT
COMMUNICATION
FOIA EXEMPT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 4/13/04

SUBJECT: Techalloy - property w/ extraction well

FROM: Jacqueline Miller

TO: Bhooma Sundar

Bhooma,

Enclosed is a copy of a letter I received from Matthew Lituak, who I think is the attorney for the current property owner. He asks a lot of questions! Almost all of them, I think, you will have to answer. However, I don't think there is any rush in doing so - he doesn't ask for the info. by any date, and says he thinks any property development is 5 years away.

As to Question 6(a), I think EPA's response will be that "disclosure" is a matter of state law which EPA cannot advise about.

As to Question 7, I sent him the 2001 Order Modification (enclosed here) which documents that Techalloy could only install the cap, and needn't perform soil stabilization.

- I think I also sent him the "Memorandum, Modification to Soil Remediation Alt." (also enclosed here), which on p. 2 says this change

EPA FORM 1320-6 (REV. 3-76)

in remedy is equally protective of human health.

So, I think the answer to Question 7 is - "yes"

Presumably, the answer to Question 7(a) is "No," provided the cap is maintained (or will air sparging ultimately eliminate any potential for contaminant release?).

As to Question 9, I have a copy of a July 23, 1991, Referral letter from IEPA to Region 5. It says that: 1) in 1987, Union's Public Water Supply Well #3 was found to be contaminated w/ inorganics and Techalloy was suspected; 2) in early 1990, Techalloy undertook investigations showing VOCs in soil and GW at plant site - at that point there already was off-site migration

- offhand, I know no more about early knowledge of the facility & when "the public" became aware. Certainly the 1st time EPA went out for public comment.

- The 1993 AOC for Interim Measures required:
  a) that Techalloy conduct Private Well Sampling
     - the PWSP was expanded on a number of occasions over years; those owners thus were notified
  b) develop and implement a community relations plan.

Please contact me if you either need my assistance in responding or when you want me to review any draft. For any questions we cannot answer w/ certainty, we should decline to answer and, as appropriate, refer him to Techalloy or IEPA. Thanks. 6-7167

Waste, Pesticides & Toxics Division
Enforcement & Compliance
Assurance Branch
U.S. Environmental Protection
Agency
Region 5
Mailcode: DRE-9J
77 West Jackson Boulevard
Chicago, Illinois 60604
Fax Number: (312) 353-4342

To: Carlos Serna
Office/Phone: 847-367-6835
Facsimile Number: 847-367-6845
From: Bhooma Sundar
Office/Phone:

Date: 4/19/04 Number of Pages: 4

Additional Comments: Carlos,
Thanks for agreeing to take a look at the questions regarding the property, North west of Technalloy affected by GCO plume. Could you please provide explanations for questions 2 to 8.

Thank You!

Matrix Environmental, Inc.
357 Milwaukee Ave. Suite A
Libertyville, Illinois 60048
Phone: 847-367-6835
Fax: 847-367-6845

27 April 2004

Ms. Bhooma Sundar
U.S. Environmental Protection Agency
Region V
RCRA Enforcement and Compliance Assurance Branch (DE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Techalloy Response to U.S. EPA

Dear Ms. Sundar:

Please find below Techalloy Company Inc.'s (Techalloy's) responses to Mr. Matthew Litvak's letter that was sent to the U.S. Environmental Protection Agency (U.S. EPA) on April 3, 2004. Mr. Litvak's questions 2 through 8 and Techalloy's responses are provided below:

2. *Question – Has the EPA identified the extent to which the plume of contaminants has invaded the property. (If a map exists, I would like a copy of it.)*

   Response – Prior to the installation of the extraction well located on Mr. Litvak's property, an investigation was conducted to determine the extent of groundwater impact. As a result of this investigation, concentrations of constituents of concern were identified above the Maximum Contaminant Levels (MCLs) at the southeastern portion of the property. The extraction well was therefore located at the southeast quadrant of the property. Techalloy also installed three monitoring wells at the furthest downgradient location on the property to monitor at the downgradient edge of the property. Sampling at these monitoring wells indicates that chlorinated solvent constituents are present at the downgradient edge of the property, but do not exceed MCLs (February 1998 Data, Attachment 1).

   An investigation of this property was done in December 1995 and December 1996. A figure presenting the groundwater concentrations is available and will be recovered from archives and provided.

3. *Question – It is my understanding that the concentrations of contaminants varies and is greatest at the bottom of the aquifer, is this correct?*

   Response – Yes, that is correct. Constituents of volatile organic compounds are more frequently detected in the deeper portions of the aquifer. The concentrations and frequency of constituents detected in the three well cluster downgradient of the property indicate that solvent constituents are more frequently detected in the

intermediate and deep zones of the aquifer, while only one constituent was detected in the shallow well.

4. *Question - Based on your letter, the current level of tetrachloroethylene (130ug/L) was measured at the Highbridge Road well, does this represent a historical decline or increase at this well.*

Response – The concentration of tetrachloroethylene at the Highbridge Road well has varied between 73 ug/L to 130 ug/L. This compound has remained in this range for approximately the last eight years. The compounds 1,1,1 trichloroethane and trichloroethene have experienced a reduction in concentrations at this well location from 1900 ug/L to 49 ug/L and 16 ug/L to 3.4 ug/L, respectively.

4(a). *Question – How far does this concentration extend into the property?*

Response – Groundwater data collected for the shallow portion of the aquifer in 1995 indicated that the compound tetracloroethylene extends approximately 400 feet northwest of the Highbridge and Union intersection.

4(b). *Question – Have samples been taken from the multi depth wells at the west end of the property and if so what are the current and historical results.*

Response – Yes they have. The most recent data was collected in April 2002 and the historic data was collected in February 1998. The data collected from 1998 indicated that no chlorinated solvent constituents exceeded the MCLs. In April 2002, data from the shallow zone were below MCLs, but trichloroethene exceeded the MCL in the intermediate portion of the aquifer.

5. *Question – Given the results of water sampling at Highbridge, has the EPA and/or Techalloy determined the duration of continued water extraction from the property. In other words is there a discernable drop in the levels of contaminants that can be attributed to the water extraction process and how long will this process continue.*

Response – The extraction system was designed to contain the groundwater contaminants and prevent its migration further downgradient. The duration of operation of the groundwater extraction system is dependant on the duration of the on-site source remediation (soil vapor extraction and groundwater air sparging). The on-site remediation will significantly reduce the solvent concentrations at the source area. With the source area contaminants removed and the continued operation of the extraction system, off-site groundwater concentrations will continue to decline. It is anticipated that the on-site

remediation system will continue to operate for approximately two to three years, at which point a better evaluation of the time required to operate the off-site extraction system can be conducted.

6. *Question - The current screening level of tetrachloroethylene is 11 ppb, once groundwater is below the applicable screening level, (assuming the EPA does not change its regulatory guidelines) will the restrictions on development of the property be removed?*

Response – As far as Techalloy is aware, there are no governmental restrictions on development of the property.

6(a). *Question – Once groundwater testing indicates that the compound is below the applicable screening level, (assuming the EPA does not change its regulatory guidelines) will it be necessary to disclose the existence of this compound to the potential purchasers?*

Response – That is a legal question the property owner needs to answer.

7. *Question - Material that you provided to me indicated a modification in the cleanup procedures at the Techalloy's plant which eliminated the excavation and treatment of contaminated soil and allowed the less costly alternative of installing an asphalt cap over the contaminated soil, is this true?*

Response – The on-site cleanup procedures have not been modified since approved by EPA in 1999. Soil vapor extraction and groundwater air sparging are ongoing and are being used to remove volatile organic compounds (solvents) from the soil and shallow groundwater. The asphalt cap was the approved remedial alternative for metal-contaminated soil. Based on the insolubility of metal constituents in soil and the protectiveness of a cap over the metal impacted soil, it was determined that an asphalt cap provided sufficient protection by preventing metal constituents in soil from migrating.

7(a). *Question – Will this present the possibility of additional releases of contaminants in to the aquifer in the future?*

Response- No, the cap prevents significant infiltration of precipitation from infiltrating through the unsaturated soil zone, thereby limiting the solubility of metal constituents and their migration in groundwater.

7(b). *Question – Will this result in a lengthening of the need for offsite water extraction.*

Response – No, the off-site extraction and treatment process is for volatile organic compounds and not metals.

8. *Question – Has Techalloy eliminated from the soil on its premises the material that is the source of the tetrachloroethylene that created this plume of contaminants.*

Response – Techalloy is current remediating volatile organic compounds at the source area via both soil vapor extraction and groundwater air sparging technologies.

If you have any comments or questions regarding the progress of this project, please do not hesitate to call me at (847) 367-6835.

Sincerely,

Carlos J. Serna, P.G.
Matrix Environmental, Inc.

CJS:sk

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Steve Hughes, Techalloy

Non-responsive

Bhooma Sundar
03/25/04 01:24 PM

To: scarr@techalloy.com
cc: carlos@matrixenviro.com
Subject: O&M issues related to Techalloy

Mr. Scott Carr
Environmental Coordinator
Techalloy Company, Inc
6509 Olson Road. P.O. Box 423
Union, IL 60180-0423

Scott,

I would like to know your availability and also Carlo's for a conference call to discuss the following issues:

1. Discussion of December 2003 sampling results with respect to fluctuations in the concentration of tetrachloroethylene(PCE) in highbridge monitoring well.
2. Exceedance of PCE in the highbridge monitoring well at a level of 130 ppb which is well above the 11 ppb screening criteria with respect to indoor vapor intrusion.
3. Possibility of including more wells for sampling in the next round of sampling. For eg., including CW-1D, CW-1S (to check if plume migration is contained) and one time sampling near the water table around the residences that are above the plume and exceed the screening criteria for PCE.
4. Providing documentation in the monthly reports, the resurfacing activities on the asphalt cap as and when the work is completed.
5. Discussion of risk associated with construction worker scenario and a residential indoor vapor intrusion with the development of Lechner's Property located at the west of union and north of O'Cock road (if site specific risk assessment information is available).

B. Sundar

Bhooma Sundar
Toxicologist
RCRA Corrective Action
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
USEPA Region 5
312-886-1660

Bhooma Sundar
05/02/03 09:38 AM

To: scarr@techalloy.com
cc: carlos@matrixenviro.com, Allen Wojtas/R5/USEPA/US@EPA
Subject: Screening for vapor intrusion pathway

5/2/2003

Mr. Scott Carr
Environmental Coordinator
Techalloy Company, Inc
6509 Olson Road. P.O. Box 423
Union, IL 60180-0423

Re: Screening for Vapor Intrusion Pathway
USEPA ID No. ILD 005 178 975

Dear Mr.Carr,

Thank you for taking the time to brief me on the ongoing remedial actions in Techalloy Inc. This letter is to memorialize the issues we discussed during our meeting.

Regarding the question on merging the requirements of land use restriction request by USEPA Region 5 and IEPA, we decided that Techalloy could submit the deed for land use restriction to IEPA. Please make sure that a copy of the deed is submitted to USEPA, RCRA Corrective Action section as well.

From November 2002 report on the semi annual ground water sampling results, it is evident that the existing groundwater recovery and treatment system has considerably reduced the VOC contamination in groundwater. However, the April 2002 and October 2002 sampling events indicate that DNAPL concentration in groundwater from most monitoring wells (MW2, 4, 5S, 5D,7 and HBR) still exceeds the MCL for TCE and PCE.

These volatile chemicals in contaminated ground water can emit vapors that may migrate through subsurface soils and into indoor air spaces of overlying buildings and may be important for buildings both with and without a basement.
Techalloy should determine whether inhabited buildings (current on-site industrial buildings, future industrial buildings, off-site buildings (e.g., homes, schools, commercial)) are located above or in close proximity (approximately 100 ft laterally or vertically of known groundwater contaminants) to subsurface contamination that potentially could result in unacceptable indoor air inhalation risks.

For initial screening purposes, Techalloy would use Johnson Ettinger model for estimating the transport of contaminant vapors from a subsurface source into indoor air spaces. For the J&E model to be properly applied, the groundwater concentration data for the contaminants should be obtained from samples collected at wells screened at or across the top of the water table or contaminated plume, as close as possible to the unsaturated soil zone. This is because the vapor migration model assumes equilibrium partitioning between the aqueous and vapor phases and uses Henry's Law Constant to calculate source vapor concentrations corresponding to groundwater concentrations. Therefore, Techalloy should evaluate whether historical well data and new groundwater data locations are appropriate for using in the screening level assessment of vapor intrusion pathway.

The following websites provide detailed information on the vapor intrusion pathway and johnson-Ettinger model.
http://www.epa.gov/superfund/programsrisk/airmodel/johnson_ettinger.htm

http://www.epa.gov/correctiveaction/eis/vapor.htm

If you have any questions regarding this matter, please contact me at 312-886-1660 or sundar.bhooma @epa.gov.

Sincerely

Bhooma Sundar
Project Manager
RCRACorrective Action Section
Enforcement and Compliance Assurance Branch

cc: Carlos Serna
Matrix Environmental Inc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

VIA EMAIL AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED

MAY 02 2003

DRE 9J

Mr. Scott Carr
Environmental Coordinator
Union Wire Plant
6509 Olson Road. P.O. Box 423
Union, IL 60180-0423

Re: Screening for Vapor Intrusion Pathway
USEPA ID No. ILD 005 178 975

Dear Mr. Carr,

Thank you for taking the time to brief me on the ongoing remedial actions in Techalloy Inc. This letter is to memorialize the issues we discussed during our meeting.

Regarding the question on merging the requirements of land use restriction request by USEPA Region 5 and IEPA, we decided that Techalloy could submit the deed for land use restriction to IEPA. Please make sure that a copy of the deed is submitted to USEPA, RCRA Corrective Action section as well.

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These volatile chemicals in contaminated ground water can emit vapors that may migrate through subsurface soils and into indoor air spaces of overlying buildings and may be important for buildings both with and without a basement. Techalloy should determine whether inhabited buildings (current on-site industrial buildings, future industrial buildings, off-site buildings (e.g., homes, schools, commercial)) are located above or in close proximity (approximately 100 ft laterally or vertically of known groundwater contaminants) to subsurface contamination that potentially could result in unacceptable indoor air inhalation risks.

For initial screening purposes, Techalloy would use Johnson Ettinger model for estimating the transport of contaminant vapors from a subsurface source into indoor air spaces. For the J&E model to be properly applied, the groundwater concentration data for the contaminants should be

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obtained from samples collected at wells screened at or across the top of the water table or contaminated plume, as close as possible to the unsaturated soil zone. This is because the vapor migration model assumes equilibrium partitioning between the aqueous and vapor phases and uses Henry's Law Constant to calculate source vapor concentrations corresponding to groundwater concentrations. Therefore, Techalloy should evaluate whether historical well data and new groundwater data locations are appropriate for using in the screening level assessment of vapor intrusion pathway.

The following websites provide detailed information on the vapor intrusion pathway and johnson-Ettinger model.
http://www.epa.gov/correctiveaction/eis/vapor.htm
http://www.epa.gov/superfund/programsrisk/airmodel/johnson_ettinger.htm

If you have any questions regarding this matter, please contact me at 312-886-1660 or sundar.bhooma @epa.gov.

Sincerely

Bhooma Sundar

Bhooma Sundar
Project Manager
RCRA Corrective Action Section
Enforcement and Compliance Assurance Branch

cc: Carlos Serna
Matrix Environmental Inc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

DE-9J

December 10, 2001

Mr. Carlos Serna
Integreyted Consultants
1590 S. Milwaukee Ave.
Libertyville, IL 60048

Re: Change in EPA Project Manager
Techalloy Company
ILD 005 178 975

Dear Mr. Serna:

This letter is to inform you that effective December 3, 2001, and for a period of approximately 6 months, the responsibility of project manager for the above-referenced facility will be changed from myself to Pamela Molitor. Pam can be contacted at (312) 886-3543. As project manager, all Agency comments and approvals will come under Pam's signature.

As for myself, I remain with the Agency, but I am assigned some temporary duties in a different Branch within our Division. Although Pam should be your point of contact for all project specifics, I am still available at (312) 886-6194, if needed. You will be notified again when I return to the role of project manager.

Thank you for your cooperation in this matter.

Sincerely yours,

Allen T. Wojtas

Allen T. Wojtas
Enforcement and Compliance Assurance Branch

cc: Scott Carr, Techalloy

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

14 December 1999

Via First Class Mail and Facsimile

REPLY TO THE ATTENTION OF

DE-9J

Mr. Henry Lopes
Vice President, Technical & Operations
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, NJ 07430-2259

Mr. Carlos J. Serna, P.G.
Senior Project Manager
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, IL 60061-1450

RE: Techalloy Site, Union, IL
ILD 005 178 975
Change in Corrective Action Project Manager

Dear Mr. Lopes and Mr. Serna:

This letter shall officially confirm a change in the U.S. EPA Region 5 Corrective Action Project Manager from myself to Mr. Allen Wojtas, effective immediately. We discussed this change during our 7 October 1999 meeting in Chicago, when we met along with Mr. George Hamper, Chief, Corrective Action Section, Enforcement and Compliance Assurance Branch.

Mr. Serna and I have further discussed this change during telephone conversations following our October 7th meeting. From this point forward, please direct all correspondence and submittals to Mr. Wojtas, who can be reached directly at (312) 886-6194.

I've enjoyed working together, although briefly, on this project. Thank you.

Sincerely,

Michael Valentino

Michael Valentino
Environmental Engineer
Compliance Section 1, ECAB

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TECHALLOY Company, Inc.
USINOR GROUP

Union Wire Plant
6509 Olson Rd. - P.O. Box 423
Union, IL 60180-0423
(815) 923-2131
(815) 923-2126 – Fax
WWW.Techalloy.com

28 November 2001

Mr. Allen Wojtas
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Request for Extension/Completion of Asphalt Cap – Techalloy Company Inc.

Dear Mr. Wojtas:

Techalloy Company, Inc. (Techalloy) has requested an extension from the United States Environmental Protection Agency (U.S. EPA) to complete the remaining first and second lifts of asphalt cap. Techalloy is requesting that the extension for completion of the asphalt cap be extended until 30 June 2002. The reason for this extension is based on structural integrity of the sub-grade soil under the cap, extended over an area of approximately 3,000 square yards. The failure of the sub-grade soil was noticed during the compaction of the CA-6 (Coarse Aggregate-Size) stone on top of the Geotextile (Amoco 2006) membrane. To help rectify this situation, Techalloy has purchased a heavier Geotextile (Mirafi HP570 Geotex 4X4) membrane that is used to bridge soft areas such as peat moss. According to the engineers, using this type of membrane, the additional weight of the stone and natural occurring subsidence through the winter months should remedy the issue that Techalloy faces. In the spring of 2002, Techalloy will re-grade and re-compact the stone to find any other problem areas before completing the cap.

Techalloy has installed the Geotextile membrane, CA-6 stone, and compacted the entire area. Techalloy has also completed approximately 50 percent of the first asphalt lift. At the facility an eight-foot fence has been installed with three rows of barbwire at the top to prevent any animals and the public from entering the Techalloy property. Techalloy is confident that animals or people will not come into contact with the impacted soil since Techalloy has completed 50 percent of the first lift of asphalt, the membrane and the sub-grade stone. By allowing Techalloy to complete the asphalt in the spring of 2002, this will insure a solid engineered cap. Techalloy greatly appreciates your cooperation concerning this subject.

If you have any question feel free to contact myself at Techalloy 815-923-2131 ext. 130 or page me at 815-870-1067

Sincerely,

Scott C. Carr

Scott C. Carr

cc: Carlos Serna, InteGreyted Consultants
Henry Lopes, Techalloy
David Williams, Techalloy

InteGreyted
consultants

1590 South Milwaukee Ave., Libertyville, Illinois 60048

Phone (847) 573-8566 FAX (847) 573-8568

Mr. Allen Wojtas
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

10 May, 2001

Re: Soil Remeidation Alternatives
Techalloy Union, IL Facility

Dear Mr. Wojtas:

InteGreyted Consultants, LLC (InteGreyted) is pleased to present this letter to the U.S. Environmental Protection Agency (U.S. EPA) on behalf of Techalloy Company, Inc. documenting the historical soil data and results from recent soil sampling activities.

Techalloy is located at the intersection of Olson and Jefferson Roads in the Village of Union, Coral Township, McHenry County, Illinois. The developed portion of the facility occupies five acres. The Techalloy facility has an additional 29 acres of agricultural land surrounding the facility. A complete Techalloy property boundary map is presented in Figure 1.

Techalloy has completed both a RCRA Facility Investigation (RFI) and the Corrective Measure Study (CMS) at the Union, IL Facility. The RFI was conducted between August/September 1994 and March/April 1996 and involved investigations that determined the extent of any release of hazardous waste and/or constituents at potential source areas. The CMS was completed on August 1997 and recommended remedial alternatives for both soil and groundwater. These recommendations were developed and presented to the U.S. EPA based on the information that was available at that time. In April 2001 Techalloy conducted a subsurface soil investigation to confirm the detailed extent of metal constituents in soil that exceeded the established cleanup objectives.

The RFI data was collected to assess the contaminant sources (i.e., SWMUs) and to determine the actual contribution of chemical constituents to the surrounding soil. Source characterization conducted during the RFI involved subsurface soil sampling from 1 to 2 feet bgs and 5 to 6 bgs. A summary of the maximum concentrations of inorganic constituents in soil and groundwater are presented in Tables 1 and 2, respectively. The lateral extent of metals in subsurface soil from all the SWMU areas is presented in Figure 2. Based on the findings as presented in the tables the extent of metal-impacted soil are limited to the area of the Plating Wastewater Disposal Area,

spent acid holding pond, and the BG-5 Oil Drum Storage Area. Soil impacted by metal constituents is limited to the on-site location within the fenced property of Techalloy site. In addition, soluble metals are present in groundwater at on-site locations, but have not been detected in off-site monitoring wells. Groundwater contamination of metals may be attributed to waste handling practices at the BG-5 Drum Storage Area, the Concrete Evaporation Pad Area, and the Spend Acid Holding Pond Area. High concentrations of metals such as lead, copper, chromium, and zinc in vadose soils and no significant concentrations in groundwater below in this area suggest this SWMU (Plating Wastewater Disposal Area) has not contributed to groundwater contamination with respect to metals.

Based on the recommendation in the CMS Final Report, the Consent Order dated 1999 stipulated the implementation of the following remedial activities. To remedate the impacted of volatile organic compounds (VOC), Techalloy has installed an air sparging system to remediate the VOC in groundwater and a soil vapor extraction system to remediate the source of the VOCs in soil. In addition, Techalloy has eliminated the groundwater migration pathway by implementing a groundwater usage restriction with McHenry County for groundwater in the area of the plume. Techalloy has also connected residents in the city of Union to public water supply and has deed restricted the Techalloy property to industrial usage only.

With regard to metals in groundwater, Techalloy has not detected soluble metal constituents in groundwater in off-site monitoring wells that are above corresponding Maximum Concentration Limits (MCLs). However, to prevent any potential release from occurring, the EPA requested that Techalloy stabilize the impacted soil and install an asphalt cap over the area of stabilized soil.

Last month (March 2001) Techalloy conducted an investigation to more accurately assess the extent of metal concentrations in the soil (soil samples were collected at a 25 foot grid spacing). The investigation determined that the area of impacted soil was approximately half the size of what was originally assessed from the RFI data. The accumulative area assessed is approximately 100 by 100 feet and to a depth of approximately 7 feet below the ground surface (figure 3).

Based a the recent investigation results and the fact that metal constituents are not migrating in groundwater and that groundwater is not used as a potable water supply in Union, Techalloy is very confident that solely the implementation and maintenance of an asphalt cap will server as an effective remedial alternative for the metal constituents present in soils. Techalloy will also add metals constituents to the future groundwater monitoring parameter list.

Based the resent information indicating the limited extent of impacted soils and effectiveness that will be provide by the asphalt cap, Techalloy respectfully requests that the stabilization component of soil remediation be eliminated from the corrective action and that an asphalt cap and groundwater monitoring of metals be implemented.

If you have any comments or questions regarding the progress of this project, please do not hesitate to call me at (847) 573-8566.

Very truly yours,
InteGreyted Consultants, LLC

Carlos J. Serna, P.G.
Midwest Region Manager

CJS:dgb

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Rick Swearingen, Weston

Table 1
Comparison of Maximum Inorganic Soil Concentrations to Soil Screening Levels
Techalloy Company, Inc.
Union, Illinois
All concentrations in mg/kg

Constituent	Soil Screening Level[a]	Solid Waste Management Units (SWMUs)				
		Wire Slag Disposal Area	BG-5 Oil Drum Storage Area	Concrete Evaporation Pad Are	Plating Wastewate Disposal Area	Spent Acid Holding Pond Area
Inorganics						
Antimony	5	--	--	--	3.7	--
Arsenic	0.4	**4.3**	**5.1**	**8.2**	**14**	**5.7**
Barium	1600	40.2	182	135	105.3	64.6
Beryllium	0.1	0.49	**0.52**	**0.58**	**0.58**	**0.52**
Cadmium	7.5	0.6	--	--	1.2	--
Chromium (total)	38	34.7	**150**	**213**	**3940**	**1760**
Chromium (III)	78000	--	--	--	--	--
Chromium (VI)	38	--	--	--	--	--
Cobalt	12000	3.6	17.6	5	6.5	7.1
Copper	8200	7.1	143	97.8	1300	182
Cyanide	40	NA	NA	--	36	--
Lead	400	6.9	**1280**	**5950**	**77100**	**1050**
Mercury	2	--	--	0.2		--
Nickel	130	23.6	**2020**	**272**	**652**	**387**
Selenium	5	--	0.51	0.57	0.44	0.38
Silver	8.5	--	--	--	--	0.46
Thallium	0.7	--	--	0.31	--	--
Tin	100000	--	7.5	17.6	153	9.5
Vanadium	550	26	51.2	31.6	27.4	42.7
Zinc	6200	24.5	1050	2920	951	58.3
Chloride	--	NA	NA	NA	NA	--
Ammonia	--	NA	NA	NA	NA	267
Nitrate	330000	NA	NA	NA	NA	17.6
Sulfate	17.6 - 240	NA	NA	NA	NA	**1080**

Notes:
* = noncancer value would be exceeded if cancer value multiplied by 100.
Bold indicates constituent exceeds groundwater screening level.
Data from all sampling dates considered in comparison.
WSDA = Wire Slag Disposal Area
BG-5 = BG-5 Oil Drum Storage Area
SHAP = Spent Acid Holding Pond Area
PWDA = Plating Wastewater Disposal Area
CEP = Concrete Evaporation Pad
On-site groundwater: MW-01; MW-02; MW-05; MW-05D; MW-06; . MW-07; MW-08; MW-09 MW-03; MW-04; MW-10; MW-11; MW-OBS
Off-site groundwater: MW-HBR; GW-01 to GW-09.
NA = Not available.
-- = Not detected/not analyzed.

Table 2
Comparison of Maximum Inorganic Concentrations to Groundwater Screening Levels
Techalloy Company, Inc.
Union, Illinois
All concentrations in µg/L

Constituent	Groundwater Screening Level[a]	Groundwater Concentration										Monitoring Wells				Residential Wells	
		WSDA		BG-5		SHAP		PWDA		CEP		On-site		Off-site			
		Total	Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total	Soluble	Total	Soluble
Inorganics																	--
Antimony	6	--	--	--	--	--	--	--	--	**57.7**	--	13.8	--	--	--	--	--
Arsenic	0.05	--	**4.3**	**23.1**	--	**16.5**	--	**112**	--	**28.5**	**5.1**	112	**18**	**21.4**	--	--	--
Barium	2000	304	289	230	63	133	110	464	112	**8730**	114	464	112	103	19.6	170	180
Beryllium	0.02	--	--	**0.75**	**0.5**	--	--	**1.9**	--	**29.2**	--	**1.9**	--	**0.5**	--	--	--
Cadmium	5	--	--	--	--	--	4.3	**10**	--	**30.8**	--	**10**	4.6	--	--	--	--
Chromium (total)	100	13.2	3.8	**470**	**375**	63.5	22.7	**483**	--	**3630**	7.8	**16900**	15.3	29.7	--	--	--
Cobalt	1000	--	--	151	148	27.5	11.3	58.9	5.3	551	5.2	58.9	41.8	34.7	7.1	--	--
Copper	650	3.9	--	190	6	90.4	3.7	**870**	--	**3740**	7.4	**904**	6.1	119	4.3	--	--
Lead	4	**6.5**	--	**47**	1.7	**32.3**	2.7	**1090**	**5.8**	**15000**	3.1	**1090**	**11.3**	**54.6**	--	2.2	--
Mercury	2	--	--	--	--	--	--	0.47	--	**3.7**	--	0.47	--	--	--	--	--
Nickel	100	--	--	**11400**	**11400**	**3700**	**3680**	**316**	20.7	**4990**	92.2	**4960**	**4540**	54.3	--	--	--
Selenium	50	--	--	1.6	2	--	--	--	--	9.9	2.3	1.1	1.4	--	--	--	--
Thallium	2	--	--	--	--	--	--	--	--	1.9	--	--	--	--	--	--	--
Tin	22000	--	--	--	--	--	--	--	--	251	--	105	--	--	--	--	--
Vanadium	49	7.8	--	**99.1**	--	**51.7**	2.4	**220**	--	**1360**	3.8	**220**	--	**54.4**	--	--	--
Zinc	5000	331	267	3510	3640	617	629	4590	148	**19300**	3080	**7770**	728	236	3.8	--	--
Chloride	200000	--	--	--	--	81900	--	--	--	--	--	64200	--	--	--	--	--
Ammonia	NA	--	--	--	--	13700	--	--	--	--	--	7400	--	--	--	--	--
Nitrate	10000	--	--	--	--	**29100**	--	--	--	--	--	**15700**	--	--	--	**11200**	--
Sulfate	400000	--	--	--	--	273000	--	--	--	--	--	128000	--	--	--	53000	--

Notes:
Bold indicates constituent exceeds groundwater screening level.
Data from all sampling dates considered in comparison.
WSDA = Wire Slag Disposal Area
BG-5 = BG-5 Oil Drum Storage Area
SHAP = Spent Acid Holding Pond Area
PWDA = Plating Wastewater Disposal Area
CEP = Concrete Evaporation Pad
On-site groundwater: MW-01; MW-02; MW-05; MW-05D; MW-06; MW-07; MW-08; MW-09 MW-03; MW-04; MW-10; MW-11; MW-OBS.
Off-site groundwater: MW-HBR; GW-01 to GW-09.
NA = Not available.
-- = Not detected/not analyzed.

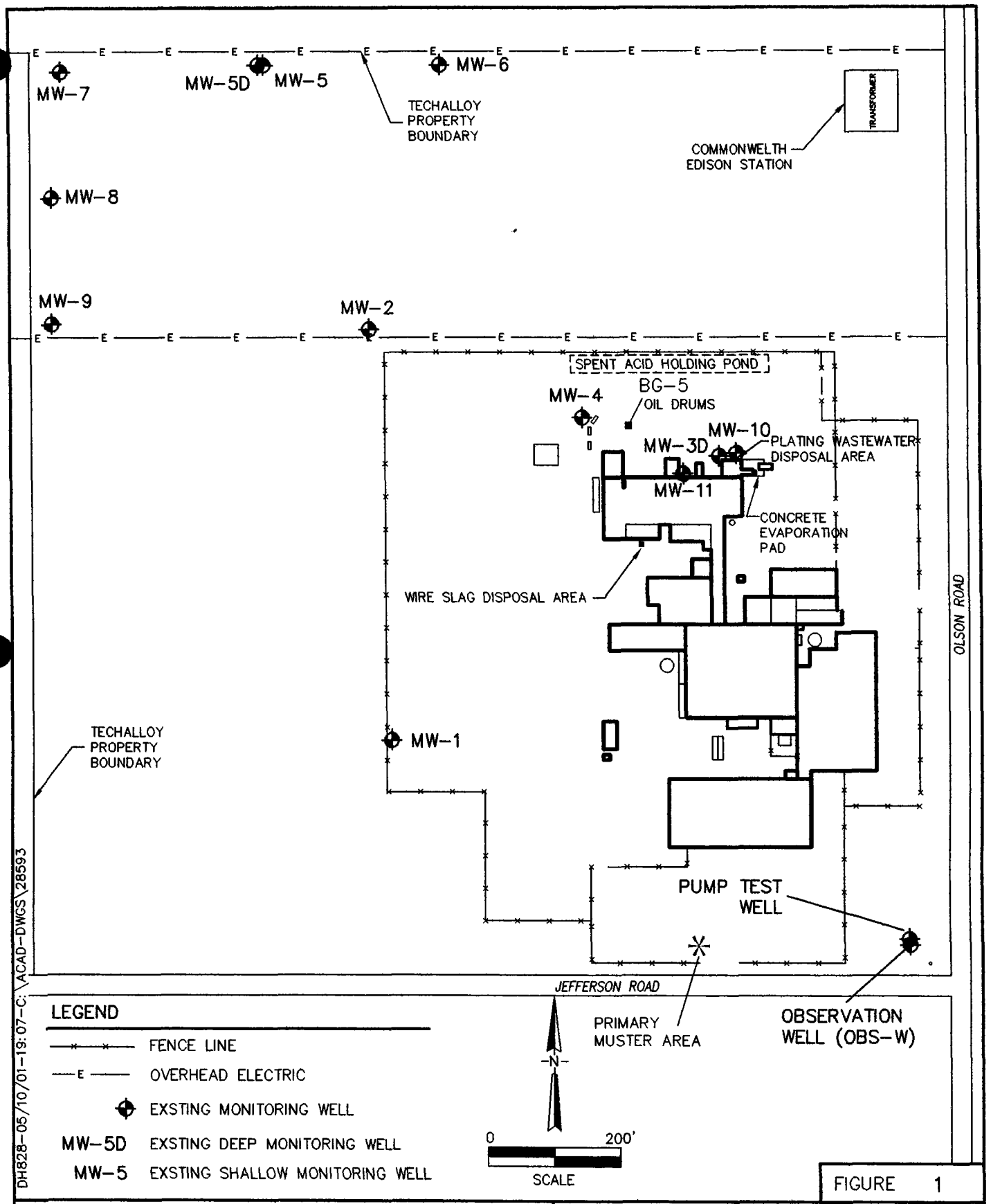


FIGURE 1

InteGreyted consultants

1590 S. Milwaukee Ave.
Suite 302
Libertyville, IL 60048

TECHALLOY PROPERTY BOUNDARY

TECHALLOY COMPANY, INC.

Union, Illinois

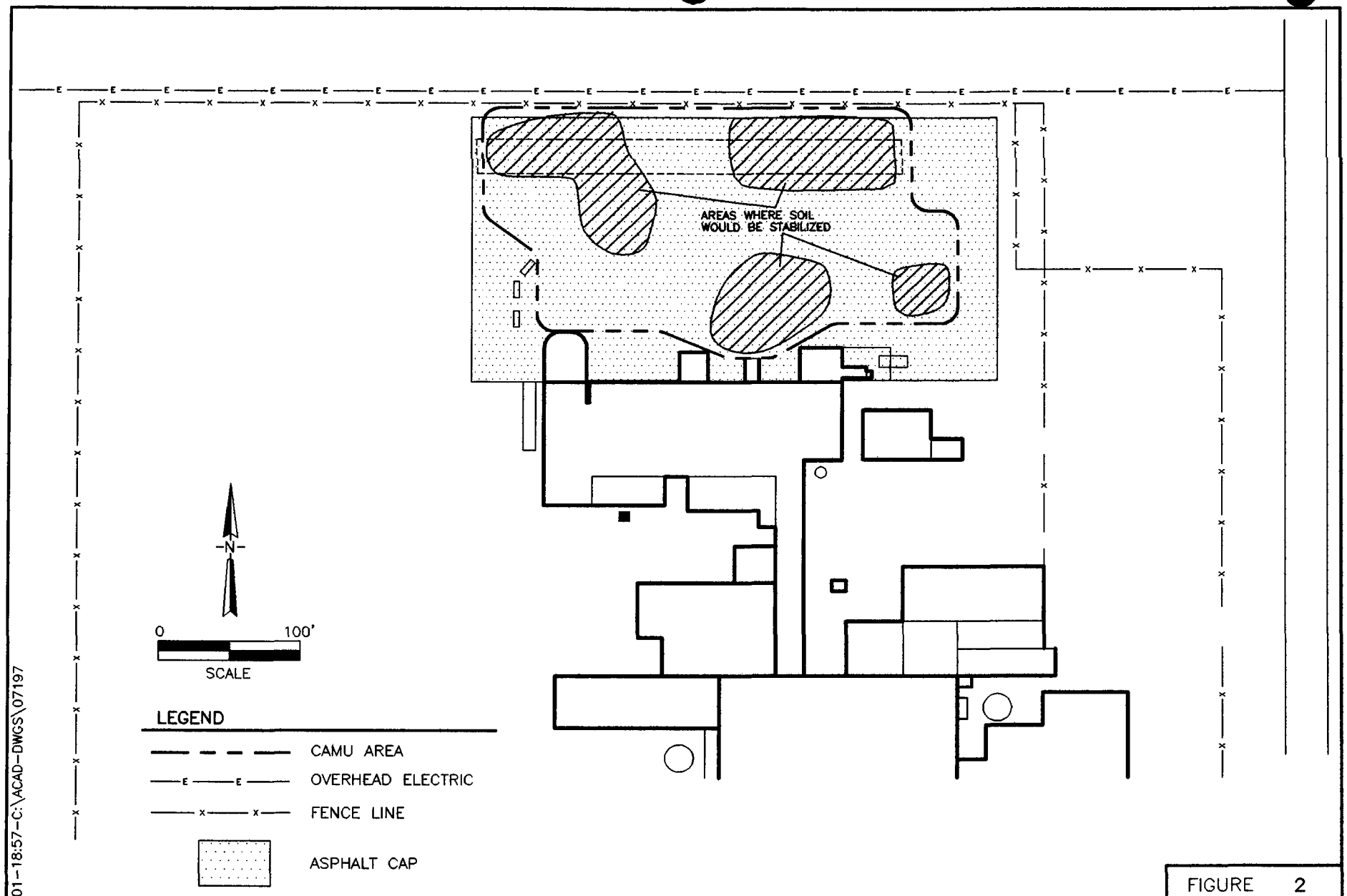


FIGURE 2

InteGreyted consultants

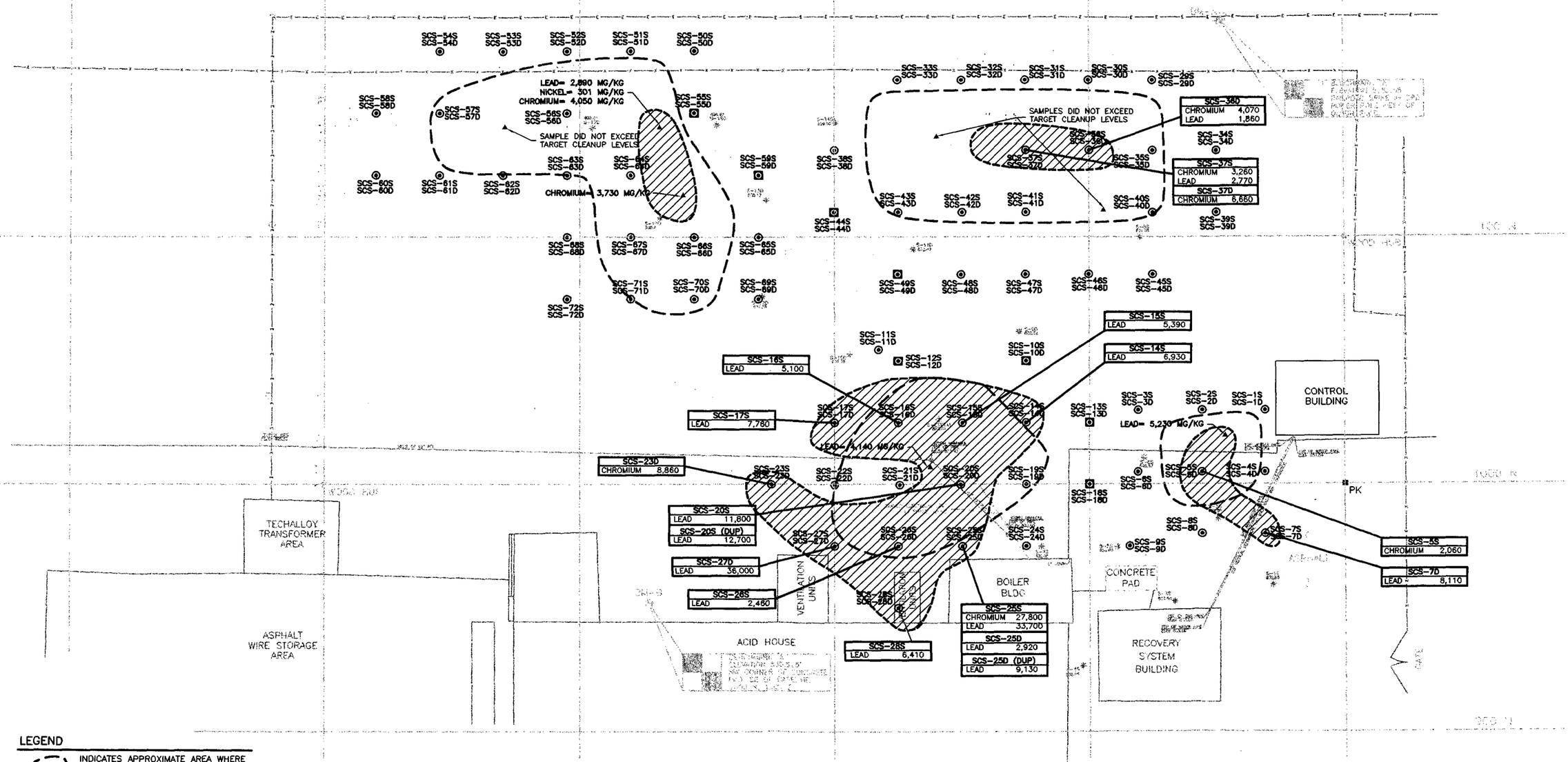
1590 S. Milwaukee Ave.
Suite 302
Libertyville, IL 60048

ASPHALT CAP LAYOUT

TECHALLOY COMPANY, INC.

Union, Illinois

DH828-05/10/01-18:57-C:\ACAD-DWGS\07197



LEGEND

- INDICATES APPROXIMATE AREA WHERE METALS EXCEED TARGET CLEANUP LEVELS (RFI 1994)
- EXTENT OF SOIL THAT EXCEEDS TARGET CLEANUP LEVELS (APRIL, 2001)
- SAMPLED BY INTEGREYTED CONSULTANTS
- SAMPLES NOT COLLECTED DUE TO ITS PROXIMITY TO THE SVE SYSTEM
- ▲ SAMPLED BY ROY F. WESTON INC.
- SCS-1S INDICATES SHALLOW SOIL SAMPLE (2-4 FEET BGS)
- SCS-1D INDICATES DEEP SOIL SAMPLE (6-8 FEET BGS)

NOTE: ALL CONCENTRATIONS IN mg/kg (ppm)

0 20' SCALE

NOTE:
PIPE AND WELL LOCATIONS AS PER LOCATION SURVEY BY SHEETS SURVEYING SERVICE, INC., 6517 RIDGEVIEW, HUNTLEY, ILLINOIS 60142.

SOURCE:
BASE MAP BY R.F. WESTON, INC.
USED BY PERMISSION OF TECHALLOY.

InteGreyted consultants

1590 S. Milwaukee Ave.
Suite 312
Libertyville, IL 60048

SUMMARY OF SOIL CONFIRMATION SAMPLE RESULTS
(ARSENIC, CHROMIUM, LEAD, NICKEL)
TECHALLOY COMPANY, INC.
Union, Illinois

SCALE: 1"=20'	DATE: 4/01	FIGURE 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

SEP 25 2000

DE-9J

Mr. Carlos J. Serna
Senior Project Manager
Roy F. Weston, Inc.
3 Hawthorn Parkway
Suite 3
Vernon Hills, Illinois 60061-1450

Re: Approval of Design Deliverables
Techalloy Company, Inc.
ILD 005 178 975

Dear Mr. Serna:

This letter is to inform you that the United States Environmental Protection Agency's (U.S. EPA) has reviewed the response to comments and revisions to the design deliverables submitted by Roy F. Weston, on behalf of Techalloy Company, Inc. (Techalloy). These deliverables were submitted in partial fulfillment of the Consent Order (R8H-5-99-008) issued to Techalloy by U.S. EPA on September 30, 1999.

Based on this review, U.S. EPA hereby approves the design, effective September 11, 2000. As such construction activities can be initiated at the facility. However, two issues, which do not effect the start of construction, remain unaddressed. They are the performance monitoring parameter list, and the frequency of sampling. It is expected that we will have these issues resolved within the next month. I will contact you in the next few weeks to continue our discussions regarding these issues.

In addition, based on our conversation on September 22, 2000, it is my understanding that the project schedule will be updated in another week or so. Please submit 3 copies of the revised schedule to me. I will forward one to our oversight contractor.

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 50% Recycled Paper (20% Postconsumer)

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

15 October 1999

Mr. Michael Valentino
U.S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

W.O.# 01989.031.002.0070

Re: U.S. EPA ID No.: ILD 005 178 975
Key Project Personnel

Dear Mr. Valentino:

Roy F. Weston, Inc. (WESTON®), on behalf of Techalloy Company, Inc. (Techalloy) is pleased to submit to the U.S. Environmental Protection Agency (USEPA) professional profiles of key technical personnel that will be involved with the corrective measures at the Techalloy Facility in Union, Illinois. The profiles are being forwarded to USEPA, as part of the requirements outlined in the Administrative Order on Consent for Corrective Measures Implementation (Consent), U.S. EPA Docket No. RCRA-V-W-007-93, Part IX.B Proposed Contractor.

These individuals will be involved with the pilot tests and treatability studies, soil vapor extraction/air sparging system design, soil stabilization, and final cap design. Throughout the project other technical personnel specializing in areas such as electrical engineering, HVAC, and structural engineering will be utilized. The key individuals and their general areas of responsibilities are listed below:

- Carlos J. Serna - Project Director (Lead Agency & Client Contact)
- William F. Karlovitz - Project Manager (QA/QC, Design Team Manager)
- Richard A. Swearingen - Lead Project Engineer (Design Team Leader)
- Kurt T. Fischer - Hydrogeologist (Design Team)
- Jameel Ahmed - Geologist (Design Team)

If you should have any questions regarding the key personnel please call me at (847) 918-4088.

Very truly your
Roy F. Weston, Inc.

Richard A. Swearingen, P.E.
Senior Project Engineer

cc: Henry Lopes - Techalloy
David Williams - Techalloy
Scott Carr - Techalloy
Carlos J. Serna - WESTON

CARLOS J. SERNA, P.G.

Qualifications Summary

- More than 14 years of experience conducting geologic and hydrogeologic investigations, including RCRA detection monitoring, groundwater assessment investigations, RFIs for private industries, and RIs/feasibility studies (FSs) for U.S. Environmental Protection Agency (EPA) Superfund sites.
- Environmental compliance audits for industrial and federal facilities focusing on hazardous and solid waste management, air pollution, emergency planning and community right-to-know, spill prevention and wastewater discharge, and environmental management systems. Completed ISO 14000 lead auditor training; certification is pending.
- Experience in the development and implementation of groundwater and soil remediation systems, including groundwater extraction and treatment, air sparging, soil vapor extraction (SVE), ex situ bioremediation, and bioventing.

Registration

Certified Professional Geologist (P.G.) in the States of Indiana and Wisconsin

Fields of Competence

Conduct environmental compliance audits and ISO 14000 compliance audits; development and implementation of complex site investigations; evaluation of detailed technical site data to access magnitude of impact and implementation of appropriate corrective measures; development of Resource, Conservation, and Recovery Act (RCRA) assessments, RCRA facility investigations (RFIs), and Corrective Action Study/Implementation (CMS/I), various state voluntary action programs, and Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) (CERCLA) and Air Force Installation Restoration Program (IRP) programs; groundwater modeling; and soil and groundwater remediation by in-situ and ex-situ technologies.

Credentials

M.S., Geology (Hydrogeology)—Miami University (1986)
B.S., Geology and Biology—Ball State University (1981)
Association of Groundwater Scientists and Engineers
ISO 14000 Lead Auditor 36-Hour Trained-Applied Quality Systems, Inc. (1997)

Employment History

1985-Present	WESTON
1984-1985	Indiana Department of Environmental Management
1982-1983	Miami University Geology Department

Key Projects

Industrial Facility Compliance, Illinois, Confidential Metal Manufacturer and Fabricator, Project Manager. Assisted client with environmental compliance issues including hazardous and solid waste management. Activities included reclassification of special waste to a solid waste, which resulted in disposal cost

WILLIAM F. KARLOVITZ, P.E.

Qualifications Summary

- Over twenty years of experience in water and wastewater design projects involving treatability studies, treatment analysis, engineering evaluations, design, and preparation of detailed plans and specifications. Extensive experience in design and permitting of waste site closures; pre-design studies, plans with associated features; erosion and sediment controls, stormwater management; and construction management services. Construction administration of projects, bid evaluations, equipment selection, construction observation, and start-up.
- Extensive experience in design and permitting of waste site closures; pre-design studies, plans with associated features; erosion and sediment controls, stormwater management; and construction management services.

Registration

Registered Professional Engineer in the States of Illinois, Iowa and Wisconsin.

Fields of Competence

Design and permitting of waste site closures; water, wastewater, and hazardous waste projects; treatability studies; treatment analysis; engineering evaluations; design of water and wastewater projects; preparation of detailed plans and specifications; and construction administration.

Credentials

M.S., Sanitary Engineering—Marquette University (1972)
B.S., Civil Engineering—Marquette University (1971)
Water Environment Federation

Employment History

1991-Present WESTON
1974-1991 Beling Consultants

Key Projects

Design of Remediation System, Indianapolis, IN, United States Postal Service (USPS), Project Engineer. Responsible for quality assurance and design of a remediation system for a leaking underground storage tank (UST). Design consisted of a cut-off trench to collect contaminated groundwater, a pumping system with a capacity of 25 gallons per minute (gpm), filtration, carbon canisters, and discharge to city sewage system. Other items included in the plans and specifications included a prefabricated building, electrical controls, and piping systems. During construction, WESTON performed engineering oversight, and is currently providing operation and maintenance (O&M) of the system.

Design of Remediation System, Elk Grove Village, IL, Confidential Client, Project Engineer. Responsible for design of a remediation system for USTs containing paint solvents. Design consisted of a ground pump and treatment system

Key Projects (Continued)

utilizing air stripping and filtration with discharge to the storm sewer system. A soil vapor extraction (SVE) pilot test and vapor extraction system were also designed to remediate the source area. Use of pneumatic soil fracturing is planned to improve the groundwater and air movement through the soil.

Remedial Design/Construction Administration, Flint, MI, Confidential Industrial Landfill Client, Design Project Manager. Responsible for preparing remedial design that included a soil cap, preparing grading plans to allow relocation of waste material and provide suitable cover material to prevent contact. Design involved developing a stormwater management plan including detention basin, and redeveloping the site to include soccer fields, parking lot, and maintenance building. A portion of the site was remediated to allow for sale of the property for commercial development. Also responsible for construction management of the project during grading and construction activities.

Design Oversight for Landfill Closure, West KL Landfill, Michigan, U.S. Environmental Protection Agency (EPA), RAC, Region V, Site Manager. Responsible for management, design review, and oversight of predesign activities to further characterize groundwater conditions at the site for compliance with the requirements of the Record of Decision (ROD), work plans and good engineering practice. The major components of the landfill remedy include a landfill cap, gas collection system, and monitoring for effectiveness of natural attenuation.

Design of Groundwater Extraction, Treatment, and Disposal System, Perham, MN, U.S. Environmental Protection Agency (EPA), Alternative Remedial Contracts Strategy (ARCS), Region V, Project Manager. Responsible for management of pre-design investigation and final design of extraction wells, treatment system consisting of chemical feed systems, equalization tank, automatic sand filtration system, activated alumina adsorbics, building controls for the discharge of treated water to an infiltration basin. The system was designed to treat 150 gpm of groundwater contamination primarily with arsenic. The cleanup of this national priorities list site was intended to cleanup a shallow aquifer.

Design of Landfill Cap and Groundwater Extraction and Treatment System, Stoughton, WI, Stoughton City Landfill, Project Manager. Responsible for project management and design for the remedial design of a National Priorities List (NPL) site. Preliminary design tasks included surveying, preload settlement tests, and landfill and wetlands delineation. The recommended remedial action includes the consolidation of landfill wastes and placement of a solid waste disposal facility cap over the entire landfill, as well as extraction and treatment of the contaminated groundwater. In addition to remediating the groundwater, the remedial action was intended to protect and mitigate the damage to the adjacent wetlands.

Design and Permit Application for Compost Facility, Kane County, IL, Best Lawns, Inc., Project Manager. Responsible for project management design documents and permit application for a new compost facility. Design documents for the 72,000-cubic-yard landscape waste compost facility included a stormwater management plan, an operating plan, a closure

Key Projects (Continued)

plan, a leachate collection system, and site grading plan. Permit applications and documentation were prepared for Illinois EPA approval and local zoning board approval.

Design Oversight for Landfill Closure and Groundwater Remediation, Michigan, Rasmussen Dump, United States Environmental Protection Agency (EPA), ARCS, Region V, Project Manager. Responsible for management, design review, and oversight of predesign construction activities of the potentially responsible parties (PRPs) for compliance with the requirements of the statement of work and good engineering practice. The major components of the landfill remedy included providing a landfill cap, a passive gas collection/venting system, and a groundwater monitoring program. The activities associated with the groundwater included an extraction system, treatment system, and a re-infiltration system. The predesign components included installing of monitoring wells and piezometers, surveying, installing soil borings, performing pumping tests for the extraction wells, and performing pilot-scale treatability testing, re-infiltration testing, preload settlement testing, percolation testing for surface water, and sampling.

Design of Groundwater Extraction, Treatment, and Disposal System, Union, IL, Confidential Client, Project Manager. Responsible for the design of an extraction well, a double wall piping containment system, a surge tank, an iron removal system, an air stripper, pumps, a building, and appurtenances for the discharge of treated water to the South Branch of the Kishwaukee River. The system was designed to treat 350 gpm of groundwater contaminated with 1,1,1-trichloroethane (TCA), trichloroethene (TCE), and tetrachloroethene (PCE). This interim measures design was accomplished under an extremely short time schedule and within budget under the framework of a Consent Order issued under the Resource Conservation and Recovery Act (RCRA).

Remedial Design and Construction Oversight, Miamisburg, OH, U.S. Department of Energy (DOE), Mound Plant Site, Design Manager. Managed the preparation of the remedial design documents to support a CERCLA Remedial Action under the environmental restoration program. The RI/FS for Operable Unit 1 identified volatile organic compound contamination of the local aquifer from a historic landfill site. The remedy consists of a system of extraction wells, treatment and discharge of the extraction groundwater, and installation of surface controls to manage run on and run off around the landfill. The plans and specifications have been reviewed by the Ohio Environmental Protection Agency (OEPA) and the United States Environmental Protection Agency (EPA). The groundwater treatment system has been constructed and is meeting effluent requirements.

Yard Waste Composting, Preliminary Design and Permitting, Illinois, Cities of Elgin and Crystal Lake, Project Manager. Projects included quantification of yard waste generated and design and permitting of the yard waste composting facilities. Design aspects included site characterization, facility sizing, stormwater management system, and windrow layout. As part of the permitting process, prepared a facility operating plan, an odor minimization plan, and a plan for sampling of windrows.

Key Projects (Continued)

Stormwater Discharge Permits and Pollution Prevention Plans, Illinois, Various Industrial Clients, including Navistar, Sherwin-Williams, John Crane, and John Deere, Project Engineer. Gathered site information, developed means of collecting samples and obtaining flow information, and prepared the necessary permit. Also preparing stormwater pollution prevention plans for a number of industrial facilities.

Wastewater Investigation and Pretreatment System Construction Oversight, Indiana, Confidential Client, Project Manager. Responsible for project management of design review and construction oversight of a pretreatment system, which included an air flotation clarifier unit, a process feed pumping system, a polymer system, and sludge handling for a molded fiber paper plant. An operations and maintenance manual and operator training were provided as part of the project. An investigation into the location and discharge points of process wastewater systems, sanitary sewers, and stormwater systems was also performed to determine possible interconnections.

Sewage System Capacity Study, Moline, IL, City of Moline, Project Manager. Project consisted of identifying sewage system deficiencies by utilizing flow gauging, reviewing collection systems and history of basement backups, developing flow projections, and developing treatment and collection system alternatives. Study resulted in collection system rehabilitation and excess flow holding facilities.

Needs Study for Mokena Wastewater System, Mokena, IL, Village of Mokena, Project Manager. Prepared report to evaluate the rated capacity of the wastewater treatment plant, reviewed the adequacy of the User Charge System, and determined the collection system needs for the Facility Planning Area.

Infiltration/Inflow Analysis and Sewer System Evaluation Survey, DeKalb, IL, DeKalb Sanitary District, Project Manager. Project included flow monitoring of 28 mini-systems to determine the worst part of collection system. Responsible for preparation of bidding documents for outside firm to perform physical inspection, smoke testing, storm sewer flooding, and television monitoring of sewers. Also responsible for the design of various rehabilitation projects, including manhole repairs, pipe replacement, cross connection elimination, and inversion lining.

Infiltration/Inflow Analysis, Milan, IL, Village of Milan, Project Manager. Project included physical inspection of manholes, smoke testing, rainfall simulation, dying of storm sewers to determine connection to sanitary sewers, flow gauging to determine cost-effective methods of rehabilitation, sewer system television inspection work, pipe replacement, and relief sewers.

Design and Construction Administration of Sewers, DeKalb, IL, DeKalb Sanitary District, Project Engineer. Prepared plans and specifications and provided construction administration of approximately three miles of 24-inch to 48-inch interceptor sewer and 18-inch forcemain through an area that included a public park, residential neighborhoods, commercial properties, and a university campus. Two river crossings were also required. The project also included modifications to the existing pump station and three new pumps of 800 gpm each, as well as the

Key Projects (Continued)

design of a new pump station with two 1,000-gpm pumps. New control systems were provided for each pump station, and an emergency generator and a telemetry system were provided for the new station.

Design of Groundwater Extraction, Treatment, and Disposal System, Niles, MI, Michigan Department of Natural Resources, Project Manager. Project Manager for the design of two groundwater extraction systems to remediate a trichloroethylene (TCE) plume. The design of the first system (for the source plume) consisted of a well, a treatment building, and a UV/oxidation system with discharge to the local municipality. The second system consisted of four wells, a treatment building, and two air strippers, followed by carbon canisters with discharge to the receiving stream. This system has a projected capacity of 500 gpm.

Design of Water Line Extension, Byron, IL, Region V, EPA, Project Engineer. Project Engineer for the extension of the City of Byron water distribution system to provide an alternate supply of drinking water and the plugging and abandonment of existing residential water wells to prevent human exposure to contaminated groundwater.

Industrial Pretreatment Facilities, Galesburg, IL, Henry C. Hill Correction Center, Project Engineer. Design of screening and aerated equalization to reduce organic loadings from meat, milk, and juice processing operation to acceptable levels.

Design and Construction Administration for Industrial Pretreatment Facilities, Clinton, IA, Ralston Purina Company, Project Engineer. Design of screening and settling basins to reduce concentrations of biochemical oxygen demand (BOD), total suspended solids (TSS), fats, oil, and grease before discharge to the city sewerage system.

Study and Design of Industrial Pretreatment Facilities, Rockdale, IL, Apollo Colors, Project Manager. Study and design of pretreatment system for manufacture of ink pigments to reduce the quantity of copper and barium discharged to the sewer. Process included chemical treatment, sedimentation, and solids dewatering.

Pretreatment Systems Design, Clinton, IL, Revere Ware, Project Engineer. Design of industrial pretreatment facility for copper reduction, including chemical/physical treatment facilities, chemical feed systems, and solids filtration.

Pretreatment Systems Design and Construction Administration, Rockford, IL, Ideal Uniform, Project Engineer. Design of industrial pretreatment facility to reduce pollutant levels of BOD, TSS, and fats, oil and grease (FOG) to below surcharge levels, including aerated equalization, chemical addition, dissolved air flotation, and sludge dewatering.

Study, Design, and Construction Administration of Industrial Pretreatment Facilities, LaSalle, IL, Sundstrand Hydro Transmission Facility, Project Manager. Complete engineering services from industrial wastewater monitoring and analysis, pretreatment study, design, bidding, and construction administration for the process wastewater. Project included chemical handling system, sedimentation tanks, and belt filter press. Waste reduction was accomplished by utilization of oil purification and solvent recovery.

Key Projects (Continued)

Design for Unit Well 39 and Ground Storage Tank, Rockford, IL, Project Engineer. Design for project consisting of a 1,500-foot-deep well with a capacity of 2,000 gpm. Other improvements included a 150,000-gallon concrete reservoir, a well pump, high service pumps, and chemical feed systems, which were housed in a single building.

Elevated Storage Tank, Peru, IL, City of Peru, Project Engineer. Project Engineer for design and construction of a new elevated storage tank, an aerator, high service pumping facilities, and associated telemetry systems.

Pretreatment Systems Design, Silvis, IL, Chrome Locomotive, Project Engineer. Design of industrial wastewater pretreatment system and permit applications, including building, flow monitoring, and sludge dewatering system.

Industrial/Municipal Pretreatment Program, Various Locations, Multiple Clients, Project Manager. Developed industrial/municipal pretreatment program, including conducting industrial surveys, evaluating treatment plant performance, evaluating current background loadings, and developing pretreatment limits for industrial users.

North Wastewater Treatment Plant Expansion, Wastewater Treatment Plant Planning and Design, Elgin, IL, Fox River Water Reclamation District, Project Engineer. Project engineer for the design of treatment plant expansion to 7.75 mgd. The project consisted of additional primary settling tanks, aeration tanks, blowers, fine-bubble diffused aeration system, final sedimentation, and dechlorination facilities. The project was unique because the improvements were completed on a relatively small plant site and the design varied from Illinois EPA standards. This variance resulted in a decrease in the size of the aeration tanks.

Wastewater Treatment Planning and Design, Rochelle, IL, Rochelle Wastewater Treatment Plant, Project Manager. Project Manager for the planning and compliance plan implementation of an improved 4.0-mgd combined industry and domestic wastewater treatment facility utilizing trickling filter secondary process and trickling filter/ clarification/filtration treatment process. Because of the nature of the industrial waste, the improvements included a unique application of 1.8-mgd anaerobic industrial waste pretreatment units for high organic strength wastewater.

Wastewater Treatment Planning and Design, Maquoketa, IA, Maquoketa Wastewater Treatment Plant, Project Engineer. Project Engineer for the planning and design of a 1.0-mgd Rotating Biological Contractors-(RBC)-type secondary treatment facility for both domestic and pretreated high organic strength industrial waste. Also included was the development of an aerated excess stormwater holding lagoon and the construction of the largest wet pit wastewater pumping station (10,000 gpm) in the State of Iowa.

Wastewater Treatment Planning, Design, and Construction Administration, DeKalb, IL, DeKalb Sanitary District Main Wastewater Treatment Plant, Project Engineer. Project Engineer for the planning and design of a 7.25-mgd trickling filter and RBC (tertiary) treatment facility. This project included new and revised grit, primary, and secondary treatment units and the addition of RBC and tertiary filter units for ammonia nitrogen reduction and advanced BOD

Key Projects (Continued)

and TSS reductions. This project is unique in that the facility plan for this facility and other system improvements were completed and approved by the EPA for design and construction financing in less than 120 days from start of work.

Stormwater Management, DeKalb, IL, DeKalb Sanitary District Excess Stormwater Treatment Facilities, Project Engineer. Project Engineer for the special facilities' addition to the main treatment plant to handle and treat 18.0 mgd of excess stormwater flows. The unit processes included sedimentation, filtration, and disinfection.

Wastewater Treatment Planning, Design, and Construction Administration, Geneseo, IL, Geneseo Wastewater Treatment Plant, Project Manager. Project Manager for the planning and design of an innovative wastewater treatment plant for both domestic (1.5 mgd) and excess stormwater flows (4.0 mgd). The basic treatment process consists of trickling filter secondary process followed by the innovative trickling filter/solids contact treatment units for ammonia nitrogen, BOD, and SS reduction. Excess stormwater is detained in a special on-system lagoon and is returned to the main plant for final treatment and discharge. This project also included sludge handling facilities and new building and structures additions.

Wastewater Treatment Planning and Design, Moline, IL, Moline North Slope Wastewater Treatment Plant, Project Manager. Project Manager for the planning and design of a 5.5-mgd "contact stabilization" activated sludge waste treatment plant with special excess stormwater treatment units. Of special note was the design of unique sludge handling facilities to treat both domestic wastewater and water treatment plant lime sludges. The lime sludge waste from the water treatment plant is used successfully in the design of the primary clarifiers, recognizing the chemical advantage of the lime. Other special items were designed into the plant so a small site could be utilized, thus eliminating the need to purchase valuable adjacent industrial property.

Wastewater Treatment Planning and Design, DeWitt, IA, DeWitt Wastewater Treatment Plant, Project Manager. Project Manager for the planning and design of a 1.0-mgd trickling filter secondary treatment plant for basic domestic waste. The plant includes a large excess stormwater handling lagoon for retention of excess flows with return to the main plant for treatment during low flow periods. This project was designed to be constructed in several phases to accommodate special Housing and Urban Development (HUD) block grant funding, which was apportioned over a multi-year period.

Wastewater Treatment Facility Design, Joliet, IL, Joliet East Side Wastewater Treatment Plant, Project Engineer. Project Engineer for the design of preliminary, primary, secondary, and tertiary facilities for a capacity and process enhancement to an 18-mgd domestic wastewater treatment facility. Primary components consisted of new bar screens and grit removal facilities; new and revised primary and final clarifiers; fine bubble aeration and new disinfection facilities. Of special note was the design of new sludge handling facilities, including gravity belt thickeners and dewatering units (after special on-site performance testing) and first and second stage anaerobic digesters. Also included was the design of new buildings, structures, and laboratory.

Key Projects (Continued)

Water and Wastewater System Study, Design and Construction Administration, West Dundee, IL, Village of West Dundee, Project Manager. Preparation of a report to assess the immediate and future needs of the water supply, water distribution, and the wastewater collection system. By utilizing a computer network model, recommendations were made on the adequacy of the existing well supply, water storage, and distribution system. As a result of the study, detailed plans and specifications were prepared for a wastewater pumping station, with a firm pumping capacity of 1.25 mgd approximately 2,000 linear feet of watermain, a deep well with a yield of 1,000 gpm, and a water treatment facility with a capacity of 2.5 mgd. Oversight and administration of the construction is currently being performed.

Water Management, Wilmington, IL, Water Treatment Plant, Project Manager. Project Manager for the preparation of technical reports and design, including analyzing various treatment options for new softening plant using the Kankakee River as the raw water source.

Water System Improvements, Peru, IL, City of Peru, Project Manager. Project Manager for preparation of technical and economic feasibility study of expanding the existing water plant, constructing a new plant, and maintaining township zone distribution system.

Water Treatment Plant Upgrading, Princeton, IL, City of Princeton, Project Engineer. Project Engineer responsible for design and construction of upgrading the existing lime softening plant to increase capacity and to reduce costs associated with the operation.

Trihalomethane Reduction, East Moline, IL, City of East Moline, Project Manager. Project Manager responsible for study and design documents to determine method of reducing trihalomethane from water supply to meet EPA Safe Drinking Water Act (SDWA) requirements. Evaluated various treatment options and performed pilot studies using selected options, which resulted in design and upgrading of existing water treatment plant.

Fish Culture, Centerville, IA, Rathbun Hatchery, Project Manager. Project Manager for the design of packed column oxygen addition (and denitrification) facilities for hatchery water supply and fish breeding clarifiers. Project also included a revised raw water intake on the Rathbun dam outlet works.

Water System Study, Illinois, DuPage County, IL, Project Engineer. Prepared technical and cost-effective study of providing water for the communities of Rosewood, Hinswood, and Lake in the Woods by upgrading their existing well systems as compared to a regional supply. Responsible for selecting design criteria for the various treatment options analyzed.

Planning, Design, and Construction Administration of Storm Sewers, DeWitt, IA, City of DeWitt, Project Manager. Prepared plans and specifications and provided construction administration of approximately 5,300 linear feet of 30-inch to 72-inch storm sewers to relieve surface flooding conditions.

Design and Construction Administration of Sewage System for Industrial Park, DeWitt, IA, City of DeWitt, Project Manager. Prepared plans and specifications and provided construction administration for project, including pump station, forcemain, and gravity sewers.

Key Projects (Continued)

Design of Water and Wastewater System Improvements, Durant, IA, City of Durant, Project Manager. Prepared plans and specifications and provided construction administration of approximately 4,000 linear feet of 8-inch watermain, 2,200 linear feet of 8-inch to 18-inch sewer, a pump station, and 3,300 linear feet of forcemain.

Construction Administration of Water System Storage and Aeration Facility, DeWitt, IA, City of DeWitt, Project Manager. Project consisted of 250,000-gallon ground storage tank and aeration facility for hydrogen sulfide reduction and iron control. Project also included high service pumping, disinfection facilities, and a telemetry system.

Design and Construction Administration of South Slope Wastewater Treatment Plant, Moline, IL, City of Moline, Project Engineer. Upgrade of a 4.0-mgd activated sludge plant with minor improvements, due to re-rating based on the Engineering Report and Study that permitted a deviation from the Illinois Design Standards and allowed shorter detention times in the aeration basins.

RICHARD A. SWEARINGEN, P.E.

Qualifications Summary

- Seventeen years of experience in civil and environmental engineering as designer and inspector.
- Stormwater pollution prevention plan - plan development and facility employee training.
- Water and wastewater investigation, design, and inspection-collection, pumping, and plant renovations. Water distribution-water mains, wells, and appurtenances; elevated water tank and reservoir design, shop drawing review, and inspection.
- Sludge disposal-regulatory agency liaison, surface and subsurface applications.
- Solid waste disposal - site analysis, soil evaluation, design, and monitoring development.
- Free-phase product recovery system design - existing system analysis, equipment selection, and design.
- Groundwater recovery system design review and construction management.

Registration

Registered Professional Engineer in the States of Illinois and New Hampshire

Fields of Competence

Client and regulatory agency liaison; waste disposal (land application); wastewater and water facilities design and inspection; wastewater and water distribution design and inspection; subdivision design; and open channel drainage design.

Credentials

B.S., Agricultural Engineering/Soil and Water—University of Illinois (1984)

Employment History

1987-Present	WESTON
1986-1987	Daily and Associates, Inc.
1981-1985	Berns, Clancy, and Associates, P.C.

Key Projects

Wastewater Pumping Station, West Dundee, IL, Village of West Dundee, Project Engineer. Design of 1.25 million-gallons-per-day (MGD) wastewater pump station to serve the water treatment plant and future south development area. Pump station design included a standby generator, an influent channel, sewage grinders (comminutors), wet and dry wells, centrifugal pumps, flow monitoring, and appurtenances. Coordination of predesign survey (topo, horizontal, and vertical control) and easement plats of survey. Prepared and submitted permits for USACOE, IEPA, and IHPA. Developed cost estimate, technical specifications, contract documents, and drawings. Assisted in coordination of architectural, electrical, instrumentation, heating, ventilation, and air conditioning (HVAC) systems, and structural designs. Responsible for construction administration and client liaison during the construction and startup of the pump station.

North Park Village Nature Center Annex, Illinois, Chicago Department of Environment, Design Engineer. Project

Key Projects (Continued)

responsibilities included design team leader, coordinator, and client relations. Design team consisted of civil, mechanical, and electrical engineers, architects, a facility planner, and nature center staff. Team conducted analysis on existing facility functionality, interviewed nature center staff to determine staff and programming needs, and prepared facility assessment report. Prepared deliverables for concept design, 60%, 90% and final design, and bid documents. Assisted the departments of purchasing, law, and general services with the bid process and review. Team developed cost estimates, alternative bid items for enhancements of base design.

Groundwater Recovery System Expansion, TechAlloy, Design Engineer. Responsible for increasing the systems extraction rate from 350 gpm to 550–750 gpm. Evaluated existent piping, building and treatment systems to develop design parameters. Design included a second extraction well, two 40 hp extraction well pumps, dual contained transmission piping, casing and county highway crossing, 8'x8'x8' valve vault, new 550 gpm shallow tray air stripper, second 5 hp effluent pump, two stripper effluent sump tanks, revised electrical and control panels. Prepared bid and design packages, IEPA and county permits. Assisted client with subcontract procurement, shop drawing review and construction management.

Design of Groundwater Extraction, Treatment, and Disposal System, Perham, MN, U.S. Environmental Protection Agency (EPA), Alternative Remedial Contracts Strategy (ARCS), Region V, Design Engineer. Responsible for final design of treatment system layout consisting of chemical feed systems, equalization tank, automatic sand filtration system, activated alumina adsorbics, building controls for the discharge of treated water to an infiltration basin. Responsibilities during construction included submittal review and coordination, WESTON procurement, subcontractor's contact, construction coordination with field personnel, RFI response, and system design modifications. Responsible for startup and operations after system was complete. Coordinated O&M activities with facility operator including procurement of chemicals, replacement parts, data acquisition, and sampling. The system was designed to treat 150 gpm of groundwater contamination primarily with arsenic.

Recovery System, Indiana, Confidential Client, Design Engineer. Responsible for evaluation of existing free-phase product recovery system at a site in Indiana. Evaluated product to be recovered, existing system structures and piping, and established basis for a new system. Conducted a pilot test of free-phase system with selected product recovery pump to determine system recovery rates and product recovery storage capacity requirements. Designed system utilizing existing monitoring and recovery well systems, air and electrical supply. Prepared design report and contractor bid package.

Wastewater Pumping Station, Derry, NH, Town of Derry, Resident Engineer. Responsibilities included construction layout, shop drawing and fabrication review, construction oversight, and client liaison. The pump station and forcemain were located in a residential area. Coordinated and resolved residential and community issues during construction. Worked closely with Public Works officials during construction to coordinate existing systems shutdown and bypassing of sewers that were to be connected to the station. Performed construction administrative duties related to cost control, contractor schedule compliance, and dispute resolution.

Water System Improvements, West Dundee, IL, Village of West Dundee, Project Engineer. Design of the finish watermain from the water treatment plant, raw waterline from supply wells to

Key Projects (Continued)

the plant. Assembled and submitted applications to Illinois Environmental Protection Agency (IEPA), Illinois Historic Preservation Association (IHPA), and U.S. Army Corps of Engineers (USACOE) for the watermains, water storage tank, and treatment plant. Worked with client through design. Prepared bid package, reviewed bid submittal, and prepared draft of letter recommending contractor to be selected. Performed on-site resident engineer and construction administrative duties for the water plant, water tower, and watermains.

Stormwater Pollution Prevention, NPDES Permitting, USPS Central and Northern Districts, Project Engineer. Responsible for coordination of the stormwater pollution plan (SWP3) preparation. Reviewed client site maps for base map preparation. Reviewed and modified draft SWP3s and incorporated client comments into final draft. Developed the Notice of Intent for facilities which met EPA industrial classifications (SIC 43) and required conformance with NPDES permit requirements. Developed the training program and conducted SWP3 training for client, instructing USPS employees on federal stormwater pollution prevention regulations, etc

Site Development, Concord, NH, Concord Monitor, Project Design and Resident Engineer. Designed site utilities (water, sewer, and storm) and parking lot design, including spacing requirements and layout. Worked closely with the Monitor's Publishing Editor and Operations Manager during construction. Performed on-site soils identification, inspected construction of the utilities, erosion control, site drainage, storm retention cells, and the parking lot.

Cell #3 Construction, Sullivan County Landfill, Sullivan County, NY, Resident Engineer. Performed construction oversight of the construction of cell #3. Oversight responsibilities included quality assurance and quality control verification for each cell component (clay, 60 ml liner, GCL, composite, geotextile and drainage layer), coordination of sampling and testing frequencies, and non-certification design modifications. Responsible for client communications, contractors, partial payment requisition request verification and change order preparation. Worked closely with contractor and wetlands planting subcontractor during the wetlands mitigation phase. Monitored contractor's stormwater discharge compliance with approved NPDES permit. Reviewed shop drawings and coordinated review of electrical/instrumentation submittals with the design engineer.

Disposal Area Closure Construction, Illinois, Confidential Client, Resident Engineer. Resident Engineer for 125 acres of disposal area closure. Monitored construction of disposal cap, construction layout, and measurement (survey) for material quantification; redesigned stormwater systems; coordinated subcontractor work; monitored process storage lagoons construction (including geotextile and synthetic membranes); and performed miscellaneous monitoring of flow and sampling of on-site surface waters.

Wastewater Treatment, Francestown, NH, Tory Pines Resort, Project Design and Resident Engineer. Project scope involved redesign of the resort's golf course effluent spray irrigation systems, and redesign of the treatment lagoons, storage lagoons, and the aeration treatment system. Redesign included the influent monitoring structure, switching of the aerations system from fine bubble to static tube course bubble, upgrading of the spray irrigation pumps to achieve client spray irrigation parameters, increase of the storage lagoon size to meet storage capacity set by the state, and reshaping of the storage lagoon to fit site conditions. Was Resident Engineer and performed quality control and assurance, construction layout, shop drawing and material fabrication review,

Key Projects (Continued)

construction administration, regulatory and client liaison. Developed cost estimate and construction schedule scenarios for controlling financial authorities in preparation to acquire prospective buyers of the resort.

Sewer Design and Construction, Sunapee, NH, Town of Sunapee, Project Design and Resident Engineer. Four sewer projects totaling $1.1 million. Completed designs, prepared contract documents and specifications, and coordinated all prebid, bid preconstruction, and construction activities. Coordinated three field inspectors, construction administration, maintained and improved client relationship. Two projects included gravity sewer collection systems, pumping stations, and forcemain. The pumping stations included wet well, pump and control room. The Georges Mills Station was designed and constructed as a multi-functional station with public rest rooms. The rest rooms were designed to meet all federal and state barrier free-access requirements for the handicapped. Two systems were low- pressure sewers with individual grinder pumps at each residence. Design's completion entailed hydraulic profile and headloss calculations for pump station and grinder system sizing.

Water Distribution, Byron, IL, City of Byron Water Main Extension, EPA, Project Engineer. Design of the water main extension to homes with wells potentially affected by the nearby Superfund site. Field reconnaissance of houses to be serviced by the project. Coordinated the design efforts of staff and maintained correspondence with the Project Manager and client.

Water Storage, Warner, NH, Warner Village Fire District, Resident Engineer. Construction of an underground water storage facility and distribution main extension. Conducted prebid and bid opening meetings, developed scaled-down project scope after original low bid received was above the engineer's estimate. On-site responsibilities included inspection, water sampling, testing, and construction administration. Water storage facilities also included construction inspection of pedestal tanks.

Landfill Siting, New Hampshire, Confidential Client, Project Engineer. Task was to locate various sites with the potential to be developed into a solid waste landfill. Using landfill location criteria set by the client, sites were ranked based upon their accessibility, general soil geological compositions, and land area.

Construction Oversight, Various Sites, EPA, Resident Oversight Inspector. Responsible for performance assurance on landfill closure in Brookfield, Wisconsin; extraction wells and transmission lines in Elkhart, Indiana; and residential water service in Perham, Minnesota. Prepared inspection reports monthly summary reports, and photo logs. Designed and prepared bid package, solicited prospective bidders, reviewed bid submittal and bidder qualifications; recommended award to responsive/responsible bidder, prepared subcontract agreement, and was responsible for construction administration during service installation.

Landfill Permits, Midwest, Various Clients, Engineer. Drafted various United States Environmental Protection Agency (EPA) permits for landfill operation, building of wastewater treatment plant facilities, lagoon and sludge bed operations, and sludge disposal for application on agricultural land.

Key Projects (Continued)

Permitting and Sludge Disposal, Illinois, Various Clients, Project Engineer. Developed five-year loading rates for land-applied sewer and water sludge, prepared permitting application report, coordinated sampling, secured agreements for land, and coordinated correspondence with reviewing agencies and client. Permitting also included reapplications for landfill operations, cell expansions, and wastewater treatment facilities operations for the cities of Neoga, Paxton, and Village Grove.

Roadway Improvements, East Central Illinois, Illinois Department of Transportation (IDOT) Motor Fuel Tax Program, Project Engineer. For various programs less than $10,000 each, developed project scope and applications to IDOT for road, bridge, and sidewalk improvement monies. Prepared engineer's estimates, contract documents, and inspected work for several municipalities, including Mahomet and Monticello. Improvement material included concrete, oil and chip, bituminous asphalt, and drainage structures.

Construction Layout for Multimillion-Dollar Parking Deck Project, City of Urbana, Urbana, IL, Field Technician. Layout of columns, control, sanitary bypass, storm, and utilities.

Site Assessment, Illinois, Champaign County Landfill, Associate Engineer. Assisted in the site and soil analysis to determine the hydrogeological profiles, open channel site drainage, calculations for total landfill volume, surface and subsurface water study for proposed landfill location.

Feasibility Study, Illinois, Urbana Park District, Resident Inspector. Assisted in brook channel fishing dock/handicap access ramps, overflow structure, and fountain design. Involved with inspection of 30-ft-high concrete siltation retention wall, sediment removal, volume and quantity calculations, and preliminary feasibility study for project.

Municipal Landfill Construction, East Central Illinois, Various Clients, Engineer-in-Training on Multiple Cell Clay-Lined Landfills. Performed cell construction layout, verification, and volumetric computations for pre- and post-construction. Assisted in cell sizing and layout during design.

Sidewalk Improvements, Illinois, Various Clients, Associate Engineer. Coordinated annual motor fuel tax money for road, bridge, and sidewalk improvement proposals, contracts, and inspection for several municipalities in Illinois. Improvements included concrete, oil and chip, bituminous concrete, and petromats on streets and bridges.

Design of Storm and Sanitary Sewers, Illinois, Various Clients, Field Technician/Associate Engineer. Boundary, lot, storm, and sanitary sewers, utility layout, and inspection. Designed retention cells, storm and sanitary sewers, and water mains for subdivisions of various sizes in Urbana, Champaign, and Bloomington, Illinois, Nashua and Tilton, New Hampshire.

KURT T. FISCHER, P.G.

Qualifications Summary

- Eleven years of professional experience in geologic, hydrogeologic, and geophysical investigations. Comprehensive hydrogeologic studies have provided experience in monitoring well network design, installation, and development; environmental sampling; groundwater modeling; data compilation, evaluation, and assessment; and technical evaluation/implementation of remediation activities.

Registration

Licensed Professional Geologist (P.G.) in the State of Illinois
Certified Professional Geologist (P.G.) in the State of Indiana
Licensed Professional Geologist (P.G.) in the Commonwealth of Kentucky

Fields of Competence

Surface and subsurface contamination investigations including remedial investigation (RI) and RCRA Facility Investigation (RFI); geologic and hydrogeologic characterization;hazardous waste site assessments; contaminant transport modeling; landfill investigations; underground storage tank (UST) removal/remediation; monitoring well design and installation; sampling of groundwater, surface water, soil, and sediment; use of surface geophysical techniques for evaluation of geologic/hydrogeologic conditions; design and coordination of technical activities; evaluation and implementation of remedial alternatives, execution of all phases of field work; report preparation.

Credentials

B.S., Geology—University of Illinois at Chicago (1986)
Geological Society of America
Association of Groundwater Scientists and Engineers
Credential in Groundwater Science, NGWA, Ohio State University (1993)

Employment History

1987-Present WESTON
1980-1986 U.S. Naval Reserve

Key Projects

Conditional-Use Permit Request, Confidential Client, McHenry County, Illinois, Project Manager. Completed a comprehensive study of groundwater usage and availability in the area surrounding a proposed siting of a peaking power generation facility. Client is requesting a conditional-use permit to build and operate in an agricultural zoned area. Primary focus

Key Projects (Continued)

was to secure an adequate water supply for evaporative cooling and fire protection needs while minimizing impact to other area groundwater users. Evaluated local and regional geologic/hydrogeologic conditions; identified private and municipal water supply systems within a 5-mile area; performed groundwater modeling to determine the effects of drawdown; selected aquifer which met all requirements; prepared testimony and supported public hearings.

Statewide Hazardous Waste Investigations, Multiple Locations, Illinois Department of Transportation (IDOT), Senior Project Geologist. Performed Preliminary Site Investigations (PSIs) at multiple locations throughout the state in support of the IDOT anticipated construction projects. Tasks included evaluation of existing qualitative and quantitative analytical data and previous studies. This information was used to develop and implement a site-specific scope of work for efficient investigation and evaluation of soil and groundwater conditions within the IDOT right-of-way. Upon completion of field investigations, data were reduced and evaluated to formulate conclusions and recommendations regarding potential waste management options that would allow IDOT to proceed with the scheduled construction event in a time and cost efficient manner with minimal disturbance to standard construction procedures.

3D Groundwater Modeling, Waterloo, IA, John Deere Company, Technical Manager. Developed and implemented a three-dimensional groundwater modeling approach to accurately portray a complex hydrogeologic regime underlying a large industrial complex. The simulation included up to four layers, multiple aquifers, and several boundary conditions (buried bedrock ridge and surface water systems). Supervised modeling staff in development of conceptual model, selection of numeric code, model calibration and sensitivity analyses, and predictive simulations. The calibrated model can now be used to evaluate potential changes to the current groundwater flow system resulting from addition or subtraction of pumping wells, and its potential effect on contaminant transport within the aquifer.

RCRA Corrective Action, Ohio, Confidential Client, Project Manager. Developed, implemented, and evaluated additional investigation activities to support the conceptual design of the selected corrective measure at a large chemical mixing facility in northern Ohio. Effort began by identifying data gaps of significance which could impact the design of a groundwater extraction and treatment remedy in a bedrock aquifer affected primarily with aromatic hydrocarbon contaminants from historic waste disposal activities. Developed a field program to address these data gaps that included exploratory borings in the bedrock aquifer with interval packer sampling to define the vertical and horizontal extent of contamination; identification of locations and installation of permanent sentry wells; infiltration testing to evaluate the potential for groundwater re-infiltration; and aquifer testing to verify hydraulic parameters. Data gathered will be used to perform groundwater capture zone modeling, predict the necessary extraction rates and locations, extraction well design, and treatment system design. A significant component of this investigation is the evaluation and preliminary modeling of the potential for a component of the contaminant plume to be remedied using natural attenuation. This will be demonstrated using a rigorous analytical program and numerical contaminant transport modeling.

Key Projects (Continued)

Facility Investigation--Abandoned Landfill Facility, Lockport, IL, Illinois Environmental Protection Agency, Project Manager. Currently conducting a comprehensive facility investigation at a suspected abandoned landfill facility to determine the presence and extent of contamination in both soil and groundwater. The purpose of the investigation is to determine whether significant threats are present to human health and the environment; and estimate cleanup costs so that the property may be returned to productive use. Project is being funded by the IEPA and is being undertaken at the request of Will County. Program includes geophysics, soil borings, well installation, soil and groundwater sampling and analysis. Data gathered will be used to classify the stratigraphy, waste types, volumes, extent of contamination, and disposal costs.

Environmental Investigation in Support of Tunneling Activities, Chicago, IL, Kenny, Kiewit, Shea Joint Venture, Technical Manager. Conducting rigorous soil boring, subsurface soil and groundwater preliminary investigations in support of the Metropolitan Water Reclamation District of Greater Chicago's (MWRDGC) deep tunnel project. Investigations being carried out at multiple vertical shaft locations along the Torrence Avenue leg of the project. This area of southeast Chicago has historically been used for multiple industrial and waste disposal activities resulting in higher than average probabilities that shallow materials to be excavated may be contaminated with various compounds. Recognizing this in advance, the MWRDGC and Kenny, Kiewit, Shea have contracted preliminary site investigations to evaluate the presence and extent of contaminated media which may be encountered during excavations for vertical shafts and associated structures. Through a rigorous sampling regimen, the soil and groundwater materials will be properly classified, and the potential threats to the environment and worker health and safety will be determined and addressed early on in the construction process, thereby limiting delays and cost implications.

Construction Support Activities, Arlington Heights, IL, Plote, Inc., Project Manager. Provided support activities including sampling and analysis and field air monitoring to IDOT construction contractors during implementation of construction activities. WESTON personnel were responsible for field determinations based on real-time instrumentation readings. This allowed for correct waste classification determinations and implementation of management and disposal options with minimal negative impact on construction activities and schedule.

RCRA Facility Investigation, Argonne, IL, Argonne National Laboratory, Senior Project Geologist/Project Manager. Performed preliminary characterization of nine solid waste management units (SWMUs) in three areas involving use of innovative technologies such as geophysics and cone penetration testing (CPT) to characterize the geology/hydrogeology of the site, and evaluated the presence and preliminary extent of hazardous and radioactive materials while eliminating the generation of investigative derived waste (IDW). These results were reduced, evaluated, and incorporated into development of a detailed RFI work plan designed to thoroughly evaluate the site in accordance with Illinois RFI guidance in the most cost- and time-effective manner possible by performing Phase I, II, and III activities simultaneously. All results

Key Projects (Continued)

were thoroughly evaluated and presented in an RFI report to the U.S. Department of Energy (DOE) and subsequently the Illinois Environmental Protection Agency (IEPA).

Landfill Siting Application, City of Zion, Illinois, Senior Project Geologist. Performed technical review on behalf of the City during siting process for a municipal solid waste landfill expansion project. Reviewed applicants documents for completeness and accuracy with respect to geologic/hydrogeologic characterization of the site and surrounding area, determination of background groundwater quality, proposed monitoring plan, groundwater modeling , detection well spacing and adequacy; and compliance with current solid waste regulations. Identified data gaps and formulated and reviewed potential conditions to be utilized for conditional approval. Supported the city throughout the public hearing process.

Facility Investigation, Illinois, Confidential Industrial Client, Project Manager/Geologist. Conducted an investigation of a metal manufacturing and finishing plant. Project included two remedial investigation phases to characterize historical waste disposal units using geophysics, test pits, soil borings, and monitoring wells to determine the nature and extent of contamination in overburden glacial deposits and the deep Silurian bedrock aquifer. A risk assessment, as well as analytical results, were used to define extent of contamination and potential health risks associated with the units. The results were used to evaluate remedial alternatives. A combination of excavation and disposal, capping, and institutional controls were selected, and remediation was conducted in 1995.

Remedial Investigation/Feasibility Study (RI/FS), Ohio, Confidential Pipeline Company, Project Geologist. Performed an RI/FS at an 80-acre petroleum products terminal facility located in Ohio. The investigation involved determination of the lateral and vertical extent of petroleum hydrocarbon constituents in soils and groundwater. The extent was determined using reconnaissance Geoprobe equipment and mobile laboratory setups to obtain real-time data for use in the sampling location decision management process. Therefore, only necessary information was collected to delineate the extent of petroleum hydrocarbons in a cost- and time-effective manner. Only a limited number of traditional soil borings and monitoring wells were installed to confirm the extent of petroleum hydrocarbons. Excellent correlation of reconnaissance data to laboratory data was achieved. RI data was used to develop an FS which focused on the true problem. Additional chemical, geotechnical, and biological data were gathered early in the investigation process, which helped early determination of intrinsic bioremediation as the preferred remedial alternative. This was enhanced by favorable geologic/hydrogeologic conditions encountered during the RI. Additional tasks performed in support of the selected remedial alternative were a risk assessment to justify realistic cleanup levels based on site-specific potential receptors and migration pathways; groundwater fate and transport modeling to predict petroleum hydrocarbon concentration versus time and distance; and development and implementation of a long-term groundwater monitoring network as part of the intrinsic bioremediation remedy.

RCRA Facility Investigation, Northeastern Illinois, Stryker International, Project Hydrogeologist. Performed an RFI, one of the first performed and successfully completed in

Key Projects (Continued)

Region V, at a large private municipal landfill located in Chicago. The goal of this project was to evaluate the presence, nature, and extent of potential hazardous constituents and assess whether a potential threat to human health and/or the environment existed. RFI planning documents were developed and a negotiated scope of work was agreed to and conducted to comply with the requirements of a Consent Decree issued by the U.S. Environmental Protection Agency (EPA), Region V. Hydrogeologic interaction between shallow groundwater and the deep Silurian bedrock aquifer were of primary concern. Additional considerations complicating the project were the presence of other municipal and industrial landfills surrounding the subject site, as well as sensitive environments, including wetlands. The results of the RFI were thoroughly evaluated and incorporated into a risk assessment with a detailed evaluation of potential receptors, and indicated minimal health risks were actually present even though constituents were detected. The ultimate result was fulfillment of the Consent Decree with no further action required by EPA.

Municipal Landfill Permit Application, Chicago, IL, Confidential Client, Senior Project Geologist. Designed groundwater investigation and modeling program to be used to prepare and develop a landfill expansion permit application for submittal to Illinois EPA (IEPA). Work associated with the permit application included identification of data gaps with respect to Illinois Administrative Code (IAC) regulations, development of intensive field investigations to be performed in multiple phases to characterize geology/hydrgeology, groundwater quality, support three-dimensional groundwater modeling, and identify monitoring well network locations. Prepared applicable portions of permit submittal documents.

Groundwater Investigation, Wisconsin, Eau Claire Site, EPA, Region V, Principal Investigator. CERCLA investigation of a low-level volatile organic compound (VOC) plume to ascertain its source. Investigation included installations of monitoring wells and development and sampling using packed interval sampling techniques to define vertical plume concentrations.

Remedial Investigation/Field Study, Michigan, J&L Landfill Site, EPA, Region V, Field Manager/Project Geologist. Managed a CERCLA investigation to define the nature and extent of contamination associated with steel foundry wastes at a large, inactive industrial landfill. Responsible for the design and implementation of subsurface soil and groundwater monitoring system with extensive modifications based on field conditions. Additional considerations were to isolate and delineate extent of contamination for this landfill only because it is surrounded on all sides by other landfills. Primary author of RI report that concludes groundwater contamination is present but currently presents little risk. EPA agreed with the RI findings and the FS is underway.

Remedial Investigation/Feasibility Study (RI/FS), Indiana, Confidential Pipeline Company, Principal Investigator. Performed an RI at a petroleum pipeline release located in Indiana. The investigation involved determination of the lateral and vertical extent of petroleum hydrocarbon constituents in soils and groundwater. The extent was determined using reconnaissance Geoprobe equipment and mobile laboratory setups to obtain real-time data for use in the sampling location decision management process. Therefore, only necessary information was collected to delineate the extent of petroleum hydrocarbons in a cost- and time-effective manner.

Key Projects (Continued)

Only a limited number of traditional soil borings and monitoring wells were installed to confirm the extent of petroleum hydrocarbons. Excellent correlation of reconnaissance data to laboratory data was achieved. The plume was determined to be migrating toward a large wetland area adjacent to the pipeline. Additional chemical, geotechnical, and biological data were gathered early in the investigation process, which helped early determination of intrinsic bioremediation as the preferred remedial alternative. Groundwater fate and transport modeling was performed to predict petroleum hydrocarbon concentration versus time and distance. The presence of sensitive environments (i.e, wetlands) in the path of the petroleum hydrocarbon plume was considered advantageous rather than detrimental. Additional studies were carried out on the wetland environment to quantify the rate at which natural bacteria within the wetland could be used to consume petroleum hydrocarbons as a sort of natural bioreactor vessel. The results of these studies were favorable and intrinsic bioremediation was selected and approved by state regulators as the preferred remedy.

Identification of Pipeline Spill Locations, Illinois and Indiana, Confidential Pipeline Company, Principal Investigator. Identified and located precise locations for petroleum product pipeline spill sites in Illinois and Indiana. Project involved records review and interviews with personnel and eyewitnesses to pinpoint spill incidents dating to 1962. Follow-up work by client involved extent of contamination investigations.

Lake City Army Ammunition Plant (LCAAP), Missouri, U.S. Army, Project Geologist. Extensive use of geophysical methods to define lateral and vertical extent of historical solid waste disposal units. Methods include ground penetrating radar (GPR) and electromagnetic terrain conductivity (EM) to locate and define units prior to intrusive investigation work.

Tooele Army Ammunition Plant, Utah, U.S. Army, Project Geologist. Use of geophysical methods to define lateral and vertical extent of historical solid waste disposal units. Methods include GPR and magnetometry to locate and define units and clear drilling locations of major obstacles.

Use of Nonintrusive Geophysical Techniques to Define Subsurface Characteristics, Various Locations, Multiple Government and Industrial Clients, Principal Investigator. Ground-penetrating radar, electromagnetic terrain conductivity, and magnetometry were used to define trench boundaries and depths, subsurface structures, drum location, and abandoned well locations.

RCRA Facility Investigation, Northern Ohio, Confidential Industrial Client, Project Geologist. Reviewed and developed RFI planning documents for a large active incinerator facility with a lengthy and varied operational history. The ages and overlapping effects of individual SMWUs presented extreme difficulties in designing an RFI field program that could sufficiently differentiate the impact of individual SWMUs. The solution was to group SWMUs based on lateral proximity to each other, wastestream histories, and physical location on top of each other, into Solid Waste Management Unit Areas (SMWUAs). The concept developed in the RFI work plan was that impact from individual SWMUs could not be effectively determined and

Key Projects (Continued)

looking at the areas as a whole would provide more than adequate information. This concept was successfully negotiated with EPA Region V and accepted in the approved RFI work plan resulting in more effective use of client resources toward the ultimate selected remedy.

JAMEEL AHMED, P.G.

Qualifications Summary

- Seven years experience in environmental investigations and hazardous waste management.
- Three years of USPS work experience which included ISO 14001 auditing as an Audit Team Member for 2 USPS facilities; developing UST Control Plans for 12 USPS facilities; performing Lead Inspections for 5 USPS facilities; and implementing soil and groundwater remedial actions at more than 36 UST facilities.
- Developed and implemented RCRA Facility Investigation (RFI); monitoring compliance in accordance with EPA's Administrative Order of Consent (AOC).
- Evaluated and characterized petroleum-impacted soil and groundwater/groundwater conditions associated with contaminant migration, in situ permeability tests, and well head protection area (WHPA) groundwater modeling.
- Assisted in developing surface water, groundwater, soil, sediment, and hazardous waste stream characterization/program management design, including development of sampling procedures and standard operating procedures.

Registration

Registered Professional Geologist in the States of Tennessee and Minnesota
Certified Lead Inspector in the State of Illinois

Fields of Competence

Development and implementation of Resource Conservation and Recovery Act (RCRA) Facility Investigations and residential well monitoring plans. Phase I and Phase II Environmental Assessments; hydrogeologic investigations; delineation and characterization of soil and groundwater contamination; implementation of soil and groundwater sampling plan; disposal of contaminated soil and groundwater; underground storage tank (UST) site investigations and preparation of UST control plans; installation of monitoring wells, piezometers, extraction wells, and soil vapor extraction system; site health and safety; and report preparation.

Credentials

M.S., Geochemistry—University of Leeds, England (1987)
B.S., Geology, Physics, and Chemistry—Osmania University, India (1980)
Graduate Studies—Environmental Management, Illinois Institute of Technology, (1997)
International Environmental Auditing Course, Government Institutes, Washington, D.C., WESTON (1997)
National Groundwater Association
Illinois Association of Environmental Professionals
Academy of Hazardous and Waste Materials Managers(Chicago)

Employment History

1993-Present	WESTON
1991-1993	ASI Environmental Technologies, Inc.
1989-1991	Construction Technology Laboratories, Inc.
1981-1984	John-Meyer Granite Limited (An Indo-German Joint Venture) India

D37
9-30-99

Summary of Remedial Technologies
Techalloy Company, Incorporated
Union, Illinois

Techalloy Company, Inc. (Techalloy) has entered into a Consent Order (R8H-5-99-008) with the U.S. EPA on 30 September 1999. Pursuant to this Consent Order, Techalloy is to implement the following remedial technologies; soil stabilization, engineered cap, soil vapor extraction (SVE), and groundwater air sparging. The following provides a summary of the technologies to be implemented and corresponding specifications. The specifications presented below are also documented in Attachment I of the Consent Order and in some case the Techalloy Corrective Measures Study (CMS).

INTRODUCTION

Techalloy owns and operates a specialty wire manufacturing facility in Union, Illinois. The facility is located at the intersection of Olson and Jefferson Roads in the Village of Union, Coral Township, McHenry County, Illinois. The developed portion of the facility occupies five acres. The Techalloy facility has an additional 29 acres of agricultural land surrounding the facility.

The CMS was performed in response to a Consent Order issued to Techalloy by the U.S. EPA on 27 January 1993. The purpose of the CMS was to develop and to evaluate corrective action alternative(s) and to recommend the corrective measure(s) to be taken at the facility. The CMS included the following three major tasks:

Identification and Development of the Corrective Measure Alternatives.
Evaluation of the Corrective Measure Alternatives.
Justification and Recommendation for a Final Corrective Measure.

Based on these criteria a statement of bases prepared by the U.S. EPA and the Attachment I of the Consent Order, the following technologies and specification are required.

Task 1: Connection to City Water System and Private Well Sampling

A. Pursuant to Section VIII.D.1 and VIII.D.3. of the Consent Order, Respondent shall provide residential wells with connection to the city water system of Union, Illinois, and shall provide for proper abandonment of residential wells that are so connected.

B. Pursuant to VIII.D.2. of the Consent Order, Respondent shall perform quarterly sampling and analysis of private wells.

Task 2: Perform Soil Stabilization Treatment

Pursuant to Section VIII.F. of the Consent Order, Respondent shall perform soil stabilization treatment and shall address the following elements:

A. Implement bench scale studies

1. Develop baseline characterization
   a. Physical soil tests
      (1) permeability
      (2) unconfined compressive strength
      (3) bulk density
      (4) grain size
      (5) Atterberg limits
      (6) specific gravity
      (7) soil classification
   b. Chemical soil testing
      (1) volatile organic compounds
      (2) Toxic Characteristics Leaching Procedure (TCLP) chromium, nickel, lead, and arsenic

   (To maximize testing, tests shall be performed on most highly contaminated soils)

2. Preliminary study
   a. Testing of admixture formulations
      (1) permeability
      (2) unconfined compressive strength
      (3) (TCLP) analysis EPA SW 1300 chromium, nickel, lead, and arsenic

3. Select admixture formulation

B. Implement soil stabilization treatment
1. Install asphalt pad for equipment/soil staging which meets following specifications:
   a. 2-3% slope
   b. 4-inch perimeter berm
2. Excavate soils at designated areas - Exhibit D (to just above water table)

a. Perform verification sampling/analysis at perimeter of areas designated for excavation and treatment
   (1) Collect a minimum of 5 shallow (1-3 foot depth range) soil samples at each area
      (a) analyze for chromium, nickel, lead and arsenic content
b. Expand excavation at areas where metal content in perimeter samples exceeds:
   (1) 1960 mg/kg chromium
   (2) 2665 mg/kg nickel
   (3) 1500 mg/kg lead
   (4) 240 mg/kg arsenic

3. Soil stabilization treatment
   a. Apply selected admixture formulation to excavated soils

4. Verification sampling
   Perform verification analysis of soil for each 400 cubic yard treatment batch:
   a. TCLP analysis - pre-treatment/post-treatment chromium, nickel, lead, and arsenic
   b. Unconfined compressive strength
   c. Permeability

5. Peformance standards
   Treated soils shall meet the following performance standards:
   a. 95% reduction of chromium, nickel, lead, and arsenic as established by pre-treatment/post-treatment TCLP analysis
   b. Permeability
      1 x 10-6 cm/sec of less
   c. Unconfined compressive strength
      20 psi/2 day cure
      50 psi/28 day cure

6. Return treated soils meeting performance standards to excavations or Spent Acid Holding Pond
   a. 12 inch lifts
   b. compact soil - 90% maximum

C. Asphalt cap installation

1. Install asphalt cap as depicted in Exhibit d
   The asphalt cap shall meet the following specifications:
   a. 2 inch gravel subgrade
      lower 2.5 inches asphalt - IDOT Class I Type 3
      upper 2.5 inches asphalt - IDOT Class I Type 3
   b. 2-3% slope

D. Complete closure of CAMU and perform post-closure care for CAMU pursuant to 40 CFR 264.552(e) (4)

1. At a minimum, closure shall include:
   a. Decontamination of equipment
   b. Off-site disposal of decontaminat residuals

2. At a minimum, post-closure care shall include:
   a. Inspection of asphalt cap
   b. Groundwater monitoring
   c. Record keeping
   d. Implementation of Contingency Plan as appropriate.

Task III: Implement Corrective Measures Final Design

Draft and Final Designs for implementation of corrective measures shall be submitted in accordance with Section VIII of the Consent Order, and shall address the following elements:

A. Air Sparge/Soil Vapor Extraction (AS/SVE). **See attached air sparge/soil vapor extraction system design summary.**

1. Collect pre-design data as needed and perform pilot study and preliminary testing

2. Results of all testing and analysis of pre-design investigation (tables, laboratory reports, illustrations, discussion of results).

3. Location and construction details for
   a. Sparge wells
   b. SVE wells
   c. Monitoring wells for AS/SVE system
   d. Schematic for vapor treatment system

B. Groundwater Recovery System Operation

1. Performance standards

2. Monitoring of system
   a. Water level measurements
   b. Sampling and analysis
      (1) influent water
      (2) effluent water

C. Groundwater Monitoring Specifications

1. General monitoring program
   a. Monitoring well locations

b. Analytes
c. Sampling schedule

2, CAMU post-closure monitoring
a. Monitoring well sampling
At a minimum, monitoring well sampling shall include:
(1) one initial sampling - OBS-W
(2) annual sampling - MW-2, MW-5, MW-5D, MW-6, MW-7, MW-8
(3) analytes - chromium, nickel, and lead
b. Contingency Plan
(1) statistical analysis
(2) response sampling

D. Site Maintenance

1. Asphalt cap
a. Inspection schedule
b. Maintenance procedures

2. Chain link fence
a. Inspection schedule
b. Maintenance procedures

Quality Assurance/Quality Control

All soil and groundwater data shall be collected an analyzed in accordance with the approved Quality Assurance Project Plan dated March 1994 or, as applicable, the latest U.S. EPA-approved test method. ASTM standardized tests or U.S. EPA-approved test methods shall be used for physical soil testing. The same laboratories used for the RCRA Facility Investigation shall perform chemical analysis.

Health and Safety Plan

All work shall be performed in accordance with the Health and Safety Plan, supplemented as needed.

Air Sparge/Soil Vapor Extraction System Design Summary

Introduction

An air sparge/SVE system to provide source reduction in the source area of the plume was proposed as part of the recommended remedial corrective measure for this site, which was identified as alternative GW-2A in the CMS report. This alternative recommended that an air sparge/SVE pilot test be implemented in order to increase the reliability of the proposed full-scale treatment system. The air sparge/soil vapor extraction system design for the Techalloy Company site uses the results from the pilot tests along with data from the RI/FS and the CMS as a design basis.

Pilot Test Results Summary

Pilot test results indicate that the horizontal and vertical permeability of subsurface soils are approximately 37 darcies and 1.5 darcies, respectively, using data from the vertical vent resulting in a K_h/K_v, ratio of 24.7. Horizontal vent test results indicate a K_h of 147 darcies and a K_v of 2.0 darcies with a K_h/K_v, ratio of 73.5. The intrinsic air permeability estimate based upon the data from the vertical SVE test is a better estimate because the data fits the model assumptions better than the data from the horizontal SVE test. These values indicate high intrinsic permeability and highly preferential flow in the horizontal direction.

It is likely that vertical flow through the vadose zone is severely reduced, as indicated by the high K_h/K_v ratio for two possible reasons. The first is the less permeable topsoil and fill overlaying the site and the second is a concretized layer of fill 3 to 4 feet bgs (below ground surface) that extends across the site, both of which act like a cap. The concretized layer of fill is similar to that encountered underneath the former spent acid pond located along the northern border of the site. Based on the following rationale; the open nature of the site with few

obstructions, the shallow water table, the high permeability of the sand layer above the water table and the cap-like effect illustrated by the results of the SVE modeling, this site is ideal for horizontally configured SVE vents.

TCA, TCE, and PCE, the major contaminants in the soil and groundwater at this site, all have a vapor specific gravity greater than air and a specific gravity greater than water. Therefore, under equilibrium conditions, vapor phase TCA, for instance, present above the water table, tends to "sink" to the lower portion of the unsaturated zone. Due to its relative volatility, TCA can be readily stripped from groundwater utilizing air-sparging technology. However, due to the potential for volatilized TCA to remain near the potentiometric surface, vapor extraction points will be screened to intersect the water table in order to maximize removal of compounds via air sparging.

Based on pilot test results the effective air-sparging radius of influence was estimated at 30 feet with a 50-scfm injection flow rate. The pilot test results indicated that at this flow rate, TCA was effectively removed from groundwater. The lower test flow rate of 25 scfm resulted in a smaller radius of influence and the higher flow rate of 75 scfm showed no significant increase in influence and indicated some channeling may have occurred. Therefore, a nominal 50-scfm flow rate was recommended. Since the pilot test also indicated somewhat heterogeneous airflow through the saturated zone, the recommended separation distance of air sparge points is nominally 50 feet. This will allow some overlap (approximately 5 feet) and compensate for potential unequal influence radially from the sparge points. Due to the apparent anisotropic conditions present in the aquifer medium, the effective air sparge radius was calculated conservatively to ensure adequate influence over the area of concern.

Soil Vapor Extraction System Design

Based on results of pilot testing, vapor extraction wells will be constructed using a horizontal configuration with a screened interval of 40 feet exposed to the unsaturated zone. In order to maximize flow at the potentiometric surface and allow for fluctuations in water table elevation,

the pea gravel in the trench will extend from 1 foot into the aquifer to 2.5 feet above the aquifer. The SVE vent design calls for the bottom of the 6"diameter, 0.20-slot PVC screen to be 2.5 feet (30 inches) above the water table elevation. (828.5 feet msl). This will place the invert elevation of the screen nominally 5.5 feet below ground surface.

The design extraction flow rate per horizontal extraction vent is 200 to 250 scfm at 18 to 20 IWCG, respectively, for a 40-foot screen. According to the pilot test analysis it is estimated that a flow rate of 100 scfm will provide for a soil gas venting rate of one pore volume per day at a distance of 79 feet from the center of a 20 foot screen in the extraction trench. A 40-foot screened trench at an extraction rate of 250 scfm at 20 IWCG will provide a slightly greater radius of influence than 79 feet (as measured by pore volume exchange), a higher flow rate, better vapor capture, and was used as a basis for design of the full scale system.

The full-scale SVE system was designed with seven 45-foot trenches along a line roughly bisecting the identified on-site soil and groundwater VOC plume. System design flow rate is 1750 cfm, continuously, at approximately 36 IWCG of vacuum, including estimated piping and minor frictional losses. The SVE trenches were located to avoid the areas identified with heavy metals in the soils and minimize the amount of stabilization required during this phase of the remediation. The trenches will be installed in one continuous excavation operation. Continuous installation requires proper seal design and installation between the trench sections in order to avoid short-circuiting. A five-foot bentonite seal will be installed between each vent.

The equipment for the SVE system will consist of a flow control manifold, a water separator and a pressure blower. The flow control manifold assembly is made up of the individual 4-inch diameter vacuum vent lines or risers that come up through the concrete floor of the equipment building and connect to the 10-inch diameter header pipe that conveys the vapors to the water separator. Each riser will be fitted with a flow control valve, an averaging pitot tube flow meter, a vacuum gauge and sample port. The header will be fitted with a vacuum gauge. The water separator is connected between the blower and the header to remove any water that may become entrained in the vapor stream. A transfer pump will automatically drain the water separator to a

500-gallon storage tank. The blower will discharge the vapor stream through a silencer and stack to the atmosphere. The stack will be fitted with a pitot tube type air flow meter that is equipped with an electronic sensor to transmit both instantaneous and total flow to the programmable logic controller (PLC).

Based on calculated mass removal rates during the combined air sparge/SVE pilot test, and estimates of VOC mass residuals in the soil and groundwater (previously submitted to EPA and estimated at 1,800 Kg in soil and 915 Kg in groundwater) air emissions will be able to meet current IEPA air discharge permit requirements without off-gas treatment equipment will be needed to comply with air quality standards during operation of the full-scale system.

Field testing and sampling for laboratory analysis will be conducted during system start-up. All wellhead sampling and data acquisition can be done inside the equipment building at the manifold sample port for each vacuum line, allowing year round operation, since many field instruments cannot operate below 32° F. Parameters will include vacuum/pressure, temperature, flow rate, VOC concentration, oxygen concentration, CO2, and others as deemed appropriate. Field sampling of VOCs will be carried out with a combined PID/FID portable unit. Lab samples for VOC's and field data will be collected from discharge of the SVE system. Discharge stack laboratory sample frequency will be one per week for one month of operation; monthly thereafter or as indicated by air discharge permit requirements.

Air Sparging System Design

Based on the results of pilot testing, sparge well construction design will consist of a 2-inch diameter, 3-foot long, 0.10-inch stainless steel screen connected to a 2-inch diameter black steel riser. The sparge well points placed below the water table at the depth of the interface between the sand and the silty clay should adequately allow for effecting injection of air into the saturated zone. The depth of the screened portion of the sparge point should be at the desired depth of cleanup. The screen depth and the desired depth for cleanup is therefore the depth necessary to reach the remediation goals. In the case of this site, with DNAPLs being the primary

constituents of concern, the assumption has to be made that the entire aquifer is impacted down to the depth of the clay/sand interface and that concentrations potentially could be high at the interface.

This depth could range from 32 to 88 feet bgs, (according to boring log data from the RI/FS) depending upon the location of the clay layer at the bottom of the sand aquifer. Subsequent to the pilot test, two borings that were advanced to 65 feet on the North side of the site (down gradient) along the southern edge of the waste acid pit did not locate the clay interface at the bottom of the sand aquifer. Consequently, the depth to the clay confining layer could range from 65 to 88 feet or more in the area to be treated and injection pressures may vary from 10.5 to approximately 36 psi, including piping losses, but not including manifold losses. The required design of the compressed air delivery system to be flexible enough to cover the maximum possible injection pressure range that could be expected across the site. The exact depth of the sparge points will be determined in the field at the time of installation.

The pilot test results indicated that to effectively recover compounds removed from the groundwater via air sparging, and control vapor migration, a vapor extraction to air sparge flow rate ratio of greater than 4 to 1 is needed. Given the flow rates recommended above, the ratio would be approximately 5 to 1 for a 40-foot horizontal vent at 250 scfm and a sparge point at 50 scfm.

In order provide effective sparging influence in the targeted treatment zone and volume of the aquifer, a total of 17 sparge wells will be installed at depths that may vary from 32 to 88 feet bgs. Sparge wells were spaced closer together at the shallow, down gradient end of the treatment zone, 40 to 50 feet apart, because of the greater volume of groundwater requiring treatment due to the increased depth to the confining clay layer in this area. In the source area most heavily impacted by VOC's, sparge wells were also spaced closer together, 40 feet or less, to provide a higher air to water ratio for more effective stripping of the VOCs.

In order in supply air efficiently to the sparge wells, they were split into two groups, shallow and

deep. The deep sparge wells were defined as the 9 wells located where the combined static head at the clay/sand interface, entrance and line pressure losses were greater than 15 psi and the shallow wells less than 15 psi. The air for each group is supplied by two separate systems comprised of an air compressor and flow control manifold. Each group of sparge wells is supplied by the type of compressor that can deliver air most efficiently for that particular pressure range on a continuous basis. Due to the highest potential pressure being slightly greater than 36 psi the optimal type of compressor for this application is an oil-less, two-stage air rotary screw compressor. For the grouping under 15 psi, an oil-less, positive displacement blower is optimal for the flow rate required. The manifolds for each system are the same.

The flow control manifold consists of the header pipe and the control valves, fittings and sensors on each of the individual air lines leading to the air sparge wells. Each airline is fitted with a check valve, electric solenoid valve, throttle valve, rotameter and pressure gauge. The header pipe from each compressor will be equipped with vortex shedding totalizing flow meter connected to the PLC, check valve and pressure gauge.

The air sparge/SVE system will be controlled by a PLC located within a separate instrument room inside the equipment building. The PLC will monitor and control all functions of the system. These include; vacuum blower, PD blower, rotary screw compressor, SVE system vapor flow rate, air sparge systems flow rates, air sparge manifold solenoid valves, transfer pump, motor cycles and run time, and all alarm conditions.

The PLC will be interconnected with an auto dialer to call and annunciate various alarm conditions. The SVE system will be interlocked with both sparge systems such that if the SVE system is not functioning within normal ranges the sparge systems will be shut down. Water level in the aquifer will be monitored via pressure transducers in three monitoring wells and all systems will be shut down if levels exceed horizontal SVE screen elevation. This provision is necessary because of observed seasonal flooding in the area and the shallow water table. Other alarm conditions include; motor high temperature, compressor high pressure and temperature, knock-out tank and storage tank high water, SVE low air flow, intercooler high temperature and

sump high level.

The nine deep air sparge wells will be divided into groups of three wells of similar depth. Compressed air will be delivered sequentially to each of the three groups. The PLC can be programmed to deliver 150 cfm of air to the first set of three wells for a period of four hours, then open the next set of three solenoid valves for an overlapping period of 15 minutes. This will allow airflow to become established in the next set of sparge wells making a smooth transition of pressure and avoiding possible deadheading of the compressors, prior to shutting off air to the first group of wells. Each deep air sparge well will operate for a total of approximately 8 hours per day at 50 cfm. The same sequencing arrangement will be implemented for the eight shallow sparge wells, with 200 cfm being delivered to four wells at four-hour intervals. The air delivery rate per day to the shallow wells is greater because this area has higher concentrations of the contaminants of concern (COCs). Each shallow air sparge well will operate for approximately 12 hours per day at 50 cfm. The SVE system will operate continuously at 1750 cfm and the air sparge system will be injecting 350 cfm of air resulting in a 5 to 1 extraction/injection ratio.

Sequencing the operation of the sparge systems has several advantages. It significantly reduces the size and horsepower of the compressed air systems and provides better distribution of air within the aquifer. The system has the flexibility to maintain the optimal dissolved oxygen concentration in the groundwater plume to promote any natural aerobic biodegradation of the COCs that may be occurring and to deliver air at a rate that will provide instu-air stripping of the COCs.

D3

From: MICHAEL VALENTINO
To: KLINE-JACQUELINE
Date: 2/9/99 6:07pm
Subject: Techalloy remediation cost -Forwarded

Jacqueline:

Attached is the CMS cost provided by Weston's engineer, Carlos Serna. As you can see, the total is a little under $3.1MM. This cost does include a 7% inflation factor for net present worth calculations for annual expenditures such as operation and maintenance of the SVE and groundwater extraction systems. I spoke with Carlos just now and he did admit that the capital costs date to August 1997, and no adjustments have been made. The cost work-ups do include engineering and contingencies already. However, given the passage of time, and in lieu of running calculations using pricing indices, I suggest adding 10% to 15% to this total, which would bring us to roughly $3.37MM to $3.52MM. Let's go with $3.5MM for the CMS cost unless you have concerns you'd like to discuss.

Also, Carlos asked for the opportunity to review the CMI Order one last time. Can you please send me a copy via e-mail? I won't tranmit the document electronically, but I can overnight him a hard copy.

I believe I came across the exhibits you asked me about, and I will walk them up tomorrow. Where exactly do you sit?

Lastly, assuming we've now addressed everything, what is your expectation for having the Order signed by both parties?

Looking forward to meeting you in person, after having exchanged several e-mails.

Thank you,
Mike

CC: LITTLE-PAUL

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

18 November 1998

ILD 005 178 975

Mr. William Buller
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No.: 01989-031-001

Re: Notification for Start-up of Groundwater Extraction System
Techalloy Company Incorporated

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON) on behalf of the Techalloy Company (Techalloy) is notifying the U.S. Environmental Protection Agency Region V that the expanded groundwater recovery system is operational. Currently, both groundwater extraction wells are capable of pumping groundwater in excess of 700 gallons per minute (gpm). Single well operations have increased flows up to 440 gpm. Techalloy and WESTON continue to conduct start-up activities and are finalizing PLC component installation at the existing control panel. However, these activities do not prevent the operation of the extraction and treatment system.

The last permit to be received by WESTON was from the McHenry County Highway Department on 9 July 1998. According to the letter from the U.S. EPA received 9 December 1997 Techalloy has been allowed 140 days to install the upgraded groundwater recovery system. According to these dates Techalloy was to have the upgraded groundwater extraction system operational by 26 November 1998. Although we state that the current system is operational the PLC additions to the control panel are to be completed by this Friday, 20 November 1998.

WESTON is anticipating that the groundwater pumping test for the newly installed extraction well will be conducted on 2 and 3 December 1998. If your schedule allows, we look forward to you conducting a site visit during this period.

G:[redacted]KITTOS\SERNA\BULLERN18.DOC

If you have any questions or require any additional information please do not hesitate to contact me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk

cc: Kevin, Lesko, IEPA
Henry Lopes, Techalloy
Dave Williams, Techalloy
Scott Carr, Techalloy

Roy F. Weston, Inc.
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16 November 1998

ILD 005 178 975

D.4.1

Mr. William Buller
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, IL 60604

Re: Shallow Residential Water Wells
Techalloy Company, Inc., Union, Illinois

Dear Mr. Buller:

During the past few weeks, the U.S. EPA and WESTON have had conversations regarding residential well sampling and connection of properties to a public water supply within the Villate of Union, Illinois. Currently, Techalloy is sampling six residential wells on a semi-annual basis. These wells include the following:

- Mr. Clarence Wilkins
- Mr. Dan Rudy
- Mr. Roger Ball
- Mr. Richard Swanson
- Ms. Linda Vandello
- Ms. Darlene Jensen

The U.S. EPA and WESTON have discussed the option of providing certain homeowners within the Village of Union with a public water supply, and potentially eliminating certain properties from the semi-annual groundwater sampling requirement. The U.S. EPA received a telephone call from a resident of the Village of Union requesting that the homeowners within Union that are utilizing shallow groundwater as a potable source of water be connected to the City water supply. Techalloy and WESTON discussed this matter and propose the following resolution.

Currently within the Village of Union five residents solely utilize shallow groundwater as a potable source of water. These residents include: Mr. Clarence Wilkins, Mr. Dan Rudy, Mr. Roger Ball, Mr. Kurt Manning and Ms. Linda Vandello. Techalloy proposes to connect these five residents to the public water supply. In addition, Techalloy proposes that the shallow water wells be closed and disconnected so that the wells can no longer be utilized as a potable source of water. Those homeowners that do not agree to allow Techalloy to close their shallow well will continue to be sampled on a semi-annual basis.

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As discussed with the U.S. EPA, some degree of monitoring of the lateral edges of the groundwater plume will be required. In order to satisfy this requirement Techalloy proposes, at a minimum, to continue semi-annual groundwater sampling of Ms. Linda Vandello's well and Ms. Darlene Jensen's well. In addition, Techalloy will include in the semi-annual groundwater sampling any of the shallow wells that WESTON is unable to close or abandon.

It should be clarified that the shallow wells discussed in this letter have been sampled for the past five years and have not confirmed concentrations of volatile organic compounds above unacceptable levels. Techalloy has agreed to connect residences to the public water supply as a further demonstration of Techalloy's willingness to cooperate with the Village of Union. Techalloy trusts that the proposed resolution is acceptable to both the U.S. EPA and the residents of Union, Illinois.

If you have any questions or require any further clarification, please do not hesitate to contact me.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk

cc: Henry Lopes, Techalloy
Dave Williams, Techalloy
Scott Carr, Techalloy
Jack Thorsen, WESTON

Stick postage stamps to article to cover First-Class postage, certified mail fee, and charges for any selected optional services *(See front).*

1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached, and present the article at a post office service window or hand it to your rural carrier *(no extra charge).*

2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach, and retain the receipt, and mail the article.

3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.

4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.

5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.

6. Save this receipt and present it if you make an inquiry.

PS Form **3800**, April 1995 *(Reverse)*

P 140 671 318

DRE 1 of 1

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Mr. Carlos Serna	
Street & Number 3 Hawthorne Parkway Suite 400	
Post Office, State, & ZIP Code Vernon Hills, IL 60061	
Postage	$ .32
Certified Fee	1.35
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.10
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$ 2.77
Postmark or Date	

PS Form 3800, April 1995

CHICAGO IL LOOP STA DEC 1 1995

3 Bulle

P 140 675 212

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

DEC-9 T

Sent to Mr. Henry Lopes	
Street & Number 370 Franklin Turnpike	
Post Office, State, & ZIP Code Mahwah, New Jersey 07430	
Postage	$ .32
Certified Fee	1.35
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.10
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$2.77
Postmark or Date	

CHICAGO IL LOOP STA
DEC 20 1997

B. Bullock

PS Form 3800, April 1995

Stick postage stamps to article to cover First-Class postage, certified mail fee, and charges for any selected optional services *(See front).*

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5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.

6. Save this receipt and present it if you make an inquiry.

PS Form **3800**, April 1995 *(Reverse)*

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD DRE-(9-J)
77 W. JACKSON BLVD.,
CHICAGO, IL 60604

B. Buller

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Henry Lopes
Techalloy Company, Inc,
370 Franklin Turnpike
Mahwah, New Jersey
07430

4a. Article Number

P-140-675-212

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

12/16

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*

X

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Bhooma Sundar
U.S.C.P.A,
Region 5, M/C DRE-9J
77, W. Jackson Blvd,
Chicago, IL 60604

10

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Scott Carr
Environmental Coordinator
Pechaloy Company Inc
6509 Olson Road,
P.O. Box 423
Union, IL 60180-0423

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* Maria Rivera

B. Date of Delivery 2-27-03

C. Signature
x Maria Rivera

☐ Agent
☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7001 0320 0006 0176 7448

PS Form 3811, March 2001 Domestic Return Receipt 102595-01-M-1424

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

PM

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD DRE-9J
77 W. JACKSON BLVD.,
CHICAGO, IL 60604

B. Beller

10

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Edwin C. Badowski, P.E.
Manager, Permit Section
Bureau of Land
IEPA
1021 N. Grand Ave.,
Springfield, IL 62702

4a. Article Number

P-140-783-861

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*

X

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994

Domestic Return Receipt

Stick postage stamps to article to cover First-Class postage, certified mail fee, and charges for any selected optional services *(See front).*

1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached, and present the article at a post office service window or hand it to your rural carrier *(no extra charge).*

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5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.

6. Save this receipt and present it if you make an inquiry.

PS Form **3800**, April 1995 *(Reverse)*

P 140 783 861

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

DRF-7

Sent to Mr. Edwin C. Bakowski, Pr.	
Street & Number 1021 N. Grand Ave.,	
Post Office, State, & ZIP Code Springfield, IL 62702	
Postage	$ .78
Certified Fee	1.35
Special Delivery Fee	
Restricted Delivery Fee	1.10
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$ 2.77
Postmark or Date	

CHICAGO IL 60607 STA

B. Bailey

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr: Carlos Serna
Roy F. Weston, Inc
Suite 400
3 Hawthorne Parkway
Vernon Hills, IL 60061-1450

4a. Article Number

P-140-783-917

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Theresa Trotter

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD DE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604
B. Buller

10

s your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Henry Lopes
Techalloy Company, Inc.,
370 Franklin Turnpike
Mahwah, New Jersey 07430

4a. Article Number
P-140-783-916

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
11-16-98

5. Received By: *(Print Name)*
J. Goldblum

6. Signature: *(Addressee or Agent)*
X

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form 3811, December 1994 Domestic Return Receipt

UNITED STATES POSTAL SERVICE

PATERSON, NJ 075
PM
NOV
1998

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

● Print your name, address, and ZIP Code in this box ●

U.S. EPA
WPTD DE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604
B. Buller

10

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD DE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604

B.
Buller

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Is your RETURN ADDRESS completed on the reverse side?

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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, IL 60061-1450

4a. Article Number

P-140-893-017

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

10/22/98

5. Received By: *(Print Name)*

Kim Van Hoogen

6. Signature: *(Addressee or Agent)*

X Kim Van Hoogen

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD DE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604

B. Buller

10

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

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- Complete items 3, 4a, and 4b.
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- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Carlos Serna
Roy F. Weston, INC
Suite 400
3 Hawthorne Parkway
Vernon Hills, IL 60061-1450

4a. Article Number
P-140-783-944

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
9-25-98

5. Received By: *(Print Name)*
THERESA TOEDTER

6. Signature: *(Addressee or Agent)*
X Theresa Toedter

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811,** December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD DE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604

B. Buller

Is your RETURN ADDRESS completed on the reverse side?

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- Complete items 3, 4a, and 4b.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Henry Lopes
Techalloy Co., Inc.,
370 Franklin Turnpike
Mahwah, New Jersey 07430

4a. Article Number

P 140-893-018

4b. Service Type

☐ Registered ☐ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

OCT 26 1998

MAHWAH NJ
USPS 07430

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*

X

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

● Print your name, address, and ZIP Code in this box ●

U.S. EPA
WPTD DE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604
B. Buller

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey
07430

4a. Article Number
P-140-783-930

4b. Service Type
☐ Registered
☐ Express Mail
☐ Return Receipt for Merchandise
☑ Certified
☐ Insured
☐ COD

5. Received By: (Print Name)
S. Goldblum

6. Signature: (Addressee or Agent)
X

7. Date of Delivery
8/28/98

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD
DRE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604

M1

B. Biller

.i 0

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Henry Lupsa
Techalloy Company, Inc.,
370 Franklin Turnpike
Mahwah, New Jersey
07430

4a. Article Number

P-140-675-215

4b. Service Type

☐ Registered ☐ ~~Certified~~
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

11/10

5. Received By: *(Print Name)*

6. Signature *(Addressee or Agent)*

X [signature]

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811,** December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD
DRE-9J
77 W. JACKSON BLVD.
CHICAGO, IL 60604

M1

B. Buller

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- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Carlos Serna
Roy F. Weston, Inc.,
Suite 400
1 Hawthorne Parkway
Vernon Hills, IL 60061-1450

4a. Article Number

P-140-675-216

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

11-10

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*

X Eileen [illegible]

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

3 November 1998

Mr. William Buller
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No. 01989-031-001

Re: Techalloy Residential and Downgradient Well Sampling and Analysis

Dear Mr. Buller:

The semi-annual residential well sampling and the quarterly downgradient groundwater sampling were last conducted in August 1998. During that sampling event WESTON found it necessary to temporarily change laboratories. RECRA Laboratory, previously known as WESTON Environmental Matrics, is the laboratory presented in the QAPP and is the laboratory approval by the U.S. EPA. During the summer months of 1998, RECRA was backlogged with samples and was unable to analyze samples in a reasonable turn-a-round time. The turn-a-round time for reporting was eight weeks. During this one sampling event WESTON engaged the services of Great Lakes Analytical. We have provided for your review a copy of Great Lakes Analytical Quality Assurance Program documentation.

The problems RECRA was experiencing were a result of both lost of staff and a large influx of samples during the summer. RECRA has ensured WESTON that these problems have been solved and they are back to two to three week standard turn-around.

If you have any comments or questions regarding this issue, please do not hesitate to call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk

Enclosure
cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy

OCT 19 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

DE-9J

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union, Illinois
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

The United States Environmental Protection Agency (U.S. EPA) is in receipt of the August, 1998 private well sampling results. The sampling results indicate that the analysis was performed by Great Lakes Analytical Laboratory. The U.S. EPA approved Private Well Sampling Plan (PWSP) states that "Weston-Gulf Coast Laboratories (subsequently changed to Weston Environmental Metrics) will perform all chemical analysis of the private well groundwater samples". The PWSP also states that "if Weston should assign an alternative laboratory to perform some or all of the chemical analyses, an addendum to the RFI (RCRA Facility Investigation) Quality Assurance Project Plan (QAPP) will address the analytical requirements and specifications of the chosen laboratory". U.S. EPA has not received an addendum to the Techalloy Facility RFI QAPP.

Within 15 days of receipt of this letter, Techalloy shall submit to U.S. EPA an explanation for the change in laboratories and how it intends to correct this matter.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch

D. 3. 1

NOV 12 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DE-9J

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union, Illinois
Groundwater Recovery System Upgrade
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

In my October 19, 1998, letter to you, it was noted that the analyses of the August 1998 Private well samples were performed by Great Lakes Analytical (GLA). Weston Environmental Metrics (now RECRA Laboratory) is the laboratory specified in the Techalloy Facility Quality Assurance Project Plan. Your November 3, 1998, response to this matter stated that GLA was utilized for the August samples because RECRA Laboratory, due to a backlog of samples, was experiencing long turn around times. Your response also provided a copy of GLA's Quality Assurance Program, and advised that RECRA's turn around time had been normalized.

The response is deemed acceptable by U.S. EPA. All future analysis for the Techalloy Facility shall be performed by RECRA.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, AT Kearney

D.3.1

OCT 19 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DE-9J

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union, Illinois
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

The United States Environmental Protection Agency (U.S. EPA) is in receipt of the August, 1998 private well sampling results. The sampling results indicate that the analysis was performed by Great Lakes Analytical Laboratory. The U.S. EPA approved Private Well Sampling Plan (PWSP) states that "Weston-Gulf Coast Laboratories (subsequently changed to Weston Environmental Metrics) will perform all chemical analysis of the private well groundwater samples". The PWSP also states that "if Weston should assign an alternative laboratory to perform some or all of the chemical analyses, an addendum to the RFI (RCRA Facility Investigation) Quality Assurance Project Plan (QAPP) will address the analytical requirements and specifications of the chosen laboratory". U.S. EPA has not received an addendum to the Techalloy Facility RFI QAPP.

Within 15 days of receipt of this letter, Techalloy shall submit to U.S. EPA an explanation for the change in laboratories and how it intends to correct this matter.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA

bcc: Jacqueline Kline, ORC

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
MD 10/14/98					

?/25/98 file copy to RC

(c:\Techa\let.198)

SEP 22 1998

DE-9J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union, Illinois
Groundwater Recovery System Upgrade
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

The United States Environmental Protection Agency's (U.S. EPA) letter of August 6, 1998, requested that Techalloy provide pumping rate records for the Interim Measures groundwater recovery system, and that the pumping rates be provided in subsequent progress reports. The data Techalloy provided showed monthly pumping rates ranging from 200 to 340 gallons per minute (gpm) for the past seven months. In taking into account the approximate down times noted, U.S. EPA calculated monthly pumping rates ranging from 270-340 gpm. In any case, pumping rates were considerably less than the 350-380 gpm initially proposed for the recovery system. Section VI.A.4. of the Consent Order states that Interim Measures shall consist of groundwater pumping so as to effectively mitigate the impact of contaminated groundwater on actual and potential receptors.

U.S. EPA understands that some down time will be incurred to perform maintenance and occasional repairs. However it appears that excessive down time has occurred, and that the recovery system had difficulty in sustaining the desired pumping rate under normal operating conditions. Currently, the groundwater recovery system is undergoing an upgrade so to expand the capture zone of the recovery system. It is critical that the entire system is constructed so that the pumping rate needed to properly control the contamination can be continuously sustained.

Subsequent progress reports shall provide the pumping rate for each period of continuous operation, adjustments to the pumping rate, and note the date and time when operation was discontinued and restarted.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA

SEP 15 1998

Mr. Edwin C. Bakowski DE-9J
Manager, Permit Section
Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue
Springfield, Illinois, 62702-3998

Re: Corrective Action
Techalloy Company, Inc.
Union, Illinois
ILD 005 178 975

Dear Mr. Bakowski:

The United States Environmental Protection Agency (U.S. EPA) is currently developing a new Consent Order requiring Techalloy to implement the corrective action remedy selected by U.S. EPA. The specifics of the selected remedy were provided in the Facility Final Decision/Response to Comments document. A copy of this document was sent to you.

Three hazardous waste management units at the Facility are undergoing closure, and implementation of the remedy and closure of the units appear to be closely related. On May 15, 1998, Techalloy submitted to your Agency a Closure Documentation Report for the waste management units. Should your Agency determine that closure of the units requires additional work to that of the remedy implementation, Techalloy and U.S. EPA should be informed of such determination so that the closure and corrective action can be coordinated.

It is anticipated that the new Order as finalized will require Techalloy to initiate the remedy implementation by March or April of 1999. The anticipated start date should provide sufficient time for your Agency to establish the closure criteria and work requirements. U.S. EPA will make every effort to coordinate the corrective action with closure of the units. However, the timely

implementation of corrective action for site remediation is a high priority with U.S. EPA, and the Agency intends to proceed with the schedule as specified in the Order. An initial draft of the new Order was E-mailed to Kevin Lesko recently.

If you have any questions, please call William Buller at (312) 886-4568.

Sincerely,

Lorna M. Jereza, P.E., Chief
IL/IN Section
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division

cc: Kevin Lesko, IEPA

bcc: Karen Peaceman, ORC

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
8/6/98			9/15/98		

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

21 August1998

D.3.6

ILD 005 178 975

Mr. William Buller
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No. 01989-031-001

Re: Techalloy
Discharge Monitoring Reports (DMRs)

Dear Mr. Buller:

Please find enclosed the Discharge Monitoring Reports (DMRs) for the Techalloy Company Inc. The DMRs provided include the last seven months of monitoring. These reports present the concentrations of monitored constituents and the average discharge quantities. Also included with this letter is a graph illustrating discharge rates in millions of gallons per day for the last seven months.

These reports indicate that the constituents monitored are consistently below the maximum discharge limits. The discharge quantities indicated in the reports vary from 289,000 gallon/day (gpd) to 490,000 gpd. The lowest value of 289,000gpd was recorded in May 1998. During this month lightening caused a shut down of the system. The replacement of damaged equipment caused a down time of approximately 12 days. The months January, June, and July experienced an accumulative down time during each month of three to four days caused by surge tank backups. The plant operator balances the pumping rate of the influent pump, to avoid a back up in the surge tank. If a back up occurs the extraction well is automatically shut down and an alarm setoff that will dial the operators beeper number. The operator then manually resets the system.

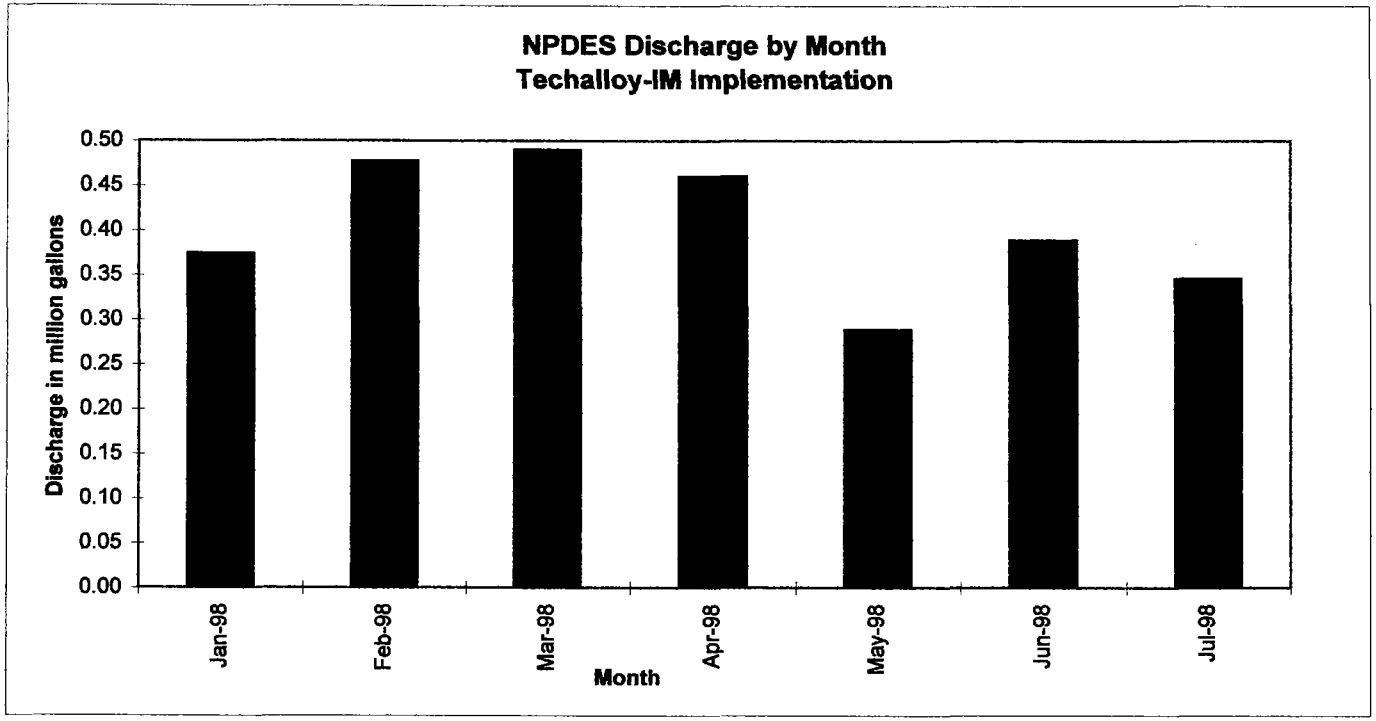
If you have any comments or questions regarding the enclosed information, please do not hesitate to call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

Attachment
cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Jack Thorsen, WESTON


NPDES Discharge by Month
Techalloy-IM Implementation
Discharge in million gallons
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Jan-98
Feb-98
Mar-98
Apr-98
May-98
Jun-98
Jul-98
Month

PERMITTEE NAME AND ADDRESS (Include Facility Name/Location if Different)
NAME T[redacted]LOY COMPANY, INC.
ADDRESS GLSON AND JEFFERSON ROADS
UNION IL 60180

FACILITY T-CHALLOY COMPANY, INC.
LOCATION UNION IL 60180
ATT : MAINTENANCE SUPERVISOR

NATIONAL POLLUT[redacted]ISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHA[redacted]MONITORING REPORT (DMR)

(2-16)	(17-19)
IL0070408	001 0
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	[illegible]	01	01	TO	[illegible]	01	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

TREATED GROUNDWATER
(SUBR 02)
F - FINAL
MINOR
EFFLUE
*** NO DISCHARGE [ ] ***

Form [redacted]oved.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
[illegible]	SAMPLE MEASUREMENT	******	******			******		(12)		285	GR
[illegible] 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	*** ***	8.2 6.0 MO MIN	******	8.2 9.0 MO MAX	SU		NCE/ MONTH	GRAB
1,1,1-TRICHLORO- ETHANE [illegible] 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.2 DAILY MX	MG/L		NCE/ MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT [illegible] 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT			(03)	******	******	******			105	
	PERMIT REQUIREMENT	274 REPORT MO AVG	274 REPORT DAILY MX	MGD	******	******	******	*** ****		DAILY	STIMA
[illegible] CHLOROETHENE [illegible] 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		NCE/ MONTH	GRAB
TETRACHLOROETHENE [illegible] 1 0 0 EFFLUENT GROSS VALUE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		NCE/ MONTH	GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
SCOTT CARR/ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)		815-923-2131		98	1	31
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME AND ADDRESS *(Include Facility Name/Location if Different)*
NAME [illegible]
ADDRESS [illegible] IL 60120

FACILITY [illegible] COMPANY, INC.
LOCATION [illegible] IL 60120
[illegible] : MAINTENANCE SUPERVISOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHARGE MONITORING REPORT *(DMR)*

(2-16)	(17-19)
IL0077108	001 0
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	[illegible]	02	01	TO			
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

TREATED GROUNDWATER
(SUPP 02)
P - FINAL
MINOR
REFLUE
*** NO DISCHARGE [ ] ***

Form [illegible]oved.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
	SAMPLE MEASUREMENT	******	******		8.3	******	8.3	(12)		285	GR
[illegible] 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	** ** ****	6.0 MO MIN	******	9.0 MO MAX	SU		MONTH	GRAB
1,1-DICHLORO-ETHANE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
[illegible] 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.2 DAILY MX	MG/L		MONTH	GRAB
[illegible] IN COMPUTER OF THE TREATMENT PLANT	SAMPLE MEASUREMENT	.477	.477	(03)	******	******	******			105 DAILY	[illegible]
[illegible] 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	******	******	******	**** ****			
[illegible]	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
[illegible] 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		MONTH	GRAB
[illegible]	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
[illegible] 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		MONTH	GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
[illegible] CARR/ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	[signature]	815-9232131	98	3	1
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME TEC[redacted]LOY COMPANY, INC.

ADDRESS O[redacted] AND JEFFERSON ROADS
UNION IL 60180

FACILITY TECHALLOY COMPANY, INC.

LOCATION UNION IL 60180

ATTN: MAINTENANCE SUPERVISOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHAR[redacted]MONITORING REPORT *(DMR)*

PERMIT NUMBER (2-[redacted])	DISCHARGE NUMBER (17-19)
IL0077[redacted]	001 C

PRIMARY DISCHARGE
(CODE 02)
F - FINAL
MINOR
PUBLIC
*** NO DISCHARGE [ ] ***

Form Approved.
OMB [redacted]2040-0004
Appr[redacted] expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	03	01	TO	98	03	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
PH	SAMPLE MEASUREMENT	******	******		8.2	****** 8.2	8.2	(12)		285	GR
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	** ***	6.0 NO MIN	******	9.0 NO MAX	SU		5DY/ MONTH	
1,1,1-TRICHLORO-ETHANE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
34506 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.2 DAILY MX	MG/L		5CY/ MONTH	
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	.390	.490	(03)	******	******	******			105	
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT NO AVG	REPORT DAILY MX	MGD	******	******	******	*** ****		ALL	
TETRACHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78389 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		5CY/ MONTH	
TRICHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78391 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		5CY/ MONTH	
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
SCOTT CARR/ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	815 923 2131		98	4	7
TYPED OR PRINTED		AREA CODE	NUMBER	YEAR	MO	DAY
		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT				

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*
NAME TE[redacted]LOY COMPANY, INC.
ADDRESS OL[redacted] AND JEFFERSON ROADS
UNION IL 60180

FACILITY TECHALLOY COMPANY, INC.
LOCATION UNION IL 60180
ATTN: MAINTENANCE SUPERVISOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHAR[redacted]ONITORING REPORT *(DMR)*

PERMIT NUMBER (2-1[redacted])	DISCHARGE NUMBER (17-19)
IL0[redacted]	[redacted]

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	94	04	01	TO	95	04	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB [redacted]040-0004
Appro[redacted] Expires 05-31-98

[redacted]
F - FINAL

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
PH	SAMPLE MEASUREMENT	******	******		8.1	******	8.1	(12)		285	GR
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	**** ****	6.0 NO MIN	******	9.0 NO MAX	SU		MONTHLY	GRAB
1,1,1-TRICHLORO-ETHANE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
34506 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.2 DAILY MX	UG/L		MONTHLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	.460	.460	(03)	******	******	******			105	
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	******	******	******	**** ****		DAILY	[illegible]
TETRACHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285 285	GR
78389 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	UG/L		MONTHLY	GRAB
TRICHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	0.001	(19)		285	GR
78391 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	UG/L		MONTHLY	GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
SCOTT CARR/ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	[illegible]	8159232131	98	5	1
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

NAME/ADDRESS (Include Facility Name/Location if Different)
NAME TE[redacted]LOY COMPANY, INC.
ADDRESS OL[redacted] AND JEFFERSON ROADS
UNION IL 60180

FACILITY TECHALLOY COMPANY, INC.
LOCATION UNION IL 60180
ATTN: MAINTENANCE SUPERVISOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
IL 0070[redacted]	001 0

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	05	01	TO	99	05	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB No. [redacted]40-0004
Approved Expires 05-31-98

TEXTILE(SEC INDUS.
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P - FINAL
MINOR
NPDES
*** NO DISCHARGE | | ***

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		QUANTITY OR LOADING (3 Card Only) AVERAGE (46-53)	MAXIMUM (54-61)	UNITS	QUANTITY OR CONCENTRATION (4 Card Only) MINIMUM (38-45)	AVERAGE (46-53)	MAXIMUM (54-61)	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
PH	SAMPLE MEASUREMENT	******	******		8.1	******	8.1	(12)		265	GR
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34506 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.[illegible] DAILY MX	MG/L		MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	.289	.289	(03)	******	******	******			105	GR
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT NO AVG	REPORT DAILY MX	MGD	******	******	******	**** ****		DAILY	[illegible]
TETRACHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78389 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		MONTH	[illegible]
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	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
SCOTT CARR/ ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	815-923-2131		99	06	01
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
Flow Rate Down Do To Maintenance.

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME TE[redacted]LOY COMPANY, INC.

ADDRESS OL[redacted] AND JEFFERSON ROADS
UNION IL 60180

FACILITY TECHALLOY COMPANY, INC.

LOCATION UNION IL 60180

ATTN: MAINTENANCE SUPERVISOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)*
DISCHAR[redacted]ONITORING REPORT *(DMR)*

(2-1[redacted])	(17-19)
IL0070008	001 0
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	06	01	TO	98	06	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

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OMB [redacted]040-0004
Appro[redacted] expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
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1,1,1-TRICHLORO-ETHANE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
34506 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.2 DAILY MX	MG/L		MONTHLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	.389	.369	(03)	******	******	******			105	CR
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT MO AVG	REPORT DAILY MX	MGD	******	******	******	**** ****		DAILY	[illegible]
TETRACHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78389 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		MONTHLY	GRAB
TRICHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78391 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		MONTHLY	GRAB
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
SCOTT CARR/ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*		815 9232131	98	07	01
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME TE[redacted]OY COMPANY, INC.
ADDRESS OL[redacted] AND JEFFERSON ROADS
UNION IL 60180

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARG[redacted]ONITORING REPORT (DMR)

Form Approved.
OMB N[redacted]40-0004
Approv[redacted]xpires 05-31-98

(2-16)	(17-19)
IL0[redacted]	001 0
PERMIT NUMBER	DISCHARGE NUMBER

TREATMENT FACILITY
(SEE 40)
P - FINAL
MINOR
PRIMARY
*** NO DISCHARGE [ ] ***

FACILITY TECHALLOY COMPANY, INC.
LOCATION UNION IL 60180
ATTN: MAINTENANCE SUPERVISOR

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	93	07	01	TO	93	07	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
PH	SAMPLE MEASUREMENT	******	******		8.2	******	8.2	(12)		285	GR
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	**** ****	6.0 NO MIN	******	9.0 NO MAX	SU		NCE/ MONTH	GRAB
1,1,1-TRICHLORO-ETHANE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
34506 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.2 DAILY MX	MG/L		NCE/ MONTH	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	.346	.346	(03)	******	******	****** NON-REPORT			105	
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT NO AVG	REPORT DAILY MX	MGD	******	******	******	**** ****		DAILY	
TETRACHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78389 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		NCE/ MONTH	GRAB
TRICHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	NON-DETECT	(19)		285	GR
78391 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	0.005 DAILY MX	MG/L		NCE/ MONTH	GRAB
	SAMPLE MEASUREMENT										
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	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE	DATE		
SCOTT CARR/ENVIRONMENTAL COORDINATOR	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	815-923-2131	98	8	03
TYPED OR PRINTED		AREA CODE / NUMBER	YEAR	MO	DAY
		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

DATE: [illegible]

SUBJECT: Corrective Action Ranking
Techalloy Company, Inc
Union, Illinois
ILD 005 178 975

D.4.1

FROM: Bill Buller
MI/WI Section

TO: Gerald Phillips
Corrective Action Process Manager

THROUGH: Lorna Jereza, P.E., Chief
IL/IN Section

The Techalloy Facility located at Union, Illinois is currently undergoing corrective action under a United States Environmental Protection Agency Order on Consent. The Facility is rated as a medium priority in the National Corrective Action Prioritization System. Upon considering additional information developed subsequent to the initial scoring, a high priority ranking may be appropriate for this Facility.

The most significant additional information pertains to groundwater. Volatile organic compounds released at the Techalloy Facility have contaminated a shallow and highly productive sand and gravel aquifer. The contaminant plume extends about 5000 feet down gradient of the Facility and about 2000 acre-feet of groundwater is contaminated.

The groundwater migration route data in the initial scoring noted the distance to a drinking water well as 0.7 miles. Several residential wells located near the edge of the groundwater contaminant plume have been identified, the nearest well is only about 200 feet from the perimeter of the groundwater contaminant plume. The wells are sampled and analyzed periodically. One property owner with a contaminated well was provided with a deep well.

Thank you for your consideration.

cc: Paul Little

DATE: MAY 26 1998

D-8J

SUBJECT: Request for Concurrence of Final Decision/Response to Comments

FROM: Norman R. Niedergang, Director
Waste, Pesticides, and Toxics Division

TO: David Ullrich
Acting Regional Administrator

Attached for your review and signature is the Final Decision/Response to Comments for the Techalloy Company, Inc. Facility. All public comments received in the public comment process were considered and are responded to in this document.

To address contaminated soil and groundwater at the Facility, the selected remedy includes institutional controls, soil stabilization to address soils contaminated with metals, operation of an existing groundwater recovery system that will be upgraded, implementation of a focused air sparge/soil vapor extraction system to address soil and groundwater contaminated with volatile organic compounds, and groundwater monitoring. The selected remedy provides protection to human health and the environment and we recommend that you sign the Final Decision/Response to Comments.

In you have any questions; please contact Bill Buller of my staff at 886-4568.

Attachment

cc: Mike McClary

bcc: Karen Peaceman

bcc: Karen Peaceman

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
4/24/98		4-24-98		4/24/98	4/24

FINAL DECISION/RESPONSE TO COMMENTS

FOR

TECHALLOY COMPANY, INC.
UNION, ILLINOIS
ILD 005 178 975

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
(U.S. EPA)

FINAL DECISION/RESPONSE TO COMMENTS
Techalloy Company, Inc.
Union, Illinois
ILD 005 178 975

INTRODUCTION

The Statement of Basis developed by the United States Environmental Protection Agency (U.S. EPA) for the Techalloy Facility was presented for public comment from February 10, 1998 to March 30, 1998. The facility is located at the corner of Jefferson and Olson Roads in Union, Illinois. The Statement of Basis discussed several viable remedies for cleaning up the facility and presented the remedy proposed by U.S. EPA. This Final Decision/Response to Comments document presents the comments provided by the public and the remedy selected by U.S. EPA after reviewing the public comments. Upon careful consideration of the public comments, the remedy proposed in the Statement of Basis is deemed to be appropriate and is the remedy selected by U.S. EPA.

SELECTED REMEDY

The selected remedy includes the following:
(1) Institutional controls to prevent contact with contaminants;
(2) Soil Stabilization technology to address soils contaminated with metals;
(3) Implementation of a focused air sparge/soil vapor extraction system to address soil and groundwater contaminated with volatile organic compounds;
(4) Groundwater Recovery System, with an upgrade, to treat and control contaminated groundwater; and
(5) Groundwater monitoring to evaluate the impact of the remedy.

Institutional Controls
A deed restriction for the Techalloy facility was recorded on December 17, 1996. The deed restriction limits future land use of the facility property to industrial use and guards against the higher exposure that would be incurred in residential occupancy. In addition, the McHenry County Health Department has initiated a restriction on water well permits requiring that water withdrawn from the contaminated aquifer be treated.

Soil Stabilization for Soils Contaminated with Metals
In soil stabilization technology metals are converted to less soluble, leachable, and toxic forms. Soil stabilization will be

applied to four separate areas at the facility plant site where metal concentrations in soils exceed cleanup levels. The soils will be excavated, placed on an asphalt pad, and mixed with the stabilizing agent determined by the bench-scale study to be most suitable. Verification sampling and analysis will be performed at the perimeter of the excavations to assure that all soils exceeding cleanup levels are removed. Soils will be returned to the excavation after the post-treatment verification sampling/analysis establish that satisfactory treatment has been achieved. Soils presenting persistent treatment problems will be disposed off-site in accordance with RCRA regulations. The treated areas will be capped by a 200 by 360 foot asphalt cap that will be resurfaced every two years.

Absent relevant RCRA rule changes, the stabilization activities will be performed under a Corrective Action Management Unit (CAMU) Designation. Pursuant to 40 CFR 264.552, a CAMU Designation provides a regulatory framework to assure that hazardous wastes generated by remediation activities are properly handled. The CAMU Designation also provides that such wastes can be placed on the land without invoking the RCRA regulations of the Land Disposal Restriction Requirements and Minimum Technology Requirements. The designated CAMU area encloses the areas to be treated as well as a containment pad working area. As part of the RCRA closure requirements for the CAMU, monitoring wells at the facility property will be sampled and analyzed periodically for metal constituents. If a significant increase in metal concentrations is determined, appropriate corrective action will be required.

Focused air sparge/soil vapor extraction (AS/SVE)

In AS/SVE technology, air is injected into the water bearing zone though diffusion wells and vapor extraction wells remove the volatile organic compound vapors in the soil generated by the air sparging. The AS/SVE system will be implemented upon completion of the soil stabilization process. The focused AS/SVE will be applied to the highly contaminated area at the facility plant site where volatile organic compounds in soils exceed cleanup levels and volatile compound concentrations in the underlying groundwater have exceeded 50,000 parts per billion. Air emissions will be controlled as needed.

Groundwater Recovery/Treatment System and Upgrade

The selected remedy includes the continued operation of the existing groundwater recovery/treatment system. The existing recovery system consists of an extraction well, a double walled pipeline with a leak detection system, and a water treatment

system. The treatment system removes the volatile organic compounds in the groundwater by the air stripping methodology. The volatile compounds are discharged to the atmosphere under a State joint construction/operating permit, and the treated water is discharged to the South Branch of the Kishwaukee River under a State "National Pollution Discharge Elimination System" permit.

Critical evaluation of the recovery system determined that a significant portion of the contaminant plume southwest of the Union-Highbridge Road intersection was not being recovered. The system will be upgraded to expand the capture of the groundwater contaminant plume. An additional extraction well located opposite Park Street and about four hundred feet north of O'Cock Road will be installed. The new well will be connected to the existing pipeline with a double walled/leachate collection system pipeline. The necessary permits applications have been submitted and the installations are to be completed within 140 days of approval of all permits.

Groundwater monitoring

Groundwater monitoring is included in the remedy to assure that consumption of contaminated water does not occur, to evaluate the impact of the remedial actions, and identify any additional remedial action that may be needed. The private well sampling program will be continued in its present form with semi-annual sampling/analysis until data indicates that modification of the program is appropriate. Monitoring will also include sampling and analysis of the monitoring wells northwest of the Union-Highbridge Road intersection located near the far end of the contaminant plume. In addition, the Post-Closure requirements for the CAMU include annual sampling of six monitoring wells for metal analysis.

In summary, the selected remedy, which includes remediation of soils contaminated with metals and volatile compounds, groundwater containment and treatment near the down gradient limit of the contaminant plume, a AS/SVE system directed at the focal point of groundwater contamination, and institutional controls with monitoring to prevent contact with contaminants, provides protection to human health and the environment.

COMMENTS/RESPONSES

Comment - (telephone conversation) Citizen questioned the regulatory applicability of the CAMU Designation for the soil stabilization treatment process. Citizen also questioned the suitability of soil stabilization technology for metal

contaminated soils overlying a highly productive aquifer.

Response - Currently, 40 CFR 264.552 provides for the designation of CAMUs for remedial hazardous wastes if the seven criteria specified are satisfied. The Facility Statement of Basis presents a discussion of each of the seven criteria and how the proposed soil stabilization alternative remedy satisfies each criterion.

Soil stabilization is a proven technology with broad application for soils contaminated with metals. Data indicates that the metal constituents in the underlying groundwater are only slightly elevated, however long term monitoring of metal concentrations in groundwater will be required.

(no other comment received)

FUTURE CORRECTIVE ACTION ACTIVITIES

A new Administrative Order on Consent will be developed requiring implementation of the selected remedy. Under the new Order, corrective measure design details, monitoring program specifics, and implementation schedules will be established. Solid Waste Management Units at the facility are undergoing closure, and as appropriate, the remedial action required by the Order will be integrated with the closure requirements. To keep the public informed during the corrective measures implementation, information will be provided to the public through press releases or other appropriate means.

DECLARATION

Based on the administrative record compiled for this corrective action, I have determined that the selected remedy to be ordered at this site is appropriate and will be protective of human health and the environment.

Dan B Ker for
Acting Regional Administrator
U.S. EPA, Region 5

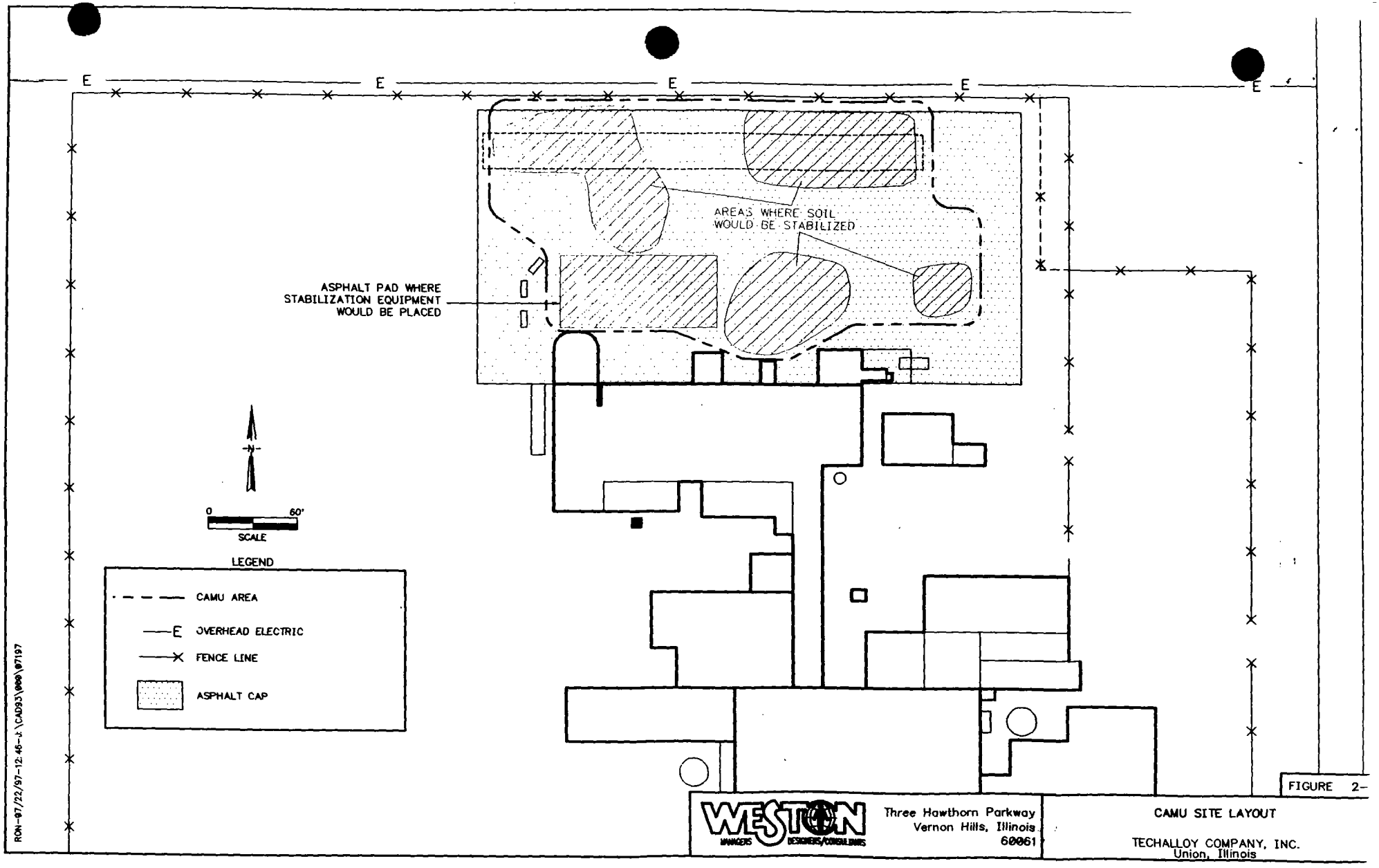
5/26/98
Date

ATTACHMENT B

FINAL DECISION/RESPONSE TO COMMENTS

FOR

TECHALLOY COMPANY, INC.
UNION, ILLINOIS
ILD 005 178 975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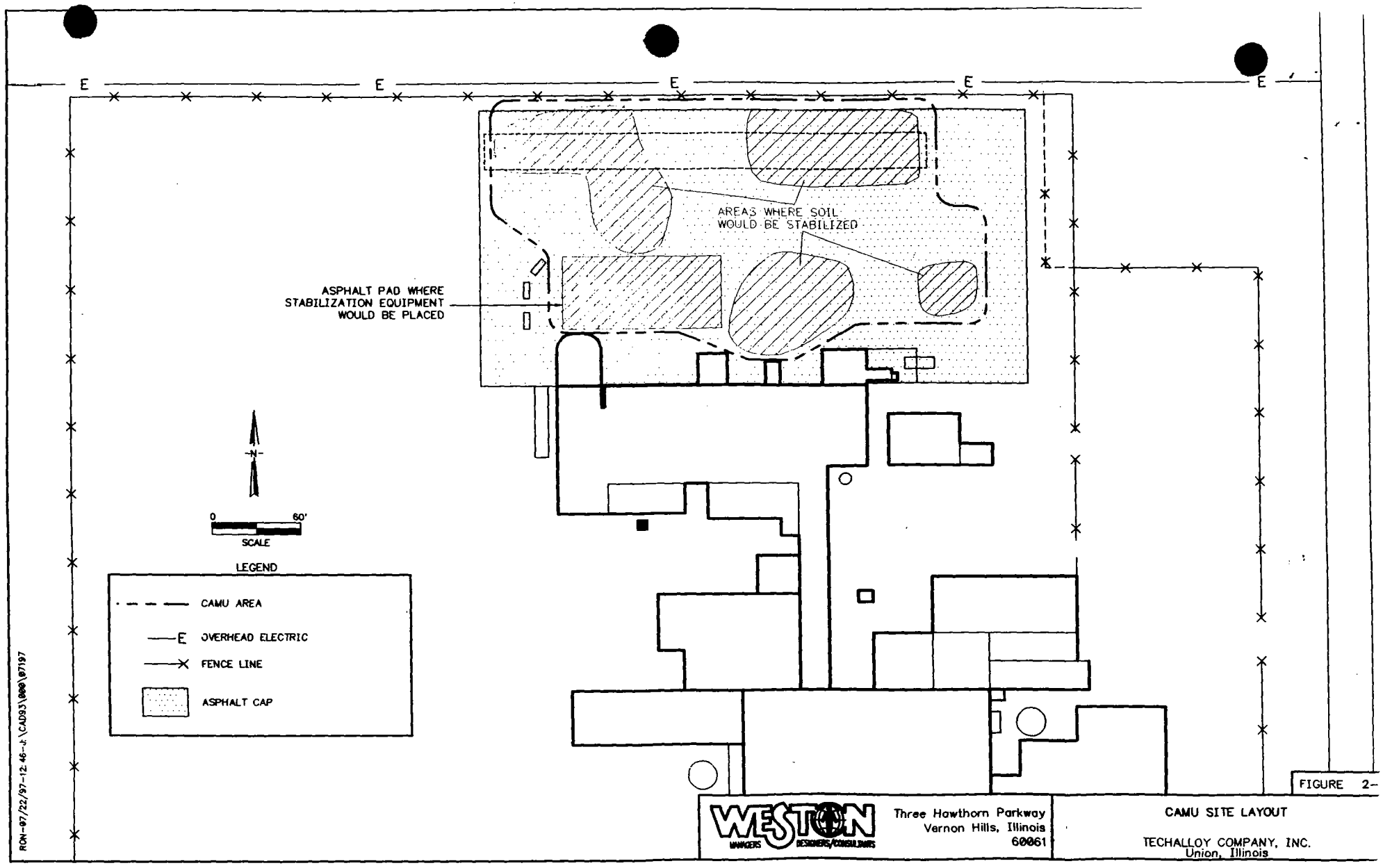
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 2-

EXHIBIT B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MANAGERS
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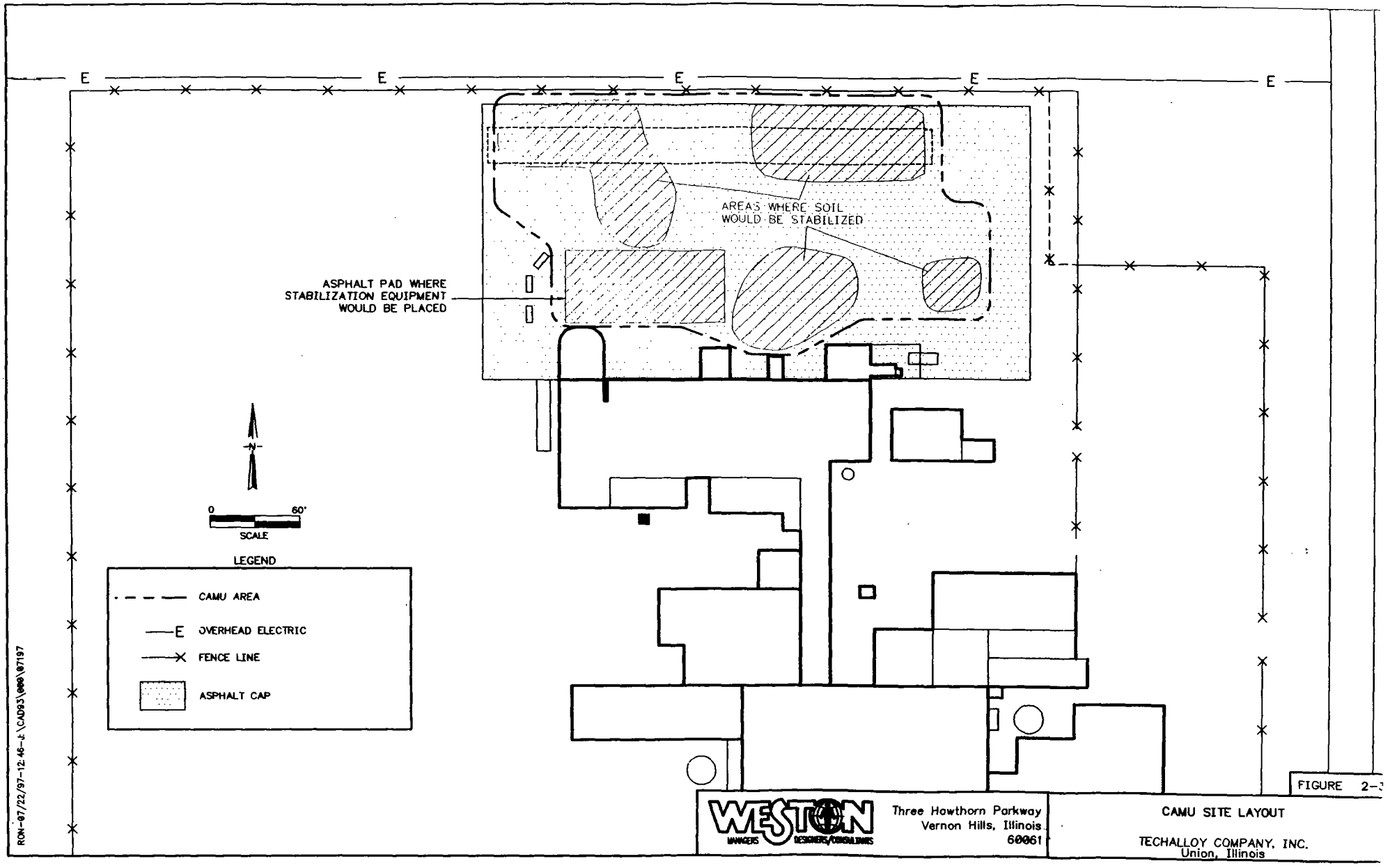
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 2-

EXHIBIT B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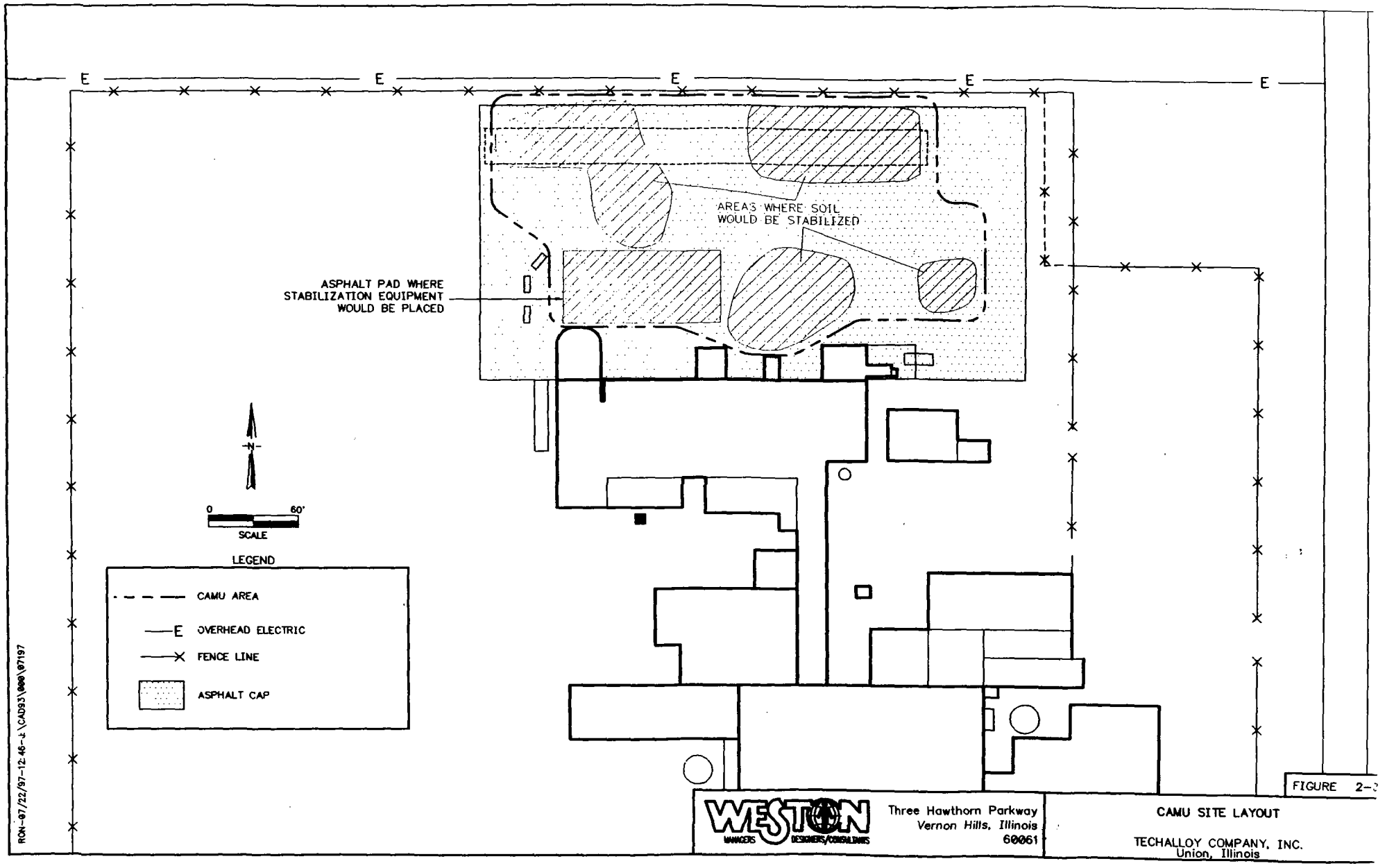
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 2-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AREAS WHERE SOIL WOULD BE STABILIZED
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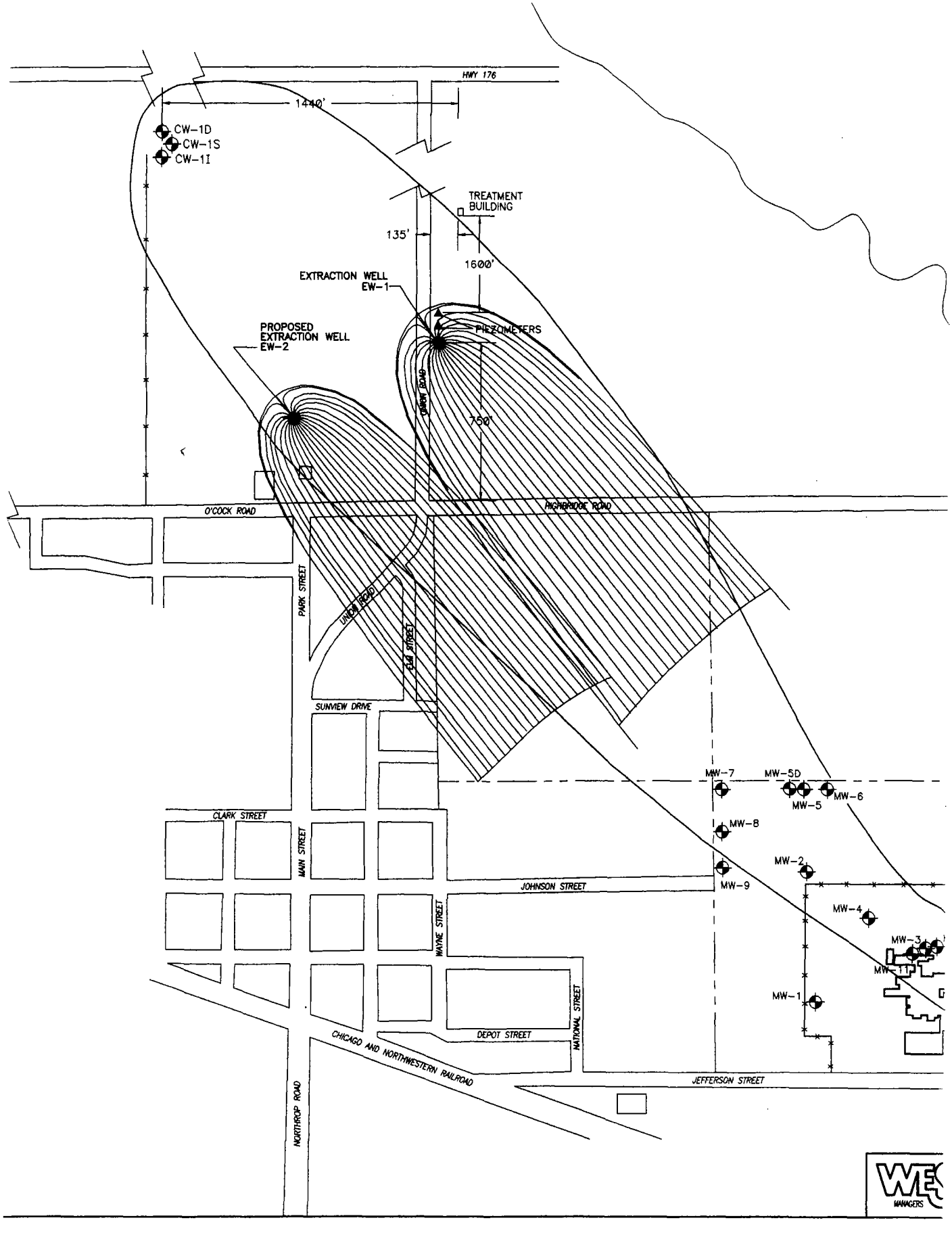
WESTON
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 2-3


HWY 176
1440'
CW-1D
CW-1S
CW-1I
TREATMENT BUILDING
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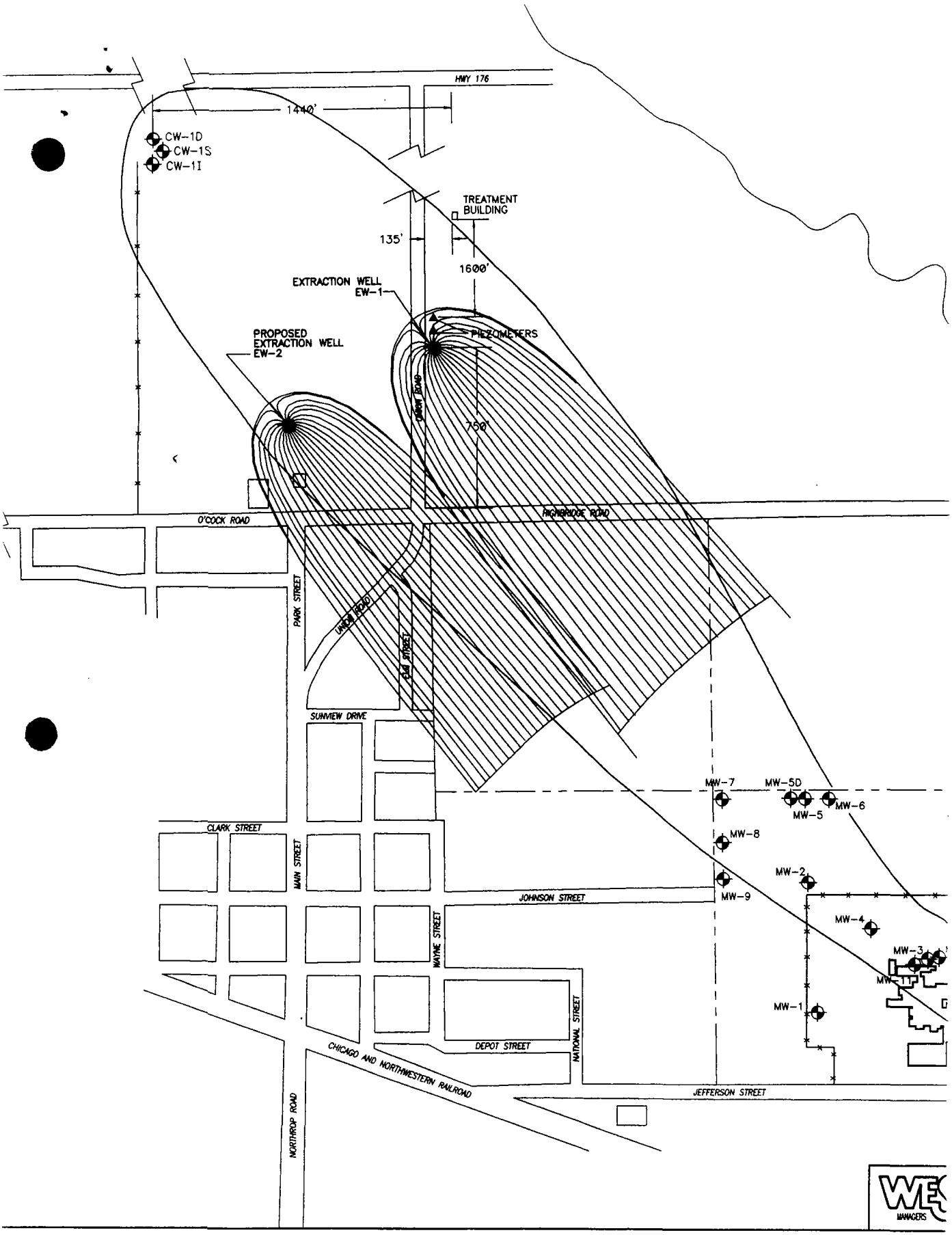
1600'
EXTRACTION WELL EW-1
PIEZOMETERS
PROPOSED EXTRACTION WELL EW-2
OAKEW ROAD
750'
O'COCK ROAD
HIGHBROOK ROAD
PARK STREET
UNION ROAD
OLD STREET
SUNVIEW DRIVE
MW-7
MW-5D
MW-5
MW-6
MW-8
MW-2
MW-9
CLARK STREET
MAIN STREET
JOHNSON STREET
WAYNE STREET
MW-4
MW-3
MW-11
MW-1
NATIONAL STREET
DEPOT STREET
CHICAGO AND NORTHWESTERN RAILROAD
JEFFERSON STREET
NORTHROP ROAD
WEC
MANAGERS


HWY 176
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CW-1S
CW-1I
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EXTRACTION WELL EW-1
PIEZOMETERS
PROPOSED EXTRACTION WELL EW-2
DARK ROAD
750'
O'COCK ROAD
HIGHRIDGE ROAD
PARK STREET
UNION ROAD
OLD STREET
SUNVIEW DRIVE
MW-7
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MW-6
MW-8
CLARK STREET
MAIN STREET
MW-2
MW-9
JOHNSON STREET
MW-4
WAYNE STREET
MW-3
MW-1
NATIONAL STREET
DEPOT STREET
CHICAGO AND NORTHWESTERN RAILROAD
JEFFERSON STREET
NORTHROP ROAD
WEC
MANAGERS

3/23/98

MAR 20 1998

DE-9J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Edwin C. Bakowski, P.E.
Manager, Permit Section
Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue
Springfield, Illinois, 62702-3998

Dear Mr. Bakowski:

As you are aware, Techalloy Company is performing Corrective Action at their Union, Illinois facility under a United States Environmental Protection Agency (U.S. EPA) Consent Order. U.S. EPA has developed a facility Statement of Basis which presents the Agency's proposed remedy to cleanup the facility. It is anticipated that the Final Decision remedy for the facility will closely correspond to the proposed remedy.

Waste management units at the facility are undergoing closure and it is highly desirable that the closure of the units be integrated with the remedial action performed under the Order. Kevin Lesko of your staff has advised me that Techalloy needs to revise their closure plans to demonstrate how the proposed remedial action under the Order correlates with the closure requirements.

I have advised Techalloy that they must provide the revised closure plans to the State in timely fashion. In turn, I am requesting that the State follow up on the closure process as expeditiously as possible to avoid delay in the corrective action process. Thanks in advance for you cooperation.

Sincerely,

William Buller, Project Coordinator
Enforcement and compliance assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA

B 18

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

30 January 1998

Mr. William Buller
Project Coordinator
Enforcement and Compliance Assurance Branch
U.S. Environmental Protection Agency
Region 5
77 West Jackson Blvd.
Chicago, IL 60604-3590

Re: Techalloy Company, Inc. Union, Illinois
Groundwater Recovery System Permit Submittals

Dear Mr. Buller:

Please find attached copies of the permits that have been submitted to the Illinois Environmental Protection Agency and McHenry County. These permits have been submitted on behalf of the Techalloy Company, Inc. and are pertinent to the groundwater recovery system expansion.

The permits include the McHenry County Highway Department permit to construct under Union Road, the McHenry County Planning and Development permit for alternations and accessory structures, and the Illinois EPA Division of Water Pollution Control Permit Section for modifications to existing NPDES permit. We have attached only the permit applications and not the construction drawing or the specifications.

If you have any questions regarding the permits submitted please do not hesitate to contact me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk
Attachments
cc: Henry Lopes, Techalloy
Dave Williams, Techalloy
Scott Carr, Techalloy
Jack Thorsen, WESTON
CH01\PUBLIC\WO\W1500\TECHALL\25068.DOC

MCHENRY COUNTY PLANNING AND DEVELOPMENT
2200 NORTH SEMINARY AVENUE
WOODSTOCK, IL 60098
(815)334-4560

DEC - 8 1997
RECEIVED

PERMIT APPLICATION FORM
ALTERATIONS AND ACCESSORY STRUCTURES

OFFICE USE ONLY
ZONING_____ CATEGORY_____

OWNER	CONTRACTOR
NAME Techalloy Company Inc.	NAME Same as Owner
ADDRESS Olson & Jefferson Street	ADDRESS
CITY, ST., ZIP Union, Il. 60180-0423	CITY, ST., ZIP
HOME PHONE - -	PHONE - -
WORK PHONE 815 - 923 - 2131	PROJECT MANAGER- Scott Carr

CONSTRUCTION LOCATION

5602 Union Rd.
ADDRESS

Union, Il. 60180
CITY STATE ZIP

MAIL PERMIT TO: Scott Carr (1)
1=owner 2=contractor 3=pickup

CONSTRUCT (structure only): well (4)
3=alteration 4=accessory

BUILDING: NA
1=residential

PARCEL/TAX NUMBER 12-33-400-001

LOT_____ BLK_____ UNIT_____

SUBDIVISION_____

SEC 33 TWP 44 RG 06

Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276

Application For Permit Or Construction Approval

WPC-PS-1

For IEPA Use:

1. **Name and Location:**

Name of project: Techalloy Company Inc. Groundwater Extraction and Treatment System

Municipality or Township: Union County: McHenry

2. **Brief Description of Project:** Groundwater pump and treat system operating at a maximum of 700 gal/min. Groundwater is being treated for Trichloroethene (TCE), Tetrachloroethene (PC), and Trichloroethane (III TCA) and discharged into the Kishwaukee River after treatment.

3. **Documents Being Submitted:** If the project involves any of the items listed below, submit the corresponding schedule, and check the appropriate spaces.

Project					
Private Sewer Connection/Extension	A/B		Spray Irrigation	H	
Sewer Extension Construct Only	C		Septic Tanks	I	
Sewage Treatment Works	D		Industrial Treatment or Pretreatment	J	X
Excess Flow Treatment	E		Waste Characteristics	N	X
Lift Station/Force Main	F		Erosion Control	P	
Sludge Disposal	G	X	Trust Disclosure	T	

Plans-Title Groundwater Recovery System Improvements Project Number of Pages: 6

Specifications: Title Groundwater Recovery System Improvements Project Number of Books/Pages: 200

Other Documents (Please Specify) N/A

4. **Land Trust:** Is the project identified in item number 1 herein, for which a permit is requested, to be constructed on land which is the subject of a trust? ____ Yes X No
If yes, Schedule T (Trust Disclosure) must be completed and item number 7.1.1 must be signed by a beneficiary, trustee or trust officer.

5. **This is an Application for** *(Check Appropriate Line)*:

X A. Joint Construction And Operating Permit
____ B. Authorization to Construction (See Instructions) NPDES Permit No. IL00 ____ Issue Date ____
____ C. Construct Only Permit (Does Not Include Operations)
____ D. Operate Only Permit (Does Not Include Construction)

6. **Certifications and Approval:**

6.1 Certificate by Design Engineer *(When required; refer to instructions)*
I hereby certify that I am familiar with the information contained in this application, including the attached schedules indicate above, and that to the best of my knowledge and belief such information is true, complete and accurate. The plans and specifications (specifications other than Standard Specifications or local specifications on file with this Agency) as described above were prepared by me or under my direction.

JAMES MICHAEL BURTON 062-043086 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Engineer James Burton (Name) 062-043086 (Registration Number) Seal

Firm: Roy F. Weston, Inc.

Address: Three Hawthorn Parkway, Suite 400

Vernon Hills, IL 60061 Phone Number: (847) 918-4000

Signature X James M. Burton

7. **Certifications and Approvals for Permits:**

7.1 Certificate by Applicant(s)
I/We hereby certify that I/we have read and thoroughly understand the conditions and requirements of this Application, and am/are authorized to sign this application in accordance with the Rules and Regulations of the Illinois Pollution Control Board. I/We hereby agree to conform with the Standard Conditions and with any other Special Conditions made part of this Permit.

7.1.1 Name of Applicant For Permit To Construct Scott Carr, Techalloy Company, Inc.

Street	City	State	Zip Code
Olsen & Jefferson Roads	Union	IL	60180-0423

Signature X Scott Carr Printed Name: SCOTT CARR Phone Number: 815-923-2131

Title Environmental Coordinator Organization Techalloy Company, Inc.

APPLICATION
GENERAL CONDITIONS

1. In submitting this Application, the Applicant agrees to comply with the various policies, conditions and requirements of the McHenry County Highway Department, whether written or verbal.

2. The Applicant or Municipality shall supply, at no expense to the McHenry County Highway Department, such information or submittals as may be required for review and to make such changes or revisions as required.

3. Lack of an immediate response to this application form or any information or submittals supplied for review and/or comment shall not be construed as approval or acceptance by the County Engineer or the McHenry County Highway Department, nor shall they be held responsible for any costs or delays due to the processing time required.

4. The review of the proposed work shall be based on the primary use of the County Highway right-of-way for the safe and efficient movement of vehicular traffic and the maintenance and improvements needed to support such primary use. Submittal of this application does not obligate the County Engineer to issue a permit.

5. McHenry County Highway Department is not be responsible for providing room within the County Highway right-of-way for the Proposed Work and lack of sufficient room can be cause for not permitting the Proposed Work to be located within the County Highway right-of-way.

6. This Application does not relieve the Applicant from complying with any statutes, regulations, ordinances or administrative orders of the Federal, State or County governments or any political subdivision or administrative agencies that may apply to the proposed work.

7. The Applicant shall obtain permission from the legal property owner of the County Highway right-of-way where any Municipal Utility/Facility will be located in accordance with 605 ILCS 5/9-113(I).

8. The County reserves the right to stop any and all work if it deems the work is proceeding in an unsafe manner or poses any danger to the public or roadway.

9. Proposals will be considered inactive after a period of six (6) months without a response on the part of the applicant. After that time, the applicant must reapply and comply with any new conditions, policies and standards in effect.

10. MUNICIPAL FACILITIES: Unless otherwise stated in the issued Highway permit, the Municipality and its successors and assigns shall be responsible for the following:

    a. The operation and maintenance of the Municipal Facility within the County Highway right-of-way. Such operation and maintenance shall include keeping the Municipal Facility in a safe condition for use by the Public, not creating any hazardous conditions, providing any special maintenance such as cleaning ice and snow from sidewalks or bikepaths or additional mowing of adjacent turf areas, making changes or revisions to the Municipal Facility needed because of the maintenance operations of the McHenry County Highway Department or use of the county Highway right-of-way by the General Public and restoring portions of the County Highway right-of-way disturbed by repairs, maintenance, extensions, service connections, and/or other work done to the Municipal Facility without a Highway permit being issued.

    b. Any additional costs to the County of McHenry and/or its Highway Department for road improvements and/or maintenance work due to the location and/or use of the Municipal Facility within the county Highway right-of-way. such costs can include adjustments needed to the Municipal Facility to accommodate said road improvements and/or maintenance work and/or damage to County Property and/or equipment.

    c. For indemnifying, defending and holding harmless the County of McHenry and the McHenry County Highway Department including their elected and duly appointed officials, agents, employees and representatives from and against any and all claims, suits, actions, losses, expenses, damages, injuries, deaths, judgements and demands arising from and relating to the location and/or use of the Municipal Facility within the County Highway right-of-way regardless of any limitations of insurance coverage.

    d. Other items as specified in the McHenry County Highway Department Utility and Facility Placement Policy.

ACCESS: After completion and acceptance of a permitted access the McHenry County Highway Department shall maintain, in accordance with its normal maintenance policies, the drainage system including ditches, pavement widening including turning lanes, pavement markings and traffic control devices, curb and/or gutters, shoulders and turf areas located within the right-of-way of the County Highway. The Permittee may provide additional mowing of turf areas as needed or provide other maintenance operations such as removing garbage and debris. The Permittee shall be responsible for the removal of snow, ice, gravel, and other debris from the paved surface of the access and keeping this Access in a safe condition for the General Public.

DEC 10 1997

DEC 10 1997

Faxed out 12/9/97

DRE-9J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union, Illinois
Groundwater Recovery System Upgrade
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

You have advised me that Techalloy has obtained verbal approval to access the property on which the additional extraction well is to be installed to upgrade the existing Groundwater Recovery System. Techalloy shall apply for all permits as needed for the system upgrade by January 30, 1998. To expedite the permit approval process, Techalloy shall contact the permitting agencies at least bi-weekly, and advise the United States Environmental Protection Agency (U.S. EPA) as to the status of the permit applications in the monthly progress reports. Within fifteen (15) days of approval of all permits, Techalloy shall provide to U.S. EPA documentation of the permit approvals.

The upgraded Groundwater Recovery System shall be fully operational within 140 days of approval of all permits. Within 10 days of completion of the upgrade, Techalloy shall inform U.S. EPA in writing of the upgrade completion. Upon completion of the recovery system upgrade, Techalloy shall perform an aquifer test on the EW-2 well, and within 45 days of completing the upgrade, submit to U.S. EPA the results of the aquifer test. The upgraded groundwater recovery system shall be capable of creating the capture zone under continuous operation as depicted in Figure 2

of your November 18, 1997, letter.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, AT Kearney

bcc: Jacqueline Kline

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
mp 12/9/98					

10 SOUTH WACKER DRIVE, SUITE 2100, CHICAGO, IL 60606
PHONE: (312) 578-8900
FAX: (312) 578-8904

TECHLAW INC.

RZ2.R05035.01.ID.032

December 5, 1997

Mr. William Buller
U.S. Environmental Protection Agency
Region 5 DRE-9J
77 W. Jackson
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W4-0006; EPA Work Assignment No. R05035; Techalloy Company, Inc., Union, Illinois, EPA ID No. ILD005178975; Review of November 18, 1997, Expansion of Groundwater Extraction and Treatment System letter; Task 04 Deliverable

Dear Mr. Buller:

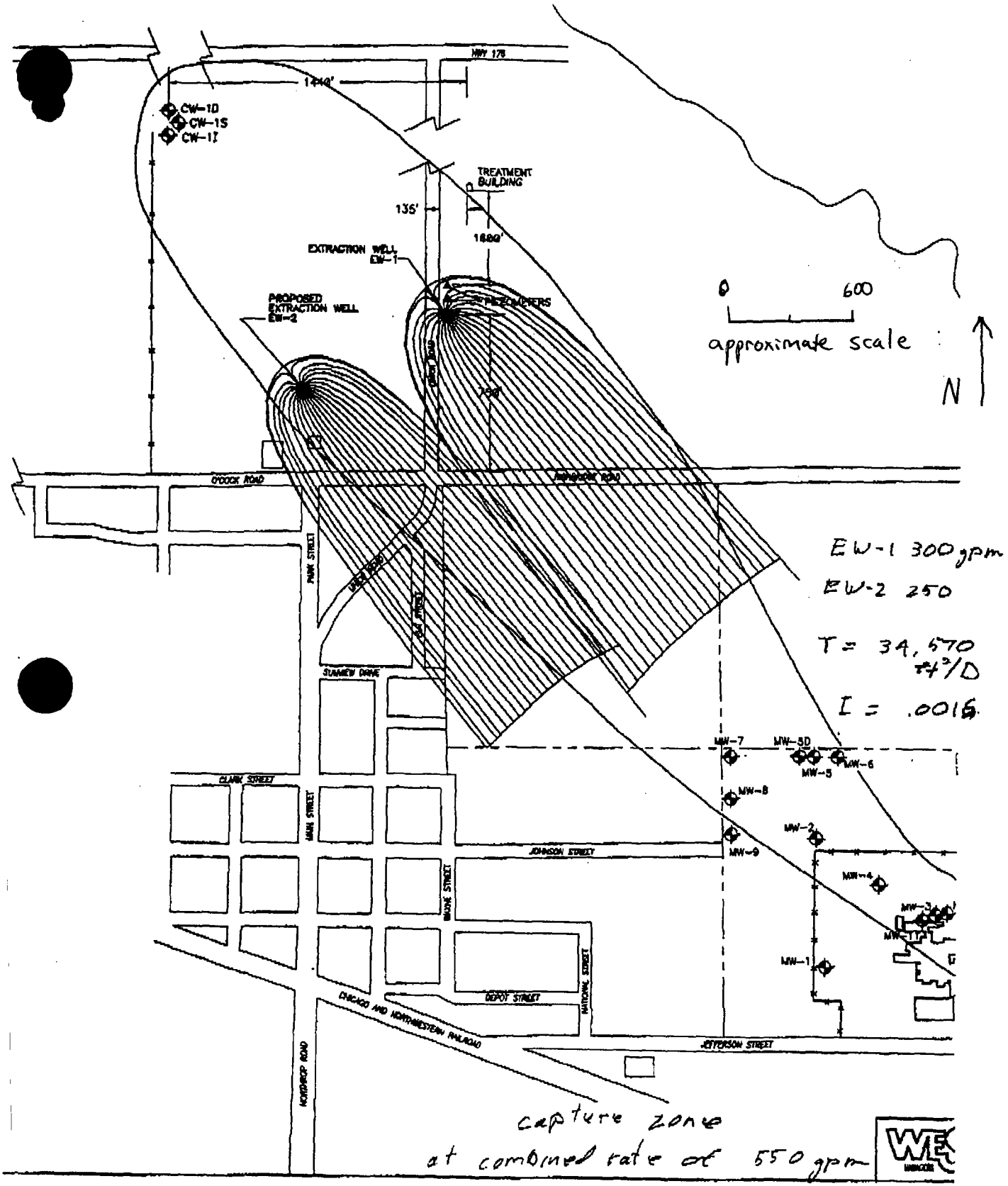
This letter presents TechLaw's review of the November 18, 1997 letter from Techalloy to U.S. EPA regarding the proposed expansion of the off-site groundwater extraction and treatment system. A facsimile copy of this letter was received from you by TechLaw on December 2, 1997.

Figures 1 and 2 in the November 18, 1997 letter indicate, similar to Figure 2-13a of the August 1997 Final Corrective Measures Study (CMS) Report, that an aquifer transmissivity of 34,570 ft^2/day and an aquifer gradient of 0.0016 ft/ft were used for the capture zone analysis presented in the letter. Based on the information available from the CMS Report and TechLaw's independent review of the May 8, 1997 Aquifer Performance Evaluation, these values for the transmissivity and hydraulic gradient appear to be appropriate for the capture zone analysis. Also in the capture zone analysis, extraction well EW-1 was attributed a pumping rate of 300 gallons per minute (g.p.m.) and extraction well EW-2 was attributed pumping rates of 250 g.p.m. (see Figure 1) and 200 g.p.m. (see Figure 2).

The capture zone widths for the two pumping scenarios were calculated using the formula:

$$w = \frac{Q}{Ti}$$

Where: w = Width of capture zone; Q = Pumping rate; T = Transmissivity; I = Hydraulic gradient



11-19-97

Figure 1 2

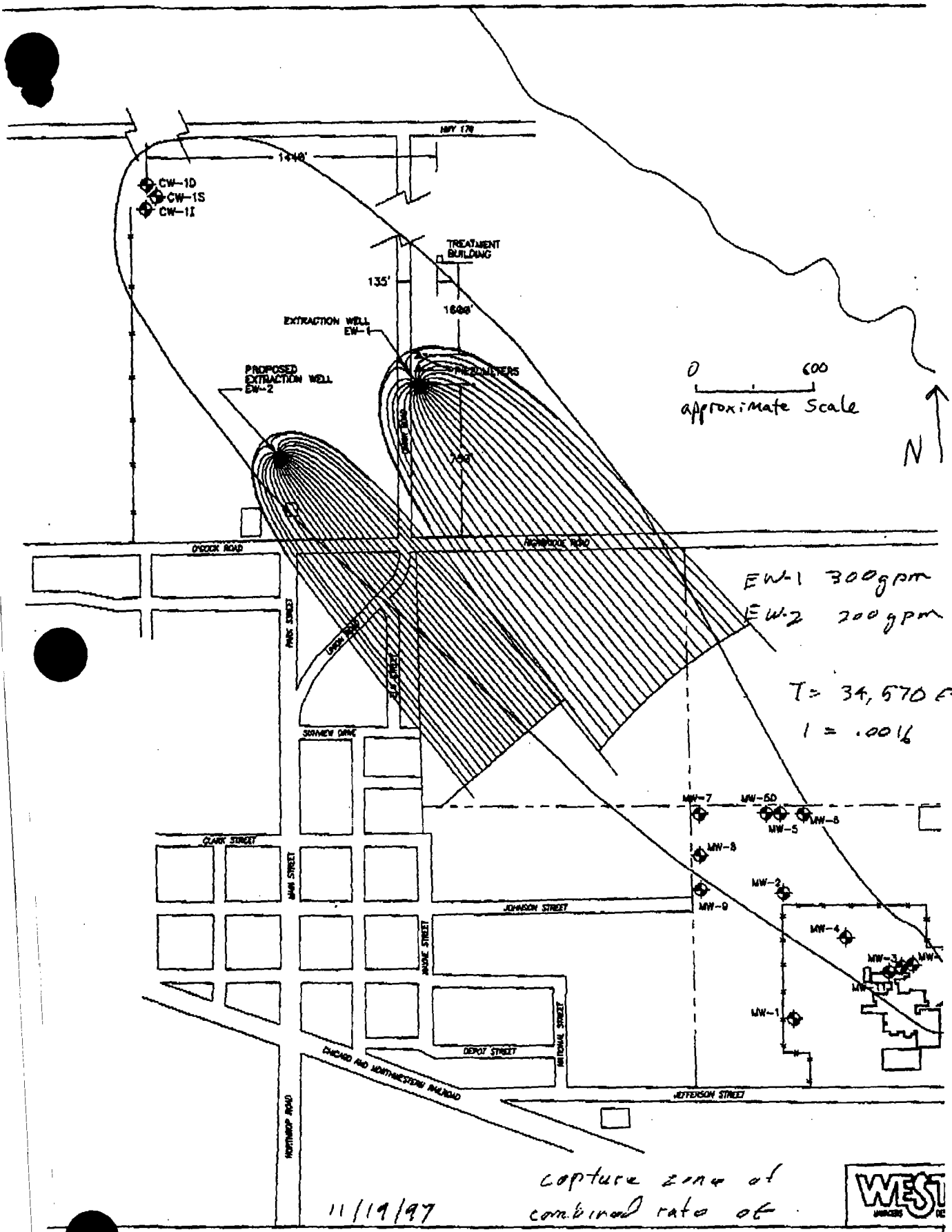

HWY 178
1440'
CW-1D
CW-1S
CW-1I
TREATMENT BUILDING
135'
1600'
EXTRACTION WELL EW-1
PROPOSED EXTRACTION WELL EW-2
PIEZOMETERS
0 600
approximate Scale
N
DYCOCK ROAD
NORWOOD ROAD
PARK STREET
SEAVIEW DRIVE
CLARK STREET
MAIN STREET
JOHNSON STREET
ANDRE STREET
DEPOT STREET
NATIONAL STREET
CHICAGO AND NORTHWESTERN RAILROAD
JEFFERSON STREET
NORTHROP ROAD
MW-7
MW-6D
MW-5
MW-6
MW-8
MW-9
MW-2
MW-4
MW-3
MW-1
EW-1 300gpm
EW-2 200gpm
T= 34,570 GPD
I = .0016
11/19/97
capture zone of combined rate of 500gpm
WEST

Figure 2

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

18 November 1997

ILD 005 178 975

D. 3. 1

Mr. William Buller
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No. 01989-028-001

Re: Expansion of Groundwater Extraction and Treatment System
Techalloy Company, Inc.

Dear Mr. Buller:

The Techalloy Company, Inc. (Techalloy) has installed an off-site groundwater extraction and treatment system to capture contaminated groundwater originating from the Techalloy facility. This system is capturing the groundwater plume emanating from the Techalloy facility; however there is a downgradient portion of the plume located west of Union Road that is not currently being captured. The U.S. EPA has recently requested that Techalloy capture the groundwater plume extending from the intersection of Union and Highbridge Roads to Park Street (see attached figure).

To accomplish this additional groundwater extraction, Techalloy has agreed to install an additional well and upgrade the treatment system as appropriate to meet discharge requirements. Capture zone analyses have been conducted and are presented in Figures 1 and 2. Figure 1 depicts capture at a combined rate of 500 gpm. It is apparent that this capture zone covers the plume sufficiently and extends to as far as Park Street. Figure 2 depicts a combined rate of 550 gpm. Similarly, it is apparent that this capture zone sufficiently covers the plume and extends passed Park Street.

Techalloy proposes that the expansion of the groundwater extraction and treatment system be designed to extract between 500 and 550 gpm and that the capture of groundwater extent to the boundaries depicted in Figures 1 and 2.

Click to WESTON On The Web http://www.rfweston.com

Techalloy requests that the U.S. EPA provide correspondence back to Techalloy confirming that the proposed extraction rates and extraction boundaries are sufficient to meet agency requirements. If you have any comments or questions regarding the issues discussed, please do not hesitate to call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk
Attachments

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Jack Thorsen, WESTON
Kevin Lesko, IEPA

031

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

7 November 1997

Mr. Matthew Litvak
155 North Harbor Drive #4312
Chicago, Illinois 60601-7324

Re: Property Access
Union, Illinois property

Dear Mr. Litvak:

As you are aware, the Techalloy Company Inc. (Techalloy) is in the process of managing and cleaning up groundwater contamination that has originated from the Techalloy Plant located in Union, Illinois. Techalloy has installed and is currently operating a groundwater extraction and treatment system east of Union Road. This system is extracting contaminated groundwater and preventing further contaminated groundwater from migrating on to your property. However, there is a portion of your property, specifically the southeast corner of the property that is not being impacted by this system. It was originally our hope that the current extraction well on the east side of Union Road would have sufficient capacity to pull (extract) contaminated groundwater from your property to the extraction well. The U.S. EPA has requested that Techalloy expand the current extraction system to be able to extract the groundwater located on the southeast portion of your property.

The purpose of this letter is to request access to your property in order to extract the groundwater at the southeast corner of your property. This would require that a well be installed approximately 100 to 150 feet northeast of the old barn. The well would have four bumper posts surrounding it and take up a space of about 10 by 10 feet. We would then run an underground pipe from the well, across and under the road, and connect the pipe to the existing pipe that runs to the treatment building next to the river.

In order to conduct this remediation effort, Techalloy is requesting your permission for Techalloy's personnel and contractors to conduct the activities described above and place the required well and piping at the locations described.

Techalloy agrees to restore the field (regrading, if necessary) or comparable fixtures which may be disturbed by Techalloy or its contractors in the course of activities conducted during the installation. Techalloy thanks you for your cooperation in this matter and requests that you indicate your agreement to the terms of this license by placing your signature in the space provided below. Techalloy would appreciate your response by 21 November 1997.

Click to WESTON On The Web http://www.rfweston.com

As you requested, please find the enclosed information concerning the groundwater plume and remediation. If you have any questions or require additional information please do not hesitate to contact me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk
Enclosure

Accepted and Agreed to:

_____

Matthew Litvak

Dated: _____ _____, 1997

State of Illinois)
:
County of McHenry)

On this _____ day of _____, 1997, before me came Matthew Litvak, who duly sworn, did depose and say that he/she executed the foregoing instrument.

_____
Notary Public

cc: Henry Lopes, Techalloy
Dave Williams, Techalloy
Scott Carr, Techalloy
William Buller, U.S. EPA

EXECUTIVE SUMMARY

The Techalloy Company, Inc. (Techalloy) is located at the intersection of Olson and Jefferson roads in the Village of Union, McHenry County, Illinois. The developed portion of the facility occupies 5 acres. The Techalloy facility includes an additional 29 acres of agricultural land surrounding the facility.

Techalloy began its operations at the Union, Illinois, facility in 1960. Prior to that time, the property was farmland. Since 1960, Techalloy has been operating as a specialty handler of stainless steel wire products. The end products are stainless steel wire coils of varying diameters and tensile strengths that are distributed with and without special coatings.

A RCRA Facility Investigation (RFI) was initiated in accordance with an Administrative Order of Consent (AOC) signed between the United States Environmental Protection Agency (U.S. EPA) and Techalloy on 27 January 1993. Roy F. Weston, Inc. (WESTON®) completed a Phase I and a Phase II RFI study in September 1994 and March 1995, respectively. The specific objectives presented in the AOC statement of purpose were:

- "Perform a RCRA Facility Investigation to determine fully the nature and extent of any release of hazardous wastes and hazardous constituents from the facility."
- "Perform a Corrective Measures Study (CMS) to identify and evaluate alternatives for the corrective action necessary to prevent or mitigate any migration or release of hazardous wastes or hazardous constituents from or at the facility."
- "Perform Interim Measure (IM) at the facility if current or potential threats to human health or welfare or the environment are identified."

This document satisfies the first objective of the AOC. The RFI study was performed in two phases. The Phase I RFI study (August/September 1994) included background surface soil and groundwater sampling. It also included the subsurface soil and groundwater sampling at five potential source areas to define the spatial distribution of constituents. These potential source areas, designated as RCRA Solid Waste Management Units (SWMUs), are:

- Wire Slag Disposal Area.
- BG-5 Oil Drum Storage Area.
- Concrete Evaporation Pad Area.
- Spent Acid Holding Pond Area.
- Plating Wastewater Disposal Area.

The Phase II field activities were conducted in March and April 1995 to complete the data gaps that were identified during the Phase I RFI study. Resolving the data gaps assisted in fully defining the extent of impact around the five SWMU areas. Sampling of the 14 existing monitoring wells on and off site helped establish the current distribution of the constituents of concern in on- and off-site groundwater.

Based on the results of the investigation, the geology of the site consists of Volina silt loam developed over loose sand and fine-to-coarse-grained gravel deposits of outwash plains. The majority of the Techalloy main plant area has been covered with 1 to 2 feet of gravel fill. The sand and gravel extend to depths ranging from 30 to 35 feet below ground surface (bgs). Underlying the sand and gravel is a silty clay till unit (Marengo till). This unit is approximately 80 feet thick at the facility and is underlain by the Maquoketa shale.

Groundwater at the Techalloy facility occurs approximately 9 feet bgs within the sand and gravel deposits and flows northwestward. The hydraulic gradient between the existing monitoring wells was measured at 2.3×10^{-3} ft/ft. Based on the measured aquifer, which has a saturated thickness of 30 feet, the hydraulic conductivity of the aquifer is approximately 260 ft/day.

Source characterization at the Techalloy facility was completed by collecting subsurface soil samples from the five SWMUs and their associated areas. The areas where VOCs were detected are isolated in the area surrounding the concrete evaporation pad and migrate northwestward to within the areas of the plating wastewater disposal. For the most part, detected VOCs were the chlorinated solvents (1,1,1-trichloroethane [TCA], trichloroethene [TCE], and tetrachloroethene [PCE]. The highest concentrations of the above-mentioned

chlorinated solvents were detected in the Concrete Evaporation Pad Area and include TCA at the CP03 location (240,000 µg/kg), TCE at the CP05 location (1,600,000 µg/kg), and PCE at the CP05 location (370,000 µg/k). These concentrations are present in the shallow soils at depths ranging from 2 to 4 feet bgs. The delineation of the potential areas impacted by metal constituents in soil is limited to on-site locations and encompasses the Concrete Evaporation Pad Area, the Plating Wastewater Disposal Area, a portion of the BG-5 Oil Drum Storage Area, and the Spent Acid Holding Pond Area.

Pathway characterization at the Techalloy facility was completed by collecting groundwater samples from the top and bottom of the aquifer system at each of the SWMU areas. Sampling of the 14 existing monitoring wells both on and off site for VOCs, metals, and inorganic constituents at some locations helped to establish the current distribution of these constituents. The VOCs detected in groundwater, for the most part, include 1,1,,1-TCA, TCE, and PCE. These constituents have been identified as originating at the Concrete Evaporation Pad Area and as migrating approximately 4,000 feet downgradient off site (northwest). The highest concentration of TCA was detected at the CP-03 location (200,000 µg/L. The highest concentration of TCE was detected at the CP03 location (12,000 µg/L), and the highest concentration of PCE was also detected at the CP03 location (3,600 µg/L). The extent of metals constituents (arsenic, cobalt, chromium, nickel, lead, selenium, vanadium, and zinc) in groundwater is limited to on-site locations.

Risk of exposure to the contaminants in soil would be limited to on-site personnel, as access to the site is restricted by a security fence. On-site exposure is minimal, because most of the Techalloy site is covered with buildings, paved with asphalt, or covered with 1 to 2 feet of gravel fill. The three water wells located within the Techalloy facility are used for drinking water and industrial purposes (acid house non-contact cooling) and were analyzed for contaminants of concern in September 1994. No contaminants of concern exceeded the established maximum contaminant levels (MCLs). Semi-annual sampling of 12 residential wells, conducted under the "Private Well Sampling Plan" (May 1993) for potential contamination of these wells from industrial activities at Techalloy, indicates that two residential monitoring wells (northeast corner of Union and Highbridge Road) had

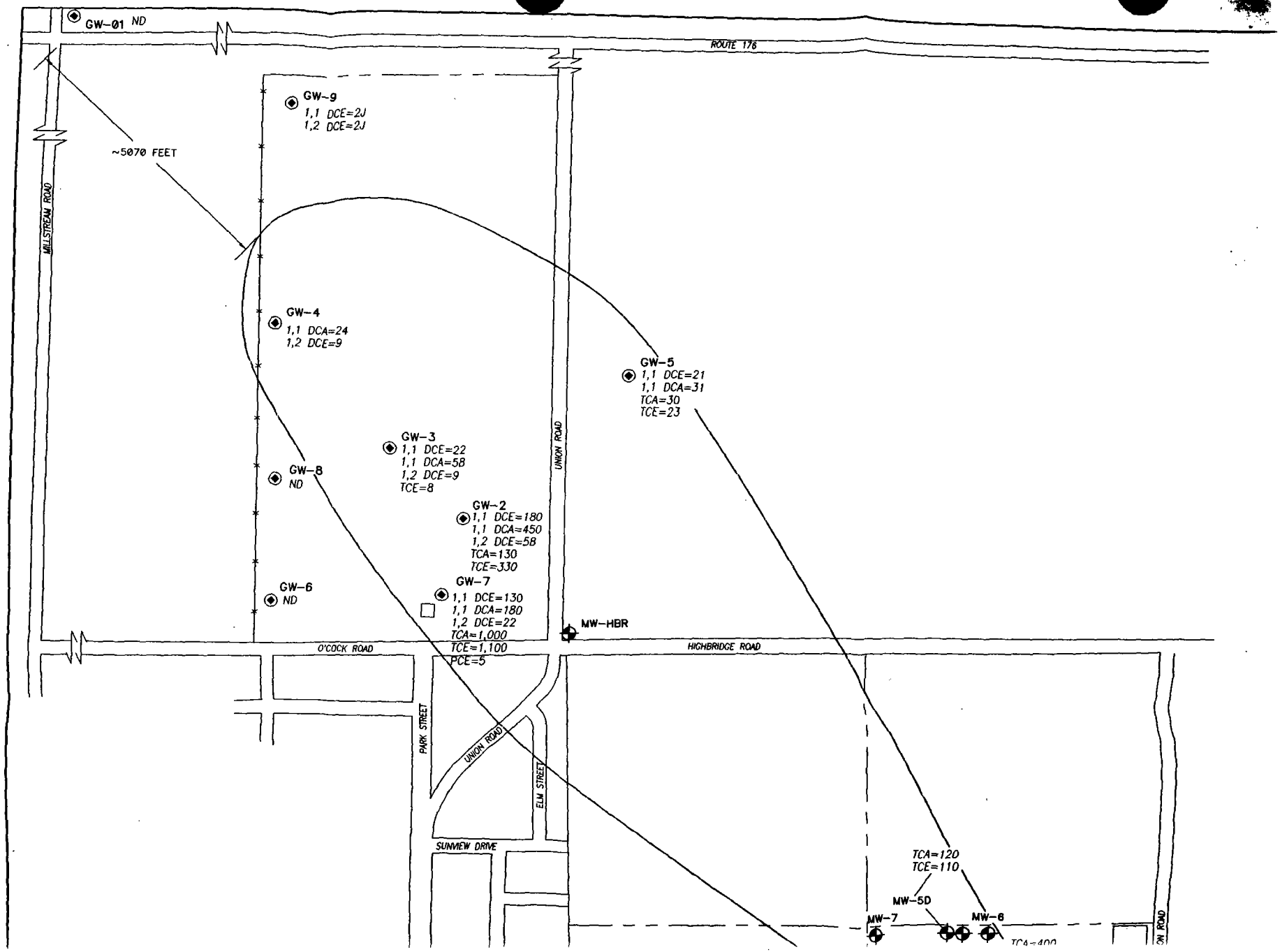
contaminants exceeding their MCLs. Techalloy installed a new water well (at a depth of 248 feet bgs) in October 1994 for the owner of the property containing these wells.

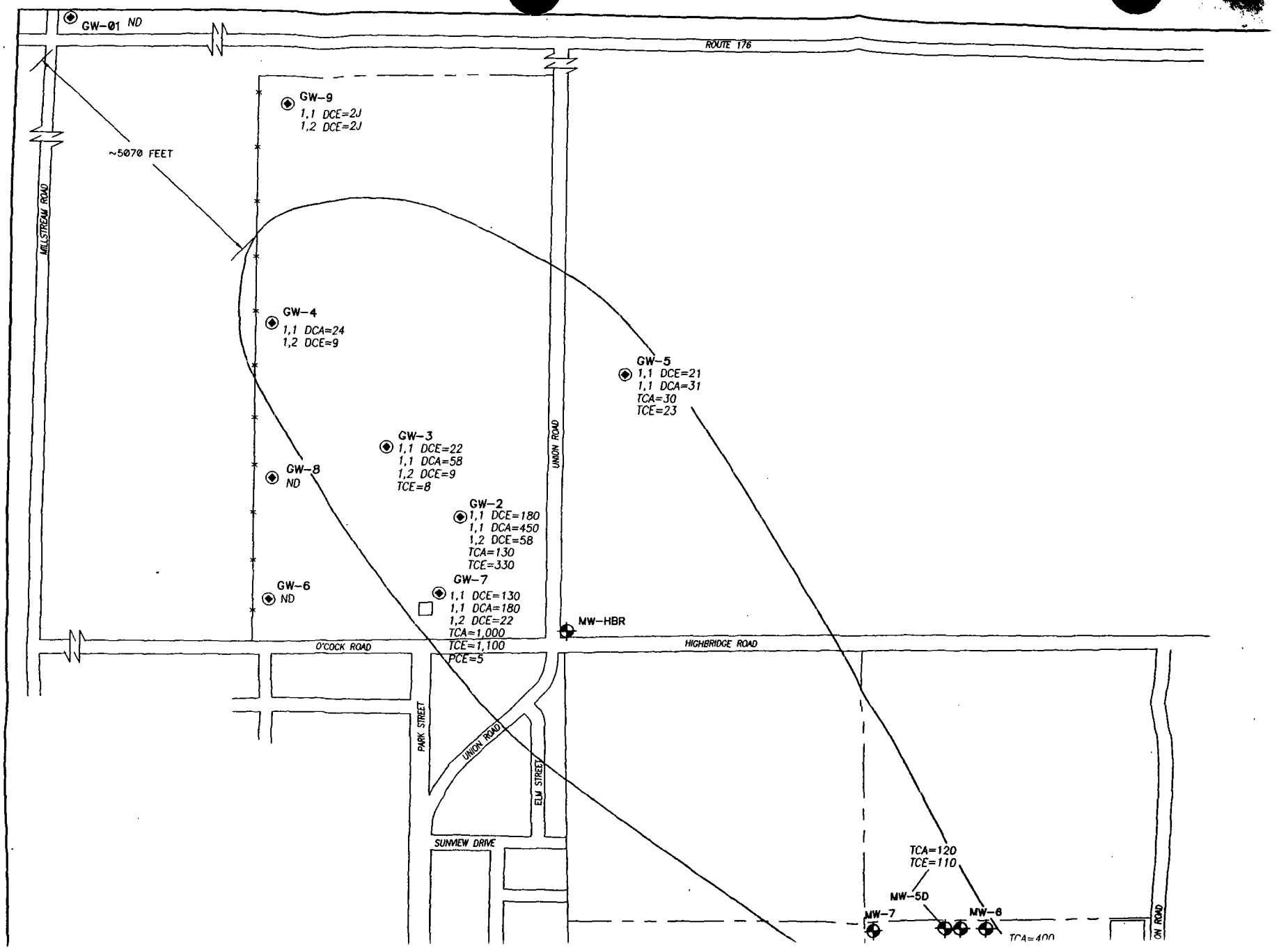
Using computed statistical data of background concentrations for soils and MCLs for groundwater, the extent of the impacted source area and groundwater pathway was delineated. An interim measure (IM), is in the process of being implemented *and* includes:

- A groundwater extraction system to further prevent migration of impacted groundwater.
- A treatment system for treating extracted groundwater to acceptable levels to meet applicable laws for proper disposal.
- A groundwater monitoring plan *which includes installation of two piezometers and three monitoring wells screened at different depths of the aquifer.*
- Continued operation and maintenance of the pump-and-treat system until the final corrective measures for groundwater cleanup are fully operational.

The groundwater investigation of December 1995 and January 1996 was conducted to further delineate the lateral and vertical extent of the off-site plume. A total of 33 groundwater samples were collected. At five of the nine borings, samples were collected at 15-foot depth intervals. At the other four borings, groundwater samples were collected from the top and bottom of the aquifer.

The lateral and vertical extent of the plume has been delineated following the completion of the above-mentioned activities. The study indicated that the plume has migrated approximately 6,000 feet from the Techalloy facility. The depth of the plume along the axis downgradient and off-site from the Techalloy property is approximately 80 to 85 feet. The lateral extent of the plume ranges from 400 to 600 feet wide at the Techalloy property to approximately 1,600 feet wide at the downgradient portion of the plume.


GW-01 ND
ROUTE 176
GW-9
1,1 DCE=2J
1,2 DCE=2J
~5070 FEET
MILLSTREAM ROAD
GW-4
1,1 DCA=24
1,2 DCE=9
GW-5
1,1 DCE=21
1,1 DCA=31
TCA=30
TCE=23
GW-3
1,1 DCE=22
1,1 DCA=58
1,2 DCE=9
TCE=8
UNION ROAD
GW-8
ND
GW-2
1,1 DCE=180
1,1 DCA=450
1,2 DCE=58
TCA=130
TCE=330
GW-7
1,1 DCE=130
1,1 DCA=180
1,2 DCE=22
TCA=1,000
TCE=1,100
PCE=5
GW-6
ND
MW-HBR
O'COCK ROAD
HIGHBRIDGE ROAD
PARK STREET
UNION ROAD
ELM STREET
SUNVIEW DRIVE
TCA=120
TCE=110
MW-5D
MW-7
MW-6
TCA=400
ON ROAD


GW-01 ND
ROUTE 176
GW-9
1,1 DCE=2J
1,2 DCE=2J
~5070 FEET
MILLSTREAM ROAD
GW-4
1,1 DCA=24
1,2 DCE=9
GW-5
1,1 DCE=21
1,1 DCA=31
TCA=30
TCE=23
GW-3
1,1 DCE=22
1,1 DCA=58
1,2 DCE=9
TCE=8
UNION ROAD
GW-8
ND
GW-2
1,1 DCE=180
1,1 DCA=450
1,2 DCE=58
TCA=130
TCE=330
GW-6
ND
GW-7
1,1 DCE=130
1,1 DCA=180
1,2 DCE=22
TCA=1,000
TCE=1,100
PCE=5
MW-HBR
O'COCK ROAD
HIGHBRIDGE ROAD
PARK STREET
UNION ROAD
ELM STREET
SUNVIEW DRIVE
TCA=120
TCE=110
MW-5D
MW-7
MW-6
TCA=400
ON ROAD

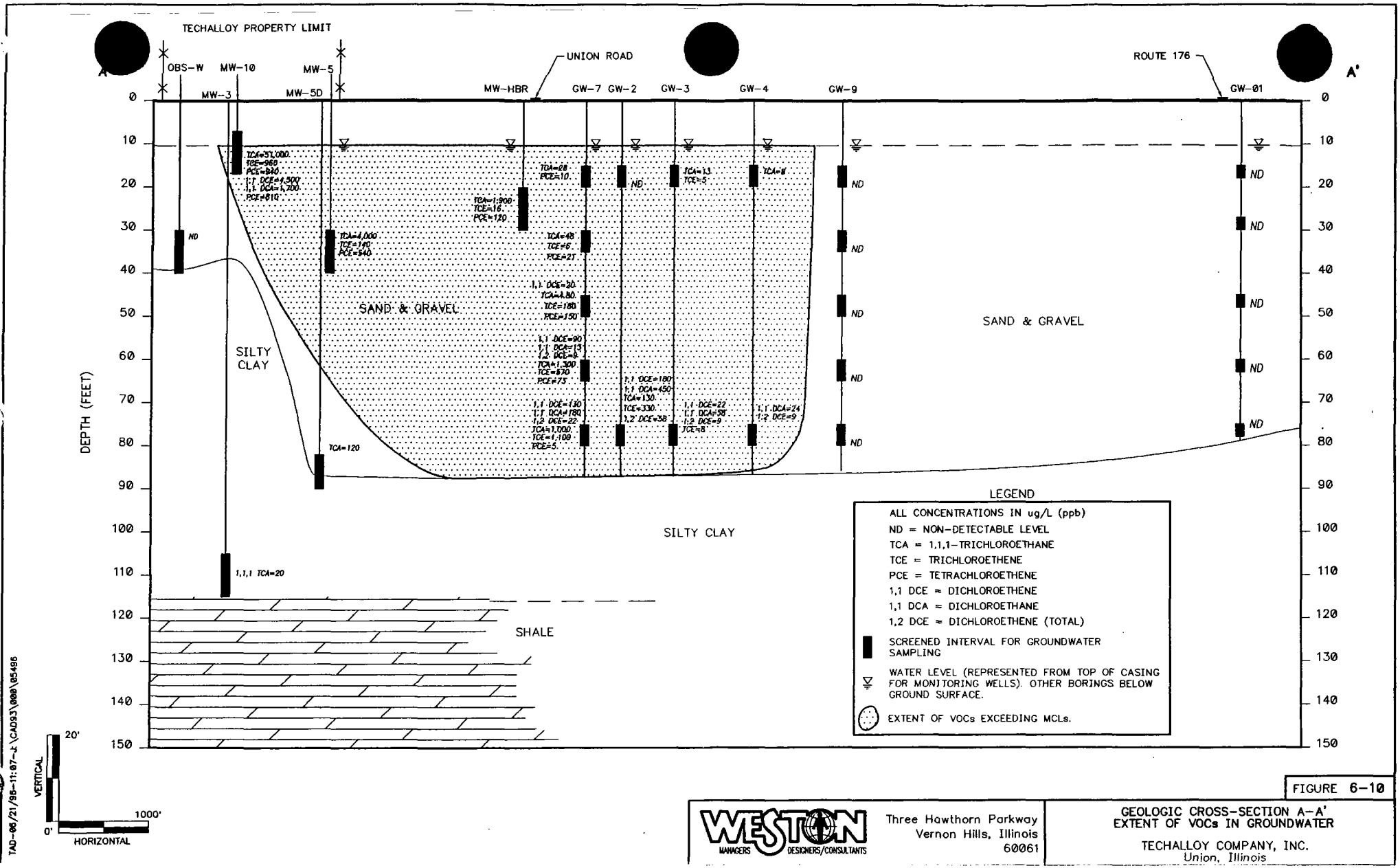


FIGURE 6-10

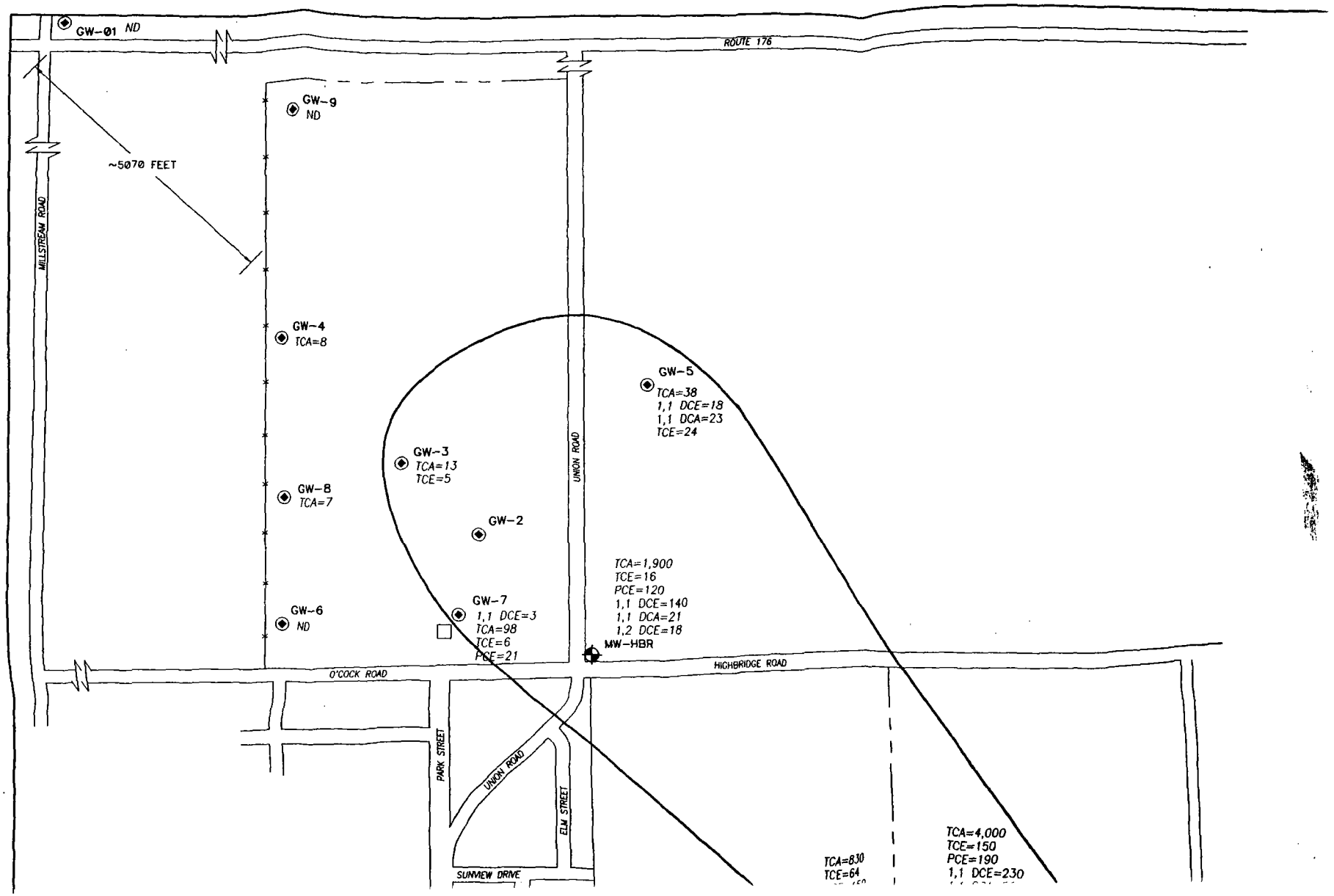
WESTON
MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

GEOLOGIC CROSS-SECTION A-A'
EXTENT OF VOCs IN GROUNDWATER

TECHALLOY COMPANY, INC.
Union, Illinois

TAD-06/21/96-11:07-L:\CAD93\000\05496


GW-01 ND
ROUTE 176
GW-9
ND
~5070 FEET
MILLSTREAM ROAD
GW-4
TCA=8
GW-5
TCA=38
1,1 DCE=18
1,1 DCA=23
TCE=24
GW-3
TCA=13
TCE=5
UNION ROAD
GW-8
TCA=7
GW-2
TCA=1,900
TCE=16
PCE=120
1,1 DCE=140
1,1 DCA=21
1,2 DCE=18
MW-HBR
GW-7
1,1 DCE=3
TCA=98
TCE=6
PCE=21
GW-6
ND
O'COCK ROAD
HIGHBRIDGE ROAD
PARK STREET
UNION ROAD
ELM STREET
SUNVIEW DRIVE
TCA=830
TCE=64
TCA=4,000
TCE=150
PCE=190
1,1 DCE=230

NOV 06 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DRE-9J

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union, Illinois
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

The United States Environmental Protection Agency (U.S. EPA) has determined that the existing Groundwater Recovery System, which is required by the above referenced Administrative Order on Consent (AOC) as an Interim Measure, does not capture the entire groundwater contaminant plume and needs to be upgraded.

In our recent telephone conversations we have discussed two upgrade options: (1) installation of an additional extraction well; (2) increasing the capacity of the existing extraction well. We have agreed that option 1, though an access agreement is required, is the preferred option. Techalloy shall immediately make an effort to contact the land owner concerning site access and the required installations. If site access appears obtainable, Techalloy shall secure site access as required by Section IX of the AOC. The agreement shall allow access and the placement of the installations for as long as it is necessary to satisfy the corrective measure objective. Upon

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

23 October 1997

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Submittal of CAMU Designation Request
Techalloy Property, Union, Illinois

Dear Mr. Buller:

On behalf of Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®) is pleased to submit three copies of the Corrective Action Management Unit (CAMU) Designation Request. At U.S. EPA's request, WESTON has removed the redline/strikeout format from the text.

If you have any questions, please call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Coordinator

CJS/slr
Enclosure

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy

CH01\PUBLIC\WO\W1500\TECHALL\23272.LT2

ADD'T ___ UPDATE: 12 ADEQUATE RCRA CORRECTIVE ACTION

HANDLER ID: 1 L D 0 1 0 1 5 1 1 1 7 1 8 9 1 7 1 5 FACILITY NAME: Techalloy - Union DATE: 03/24/98

INSTRUMENT INFORMATION:

INSTRUMENT TYPE: (A) C D U O P M N J S V Z

RESP. AGENCY: (EPA) STATE JOINT

ISSUANCE DATE: 11/27/93

RESP. PROG: (RCRA) CERCLA-(Superfund)

RESP. SECT: ~~REB~~ ECAB RPB OTHER ___

RESP. PER: RS/NB, STATE ____, ATTORNEY ____

EFFECTIVE DATE: ___/___/___

LEG. AUTH CODE: A B C D E F G H U

IF U, LEG. AUTH. CIT. _____

REVOCATION DATE: ___/___/___

REPOSIT. INFO: N/A REQ/EST REQ/NOT EST

AREA INFORMATION:

AREA SEQUENCE NUM: ___/___

AREA DESCRIPTIONS: _____

PRE-RFI RELEASES: (GW) ~~SW~~ (SOIL) AIR

POST-CMS CONSTITUENT CODE: _____

POST-CMS REMEDY CODE: ____ ____ ____ ____

POST-CMS TYPE OF MEDIUM: A G S N

STAGE	EVENT	INFORMATION: HDQTRS DESCRIPTIONS	SEQ. NUM	SCHEDULED DATES	ACTUAL DATES	STATUS CODES
RFA	CA010	RFA INITIATION.....				
	CA050	RFA COMPLETED.....				RF/ PA/
Pre-	CA060	NOTICE OF CONTAMINATION.....				
RFI	CA070	DETERMINATION OF NEED FOR RFI..				YE/ NO/
	CA075	CA PRIORITIZATION.....				HI/ ME/ LO/
RFI	CA100	RFI IMPOSITION.....				DC/
	CA110	RFI WORKPLAN RECEIVED.....				
	CA120	RFI WKPLAN MOD. REQ. BY AGENCY.				
	CA140	RFI WKPLAN NOTICE OF DEFICIENCY				
	CA150	RFI WORKPLAN APPROVED.....				
	CA155	RFI SUP. INFO REQ. BY AGENCY...				
	CA160	RFI SUP. INFO, RECEIVED.....				
	CA170	RFI SUP. INFO DEEMED SATISFACT.				
	CA180	RFI IMPLEMENTATION BEGUN.....				
	CA190	RFI REPORT RECEIVED.....				
	CA195	RFI PROGRESS REPORTS RECEIVED..				
	CA200	RFI APPROVED.....				
Hdqtr	CA210	CA RESP.REFERRED TO NON-RCRA...				SF/ OT/
CA	CA225	STABILIZATION METHOD EVALUATION				YE/ NR/ NF/ IN
CMS	CA250	CMS IMPOSITION.....				
	CA260	CMS WORKPLAN RECEIVED.....				
	CA270	CMS WKPLAN MOD. REQ. BY AGENCY.				
	CA300	CMS WORKPLAN APPROVED.....				
	CA305	CMS SUP. INFO REQ. BY AGENCY...				
	CA310	CMS SUP. INFO. RECEIVED.....				
	CA320	CMS SUP. INFO DEEMED SATISFAC..				
	CA330	CMS IMPLEMENTATION BEGUN.....				
	CA340	CMS REPORT RECEIVED.....				
	CA345	CMS PROGRESS REPORTS RECEIVED..				
	CA350	CMS APPROVED.....		10/09/97	10/09/97	
	CA370	PETITION FOR NO FUR.ACTION REC.				
	CA375	DCS.ON PETITION FOR NO FUR.ACT.				
	CA380	DTE PUB.NOTICE PROPOSED REMEDY.				
CMI	CA400	DTE FOR REM.SELECT(CMI IMPOSED)				
	CA410	DATE TO SUBMIT REMEDY DESIGN...				
	CA450	CM DESIGN APPROVED.....				
	CA460	COST EST. FOR REMEDY RECEIVED..				
	CA470	FINANCIAL ASSUR.FOR REMEDY DEMO				
	CA500	CMI WORKPLAN APPROVED.....				
	CA510	DETER. OF TECH. IMPRACTIBILITY.				
	CA550	CERT.OF REMEDY COMPLETION (CMI)				
[illegible]	CA600	STAB. MEASURES IMPLEMENTED.....				EC/ GW/ OT/ SR
	CA650	STAB. CONSTRUCTION COMPLETED...				
	CA725	HUMAN EXPOSURES CONTROLLED DET.				
IND	CA750	RELEASE TO GW CONTROLLED DETER.				
	CA999	CA PROCESS TERMINATED.....				

TURN OVER FOR REGIONAL EVENTS

OCT 0 9 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DRE-9J

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F.Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Corrective Measures Study Report
Techalloy Company, Inc., Union, Illinois
ILD 005 178 975
Administrative Order on Consent
Docket No. VW-007-93

Dear Mr. Lopes and Mr Serna:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the documents "Corrective Measures Study (CMS) Report" dated August, 1997, and the "CMS Addendum-Corrective Action Management Unit Designation Request" dated August 1997. These documents constitute the CMS Report which is hereby approved by U.S. EPA as a draft final report, with the following modifications (items 1 and 2):

1. Page 2-63, second paragraph - After the first two sentences the paragraph is revised as follows: "The analysis indicates that the existing extraction system operating at 350 gpm does not capture a significant portion of the contaminate plume that is southwest of the Union-Highbridge Road intersection (see Figure 2-13A)."

2. Figures 2 and 3 of Appendix D are deleted.

Following a thorough evaluation of the Intermim Meaures groundwater extraction system, you have agreed to upgrade this system. Your monthly progress report for September stated that the extraction system will be upgraded by installing an additional extraction well or increasing the pump capacity of the existing well, and that a schedule for implementation of the upgrade will be submitted to U.S. EPA the next month. U.S. EPA will review this schedule and advise you in writing whether the schedule is acceptable or requires modification. Thank-you for your cooperation in this matter.

In accordance with the Private Well Sampling Plan, residential wells have been sampled and analyzed semi-annually since July of 1993. Techalloy has proposed that the sampling program be modified to include only those wells nearest the contaminant plume. U.S. EPA concludes that the well sampling program can be reduced. Except for an occasional slight exceedance of drinking water standards which were not confirmed by follow up sampling/analysis, analytical results have shown volatile organic compounds (VOC)s and metal concentrations to be below drinking water standards. Also, waste handling practices at the Techalloy facility were upgraded in about 1980 thereby eliminating further direct input of contaminants to the environment. Consequently, the groundwater plume of contamination is not expected to expand in the future.

Pursuant to Section VI.A.2 of the above referenced Administrative Order on Consent (AOC), the private well sampling boundary is hereby modified so as to include only private wells numbered 1,3, 4, 10, 11 and 14, as shown in Figure 1 dated 6-13-97. Also, the constituents sulfate and nitrate need not be included in the list of analytes. Though nitrate has been found in some residential well samples in concentrations exceeding drinking water standards, evaluation of the data indicates that the source of nitrate is localized and that the facility is not the source.

Within fifteen (15) days of receipt of this letter, Techalloy shall send a letter to the appropriate residents providing an explanation for the discontinuation of the sampling. The submission of sampling results to residents which do not include sulfate and nitrate shall include an explanation for this modification. U.S. EPA and the McHenry County Health Department shall be provided with a copy of these letters. Pursuant to

Section VI.A.2 of the AOC, the well sampling boundary and/or the list of analytes may be modified, should additional information indicate the need for modification.

U.S. EPA will now proceed to develop a Statement of Basis which will be presented to the public for comment. A Statement of Basis summarizes the alternative remedies discussed in the CMS report and presents the remedy proposed by U.S. EPA. You will be notified when the public comment period is opened and provided with a copy of the Statement of Basis. Pursuant to Section VIII of the AOC, U.S. EPA may require revisions to the CMS report following the public comment period. You will be notified in writing if revisions are required.

Following the public comment period, U.S. EPA will develop a Final Decision/Response to Commen s (FD/RTC) document and you will be provided with a copy of this document also. The FD/FTC provides U.S. EPA's responses to the public comments and presents the remedy selected by U.S. EPA.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, A.T. Kearney

bcc: Jacqueline Kline, ORC

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
MB 10/9/97					

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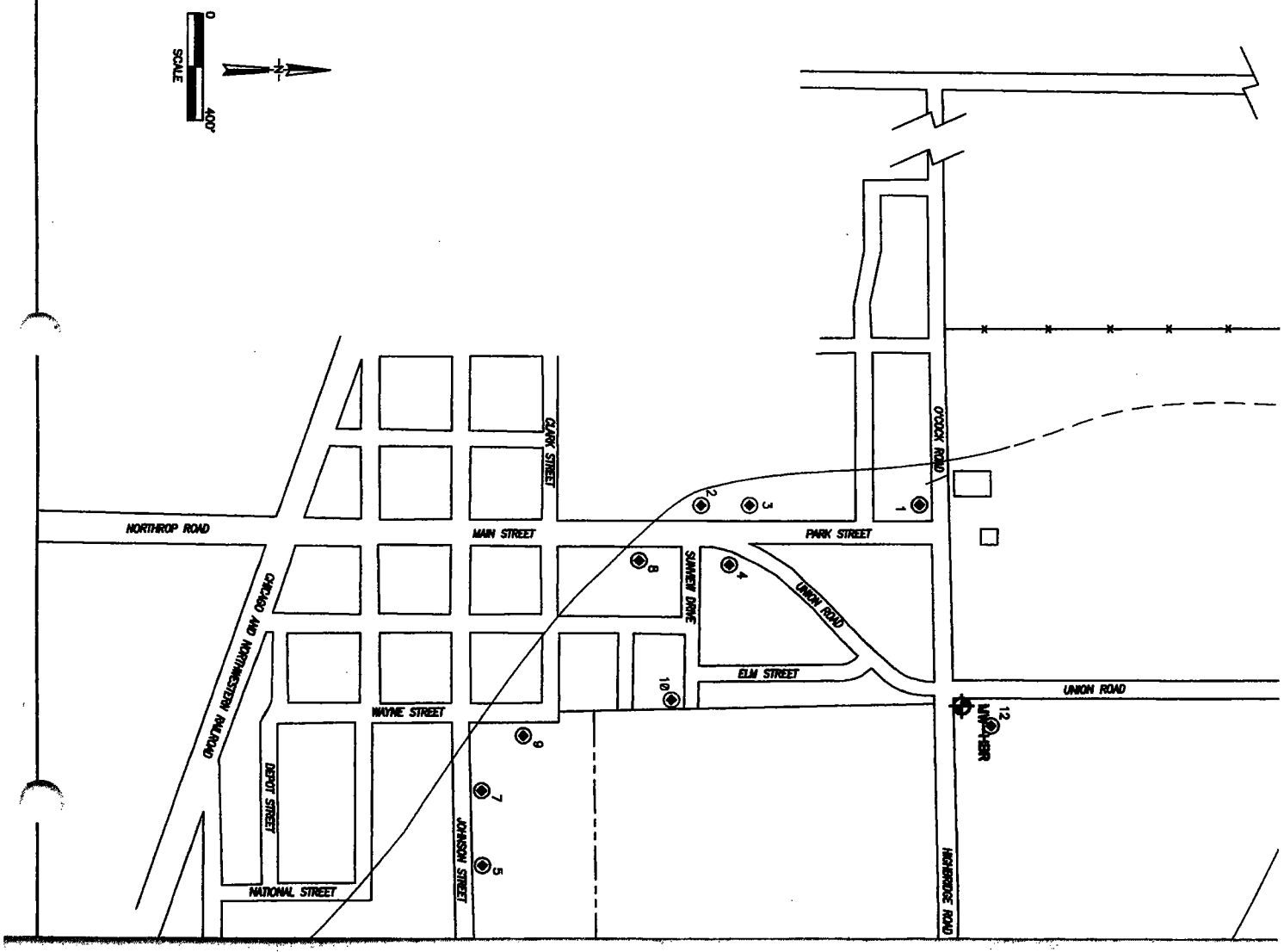
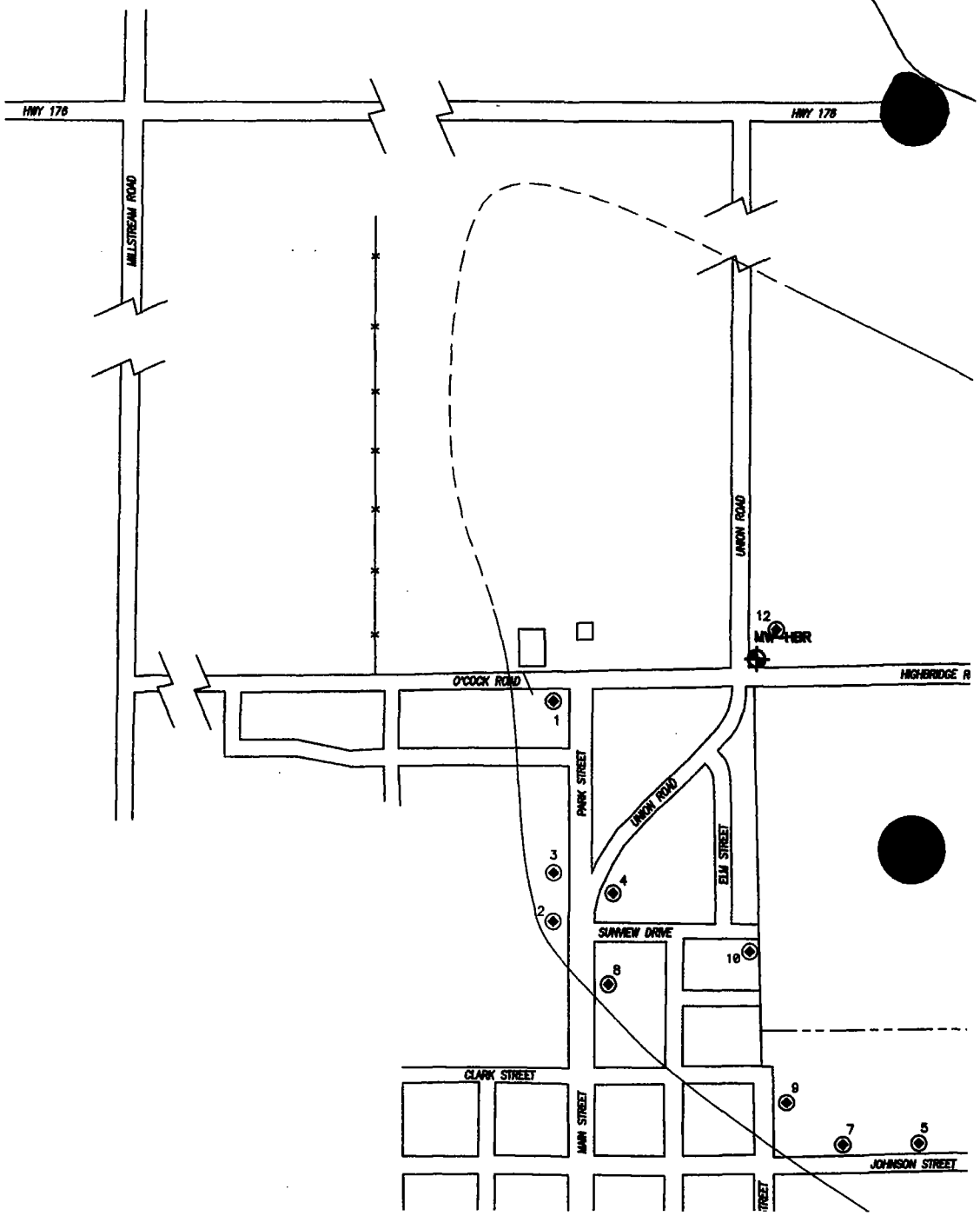
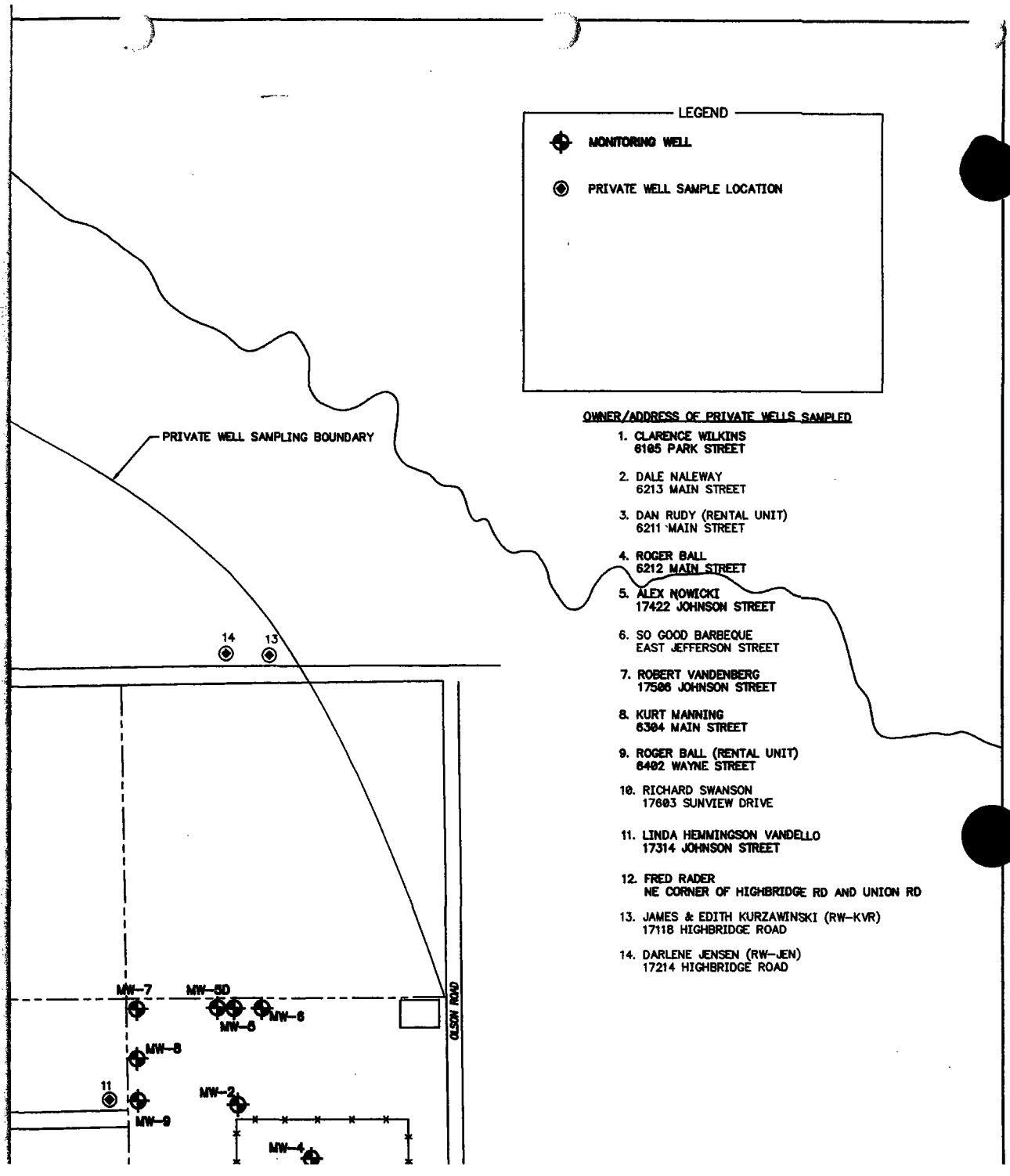
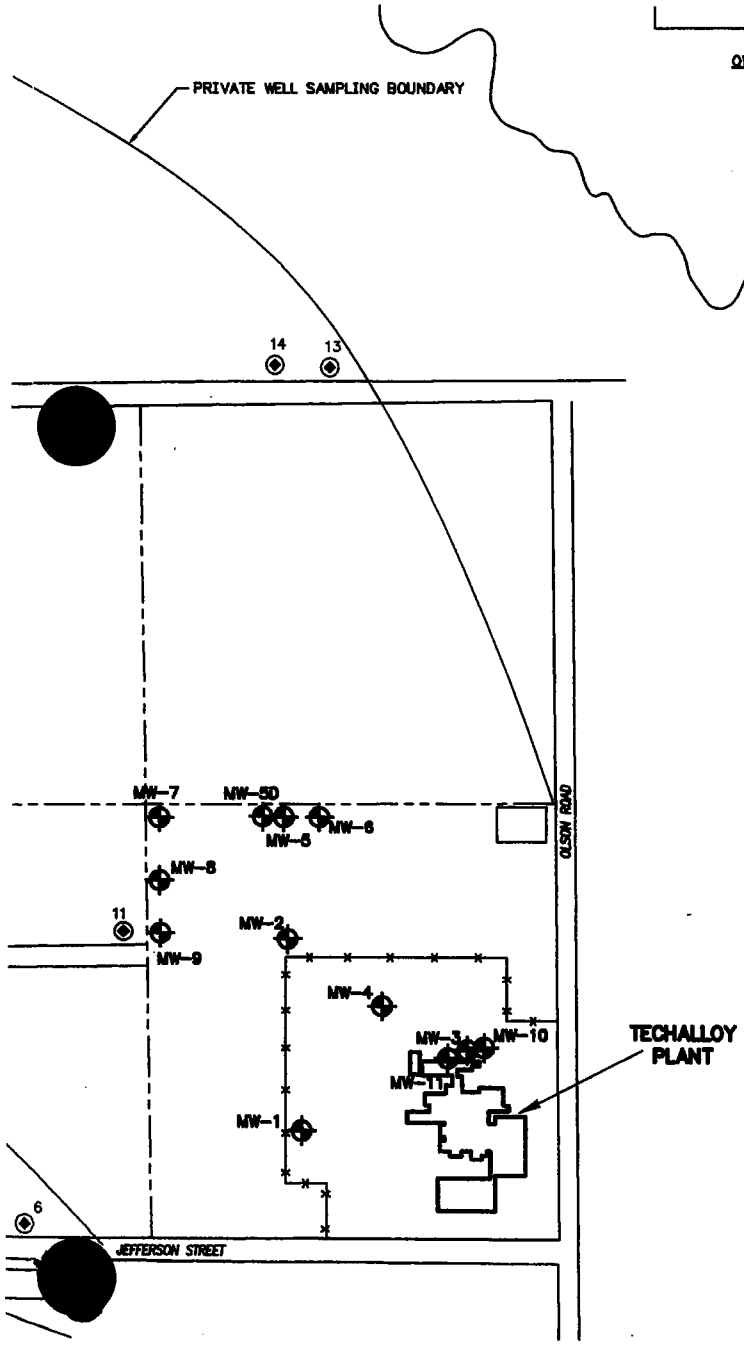



HWY 178
HWY 178
MILLSTREAM ROAD
UNION ROAD
12
MW4HBR
O'COCK ROAD
HIGHBRIDGE R
1
PARK STREET
UNION ROAD
ELM STREET
3
4
2
SUNVIEW DRIVE
10
8
CLARK STREET
9
MAIN STREET
7
5
JOHNSON STREET



OWNER/ADDRESS OF PRIVATE WELLS SAMPLED

1. CLARENCE WILKINS
   6105 PARK STREET
2. DALE NALEWAY
   6213 MAIN STREET
3. DAN RUDY (RENTAL UNIT)
   6211 MAIN STREET
4. ROGER BALL
   6212 MAIN STREET
5. ALEX NOWICKI
   17422 JOHNSON STREET
6. SO GOOD BARBEQUE
   EAST JEFFERSON STREET
7. ROBERT VANDENBERG
   17506 JOHNSON STREET
8. KURT MANNING
   6304 MAIN STREET
9. ROGER BALL (RENTAL UNIT)
   6402 WAYNE STREET
10. RICHARD SWANSON
    17603 SUNVIEW DRIVE
11. LINDA HEMMINGSON VANDELLO
    17314 JOHNSON STREET
12. FRED RADER
    NE CORNER OF HIGHBRIDGE RD AND UNION RD
13. JAMES & EDITH KURZAWINSKI (RW-KVR)
    17118 HIGHBRIDGE ROAD
14. DARLENE JENSEN (RW-JEN)
    17214 HIGHBRIDGE ROAD



OWNER/ADDRESS OF PRIVATE WELLS SAMPLED

1. CLARENCE WILKINS
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   6211 MAIN STREET
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   17422 JOHNSON STREET
6. SO GOOD BARBEQUE
   EAST JEFFERSON STREET
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   17506 JOHNSON STREET
8. KURT MANNING
   6304 MAIN STREET
9. ROGER BALL (RENTAL UNIT)
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    17314 JOHNSON STREET
12. FRED RADER
    NE CORNER OF HIGHBRIDGE RD AND UNION RD
13. JAMES & EDITH KURZAWINSKI (RW-KVR)
    17118 HIGHBRIDGE ROAD
14. DARLENE JENSEN (RW-JEN)
    17214 HIGHBRIDGE ROAD

FIGURE 1

WESTON MANAGERS DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061

PRIVATE WELL SAMPLE LOCATIONS

TECHALLOY COMPANY, INC.
Union, Illinois

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

3 October 1997

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Submittal of the Final Corrective Measures Study
Techalloy Property, Union, Illinois

Dear Mr. Buller:

On behalf of Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®) is pleased to submit three copies of the Final Corrective Measures Study (CMS) report. WESTON has removed the redline and strikeout format from the text. Also per our telephone conversation, I have added a brief discussion pertinent to the most recent groundwater capture analysis.

If you have any questions, please call me at (847)918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Coordinator

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy
David Williams, Techalloy
Scott Carr, Techalloy

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

8/12
copies to ATK
Orig to Rec Cord

11 August 1997

RECEIVED
AUG 12 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Submittal of the Revised Draft Corrective Measures Study and CAMU Designation Request
Techalloy Property, Union, Illinois

Dear Mr. Buller:

On behalf of Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®) is pleased to submit three copies of the revised pages of the Final Corrective Measures Study (CMS) report. This revision incorporates U.S. EPA's comments as discussed during telephone conversations during the week of 8 August 1997. Revised pages of text are identified with a new header which indicates the revision date and revision number. Text changes are indicated using the following format in order to easily identify changes:

- New text is double-underlined.

If you have any questions, please call me at (847)918-4002.

Very truly yours,

ROY F. WESTON, INC.

for Carlos J. Serna, P.G.
Project Coordinator

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy

Click to WESTON On The Web http://www.rfweston.com

031

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

1 August 1997

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

RECEIVED
AUG 04 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

Re: Submittal of CAMU Designation Request
Techalloy Property, Union, Illinois

Dear Mr. Buller:

On behalf of Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®) is pleased to submit three copies of the Revised Corrective Action Management Unit (CAMU) Designation Request. This revision incorporates U.S. EPA's comments as presented in a letter received via fax on 16 July 1997. Revised pages of text are identified with a new header which indicates the revision date and revision number. Text changes are indicated using the following format in order to easily identify changes:

- New text is redlined.
- ~~Old text is struckout.~~

If you have any questions, please call me at (847)918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Coordinator

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy

Click to WESTON On The Web http://www.rfweston.com

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

31 July 1997

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

ILD 005 178 975
D.3.2

Work Order No. 01989-028-001

Re: Response to Technical Review of the
Aquifer Performance Evaluation
Techalloy Company
Union, Illinois

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON®) has reviewed the U.S. EPA's 20 June 1997 comments concerning the aquifer performance evaluation at the above-referenced facility. The purpose of the evaluation is to determine the hydraulic characteristics of the aquifer in which an extraction well (EW-1) is currently operating downgradient of the facility and to determine if the operation of this extraction well will achieve the objective of capturing the source of the contaminant plume emanating from the facility. This letter presents WESTON's response to the U.S. EPA's comments.

The transmissivity of the aquifer was estimated by WESTON and the U.S. EPA using the Cooper-Jacob time-drawdown method, the Cooper-Jacob distance-drawdown method, and the recovery method. The results of these various calculations produced transmissivities ranging from 24,376 to 55,789 ft^2/day. These transmissivity values correlate to hydraulic conductivities ranging from 360 ft/day (1.3×10^{-1} cm/sec) to 823 ft/day (2.9×10^{-1} cm/sec), respectively. Although this range of hydraulic conductivity is quite small and the differences are negligible with respect to the accuracy of any of the testing methods, the range does have an impact on the results of the capture zone analysis. To account for the variability in hydraulic conductivity/transmissivity and the effect that it has on the capture zone analysis, WESTON has re-evaluated the estimated capture zone using averages of the possible hydraulic values.

First, WESTON would like to note that similar to our original evaluation, the results of the recovery test analyses will not be used in the calculated averages. Recovery tests completed in highly permeable, unconfined aquifers can overstate the actual transmissivity of aquifer and WESTON believes that this is the case with these test results. Therefore, WESTON has calculated a geometric mean of the transmissivity results obtained by WESTON and the U.S. EPA using the Cooper-Jacob time-drawdown method and the Cooper-Jacob distance-drawdown method. The geometric mean of these results is a transmissivity of 34,570 ft^2/day and a hydraulic conductivity of 510 ft/day (1.8×10^{-2} cm/sec).

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Figure 1 shows the capture zone derived using the geometric mean of the transmissivity values. This analysis also used the previously reported average hydraulic gradient of 0.0013 ft/ft and an average effective porosity of 30 percent. The pumping rate used in the analysis is 350 gallons per minute (gpm). The flow lines shown in Figure 1 represent the estimated capture zone after 1.5 years and also the theoretical steady-state capture zone. As this figure shows, the estimated capture zone will fully intercept the contaminant plume at a distance of approximately 1,800 feet upgradient of the extraction well.

WESTON has also completed sensitivity analyses that compare the affects of variations of several parameters. Specifically, the pumping rate was varied from 350 to 400 gpm, the effective porosity was varied from 20 to 40 percent, and the hydraulic gradient was varied from the minimum (0.0009 ft/ft) and maximum (0.0016 ft/ft) values that were measured to calculate the stated average of 0.0013 ft/ft. WESTON has also run the capture zone analysis using the various values of transmissivity.

The sensitivity analyses indicate that variation in the pumping rate (within the stated range) and effective porosity have a negligible affect on the width of the capture zone. The two most important values are transmissivity (or hydraulic conductivity) and hydraulic gradient.

As was demonstrated by the U.S. EPA, the variations in the transmissivity values affects the width of the capture zone. However, WESTON does not agree that these variations result in the contaminant plume not being captured by the extraction well. It is evident from the capture zone analysis that the contaminant plume is being captured.

If the geometric mean of the transmissivity values is used in the capture zone analysis (as discussed above), the single most important parameter affecting the capture zone is the hydraulic gradient of the water table. As described above, using the average hydraulic gradient of 0.0013 ft/ft, the contaminant plume will be completely captured by the extraction well at a distance of approximately 1,800 feet from the extraction well. As Figure 2 shows, if the maximum hydraulic gradient is used (0.0016 ft/ft), the distance extends to approximately 2,400 feet from the extraction well. As Figure 3 shows, if the minimum hydraulic gradient is used (0.0009 ft/ft), the southwest edge of the capture zone is intercepted at a distance of approximately 1,100 feet from the extraction well.

In conclusion, it is evident that variations of the hydraulic conditions within the aquifer are possible and that these variations will affect the maximum width of the capture zone from extraction well EW-1. WESTON would also like to point out two additional factors that may ultimately influence the ability of the extraction well to completely capture the contaminant plume. First, consideration

should be given to the location of the plume boundaries. The southwestern edge of the plume has been drawn based on data collected from the HBR well and nearby residential wells that show no signs of contamination. The plume edge has been conservatively drawn nearer to the residential wells; however, in actuality, the southwestern edge of the plume may be nearer to the HBR well. Secondly, the modeling of the capture zone assumes that the transmissivity of the aquifer remains constant. In reality, the aquifer thickness changes from the 67.8 feet at the extraction well to approximately 30 feet at the Techalloy facility. This would translate into an aquifer transmissivity ranging from approximately 15,000 to 18,000 ft^2/day. These lower transmissivity values nearer to the facility will result in a markedly wider capture zone than is shown.

Based on the location of the extraction well, the limits of the contaminant plume, the direction of groundwater flow, and the limitations of the capture zone model, WESTON is confident that the capture zone will achieve the goal of completely capturing the contaminant plume.

If you have any additional questions or comments concerning this issue, please do not hesitate to contact me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Manager

CJS:slr
Attachments

cc: Keven Lesko, IEPA
Henry Lopes, Techalloy
David Williams, Techalloy
Scott Carr, Techalloy

D31

JUL 16 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DRE-8J

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc.
CAMU Designation Request
Administrative Order on consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr Lopes and Mr Serna:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the Corrective Action Management Unit (CAMU) Designation Request for the Techalloy Facility and determined that certain revisions are needed prior to approval. Please provide within fifteen (15) days of receipt of this letter, a revised CAMU Designation Request that addresses the comments provided in Attachment I. The revised document shall be provided as a complete document with revised pages identified.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, A.T. Kearney

ATTACHMENT 1

U.S. EPA Comments on CAMU Designation Request

1. The Toxicity Characteristic Leaching Procedure soil test results shall be presented. Waste codes for the remediation soil shall include D008.

2. The text shall specify that, following excavation of the delineated soil areas, proper verification sampling/analysis will be performed to assure soils exceeding target clean up levels are treated by stabilization.

3. U.S. EPA method SW 1311 (Appendix II of 40 CFR 261) shall be specified for testing for Toxicity Characteristic.

4. Figure 2-3 shall be revised to show a CAMU area encompassing the four excavation areas and the treatment pad area.

5. The text pertaining to bench scale/preliminary testing shall provide a discussion on how potential interference by volatile organic compounds (VOC)s on the soil stabilization process will be addressed. For soil that does not respond properly to the stabilization process due to VOC interference, off-site disposal shall be presented as an option.

6. The text shall note that the Spent Acid Holding Pond is below grade, and that some stabilized soil may be placed at the Holding Pond to allow for the volume increase created by the stabilization process.

7. Monitoring wells MW-2, MW-6, MW-7, and MW-8 shall be included in the groundwater monitoring program. At least one initial sampling/analysis of an up gradient well shall be included in the monitoring program. Analysis shall be for total metals, analysis for dissolved metals may be performed as an option.

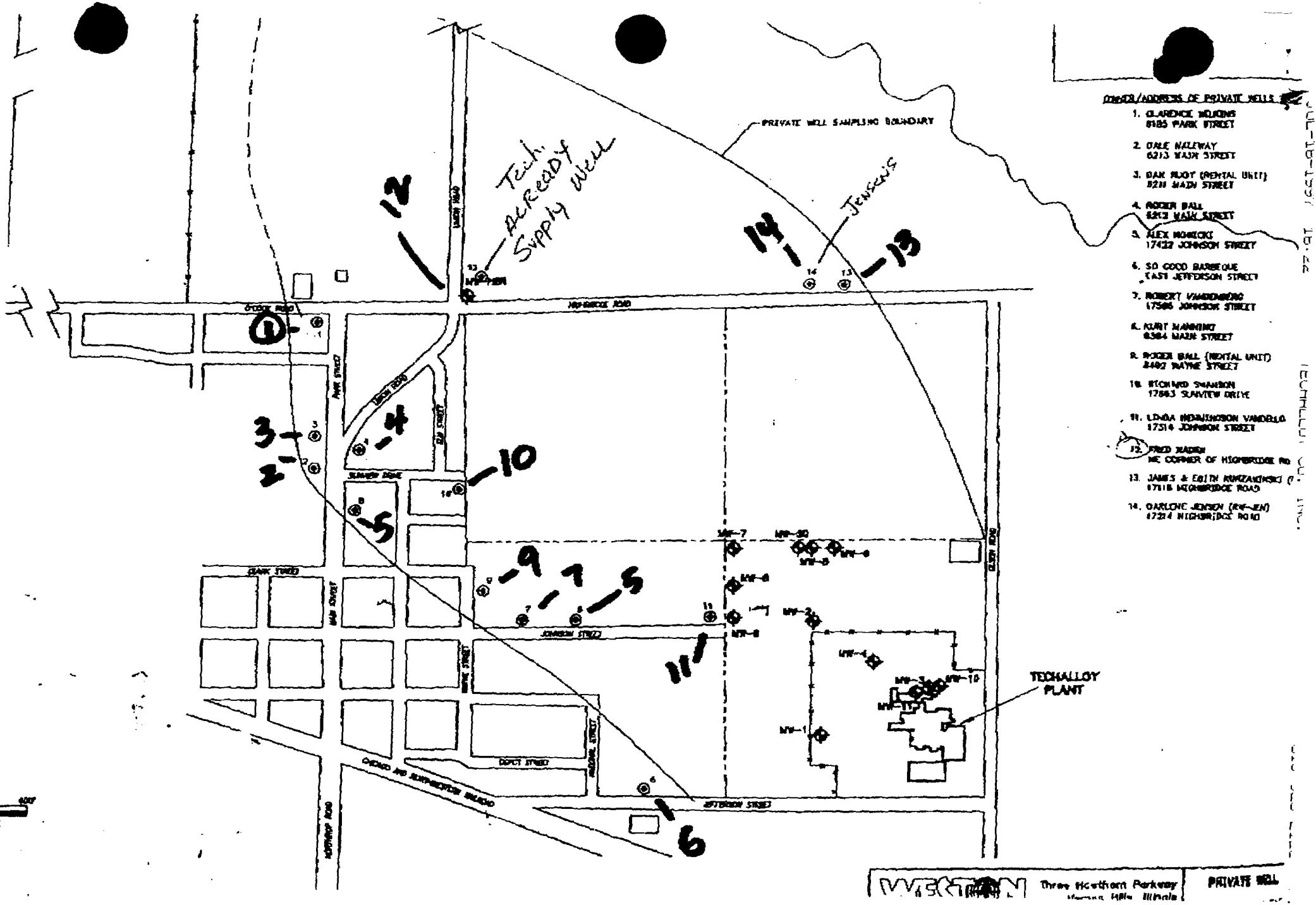
8. The text pertaining to groundwater assessment monitoring shall discuss how significant increases of metal concentrations will be determined.

9. Identify the analysis that will be performed (pre and post stabilization) to establish that 95-99 percent reduction has been achieved.

bcc: Jacqueline Kline, ORC

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
MB 7/16/97					


PRIVATE WELL SAMPLING BOUNDARY
Tech ALREADY Supply Well
Jensens
12
14
13
10
3
2
4
5
9
7
5
11
6
1
HIGHBRIDGE ROAD
PARK STREET
MAIN STREET
WAYNE STREET
JOHNSON STREET
JEFFERSON STREET
DEPOT STREET
SUNVIEW DRIVE
GLEN ROAD
NORTHROP ROAD
TECHALLOY PLANT
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10
MW-11
MW-12
OWNER/ADDRESS OF PRIVATE WELLS
1. CLARENCE WILKINS 8185 PARK STREET
2. DALE HALEWAY 6213 MAIN STREET
3. DAN ROOT (RENTAL UNIT) 8211 MAIN STREET
4. ROGER BALL 8213 MAIN STREET
5. ALEX MOWICKI 17422 JOHNSON STREET
6. SO GOOD BARBEQUE EAST JEFFERSON STREET
7. ROBERT VANDENBERG 17586 JOHNSON STREET
8. KURT MANNING 8384 MAIN STREET
9. ROGER BALL (RENTAL UNIT) 8402 WAYNE STREET
10. RICHARD SWANSON 17663 SUNVIEW DRIVE
11. LINDA HENRIKSON VANDELLO 17514 JOHNSON STREET
12. FRED MADEN NE CORNER OF HIGHBRIDGE RD
13. JAMES & EDITH KUNZANOWSKI 17118 HIGHBRIDGE ROAD
14. CARLONE JENSEN (RENTAL) 17214 HIGHBRIDGE ROAD
Three Northern Parkway
PRIVATE WELL

ATKEARNEY

A.T. Kearney, Inc.
222 West Adams Street
Chicago, Illinois 60606
312 648 0111
312 223 6200 Fax
RZ2.R05035.01.ID.028

July 11, 1997

Mr. William Buller
U.S. Environmental Protection Agency
Region 5 DRE-8J
77 W. Jackson
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W4-0006; EPA Work Assignment No. R05035; Techalloy Company, Inc.; EPA ID No. ILD005178975; CAMU Designation Request Review; Task 04 Deliverable

Dear Mr. Buller:

Please find enclosed A.T. Kearney's review of the Corrective Measures Study Addendum, Corrective Action Management Unit (CAMU) Designation Request, Techalloy Company, Inc. An electronic version of this document is included on the enclosed diskette in Word Perfect 6.1 for Windows.

As you directed, the CAMU Designation Request review addresses each of the issues included in Attachment II of U.S. EPA's May 19, 1997 letter to Techalloy Company, Inc. (Techalloy). Several aspects of the CAMU Designation Request were found to be insufficient based on comparison to 40 CFR 264.552. Four General Comments and seven Specific Comments are presented in this deliverable.

General Comments 1 and 2 address the possibility that the area proposed to be designated as a CAMU will be insufficient to contain all of the contaminated soil which is proposed to be treated in the CAMU. This is due to the potential increase in the volume of soil to be placed into the CAMU due to additional excavation of contaminated soil from outside those areas designated on Figure 2-3 of the CAMU Designation Request, and the addition of up to 5 to 20% by weight of stabilizing material to the soil.

A potential solution to the volume issue may be the same solution as for the issue brought up in General Comment 3 which relates to problems using the proposed stabilizing technology with soils that contain high concentrations of volatile organic compounds (VOCs). If Techalloy is required to excavate, for off-site disposal, that material which is considered to be the source material for the groundwater contamination at the Techalloy facility (see Figure 1 of Techalloy's May 2, 1997 submittal regarding VOC source areas), the removal of this volume of soil from the area designated as part of the proposed CAMU could help to alleviate potential soil storage problems. That is not to say that off-site treatment and disposal is the only or best treatment methodology which should be used to address VOC contamination in soils. This possible solution is presented here because of its convenience and it appears appropriate based on conversations that have taken place between Mr. Todd Quillen of A.T. Kearney and yourself over the course of the CMS review.

If Techalloy chooses not to remove VOC contaminated soil from the area inside the CAMU for off-site treatment and disposal, the CAMU Designation Request should address all of the performance and regulatory impacts of their decision to manage VOC contaminated soils in their treatment process. A.T. Kearney considers Techalloy's lack of discussion on the impact of VOCs on the treatment of the metals contaminated soils one of the most significant deficiencies of the CAMU Designation Request.

Techalloy's approach to designating the four metals contaminated areas and the asphalt treatment pad as the CAMU seems unnecessarily restrictive in light of 40 CFR 264.552(c)(1). Additional areas may be designated as part of the CAMU, in consideration of 40 CFR 264.552(c)(3), to facilitate the movement of contaminated soil around the perimeter of the excavations, to account for the sidewall slopes of the excavations, and to allow latitude in the event that contaminated soil is encountered outside the areas which are currently delineated in Figure 2-3 in the CAMU Designation Request. This issue should be discussed in the CAMU Designation Request to allow U.S. EPA to complete a thorough evaluation. This issue is discussed in General Comment 4.

Specific Comments 5 and 6 address the proposed groundwater monitoring network and sampling procedures that may be implemented to monitor the effectiveness of the stabilization of the soils in the CAMU. A.T. Kearney's recommendation to include additional monitoring wells in the monitoring network is a sound recommendation from a hydrogeologic perspective. Further, the inclusion of additional wells should not cause undue financial burden on the facility because the wells will be sampled and analyzed only for limited parameters (lead, chromium, nickel). Currently the cost to analyze a single groundwater sample for all three of these constituents should be less than $100.

Per your request, a July 7, 1997 submittal from Techalloy to U.S. EPA was briefly reviewed as it pertained to the CAMU Designation Request which was the subject of this review. The July 7, 1997 submittal contained the TCLP analytical results from four samples collected from the contaminated areas which are delineated as part of the CAMU. These results indicate that the soil in two of the four areas (HPHA-03 and HPHA-04; see Figure 1 in the July 7, 1997 submittal) are considered hazardous because they exceed the maximum concentration of contaminants for the toxicity characteristic for lead (5.0 mg/L). However, because the soil in the other two areas (WWHA-01 and CPHA-02) did not exceed the TCLP for metals, these soils may not be considered hazardous based on the TCLP analyses that were conducted.

The fact that the results for samples WWHA-01 and CPHA-02 do not exceed the TCLP regulatory levels for metals raises complex issues since the CAMU regulation are written to facilitate the treatment of hazardous waste.

According to the CAMU regulations at 40 CFR 264.552 and the LDR regulations at 40 CFR 268, it may still be appropriate to designate each of the four areas delineated in the CAMU Designation Request as part of the CAMU, even though single samples from two of the four areas did not exceed the TCLP regulatory level for metals. This position would be strengthened by, but not dependant on, Techalloy indicating that the metals contamination found in each of the four areas is from the same waste stream. Techalloy does not explicitly state, in either the June 1996 RCRA Facility Investigation (RFI) Report, the March 1997 Corrective Measures Study (CMS) Report, or the June 1997 CAMU Designation Request, that the four areas of on-site metals contamination result from the same waste stream. If Techalloy indicates that metals contamination at the site results from the same waste stream and, based on the high levels of total metals found in each of the four areas and the TCLP exceedances in samples HPHA-03 and HPHA-04, additional sampling in the areas surrounding WWHA-01 and CPHA-02 would likely indicate TCLP exceedances for site contaminant metals, U.S. EPA may concur that it is likely that hazardous waste occurs in each of the four areas. Therefore, it is appropriate to designate all four areas as part of the CAMU. The CAMU regulations at 40 CFR 264.552 allow for a CAMU to incorporate appropriate contaminated areas while minimizing the incorporation of uncontaminated areas. 40 CFR 264.552(c)(7) is one aspect of the CAMU regulations which should be considered to address the issue of whether the additional contaminated, yet not definitively containing hazardous waste, area may be included in the CAMU.

If, on the other hand, Techalloy chose to claim that only the asphalt pad treatment area and the two areas surrounding HPHA-03 and HPHA-04 were part of the CAMU, they may be able to do so and also treat all of the metals contaminated soil which exceeds the established site-specific risk-based levels. No aspect of the CAMU regulations prohibits remediation waste from outside of the CAMU from entering the CAMU for treatment to be subsequently returned to the area

from which they were extracted provided that the remediation waste are treated to a level which would satisfy LDR requirements (per conversation with the RCRA Hotline, 7/9/97).

Upon further elaboration in the CAMU Designation Request, Techalloy may establish a goal of meeting appropriate LDR requirements prior to returning treated soil to on-site excavations outside of the established CAMU. According to Section 2.2 (Stabilization/Solidification Technology) of the CAMU Designation Request, the proposed treatment technology may reduce the mobility of the metal contaminants at the Techalloy site by 95 to 99.9 percent. Phone calls to the U.S. EPA Risk Reduction Laboratory (attn: Glen Shaul, Treatability Database) regarding whether the 95 to 99.9 percent reduction applies to leachability/TCLP were unanswered as of the date of this deliverable. A CAMU would still be necessary for any on-site treatment activities to avoid triggering LDR requirements at the treatment area (i.e., soil excavated from contaminated areas on-site could not be placed in a stockpile on the asphalt treatment pad without violating LDR regulations unless this activity takes place within a CAMU).

The two factors which control the approach that will be taken regarding designating the areas surrounding WWHA-01 and CPHA-02 as part of the CAMU are: 1) The course of action Techalloy will take with respect to stating that all four of the metals contaminated areas outlined in Figure 2-3 of the CAMU Designation Request likely contain hazardous waste because they all result from the same waste stream and it is likely that additional sampling in WWHA-01 and CPHA-02 would detect exceedances for TCLP metals, and 2) the course of action U.S. EPA will take with respect to this same issue. Based on the information available at this time, A.T. Kearney believes that the regulations will allow Techalloy to proceed along either of the two courses of action described above.

Based on the discussion presented above, the following is presented to highlight potential solutions to two of the most significant deficiencies identified in our review of the CAMU Designation Request.

- Techalloy should consider designating a larger area as the CAMU to facilitate the treatment of the metals contaminated soil. The CAMU regulations (40 CFR 264.552) allow sufficient latitude for Techalloy to make a case that all of the area designated in the attached Figure 1 should be included in the CAMU and the regulations allow U.S. EPA to approve such a designation. Public comment/perception and state regulations may have a bearing on this issue.

- Techalloy should either remove VOCs from all soil which will be treated in the CAMU or Techalloy should provide a satisfactory argument that treating VOC contaminated soils in their CAMU will not have any adverse performance or regulatory consequences.

Please contact me or Mr. Todd Quillen, at (312) 223-7129 if you have any questions.

Sincerely,

Patricia Brown-Derocher
Regional Manager

cc: F. Norling, EPA Region 5, w/out attachments
W. Jordan, Central Files
T. Quillen
A. Williams

TECHALLOY COMPANY, INC.
UNION, ILLINOIS
EPA ID NO. ILD005178975

CAMU DESIGNATION REQUEST REVIEW

Submitted to:

Mr. William Buller
U.S. Environmental Protection Agency
Region 5 DRE-8J
77 West Jackson Boulevard
Chicago, Illinois 60604

Submitted by:

A.T. Kearney, Inc.
222 West Adams Street
Chicago, Illinois 60606

EPA Work Assignment No.	R05035
Contract No.	68-W4-0006
A.T. Kearney WAM	Todd Quillen
Telephone No.	312/223-7129
EPA WAM	William Buller
Telephone No.	312/886-4568

July 11, 1997

TECHALLOY COMPANY, INC.
UNION, ILLINOIS
EPA ID NO. ILD005178975

CAMU DESIGNATION REQUEST REVIEW

GENERAL COMMENTS

1. The CAMU Designation Request presents the approach to be used to determine the lateral and vertical extent of soil to be excavated based on exceedance of the target cleanup levels for metals. From this discussion it appears that the approach will be to excavate soil laterally according to the delineations indicated on Figure 2-3 and vertically to a depth of 10 feet. There is no indication that sampling will take place along the sides or bottom of the excavations to determine whether all soil exceeding target cleanup levels have been removed and treated during the corrective action.

   It is not required that Techalloy provide in the CAMU Designation Request a discussion which includes all aspects of potential soil screening methodologies which may be conducted during soil excavation. However, the absence of discussion on this topic leaves open the possibility that soil which exceeds the target cleanup levels for metals but is outside the areas delineated on Figure 2-3 would not be removed. Leaving soil in place which exceeds the target cleanup levels for metals is not acceptable.

   If contaminated soil is encountered outside of those areas indicated on Figure 2-3 and excavated for treatment, this soil could not be returned to the excavated areas which fall outside of the areas designated as part of the proposed CAMU on Figure 2-3. Soil at the Techalloy site which is excavated from outside of the areas indicated on Figure 2-3 may be placed only into those areas designated as part of the CAMU on Figure 2-3. However, this additional material being placed into the limited area designated as part of the CAMU may result in difficulty returning the CAMU areas to appropriate grade to allow for the emplacement of the asphalt cap.

   Techalloy should revise the CAMU Designation Request to provide a discussion of proposed soil screening procedures which will be used to assure that all contaminated soil which exceeds the target cleanup level for metals on the Techalloy property is properly excavated and treated during the corrective measures. This topic should be discussed in the CAMU Designation Request, rather than the Corrective Measure Implementation Plan for instance, to assure that the limits of the CAMU have been adequately delineated.

2. Section 2.4.4 states "After the treated material has been placed back into the excavations, the entire area would be paved with asphalt as shown in Figure 2-3." Section 3.7 indicates that the stabilized soil must be placed below grade to allow for construction of

the asphalt cover. Considering the current estimate presented in Section 2.3 that 5-20% by weight of additional material may need to be mixed with the contaminated soil for stabilization, there is a possibility that not all of the excavated and stabilized material will be able to be placed back into the excavation and compacted to below grade.

Section 2.3 of the CAMU Designation Request indicates that "minimal increase in volume" is one of the characteristics that will be examined during the bench-scale study. No discussion is provided on the methodology that will be used to examine the change in volume of the soil when mixed with various proportions of stabilizing agents. Also, no indication of volume increase tolerances is provided.

Techalloy should revise the CAMU Designation Request, in particular Section 2.3, to address the issue of a potential increase in soil volume due to the addition of soil stabilization materials. This issue should be addressed in the CAMU Designation Request because of its importance with respect to potentially increasing the area which will be designated as a CAMU at this facility. The issue does not need to be treated with a high level of detail in the CAMU Designation Request. However, the issue should be discussed to assure that the limits of the CAMU have been adequately delineated.

3. Section 2.2 of the CAMU Designation Request recognizes that soil containing elevated levels of volatile organic compounds (VOCs) may be encountered during the excavation and treatment of the metals contaminated soils in the area surrounding soil boring CP-01 (see Figures 2-15 and 2-16 in the March 1997 CMS Report). Section 2.2 further indicates that the treatment methodology discussed in the CAMU Designation Request may not be appropriate for soil containing VOCs since the VOCs may interfere with the stabilization process by preventing complete mixing or wetting of the soil with the stabilizing agents. No discussion is provided in the CAMU Designation Request regarding the approach which will be taken by Techalloy to address this issue.

In addition, elevated levels of VOCs may be encountered elsewhere on-site during the excavation of the metals contaminated soils. The CAMU Designation Request does not address treatment of VOC contaminated soils which may be encountered. This issue should be discussed especially as it relates to the possibility that metals contaminated soil which is also contaminated with VOCs will be encountered outside those areas delineated on Figure 2-3 as part of the CAMU. According to the estimated effectiveness of the stabilization/solidification technology, it may be possible to excavate soil from outside those areas delineated as part of the CAMU, treat the soil to below land disposal restriction (LDR) levels for metals, and emplace the soil back into excavated areas which happen to lie outside of the designated CAMU while meeting LDR requirements for metals. Techalloy does not provide discussion on the possibility that VOCs will leach out of the stabilized soils, potentially becoming a source of contamination. Also, Techalloy does not provide discussion on the potential influence of stabilized soils on the effectiveness of the soil vapor extraction system (see March 1996 CMS) that may be used to remediate the VOC contaminated soil.

If Techalloy does not intend to remove VOCs from the metals contaminated soils that will be treated in the CAMU prior to treatment, Techalloy should revise the CAMU Designation Request to discuss the approach that will be taken to treat soil which exceeds the target cleanup levels for metals yet also contains elevated levels of VOCs. If necessary, Techalloy should address the need for conducting TCLP analyses for VOCs on stabilized/solidified soils following treatment in addition to analysis for total VOCs to determine the influence of the treatment process on the leachability of the VOCs. The CAMU Designation Request should also specify how bench scale studies of physical parameters will be compared to total VOC results to determine the influence of VOCs on the treatment technology that will be used in the CAMU.

4. The CAMU Designation Request indicates that the four metals contaminated areas and the asphalt treatment pad will be designated as the CAMU at the Techalloy facility. This approach may be unnecessarily restrictive in light of 40 CFR 264.552(c)(1) which promotes, among other things, that the CAMU shall facilitate effective and protective remedies. Techalloy may wish to consider designating a larger area as part of the CAMU, while maintaining consideration of 40 CFR 264.552(c)(3), to facilitate the movement of contaminated soil around the perimeter of the excavations, to account for the sidewall slopes of the excavations, and to allow latitude in the event that contaminated soil is encountered outside of the areas which are currently delineated in Figure 2-3 in the CAMU Designation Request.

   Techalloy should revise the CAMU Designation Request to provide assurance that the area currently anticipated to be designated as part of the CAMU is of sufficient size to account for 40 CFR 264.552(c)(1).

SPECIFIC COMMENTS

Section 1 Introduction

1. Section 1 of the CAMU Designation Request states that the contaminated soil at the Techalloy facility would be considered F002 or F007 hazardous waste based on past waste management activities. The waste code F002 does not seem appropriate for the material which will be managed in the proposed CAMU. The waste code F007 may be appropriate yet information provided in the June 1996 RCRA Facility Investigation (RFI) Report, which discusses manufacturing activities in Section 1.1.2.1, does not directly indicate that the metals contaminated soil at the Techalloy facility are related to releases from spent cyanide plating bath solutions from electroplating operations, which is the definition of F007.

   Section 2.1 of the CAMU Designation Request indicates that samples of contaminated soil were collected in June 1997 to be characterized by toxicity characteristic leaching procedure (TCLP) analysis. These TCLP results were submitted to U.S. EPA in Techalloy's July 7, 1997 submittal. Based on the results of the TCLP analyses, the soil to be managed in the CAMU may be considered a hazardous waste based on toxicity.

   Techalloy should revise the CAMU designation request to indicate that metals contaminated soil at the Techalloy site could be considered a characteristic hazardous waste based on TCLP results (i.e., D008 for lead). Alternatively, Techalloy may provide additional detail in the CAMU Designation Request to justify the characterization of the contaminated soil at the Techalloy facility as F002 or F007 listed hazardous waste.

Section 2.3 Bench-Scale Study

2. The baseline chemical characterization of the soil/stabilization agent mixtures that will be examined during the bench-scale study will involve TCLP analysis using U.S. EPA Method SW 6000/7000. Techalloy does not provide the U.S. EPA method that will be used to prepare the sample for analysis by Method SW 6000/7000.

   Techalloy should revise the CAMU Designation Request to specify that the samples which will be analyzed by Method SW 6000/7000 will be prepared by U.S. EPA Method SW 1311 (TCLP).

Section 2.4.1 CAMU Operation, Site Layout

3. This section indicates that treated soils will be placed back into the four contaminated soils areas shown in Figure 2-3 of the CAMU Designation Request. This section does not explicitly state that treated soil will not be placed into the area where the treatment equipment will be located.

Considering the lateral extent and volume issues noted in General Comments 1 and 2 above, Techalloy should revise Section 2.4.1 to indicate that only those four areas designated on Figure 2-3 where metals contaminated soils currently exist may receive treated soils and that no treated soils will be placed in that area of the CAMU where the treatment equipment is to be located.

Section 2.4.3 Treatment Activities

4. Section 2.4.3 states that water or plastic covers will be used to minimize fugitive dust emissions. This section does not discuss air monitoring to determine the effectiveness of these fugitive dust emission controls.

   Techalloy should revise the CAMU Designation Request to include discussion of dust monitoring procedures which will be implemented during treatment activities to monitor dust emissions.

Section 2.4.4 Closure and Post-Closure Procedures

5. Section 2.4.4 states that monitoring wells MW-5 and MW-5D would be used to monitor the groundwater downgradient of the treated soil. Sampling only these two wells would not adequately characterize the groundwater quality of the proposed CAMU according to 40 CFR 264.552(e)(3). Monitoring wells MW-2, MW-6, MW-7, and MW-8 should be included to provide additional lateral coverage downgradient of the CAMU. Also, an upgradient well should be monitored to provide information on groundwater quality upgradient of the CAMU for comparative purposes.

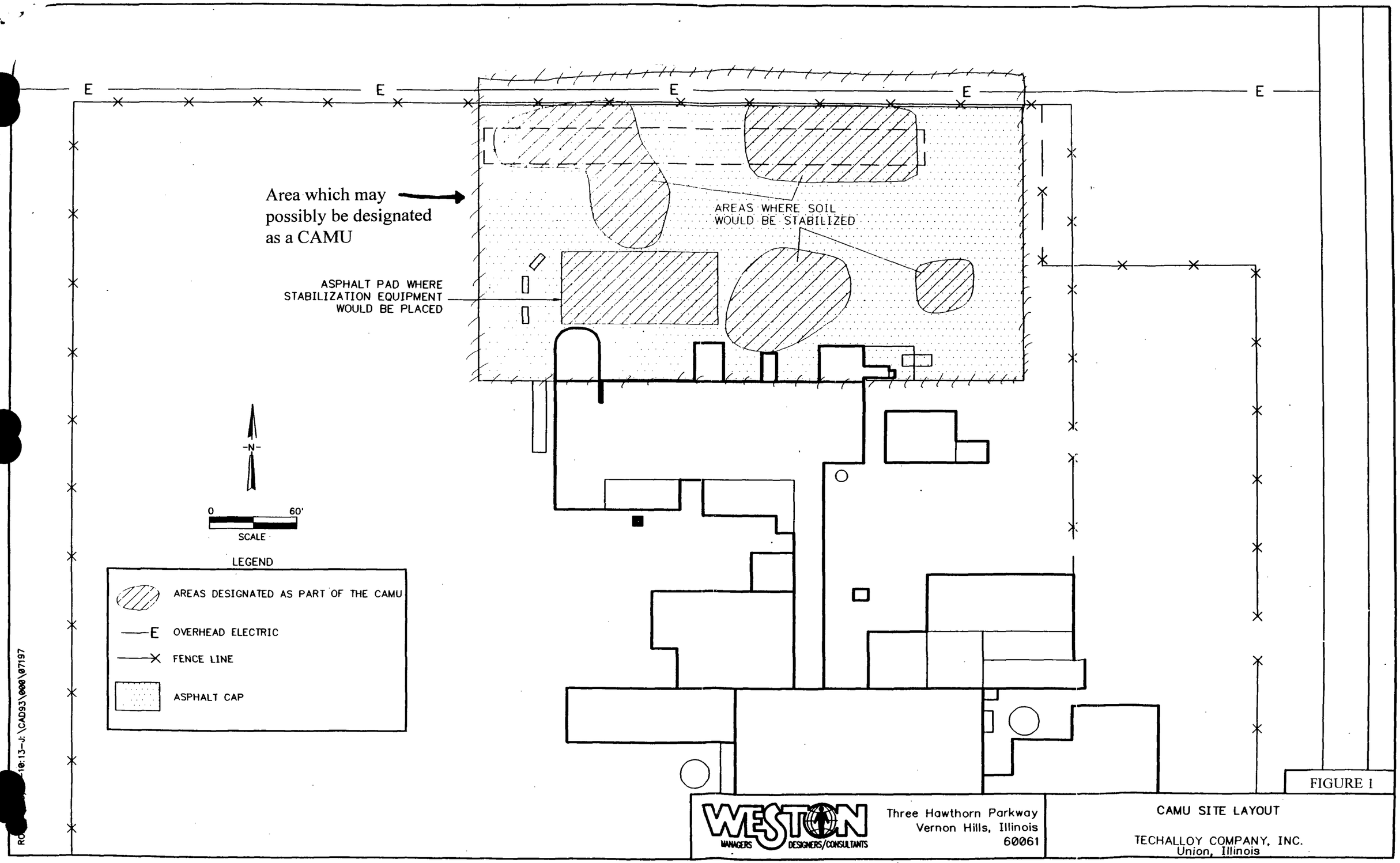
   Techalloy should revise Section 2.4.4 of the CAMU Designation Request to indicate that monitoring wells MW-2, MW-6, MW-7, and MW-8 will be monitored in addition to MW-5 and MW-5D. Also, Techalloy should monitor an upgradient well, such as the observation well located in the southeast corner of the Techalloy property, to provide information on groundwater quality upgradient of the CAMU for comparative purposes.

6. Section 2.4.4 states that the monitoring wells which will be sampled to monitor the stabilized metals contaminated soil will be sampled annually for soluble metals (chromium, nickel, and lead). U.S. EPA generally does not recommend that groundwater samples be analyzed for soluble metals (i.e., through collecting samples which are filtered in the field to isolate soluble metals; see *RCRA Groundwater Monitoring: Draft Technical Guidance, November 1992 (EPA/530-R-93-001)*). Rather, in situations where elevated turbidity may affect the concentration of metals detected in the groundwater, U.S. EPA recognizes that techniques such as low flow purging and sampling may be used to minimize turbidity in samples collected from monitoring wells.

Techalloy should revise Section 2.4.4 of the CAMU Designation Request to indicate that groundwater samples collected from wells used to monitor the CAMU will be analyzed for total metals rather than soluble metals.

7. The first bullet on page 2-12 of the CAMU Designation Request states "If long-term monitoring detects significant increases in the soluble concentrations of metals (nickel, chromium and lead) in monitoring wells ... an assessment monitoring plan would be implemented." The phrase "long-term" should be defined as requested in Attachment II, comment 10, of U.S. EPA's May 19, 1997 correspondence to Techalloy. Also, the use of the word "significant" in this statement appears to imply using statistical procedures to analyze the groundwater quality data yet no discussion of statistical procedures is provided.

   Techalloy should revise the CAMU Designation Request to define the duration of the groundwater monitoring program. In addition, Techalloy should provide information on any statistical procedures which will be used to characterize the groundwater surrounding the CAMU in accordance with 40 CFR 264.552(e)(3).


E
Area which may possibly be designated as a CAMU
AREAS WHERE SOIL WOULD BE STABILIZED
ASPHALT PAD WHERE STABILIZATION EQUIPMENT WOULD BE PLACED
N
0
60'
SCALE
LEGEND
AREAS DESIGNATED AS PART OF THE CAMU
OVERHEAD ELECTRIC
FENCE LINE
ASPHALT CAP
WESTON
MANAGERS
DESIGNERS/CONSULTANTS
Three Hawthorn Parkway
Vernon Hills, Illinois
60061
CAMU SITE LAYOUT
TECHALLOY COMPANY, INC.
Union, Illinois
FIGURE 1

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

ILD 005 178 975
D.3.1

7 July 1997

RECEIVED
JUL 08 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

Mr. William Buller
U.S. Environmental Protection Agency, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Re: Techalloy Company, Inc.
Residential Wells in Union, IL

Dear Mr. Buller:

As part of the U.S. EPA Administrative Order on Consent (AOC), Techalloy has been conducting semi-annual residential well sampling in Union, IL. Techalloy has sampled approximately 10 to 12 wells per event and has done this sampling since 1994. During a meeting at your office we discussed Techalloy's desire to revise residential well sampling currently being conducted in Union, IL. During that meeting you agreed verbally to let Techalloy reduce the number of wells to maybe four wells in the closest proximity to the groundwater plume. As an alternative, Techalloy proposed to eliminate residential well sampling if we provided alternative water supplies to the residential properties. During the same meeting you encouraged Techalloy to peruse this option. Prior to Techalloy incurring the cost involved in preparing a plan to provide alternative water supplies to selective residence in Union and the actual cost of providing the alternative water supply, Techalloy would like a written response from the U.S. EPA.

Techalloy recommends that we provide water to wells 1,4,5,8, and 11 (figure 1). This include the Wilkins property, Ball property, Nowicki property, Manning property, and Vandello property. The Swanson property is not included in this list of properties since the Swanson's are currently provided with City water. The Jensen property (14) is not included within the list, since past sampling has not indicated any detection of volatile organic compounds (VOCs) and is considered far enough away from the groundwater plume to be impacted.

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If you have any questions or wish to discuss this issue in further detail, please do not hesitate contacting me.

Yours very truly,

ROY F. WESTON, INC.

Carlos J Serna
Senior Project Manager

Enclosure

cc: Dave Williams, Techalloy
Scott Carr, Techalloy

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

7 July 1997

D. 3. 7

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No. 01989-028-001

Re: TCLP Analytical Results of Soil Samples at Techalloy Company, Inc.

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON®) is providing U.S. EPA with Toxic Characteristic Leaching Procedure (TCLP) analytical results of four soil samples collected from Techalloy Company, Inc., in Union, Illinois. The sampling was conducted on 19 June 1997. The purpose of this sampling is to characterize the hazardous nature of the contaminated soils based on TCLP results for Corrective Action Management Unit (CAMU) designation. The four areas of metal impacted soils that exceeded target cleanup levels within the Techalloy facility were identified during the Phase I and Phase II RFI studies of September/October 1994 and March 1995, respectively. The concentration of metals in soils within these areas ranged from 123 to 9,110 mg/kg for chromium, 45.2 to 2,020 mg/kg for nickel, and 6.1 to 77,100 mg/kg for lead. The four areas of metal contamination and the TCLP soil sample locations are presented in Figure 1.

A summary of TCLP soil samples collected including their depths, the Solid Waste Management Unit (SWMU) area, and the detected concentration results of their TCLP analysis is presented in table below:

Sample ID	Depth (feet) bgs	SWMU	Detected analytes and their conc. in mg/L (ppm)
WWHA-01	1-2 and 5-6	Plating Wastewater Disposal Area	Barium (0.62) Chromium (0.11) Lead (1.9)
CPHA-02	2-3	Concrete Evaporation Pad Area	Barium (0.60)
HPHA-03	4-6	Holding Pond Area	Chromium (0.20) Lead (7.5*)
HPHA-04	4-6	Holding Pond Area	Chromium (0.74) Lead (13.7*)

* Indicates exceedance with respect to maximum concentration of contaminant for toxicity characteristic per 40 CFR 261.24

Based on the TCLP analysis, lead is the only metal in the soil samples that exceeds the target cleanup level of 5 mg/L. The soils therefore exhibit the characteristic of toxicity and classified as D008 EPA hazardous waste.

If you have any questions or require additional information, please do not hesitate to contact me at (847) 918-4000.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

Enclosures

CJS:sk

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy
Davis Williams, Techalloy
Scott Carr, Techalloy

WESTON
MANAGERS DESIGNERS/CONSULTANTS
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Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
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7 July 1997

Mr. William Buller
U.S. Environmental Protection Agency, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Re: Techalloy Company, Inc.
Residential Wells in Union, IL

Dear Mr. Buller:

As part of the U.S. EPA Administrative Order on Consent (AOC), Techalloy has been conducting semi-annual residential well sampling in Union, IL. Techalloy has sampled approximately 10 to 12 wells per event and has done this sampling since 1994. During a meeting at your office we discussed Techalloy's desire to revise residential well sampling currently being conducted in Union, IL. During that meeting you agreed verbally to let Techalloy reduce the number of wells to maybe four wells in the closest proximity to the groundwater plume. As an alternative, Techalloy proposed to eliminate residential well sampling if we provided alternative water supplies to the residential properties. During the same meeting you encouraged Techalloy to peruse this option. Prior to Techalloy incurring the cost involved in preparing a plan to provide alternative water supplies to selective residence in Union and the actual cost of providing the alternative water supply, Techalloy would like a written response from the U.S. EPA.

Techalloy recommends that we provide water to wells 1,4,5,8, and 11 (figure 1). This include the Wilkins property, Ball property, Nowicki property, Manning property, and Vandello property. The Swanson property is not included in this list of properties since the Swanson's are currently provided with City water. The Jensen property (14) is not included within the list, since past sampling has not indicated any detection of volatile organic compounds (VOCs) and is considered far enough away from the groundwater plume to be impacted.

If you have any questions or wish to discuss this issue in further detail, please do not hesitate contacting me.

Yours very truly,

ROY F. WESTON, INC.

Carlos J Serna
Senior Project Manager

Enclosure

cc: Dave Williams, Techalloy
Scott Carr, Techalloy

D31

JUN 26 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DRE-8J

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company, Inc., Union Illinois
Aquifer Performance Evaluation
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr. Serna:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the Aquifer Performance Evaluation submitted by Techalloy Company. This submittal provided an evaluation of the existing extraction well's capacity to capture the groundwater contaminant plume. A hydraulic conductivity of about 600 ft/day and hydraulic gradients of 0.0015-0.0017 were developed in U.S. EPA's data evaluation, as compared to the 377 ft/day and 0.0010 parameter values employed by Techalloy. The higher aquifer parameter values result in a capture zone width of about 1200 feet at a pumping rate of 380 gallons per minute (gpm), as compared to the 2200 foot width developed by Techalloy.

Unless the lower hydraulic gradient of 0.0010 can be substantiated and Weston can provide additional information or rationale to support the lower aquifer conductivity, an extraction well pump rate of 380 gpm would not be sufficient to effectively capture the contaminated groundwater. Please provide

a response within thirty (30) days as to how Techalloy intends to address this matter.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, A.T. Kearney

bcc: Jacqueline Kline, ORC

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
WM 6/26/97					

ILD 005 178 975

~~ILD 051 178 975~~

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

20 June 1997

D.3.4

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Submittal of the Revised Draft Corrective Measures Study and CAMU Designation Request
Techalloy Property, Union, Illinois

Dear Mr. Buller:

On behalf of Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®) is pleased to submit three copies of the Revised Draft Corrective Measures Study (CMS) report and the Corrective Action Management Unit (CAMU) Designation Request. This revision incorporates U.S. EPA's comments as presented in a letter dated 21 May 1997. Revised pages of text and tables are identified with a new header which indicates the revision date and revision number. Text changes are indicated using the following format in order to easily identify changes:

- New text is redlined.
- ~~Old text is struckout.~~

In general, the following pages and tables have been revised:

Executive Summary:	Pages ES-2, and ES-3.
Section 2:	Pages 2-40 through 2-114. Tables 2-5, 2-6, 2-14, 2-15, and 2-17.
Section 3:	Pages 3-3 through 3-55. Tables 3-1 through 3-7.
Section 4:	Pages 4-1 through 4-7. Tables 4-1.
Section 5:	Page 5-1.

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Since some of the tables were shaded, the redline and strikeout format was not used on the tables. However, if a table was revised then the header was also revised. Responses to each of U.S. EPA's comments are included within in Attachment A to this letter. As requested by U.S. EPA, the CAMU Designation Request is included as an addendum to the CMS report.

If you have any questions, please call me at (847)918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Coordinator

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy

Attachment A

Responses to U.S. EPA Comments on
Corrective Measures Study Report
Techalloy Company, Inc.
Union, Illinois

Comment 1: Section 2.2.5.1, page 2-38 - Private well sampling dates should include all dates on which wells were sampled.

> ***Response:*** *All the semi-annual residential well sampling events have been identified in Subsection 2.1.5.1. The text has also been revised to include a summary of the significant results, if any, during the sampling events.*

Comment 2: Section 2.1.7.2, page 2-51 - Revise text to note that the extraction well is screened at approximately 30-75 feet below ground surface.

> ***Response:*** *Subsection 2.1.7.2 was revised to indicate that the extraction well was screened from approximately 30 to 75 feet below ground surface.*

Comment 3: Section 2.1.7.2, page 2-56 - Correct depth of extraction well screen as noted in Item 2.

> ***Response:*** *Subsection 2.1.7.3 was revised to indicate that the extraction well was screened from approximately 30 to 75 feet below ground surface.*

Comment 4: Revise tables 2-5 and 2-14 to avoid duplication.

> ***Response:*** *Tables 2-5 and 2-14 have been revised.*

Comment 5: Table 2-15, page 2-89, 7th bullet - Delete this part of the text, database for velocity estimates of contaminant constituents is not provided.

> ***Response:*** *The 7th bullet has been deleted from Table 2-15.*

Comment 6: Section 3.1.1.2 - Text shall include statement noting that an additional 1,500 cubic yards of soil treatment would be needed if target cleanup levels were based on a residential instead of industrial use scenario.

> ***Response:*** *Based on the residential target cleanup levels for chromium (38 mg/kg based on migration to groundwater), nickel (130 mg/kg based on migration to groundwater) and lead (400 mg/kg), the volume of soil that would require stabilization is approximately 15,000 cubic yards. This is approximately 6,500 cubic yards more than the 8,500 cubic yard estimate which was based on the industrial target cleanup levels. The 1,500 cubic yard estimated increase in volume indicated within the U.S. EPA Comment No. 6 could not be verified. Therefore, Subsection 3.1.1.2 has been revised to indicate the 15,000 cubic yard estimate.*

Comment 7: Section 3.1.2 - Add Corrective Measures Alternative S-2A. To address soils with volatile organic compounds (VOCs) exceeding cleanup levels, alternative shall include soil excavation and off-site disposal instead of the soil vapor extraction technology of Alternative S-2.

> ***Response:*** *Alternative S-3 has been included within Subsection 3.1.1.3. This alternative includes the excavation and off-site disposal of both the metals and VOCs contaminated soil. As opposed to two sub-alternatives, the CMS includes one off-site disposal alternative which addresses all the soil that exceeds target cleanup levels. Off-site stabilization and incineration would be utilized for the metals and VOC contaminated soil, respectively, prior to disposal in an off-site hazardous landfill. A detailed description and detailed evaluation of the alternative is included within Section 3. Unit costs for disposal of each type of contaminated soil is included within Appendix I.*

Comment 8: Section 3.1.2 - Add Alternative S-2B. To address soils with metals exceeding cleanup levels, alternative shall include soil excavation and off-site disposal instead of the soil stabilization remedy of Alternative S-2.

> ***Response:*** *See response to Comment 7.*

Comment 9: Section 3.1.2 - Add Alternative GW-2A. Alternative shall include the immediate implementation of the air sparging/soil vapor extraction (SVE) system rather than the five year evaluation period of GW-2. At a minimum, the air sparging/SVE system shall address the groundwater contaminated area where total VOC concentrations exceed 10,000 parts per billion.

> ***Response:*** *Alternative GW-2A is included within Subsection 3.1.2.2. This alternative includes implementation of the air sparging/SVE system immediately after completing the soil alternatives. A detailed description and detailed evaluation of the alternative is included within Section 3. A detailed cost estimate for this alternative is included within Appendix I.*

Comment 10: Section 3.1.2 - Add Alternative GW-3A. Alternative shall include the immediate implementation of the bioremediation remedy rather than the five year evaluation period of GW-3.

> ***Response:*** *Alternative GW-3A is included within Subsection 3.1.2.4. This alternative includes implementation of the enhanced in-situ bioremediation system immediately after completing the soil alternatives. A detailed description and detailed evaluation of the alternative is included within Section 3. A detailed cost estimate for this alternative is included within Appendix I.*

Comment 11: The text shall include a discussion of the aquifer test performed at the extraction well EW-1. The selection of the analytical methods in favor of other methods to derive the aquifer parameters, and the model input parameters (hydraulic gradient), shall be fully justified. The basic data should be provided in an attachment to the report.

Response: *Detailed information regarding the aquifer pump test, and aquifer test data analysis (distance-drawdown and time-drawdown, transmissivity, storativity, hydraulic conductivity, model input parameters, capture zone analysis) have been included within Subsection 2.1.7. In addition, the drawdown data and water level measurements, distance-drawdown and the time-drawdown plots, and the 8 May 1997 capture zone analysis letter are included in Appendix D.*

5/27
To Record Contact
(D.3.17)

faxed 5/27/97 to Serna

MAY 22 1997

DRE-8J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Techalloy Company Inc.
Union, Illinois
ILD 005 178 975
Corrective Measures Study Report
Administrative Order on Consent
Docket No. V-W-07-93

Dear Mr. Lopes and Mr Serna:

In a recent telephone conversation with Weston staff we discussed the regulatory requirements for the soil stabilization remedy proposed in the Corrective Measures Study (CMS). Weston suggested that the designation of a Corrective Action Management Unit (CAMU), which was initially proposed for the soil stabilization process, would not be required provided certain procedures were followed.

I discussed this matter with U.S. EPA headquarters staff. I was advised that in accordance with the Area of Contamination Concept, if soils are treated in situ, "placement" which triggers the Land Disposal Regulations does not occur and a CAMU designation is not needed. Mixing soil and stabilizing material within the excavation by a backhoe is considered to be in situ treatment. However, mixing by backhoe or other means within the excavation may by less effective than mixing in a pug mill. Also, the applicability of the AOC concept depends on several factors. Mixing in a pug mill does not meet the concept of in situ treatment and the return of the soil to the excavation would very likely be construed as placement.

The decision as to which of the above regulatory approaches is appropriate depends upon detailed site and operational conditions and must by made by the Regional Administrator. Since the decision cannot be made until sufficient information has been provided and reviewed, it is critical that information for both options is provided if Techalloy concludes the AOC concept is viable. U.S. EPA'S letter of May 19, 1997, specified that a CMS Report Addendum containing a CAMU Designation Request be submitted with the revised report. To keep the AOC Concept open Techalloy must include in the CMS Addendum, an AOC Concept Designation which provides information of similar detail and discussion as that required for the CAMU. A March, 1995 U.S. EPA memorandum pertaining to the AOC concept is enclosed.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

Enclosure

cc: Kevin Lesko, IEPA
Todd Quillen, A.T. Kearney

bcc: Jacqueline Kline, ORC

ILD 005 178 975

D.3.1

DRE-8J

DATE: MAY 20 1997

SUBJECT: TECHNICAL SUPPORT FOR TECHALLOY FACILITY, UNION, ILLINOIS

FROM: Paul little, Chief
Michigan/Wisconsin Section
Enforcement and Compliance Assurance Branch

TO: Donald Draper, Director of Technical Assistance
Technical Assistance Technological Transfer Branch
Subsurface Protection and Remediation Division
Nation Risk Management Research Laboratory
U.S. Environmental Protection Agency
Ada, Oklahoma 74820

This memorandum is to formally request technical support by your staff and to provide some definition of the scope of work requested.

The Techalloy facility is performing corrective action under a RCRA 3008(h) Consent Order. The facility recently submitted a report which presents their interpretation of the zone of capture created by an extraction well at the site. This report and support data is enclosed with this letter.

It will be greatly appreciated if you could provide a response concerning the capture zone evaluation within about thirty days. It is also anticipated that Region 5 will request additional support from your staff as the corrective action process moves to the remedy selection and implementation stages. To discuss this project further, please call Bill Buller of my staff at (312) 886-4568.

Thank you in advance for your support.

enclosure

MAY 19 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

D.3.1

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

DRE-8J

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Corrective Measures Study Report
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr Serna:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the document "Corrective Measures Study (CMS) Report, Techalloy Company, Inc. Union, Illinois" dated March 1997, which was submitted in accordance with the Administrative Order on Consent (AOC) referenced above. U.S. EPA has identified certain deficiencies in the report and pursuant to Section VI.M of the AOC the report is disapproved. A revised CMS report which addresses the comments of Attachment I and includes the Addendum discussed below, shall be submitted to U.S. EPA within thirty (30) days of receipt of this letter.

The draft CMS report proposed that the soil to be treated by the stabilization process be handled under a Corrective Action Management Unit (CAMU) Designation. Though information pertaining to the CAMU was provided in the draft CMS report, this information is insufficient to determine the suitability of the CAMU for the intended application. U.S. EPA requires that a CAMU Designation Request be submitted by Techalloy which fully describes the proposed CAMU. The CAMU Designation Request shall include all the information noted in Attachment II, and submitted as an addendum to the CMS report so that it may be reviewed as a separate document.

Rather than providing data to establish the regulatory status of the CAMU remediation wastes, Techalloy assumes that these wastes constitute hazardous waste. The regulatory status of these wastes needs to established prior to the final approval process of the CAMU. Sufficient data to establish the regulatory status of the CAMU wastes shall be submitted to U.S. EPA within forty

five (45) days of receipt of this letter.

The revised CMS report shall provide a detailed cost estimate and sufficient discussion of the additional remedial alternatives (S-2A, S-2B, GW-2A, GW-3B)specified in Attachment I.

Please note that the target cleanup levels as presented in the Corrective Measures Study (CMS) report provide a basis for evaluating the alternative remedies; final clean up levels or other appropriate clean-up criteria will be established under the Corrective Action Implementation process.

Rather than submitting revised pages only, the revised CMS report shall be submitted as a complete document with each revised page indentifed with the revision date. The submittal letter shall identify the pages that were revised. It is critical that all the comments and information requirements of attachments I and II be fully addressed in the revised report so that it is acceptable and the corrective action process can be advanced.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, A.T. Kearney

bcc: Jacqueline Kline, ORC

OFFICIAL FILE

Author
mB
5/19/97

ATTACHMENT I

U.S. EPA Comments on Corrective Measures Study Report
Techalloy, Union, Illinois

1. Section 2.2.5.1, page 2-38 - Private well sampling dates should include all dates on which wells were sampled.

2. Section 2.1.7.2, page 2-52 - Revise text to note that the extraction well is screened at approximately 30-75 feet below ground surface.

3. Section 2.1.7.3, page 2-56 - Correct depth of extraction well screen as noted in item 2.

4. Revise tables 2-5 and 2-14 to avoid duplication.

5. Table 2-15, page 2-89, 7th bullet - Delete this part of the text, data base for velocity estimates of contaminant constituents is not provided.

6. Section 3.1.1.2 - Text shall include statement noting that an additional 1500 cubic yards of soil treatment would be needed if target cleanup levels were based on a residential instead of industrial use scenario.

7. Section 3.1.2 - Add Corrective Measures Alternative S-2A. To address soils with volatile organic compounds (VOC)s exceeding cleanup levels, alternative shall include soil excavation and off-site disposal instead of the soil vapor extraction technology of Alternative S-2.

8. Section 3.1.2 - Add Alternative S-2B. To address soils with metals exceeding cleanup levels, alternative shall include soil excavation and off-site disposal instead of the soil stabilization remedy of Alternative S-2.

9. Section 3.1.2 - Add Alternative GW-2A. Alternative shall include the immediate implementation of the air sparging/soil vapor extraction (SVE) system rather than the five year evaluation period of GW-2. At a minimum, the air sparging/SVE system shall address the groundwater contaminated area where total VOC concentrations exceed 10,000 parts per billion.

10. Section 3.1.2 - Add Alternative GW-3A. Alternative shall include the immediate implementation of the bioremediation remedy rather than the five year evaluation period of GW-3.

ATTACHMENT 1 (continued)

11. The text shall include a discussion of the aquifer test performed at the extraction well EW-1. The selection of the analytical methods in favor of other methods to derive the aquifer parameters, and the model input parameters (hydraulic gradient), shall be fully justified. The basic data should be provided in an attachment to the report.

ATTACHMENT II

CAMU DESIGNATION REQUEST

The information noted below shall be provided in the CAMU Designation request:

(1) justification of the CAMU, the seven criteria given at 40 CFR 264.522(c)(1-7) shall be thoroughly discussed;

(2) characterization of the material to be treated;

(3) site location map, and facility map showing designated areas to be remediated;

(4) a through description of the stabilization technology and methodology to be applied, data and/or references to support the premise that the technology is applicable to the material to be treated;

(5) CAMU conceptual design, description of the pug mill equipment and/or other equipment to be used, general procedures including soil excavation and soil staging procedures;

(6) activities to prepare the site for remediation, measures to be taken to provide proper containment including dust control and runoff control measures, equipment decontamination procedures;

(7) discussion of bench scale study including test procedures, number of samples per treated volume, and evaluation criteria;

(8) verification sampling procedures, type of tests (TCLP, total metal concentrations), list of analytes, test limits to be met, quality control procedures, and or/other specifications to be met prior to returning soil to the excavation;

(9) projected duration of remedial activities;

(10) closure and post-closure procedures for the CAMU, including closure procedures for staging area, capping of excavated areas, future maintenance of the site, and groundwater monitoring specifications - well locations and screened intervals (wells should be located immediately downgradient of treated areas), sampling frequency, list of analytes, duration of monitoring, and reporting procedures.

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

8 May 1997

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MAY 12 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No. 01989-028-001

Re: Results of Aquifer Performance Evaluation
Following Pumping Test for Techalloy Company in Union, Illinois

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON®) is providing U.S. EPA with an aquifer performance evaluation that was conducted on March 20, 21, and 22, 1997. The purpose of this pumping test was to determine the hydraulic characteristics of the saturated zone at an extraction well (EW-1) downgradient to the Techalloy Company in Union, Illinois.

An 8-inch diameter extraction well was installed by WESTON in September 1996 (part of "Interim Measures" implementation) approximately 750 feet north of the intersection of the Union and Highbridge Roads. Two piezometers (PZ-01 & PZ-02) located 50 and 100 feet north of the extraction well respectively, were also monitored to assess the impact of the pumping test on the aquifer. One monitoring well (MW-HBR) located approximately 750 feet upgradient to EW-1 was also monitored to assess the impact of the pump test. Figure 1 presents the location of the extraction well, the two piezometers, and the monitoring well MW-HBR.

The aquifer performance evaluation was conducted in accordance with the U.S. EPA's letter dated July 1, 1993 following approval of "The Interim Measures Workplan". Characterization of aquifer hydraulic characteristics was necessary to evaluate the optimum pumping rate and adjust it to a rate that can maximize the effectiveness of the Interim Measures. Based on the absence of any clay layers within the aquifer, which could have potentially acted as a confining or semi-confining layer, the aquifer was classified as an unconfined water table aquifer.

A 48-hour pumping test duration was selected to allow observation of early time data (when the most significant changes in drawdown occur) and late time data as the aquifer approached steady-state conditions. As part of the implementation of the Interim Measures, the extraction well (EW-1) has been pumping water at a rate of approximately 380 gallons per minute (gpm) to a treatment building since December 1996 for treatment and discharge

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into South Branch of Kishwaukee River. Static water level for the extraction well, the two piezometers, and the monitoring well MW-HBR were measured prior to the start of the pump test. These water levels reflect static water levels two weeks after the pumping of water from the extraction well was turned off.

AQUIFER TEST DATA ANALYSIS :

Distance-Drawdown and Time-Drawdown Analysis:

Water levels were recorded in the extraction well (EW-1) and MW-HBR during the pumping test using a Hermit 2000 Data Logger/pressure transducer system. Manual water level measurements were taken in PZ-01 and PZ-02 at intervals throughout the pumping test. The drawdown data from the 48-hour and 38-day constant discharge test were evaluated to determine the hydraulic parameters of transmissivity (T), specific yield (S), and hydraulic conductivity (K).

Aquifer test data analysis was initiated using the distance-drawdown analysis by modified non-equilibrium Jacob (straight line) method. For each of the two piezometers (PZ-01 and PZ-02) and the monitoring well (MW-HBR), distance-drawdowns were plotted on a semi-log graph for 2-days and 38-days. The graphs indicate that the maximum drawdowns were recorded in PZ-01 (closest @ 50 feet from extraction well). Aquifer test data analysis was also initiated for the piezometers PZ-01 and PZ-02 using time-drawdown data curve and matching resultant curves with model curves developed by Theis. The distance-drawdown for the 2-day and 38-days and the time-drawdown plots for the two piezometers (PZ-01 and PZ02) are attached. Response to extraction well pumping was observed to be essentially instantaneous in the observation wells located within 100 feet. No significant response was observed in MW-HBR (located 750 feet upgradient) during the 48-hour pumping test but a delayed response was observed during water level measurement taken 38-days of pumping. Maximum drawdown noted in the three wells were as follows:

Well ID	Distance from EW feet	Max. Drawdown (feet) 48 hours	Max. Drawdown (feet) 38 days
PZ-01	50	1.21	1.90
PZ-02	100	0.89	1.60
MW-HBR	750	0.15	0.86

Based on the fine grained material of the aquifer, it is inferred that drainage is relatively slow. Since the duration of the pumping test was only 48-hours, it is not long enough to account for the unusual S-shaped plots of log t versus log s. Hence the unusually high transmissivity values obtained for the piezometers PZ-01 and PZ-02 were not used in this analysis. For the purpose of our data analysis, an average of the transmissivity values obtained by the 2-days and 38-days distance-drawdown methods were only used.

Transmissivity:

Transmissivity (T) is a measure of the amount of water that can be transmitted horizontally by the saturated thickness of the aquifer, and as such, is defined as the product of the hydraulic conductivity and the aquifer thickness. During the installation of the extraction well, clay/till formation was encountered at an approximate depth of 78.7 feet below ground surface (bgs). Given a water table at approximately 10.9 feet bgs, the minimum saturated thickness across the study area is 67.8 feet and is used in subsequent calculations. The calculated results for the transmissivity values are presented below:

Distance-Drawdown Method	**Calculated Transmissivity (T)**	
	ft^2/day	gpd/ft
2-day (48 hours)	24,376	182,332
38-day (912 hours)	26,814	200,568
Arithmetic Mean	**25,595**	**191,450**
Time-Drawdown Method	ft^2/day	gpd/ft
PZ-01	30,600	228,888
PZ-02	44,800	335,104

Storativity:

The storativity (S) represents the volume of water that a permeable unit will absorb or release from storage per unit surface area per unit change in head. In unconfined aquifers, the level of saturation rises and falls with changes in the amount of water in storage. As the water level falls (such as during a pump test), water drains from the pore spaces.

Distance-Drawdown Time-Drawdown Methods	Calculated Storativity (S)	
	S (no units)	Percent
2-day (48 hours)	0.17	17
38-day (912 hours)	0.05	5

Hydraulic Conductivity:

Hydraulic Conductivity (K) values represent the rate at which water can move through a permeable medium. These values were calculated using the following expression:

$$K = \frac{T}{b}$$

Where: T is the aquifer transmissivity
b is the saturated thickness of the aquifer

Distance-Drawdown Method	Calculated Hydraulic Conductivity (K)	
	ft/day	cm/sec
2-day (48 hours)	359	1.2 E-1
38-day (912 hours)	395	1.4 E-1
Arithmetic Mean	**377**	**1.3 E-1**
Time-Drawdown Method	ft/day	cm/sec
PZ-01	451	1.6 E-1
PZ-02	660	2.3 E-1

CAPTURE ZONE ANALYSIS:

A groundwater capture zone analysis was carried out for Techalloy site in order to assess the impact on aquifer at two different pumping rates based on the seasonal fluctuation in well head. Time-related capture zones for a pumping well in a homogenous aquifer was

determined by using U.S. EPA's Well Head Protection Area (WHPA) conceptual module: MWCAP.

Based on the aquifer pumping test data evaluation, a mean transmissivity of 25,595 ft^2/day was calculated for an aquifer with a saturated thickness of 67.8 feet. Using a hydraulic gradient of 0.001 and porosity of 30%, the extraction well EW-1 shows the associated capture zones at 350 and 380 gpm in Figure 2 and 3, respectively.

Both the figures show that the plume can be contained effectively using the present extraction well system extracting at a rate of 350 or 380 gpm. Both these runs indicate pathlines for a period of 548 days (1.5 years).

If you have any questions or require additional information, please do not hesitate to contact me at (847) 918-4000

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy
David Williams, Techalloy
Scott Carr, Techalloy

SUMMARY SHEET **Jacob (Straight line) method for Distance-Drawdown Analysis**

Units of Drawdown	feet
Pumping Rate (Q)	380 gal/min or 73,155 ft^3/day
Saturated aquifer thickness (b)	67.8-feet
Change in head over 1 log cycle (s)	1.1-feet

Distance from Extraction Well

To piezometer PZ-01	50-feet
To piezometer PZ-02	100-feet
To monitoring well MW-HBR	750-feet

Transmissivity (T)

$$T = \frac{2.303\,(Q)}{2\,\Pi\,s}$$

24,376 ft^2/day

Hydraulic Conductivity (K)

K= T/b ft/day

Hydraulic Conductivity K= 348 ft/day or 1.2×10^{-1} cm/sec

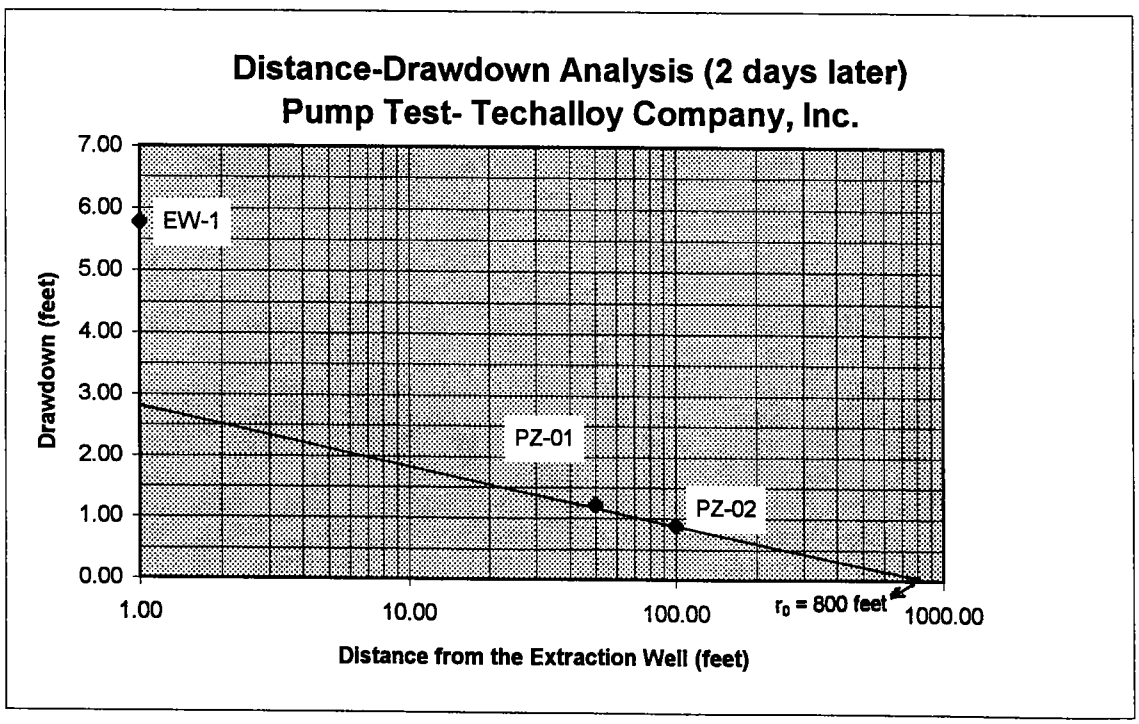
Storativity (S)

r_0 = 800 feet

t= 2 days

$$S = \frac{2.25\,(T)\,(t)}{r_0^2} \qquad S = \frac{2.25 \times 24{,}376 \times 2}{(800)^2}$$

Storativity (S) = 0.17 or 17%



SUMMARY SHEET **Jacob (Straight line) method for Distance-Drawdown Analysis**

Units of Drawdown	feet
Pumping Rate (Q)	380 gal/min or 73,155 ft^3/day
Saturated aquifer thickness (b)	67.8-feet
Change in head over 1 log cycle (s)	1.0-foot

Distance from Extraction Well

To piezometer PZ-01	50-feet
To piezometer PZ-02	100-feet
To monitoring well MW-HBR	750-feet

Transmissivity (T)

$$T = \frac{2.303\,(Q)}{2\,\Pi\,s}$$ 26,814 ft^2/day

Hydraulic Conductivity (K)

K= T/b ft/day

Hydraulic Conductivity K= 383 ft/day or 1.3×10^{-1} cm/sec

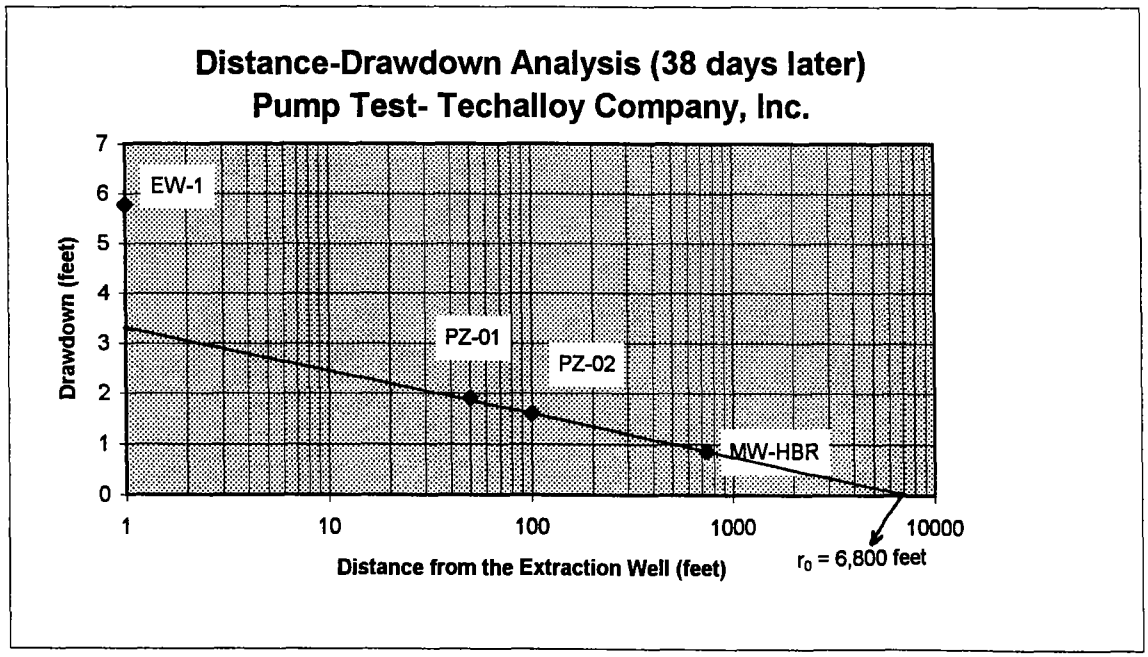
Storativity (S)

r_0 = 6,800 feet

t= 38 days

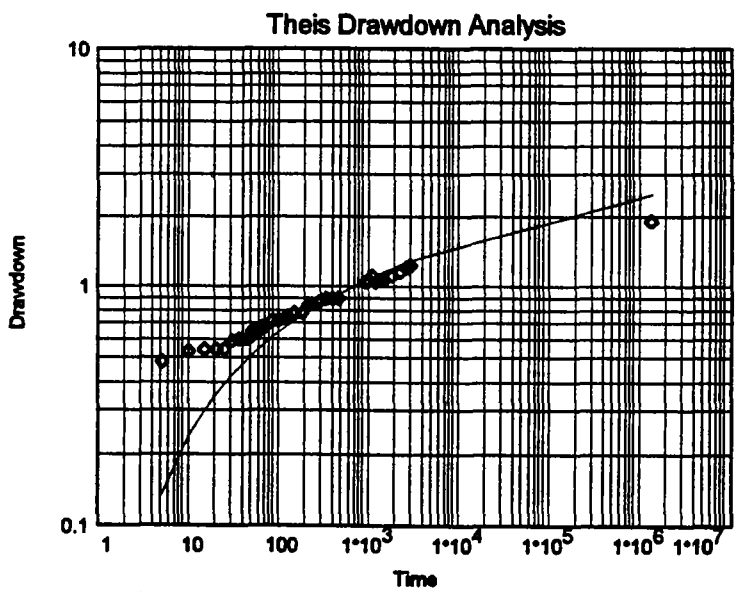
$$S = \frac{2.25\,(T)\,(t)}{r_0^2} \qquad S = \frac{2.25 \times 26{,}814 \times 38}{(6{,}800)^2}$$

Storativity (S) 0.05 or 5%



SUMMARY SHEET

Name of data file	PZ-01
Number of data points in file	$n = 38$
Units of drawdown	$L1 = 1 \cdot ft$
Units of time	$T1 = 1 \cdot min$
Pumping rate	$Q = 380 \cdot \frac{gal}{min}$
Radial distance from pumping well to observation well	$r = 50 \cdot ft$
Saturated aquifer thickness	$b = 67.8 \cdot ft$
Transmissivity estimate	$T = 3.06 \cdot 10^{4} \cdot \frac{ft^2}{day}$
Storage coefficient estimate	$S = 6.81 \cdot 10^{-2}$
Specific storage coefficient	$S_s = 3.29 \cdot 10^{-3} \cdot m^{-1}$
Radial hydraulic conductivity	$K_r = 4.52 \cdot 10^{2} \cdot \frac{ft}{day}$
Estimate of time match-point	$t_S = 2$
Estimate of drawdown match-point	$s_D = 0.19$
Squared sum of errors	$SS_e = 2.32 \cdot 10^{-2}$

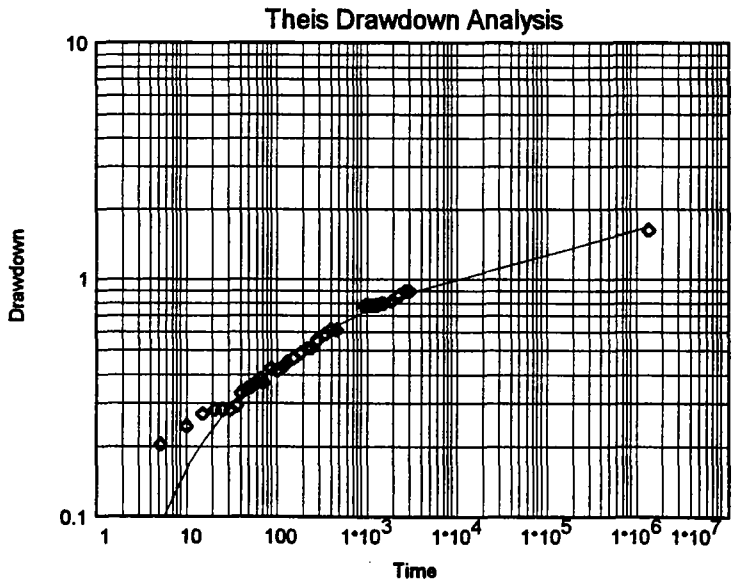


PZ 380 gpm
match point

◇◇◇ original time-drawdown data
— fitted Theis function
◇◇◇ selected time-drawdown data

SUMMARY SHEET

Name of data file	PZ-02
Number of data points in file	$n = 38$
Units of drawdown	$L1 = 1 \cdot ft$
Units of time	$T1 = 1 \cdot min$
Pumping rate	$Q = 380 \cdot \frac{gal}{min}$
Radial distance from pumping well to observation well	$r = 100 \cdot ft$
Saturated aquifer thickness	$b = 67.8 \cdot ft$
Transmissivity estimate	$T = 4.48 \cdot 10^{4} \cdot \frac{ft^2}{day}$
Storage coefficient estimate	$S = 2.49 \cdot 10^{-2}$
Specific storage coefficient	$S_s = 1.2 \cdot 10^{-3} \cdot m^{-1}$
Radial hydraulic conductivity	$K_r = 6.60 \cdot 10^{2} \cdot \frac{ft}{day}$
Estimate of time match-point	$t_S = 2$
Estimate of drawdown match-point	$s_D = 0.13$
Squared sum of errors	$SS_e = 1.21 \cdot 10^{-3}$



PZ 380 gpm
match point

◇◇◇ original time-drawdown data
— fitted Theis function
◇◇◇ selected time-drawdown data

Stick postage stamps to article to cover First-Class postage, certified mail fee, an charges for any selected optional services *(See front).*

1. If you want this receipt postmarked, stick the gummed stub to the right of the returr address leaving the receipt attached, and present the article at a post office service window or hand it to your rural carrier *(no extra charge).*

2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach, and retain the receipt, and mail the article.

3. If you want a return receipt, write the certified mail number and your name and address *on a return receipt card, Form 3811, and attach it to the front of the article by means of the* gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.

4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.

5. Enter *fees for the services requested in the appropriate spaces on the front of this* receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.

6. Save this receipt and present it if you make an inquiry.

PS Form **3800**, April 1995 (Reverse)

Sent to Mr. Henry Lopes	
Street & Number 370 Franklin Turnpike	
Post Office, State, & ZIP Code Mahwah, New Jersey 07430	
Postage	$ .55
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	1.10
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$ 2.75
Postmark or Date	

PRE-87

PS Form **3800**, April 1995

CHICAGO IL LOOP STA
MAY 23 1997
USPO

Stick postage stamps to article to cover First-Class postage, certified mail fee, and charges for any selected optional services *(See front).*

1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached, and present the article at a post office service window or hand it to your rural carrier *(no extra charge).*

2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach, and retain the receipt, and mail the article.

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4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.

5. *Enter fees for the services requested in the appropriate spaces on the front of this* receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.

6. Save this receipt and present it if you make an inquiry.

PS Form **3800**, April 1995 *(Reverse)*

P 140 673 271

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Mr. Carlos Serna	
Street & Number Suite 400 3 Hawthorne Parkway	
Post Office, State, & ZIP Code Vernon Hills, IL 60061-1450	
Postage	$ .55
Certified Fee	1.10
Special Delivery Fee	
Restricted Delivery Fee	1.10
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$ 2.75
Postmark or Date	

MAY 23 1997 USPO LOOP STA

PS Form 3800, April 1995

ARE-85

B. Bullert

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

● Print your name, address, and ZIP Code in this box ●

U.S. EPA
WPTD
77 W. JACKSON BLVD., DRE-8J
CHICAGO, IL 60604
B. Buller

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, IL 60061-1450

4a. Article Number

P-140-673-271

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5/27/97

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X Janine [illegible]

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

U.S. EPA
WPTD
77 W. JACKSON BLVD., DRE-8J
CHICAGO, IL 60604
B. Buller

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Henry Lopes
Techalloy Co., Inc.,
370 Franklin Turnpike
Mahwah, New Jersey 07430

4a. Article Number

P-140-673-272

4b. Service Type

☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5/27

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*

X [illegible signature]

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

D.3.1

ILD 005 178 975

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

2 May 1997

Mr. William Buller
U.S. Environmental Protection Agency, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

RECEIVED
MAY 05 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

Re: Supporting VOC Mass Calculations
Draft Corrective Measures Study
Techalloy Property, Union, Illinois

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON®) on behalf of Techalloy Company, Inc. (Techalloy) has calculated the VOC mass within the unsaturated source soil, and saturated source soil and groundwater as requested at our 23 April 1997 meeting. In order to determine the mass of VOCs in the source materials, WESTON utilized Golden Software, Inc.'s SURFER, Version 5.1, software which is a grid-based contouring and three dimensional surface plotting graphics program. Attachment A presents a summary of the assumptions, results, and conclusions of the calculations. Figure 1 illustrates the approximate areas that were utilized to determine the mass of VOCs in both the unsaturated and saturated zones.

The results of the calculations indicated the following:

- The total mass of VOC in unsaturated soil in the source area (concentrations exceeding 40 mg/Kg) is estimated to be approximately 1,800 Kg.

- The total VOC concentrations in groundwater in the area evaluated as a potential source area exceed 30 mg/L. The total mass of VOC in the groundwater in this area is estimated to be approximately 115 Kg and the total mass of VOC in the saturated soil in this area is estimated to be approximately 800 Kg. Thus, the total mass of VOC in the saturated zone in this area is estimated to be approximately 915 Kg.

Thus, approximately two-thirds (1,800 Kg) of the total VOCs (2,715 Kg) in the source area are concentrated in a small area within the unsaturated zone beneath and north of the concrete evaporation pad. These calculations support the proposed site-wide remedy (i.e. source remediation in the unsaturated zone concurrently with monitoring in the saturated zone). The soil vapor extraction (SVE) system within the unsaturated zone would remediate the highly concentrated source soil while the asphalt cover would reduce migration of constituents into the

saturated zone.

Therefore, as proposed in the draft CMS, it would be appropriate to monitor the saturated zone for a period of time (3 to 5 years) prior to implementing the contingent air sparging system. If you have any questions, please call me at (847)918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Coordinator

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy

ATTACHMENT A

Concentration contours and volume calculations were performed using Golden Software, Inc.'s SURFER, Version 5.1, software. SURFER is a grid-based contouring and three dimensional surface plotting graphics program. The concentrations were interpolated using the Kriging method. Kriging is a geostatistical gridding method which attempts to express trends that are suggested by the data. The assumptions used to estimate mass of VOCs in the unsaturated zone (soil) and the saturated zone (saturated soil and groundwater) are presented below.

Unsaturated Zone Assumptions

1. During the RCRA Facility Investigation (RFI), soil samples were collected at shallow (2-4 feet) and deep (6-8 feet) depths below ground surface (bgs). It is assumed that shallow samples represent 0 to 6 feet bgs and deep samples represent 6 to 10 feet bgs.

2. Based on the RFI analytical results, total VOCs were calculated for shallow and deep samples at each location. The area exceeding the soil cleanup levels is shown in Figure 1. This area is estimated to be the source area. The total VOC concentrations in shallow samples in this source area range from 40,000 to 1,994,340 μg/Kg. The total VOC concentrations in deep samples in this source area range from 37 to 594 μg/Kg. Thus, the source in the unsaturated zone is represented by soil only in the 0 to 6 feet bgs.

3. Based on the geotechnical testing conducting during the RFI, the average soil bulk density is 2.01 g/cc or 57 Kg/ft^3.

Saturated Zone Assumptions

1. The RFI findings concluded that the concentrations of VOCs are, for most part, in an area surrounding the Concrete Evaporation Pad area and are migrating northwest to within the areas of the Plating Wastewater Disposal Area and the BG-5 Oil Drum Storage Area. Thus, the saturated zone beneath these areas was evaluated as the potential source of VOCs. This area is depicted in Figure 1.

2. Based on the RFI, the water table starts at approximately 10 ft bgs and the clay layer starts at 30 ft bgs. Thus, the saturated zone is assumed to be 20 ft.

3. The monitoring wells are screened from 5 to 15 feet bgs. Therefore, the monitoring well sampling results are assumed to represent the groundwater in the 10 to 30 feet bgs zone.

4. Some GeoProbe groundwater samples were collected only from shallow zone (10 feet bgs). Conservatively, the shallow groundwater sample results are assumed to represent the groundwater in the 10 to 30 feet bgs zone.

5. If GeoProbe groundwater sample results were available from both the shallow (10 ft bgs) and deep (30 ft bgs) zone, an average concentration was used to the represent groundwater in the 10 to 30 feet bgs zone.

6. Based on the geotechnical testing conducting during the RFI, the average soil bulk density is 2.01 g/cc or 57 Kg/ft^3, the porosity is 33.9 percent, and the average fraction organic carbon is 0.0093.

7. Based on the VOC concentrations in groundwater, VOC concentrations in saturated soil were estimated using partition coefficient, K_d. K_d is the ratio of concentration in soil (mg/Kg) to concentration in groundwater (mg/L). K_d can be estimated using the fraction organic carbon and experimentally calculated K_{oc}, the octanol partition coefficient. Since total VOC consists primarily of 1,1,1-TCA, K_{oc} values of 1,1,1-TCA were used in the calculations. The K_{oc} for 1,1,1-TCA reported in the RFI is 126. Thus, K_d is estimated to be 126 x 0.0093 or 1.17 L/Kg, i.e., for every mg/L of VOC in the groundwater, there is 1.17 mg/Kg of VOC in saturated soil.

Results

1. The total mass of VOC in unsaturated soil in the source area (concentrations exceeding 40 mg/Kg) is estimated to be approximately 1,800 Kg.

2. The total VOC concentrations in groundwater in the area evaluated as a potential source area exceed 30 mg/L. The total mass of VOC in the groundwater in this area is estimated to be approximately 115 Kg and the total mass of VOC in the saturated soil in this area is estimated to be approximately 800 Kg. Thus, the total mass of VOC in the saturated zone in this area is estimated to be approximately 915 Kg.

Conclusions

Approximately two-thirds (1,800 Kg) of the total VOCs (2,715 Kg) are present within the unsaturated zone. Thus, the unsaturated zone is the primary source area for the VOCs.

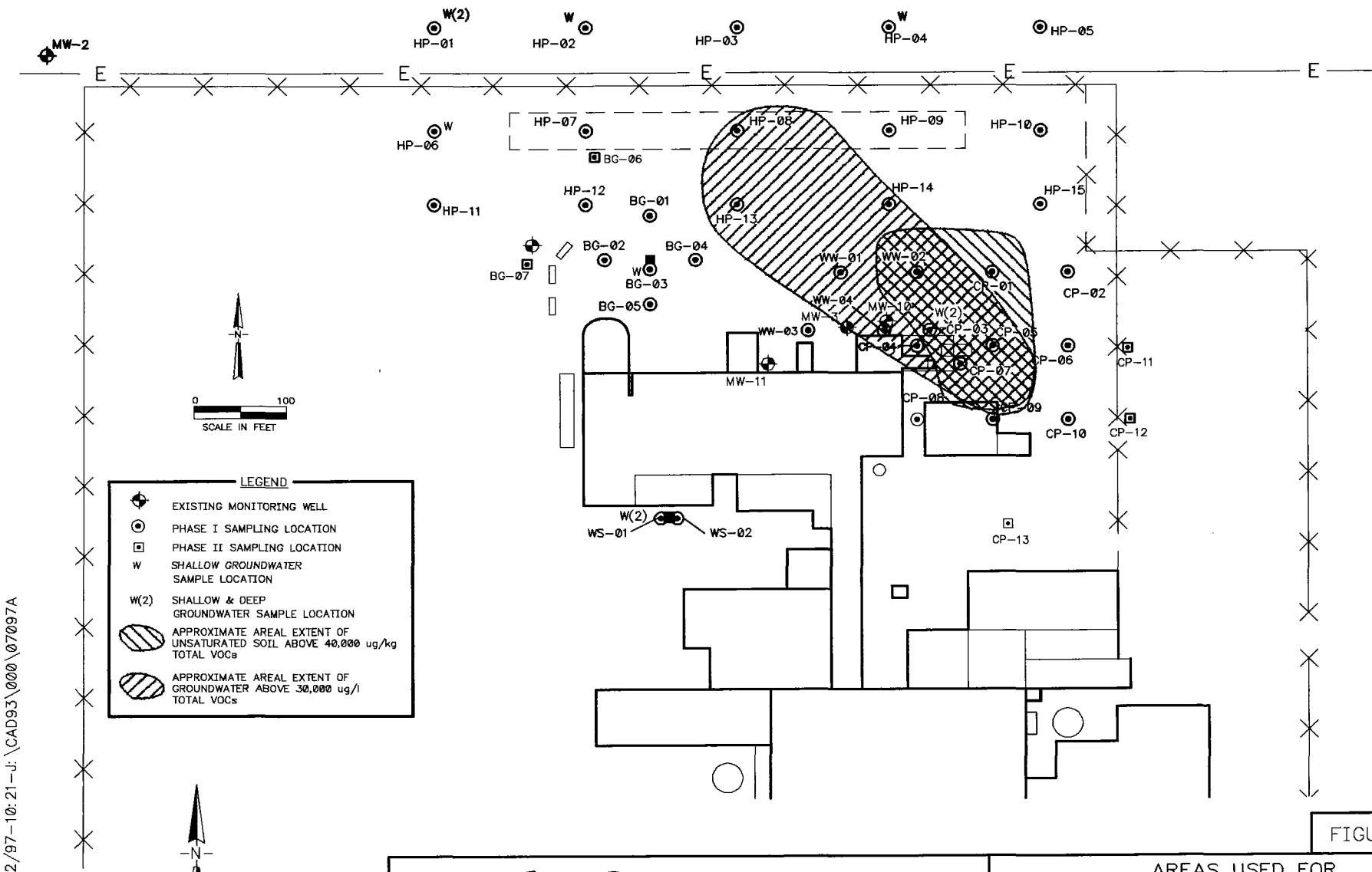

FIGURE 1

WESTON
MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

AREAS USED FOR
MASS BALANCE CALCULATIONS

TECHALLOY COMPANY, INC.
Union, Illinois

RON-05/02/97-10:21-J:\CAD93\000\07097A

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

RECEIVED
MAY 05 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

D27

15 April 1997

Mr. Robert Vandenburg
17506 Johnson Street
Union, IL 60180

REF: Lead concentration in the well water at 17506 Johnson Street, Union, Illinois.

Dear Mr. Vandenburg:

As you may recall, Roy F. Weston, Inc. (WESTON®) collected water sample from your well on February 6, 1997. The results of the water sample indicated that no compounds of concern were present in the well water at concentrations above the U.S. EPA maximum contaminant levels (MCLs) except lead which was detected at a concentration of 0.031 mg/L. The MCLs are the maximum allowable concentration levels that U.S. EPA will allow for compounds in a public water supply.

The U.S. EPA does not have an established MCL for lead but has set an action level of 0.015 mg/L for lead in drinking water. The total lead concentration in this water well has been historically at non-detectable levels or below the action level. The occurrence of total lead concentration during this sampling event exceeding the action level (not soluble lead) in groundwater may be due to leaching from the pipe or weak soldered joints. Groundwater samples collected from the well waters closer to Techalloy facility (RW-11 and RW-05) have been detected with lead concentrations that are either non-detectable or well below the action level.

WESTON recommends that water in this well be run for a sufficient duration before using it is used for drinking purposes.

If you have any questions or concerns please feel free to call Mr. William Buller of U.S. EPA at (312) 886-4568 or myself at (847)918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

cc: Mr. William Buller, U.S. EPA
Mr. Henry Lopes, Techalloy
Mr. Kevin Lesko, IEPA
Mr. David Williams, Techalloy
Mr. Scott Carr, Techalloy

P 140 675 244

US Postal Service

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CHICAGO IL 60604 FEB 20 1997 USPS

PS Form 3800, April 1995

B. Bulkley

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3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.

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U.S. EPA
WPTD
77 W. JACKSON BLVD.
CHICAGO, IL 60604

DRE-8J
B. Buller

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- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

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1. ☐ Addressee's Address
2. ☐ Restricted Delivery

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3. Article Addressed to:

Mr. Carlos Serna
Roy F. Weston Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, IL 60061-1450

4a. Article Number
P 140 - 675 - 244

4b. Service Type
☐ Registered
☐ Express Mail
☐ Return Receipt for Merchandise
☑ Certified
☐ Insured
☐ COD

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*
X Jeanne Curtis

7. Date of Delivery
3/27/97

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PS Form **3811,** December 1994

2/26 Fax to Serna
- Copy to DCBA file

DRE-8J

FEB 26 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450

Re: Corrective Measures Study
Techalloy Company Inc.
Union, Illinois
ILD 005 178 975

Dear Mr. Serna:

This letter is in response to Your February 7 and February 14, 1997, letters.

Your February 7 letter stated that you did not receive a copy of my December 27, 1996, letter to Mr. Henry Lopez of Techalloy Company. This letter provided approval of the Corrective Measures Study (CMS) Workplan. To allow for the time lost, your February 7 letter requested that the due date for submittal of a draft CMS report be extended 20 days with a new due date of March 19, 1997. Since the December 27 letter sent to Mr. Lopez indicated that you were copied, the request for the extension of the due date to March 19, 1997 is granted.

My December 27, 1997, letter approved the CMS Workplan with the condition that, unless preliminary screening shows a pathway to be a non-threat, a baseline risk assessment be performed. Your February 14 letter suggests that a baseline risk assessment will not provide significant additional information and proposes that a baseline risk assessment not be performed. In consideration of your proposal, a baseline risk assessment will not be required in the draft CMS report. However, should U.S. EPA conclude upon review of the draft CMS report that a baseline risk assessment is needed, a revised CMS report which includes a baseline risk assessment will be required.

Also, to follow up on our February 24, 1997, telephone conversation, it is requested that you provide a letter to me within fifteen (15) days of receipt of this letter, which summarizes the past and future activities to be performed by Weston to determine the extent of capture by the groundwater recovery system.

If you have any questions, please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Henry Lopez, Techalloy Company
Kevin Lesko, IEPA

bcc: Jacqueline Kline, ORC

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
WP 2/26/97					

D37

: JACQUELINE KLINE
R5WST.R5RCRA(BULLER-WILLIAM, Little-Paul)
Date: 3/19/97 1:55pm
Subject: techalloy corrective action -Reply

Bill, attached is your letter with some redlined comments included.

I received your 2d message on the stips and waiver. I'd already discussed the situation of the stips and their accrual in my comments on the letter. One of these comments is that, pursuant to the Stip. section of the AOC, I think that this letter needs to state that it is a notice of noncompliance if we want stips. to start running. Thus, putting in a sentence like you suggest (something like "you may be considered in violation of the AOC"), would prevent the stips. from running.

It seems to me that EPA often waives stips, especially for small amounts (and in Superfund the CDs and AOCs often recognize that EPA may waive stips). Here, the stips will be $750 from the date of receipt of this letter (if it is a notice of noncompliance) until the 7th day, and $1500 thereafter. This may impact your thinking on the issue of whether to call this a notice and whether to seek stips. (because no stips have accrued to date, so the amount may not be huge). But if Joe Boyle does not want us to waive stips once they start running, then I see 3 options for you:

1) do not call this a notice of noncompliance and reserve judgment on whether to send out a notice in the future if Techalloy doesn't respond

2) do call this a notice of noncompliance and send them a payment request after they return to compliance

3) in this letter state that EPA will deem Techalloy in noncompliance as of X future date unless EPA receives sampling and analysis results from wells 13 and 15 on X date

me know what you decide or send me a copy of the final letter.

b1/E

[illegible]IFIED MAIL
[illegible]RN RECEIPT REQUESTED

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

DRE-8J

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

Re: Private Well Sampling Program
Administrative Order on Consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr. Lopes and Mr Serna:

The United States Environmental Protection Agency (U.S. EPA) is in receipt of the analytical results of the February, 1997 semi-annual sampling of private wells. The results, which were received on March 17, 1997, {was receipt on time? if not, should mention how late submission was -- is no requirement in AOC itself that Techalloy send EPA semi-annual sampling results at all} did not include the private wells located on Highbridge Road (wells 13 and 14). These wells are included in the private well sampling area as modified by U.S. EPA's letter of May 29, 1996, and as delineated in Figure 5-1 of the approved RCRA Facility Investigation [illegible]rt.

U.S. EPA recognizes that Techalloy has been responsive to U.S. EPA's requests in the past specific data needs that have arisen. However, it is Techalloy's responsibility to keep abreast of the requirements of the Administrative Order on Consent (AOC) and other critical documents so that the dictates of the AOC are fulfilled in timely fashion. U.S. EPA views the private wells sampling program as a very critical part of the corrective action process in that it minimizes the potential for consumption of contaminated water by citizens. Failure to include the two wells in the February 1997 semi-annual sampling is deemed to be a violation of Section VI.A.2. of the Administrative Order on Consent. Wells 13 and 14 should be sampled and analyzed as soon as possible so that this data is obtained. Within fifteen days (15) days of receipt of this letter, please provide a response to U.S. EPA which describes the actions to be taken to address this matter. {By mentioning a 15-day due date, it could be construed that EPA is waiving the violation and allowing Techalloy a 2d opportunity to comply. So if you do not intend to waive the stips at this point, you should be more careful here. Also, under the AOC's stip. penalties section, this violation would seem to fall into para. XIV.A.5, which states for other failure to comply with provisions of this Consent Order after receiving notice from U.S. EPA of noncompliance: $750 per day for the first one to seven days of noncompliance and $1500 per day for each day of noncompliance thereafter. Because stips. don't start running for this violation until EPA notifies Techalloy of the violation, you may want to clearly state that this letter constitutes a notice of noncompliance pursuant to Section XIV, para. A.5, of the AOC or something like that. Otherwise, the lack of such explicit notice in combination with the 15-day due date could put into question whether EPA can seek stips. from the date that Techalloy receives this letter.}

Also it is U.S. EPA's understanding that a pump test to evaluate the effectiveness of the Interim Measures recovery system is scheduled for this week. Please provide the results of the test, and any proposed modifications to the recovery system, within thirty (30) days of receipt of this letter.

[illegible]ou have any questions, please call me at (312) 886-4568.

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

RECEIVED
FEB 21 1997
DIVISION FRONT OFFICE
Waste, Pesticides & Toxics Division
U.S. EPA – REGION 5

14 February 1997

VIA FACSIMILE

ILD 005 178 975

D.3.1

Mr. William Buller
Project Coordinator
Enforcement and Compliance Assurance Branch
U.S. Environmental Protection Agency
Region V (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Re: Techalloy Company, Inc. Corrective Measures Work Plan Modifications
Union, Illinois

Dear Mr. Buller:

On behalf of Techalloy Company, Inc., Roy F. Weston, Inc. (WESTON®) is conducting the Corrective Measures Study (CMS) for Techalloy's Union facility. WESTON requests a reevaluation pertaining to the need to address Modification #3 in your 27 December 1996 letter to Mr. Henry Lopes. Modification #3 states:

> *Unless preliminary screening shows a pathway to be a non-threat, a baseline risk assessment shall be developed in accordance with "Risk Assessment Guidance for Superfund, Part A" U.S. EPA, 1989.*

WESTON believes that it is not necessary to develop a baseline risk assessment for this site. A baseline risk assessment will require significant effort while providing results similar to those that will be obtained through the methods presented in the CMS work plan. In a baseline risk assessment for this site, the potential carcinogenic and noncarcinogenic risk posed by chemicals in soil and groundwater would be quantified and those chemicals that pose the greatest potential threat would be determined. Target cleanup levels would then be calculated only for chemicals that pose a potential risk by performing the risk assessment in reverse, i.e., backcalculating a chemical concentration in soil and groundwater that is at an acceptable risk level. The methods proposed in the CMS work plan and in your 27 December letter for screening constituents and pathways, and for developing target cleanup levels follow the "risk assessment in reverse" methodology and will result in target cleanup levels that are protective of human health and the environment. The CMS method also addresses the potential for residual soil contamination to migrate into groundwater, which would not be addressed in a baseline risk assessment. In addition, soil and groundwater are the primary exposure pathways of concern at this site, and the proposed CMS screening methodology addresses these pathways.

Click to WESTON On The Web http://www.rfweston.com

The generic soil screening levels (SSLs) presented in the following guidance documents: (1) Illinois Environmental Protection Agency (IEPA) *Tiered Approach to Cleanup Objectives*, January 1996; (2) *Soil Screening Guidance: Technical Background Document*, U.S. EPA-9355.4-17A, May 1996; and (3) U.S. EPA Region 9 *Preliminary Remediation Goals* will be used to eliminate constituents and develop target cleanup levels. The SSLs that will be used are those based on the same exposure scenarios that are present at the Techalloy facility (i.e., an industrial worker and construction worker potentially exposed to impacted soil, and an industrial worker and an off-site resident potentially exposed to on-site and off-site groundwater, respectively). A chemical that exceeds its lowest SSL will be evaluated further in the Corrective Measures Study (CMS) and target cleanup levels for industrial land use will be determined for these constituents. A fully processed deed restriction was submitted to the U.S. EPA on 9 January 1997 and supports target cleanup levels for the Techalloy property based on industrial land use only.

Should you have any questions or require additional information, please feel free to contact me at (847) 918-4002 or Terry Bosko at (847) 918-4113.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Manager

CJS/kvh

cc: Terry Bosko, WESTON

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

7 February 1997

ILD 005 178 975

D.3.1

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Extension Request for Submittal of the Corrective Measures Study
Techalloy Property, Union, Illinois

Dear Mr. Buller:

At the request of Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®) is requesting a 30 day extension for the submittal of the Corrective Measures Study (CMS) for the Techalloy Property in Union, Illinois. The United States Environmental Protection Agency (U.S. EPA) conditionally approved the Corrective Measures Study Work Plan in a letter dated 27 December 1996 and received by Techalloy on 31 December 1996. The conditionally approved CMS Work Plan provided a schedule for the submittal of the draft and final CMS reports. Assuming that the conditionally approved draft CMS Work Plan is considered final, the draft CMS report would be due on 28 February 1997. WESTON is requesting a 20-day extension and a new submittal date of 19 March 1997. This extension is requested, since I did not receive a copy of the 27 December 1996 conditional approval letter and was unable to initiate the preparation of the CMS.

We appreciate your consideration in this matter. If you have any questions, please call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Project Coordinator

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy

Click to WESTON On The Web http://www.rfweston.com

D31

12/30/96 To RCRA file

Faxed to Serna

DEC 27 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

DRE-8J

Dear Mr Lopez
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Re: Administrative Order on Consent
Docket No. V-W-07-93
Techalloy Company, Inc.
Union, Illinois
ILD 005 178 975

Dear Mr. Lopez:

The United States Environmental Protection Agency (U. S. EPA) has reviewed the document "Corrective Measures Study Workplan, Techalloy Company, Inc., Union, Illinois" dated September, 1996, which was submitted in accordance with the above referenced Administrative Order on Consent. U.S. EPA hereby approves this document, with the exception of Section 2 which provides a summary of present site conditions and is neither approved or disapproved nor validated by this response, and with the following modifications (items 1-3).

1. A conceptual site model (CSM) shall be developed for use in soil screening and development of target cleanup levels. The CSM should define contaminant distributions, release mechanisms, exposure pathways and migration routes including dermal, and potential human and ecological receptors.

2. If generic soil screening levels (SSLs) are used to eliminate contaminant constituents or develop target cleanup levels, only generic SSLs given in the following guidance documents can be used: (1) Illinois Environmental Protection Agency (IEPA) Tiered Approach to Cleanup Objectives, January 1996; (2) Soil Screening Guidance: Technical Background Document, U.S. EPA-9355.4-17A, May, 1996; (3) U.S. EPA Region 9 Preliminary Remediation Goals, 1996. The lowest value for a contaminant constituent shall be used for eliminating constituents or pathways.

3. Unless preliminary screening shows a pathway to be a non-threat, a baseline risk assessment shall be developed in accordance with "Risk Assessment Guidance for Superfund, Part A" U.S. EPA, 1989.

U.S. EPA is in receipt of Techalloy's December 10, 1996, document pertaining to future land use for the Techalloy facility. This document generally provided the information specified in U.S. EPA's Directive on land use. However the deed restriction provided in the document which limited the Techalloy property to industrial use only, was a draft and was not processed. Target cleanup objectives based on industrial land use shall be supported by a fully processed deed restriction. City officials should also be consulted and a summary of such discussions provided to U.S. EPA and IEPA.

The soil screening process and development of target cleanup levels shall be performed in accordance with "Soil Screening Guidance: Technical Background Document" U.S. EPA 1996, other U.S. EPA and IEPA guidance documents as appropriate, shall take into account ecological receptors, and all results and conclusions shall be fully supported by appropriate data and rationale.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste Pesticides and Toxics Division
MI/WI Section

cc: Carlos Serna, Weston
John Koehnen, A.T. Kearney
Kevin Lesko, IEPA

bcc: J. Kline

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
MP 12/27/96					

D.3.1

DEC 11 1996

Mr. Jerry Kuhn
RCRA Unit
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 72794-9276

DRE-8J

Re: Techalloy Company Inc.
Union, Illinois
ILD 005 178 975

Dear Mr. Kuhn:

As you are aware Techalloy Company Inc. is performing corrective action at their facility in Union, Illinois under a United States Environmental Protection Agency (U.S. EPA) Consent Order. Though this site was not transferred to the Illinois Environmental Protection Agency (IEPA) as a "disinvestment" corrective action facility, critical decisions pertaining to remedial action in which your Agency will likely want to participate are expected in the coming months.

Techalloy has completed the RCRA Facility Investigation (RFI) and recently submitted a draft Corrective Measures Study (CMS) Workplan. The draft CMS Workplan proposes to use U.S. EPA guidance documents and "IEPA Tiered Approach to Cleanup Objectives" for developing target cleanup levels. The CMS Workplan further proposes to develop the target cleanup levels based on an industrial land use projection. To provide a better basis for evaluation of the land use projection, U.S. EPA has requested Techalloy to submit additional land use information pursuant to U.S.EPA directive 9355.7-04, "Land Use in the CERCLA Remedy Selection Process". It is anticipated that this information will be submitted to U.S. EPA and IEPA in December, 1996. It is our understanding that your Agency has received copies of all Techalloy submittals and should so in the future.

It is U.S. EPA's intent to work in cooperation with IEPA so as to develop remedial action criteria that are satisfactory to both Agencies. To expedite the corrective action process, it is our goal to provide responses to Techalloy's future submittals within sixty days of receipt of their submittals. Would you please advise me within thirty (30) days of receipt of this letter, of IEPA's anticipated degree and nature of participation on this corrective action site?

If you wish to discuss this matter further please call me at (312) 353-5510, or if you have specific questions concerning the Techalloy facility, please call Bill Buller of the MI/WI section at (312) 886-4568.

Sincerely,

Lorna Jereza, Chief
Enforcement and Compliance assurance Branch
Waste Pesticides and Toxics division
IL/IN Section

bcc: Paul Little, ECAB
J. Kline, ORC
Gerald Phillips

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
AUTHOR/ TYPIST	MINN/OHIO SECTION CHIEF	MICHIGAN/ WISCONSIN SECTION CHIEF	ILLINOIS/ INDIANA SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
MB 12/10/96		12-10-96	12/11/96		

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

MANAGERS DESIGNERS CONSULTANTS

D.3.2 Dig to RCRA file

11/4/96

11-30-96

due date not attached to AOC

(D.3.2)

10 December 1996

Mr. William Buller
U.S. EPA, Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Work Order No. 01989-028-001

Re: Future Land Use Determination for Implementing a Corrective Measures Study
Techalloy Property, Union, Illinois

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON ®) is pleased to provide the United States Environmental Protection Agency (U.S. EPA) with applicable information pertaining to the future land use around the Techalloy property in Union, Illinois. The pertinent information was gathered in accordance in the OSWER Directive No. 9355.7-04. The information collected will further support the use of industrial cleanup levels at the Techalloy property.

In developing assumptions and projections about future population growth and land use for the Village of Union, WESTON utilized information presented in "RCRA Facility Investigation Report" (June 1996); the 1994 McHenry County Zoning Ordinance (as amended 18 July 1995); and preliminary forecasts of 2020 population, households, and employment from the Northeast Illinois Planning Commission. The enclosed Attachment A presents all applicable information gathered for determining the anticipated future land use around the Techalloy property.

If you have any questions or require additional information, please call me at (708) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.

Enclosure

cc: Kevin Lesko, IEPA
Henry Lopes, Techalloy
David Williams, Techalloy
Sean Edson, WESTON

CH01\PUBLIC\WO\W1500\TECHALL\22879.LTR

A.T. Kearney, Inc.
222 West Adams Street
Chicago, Illinois 60606
312 648 0111
Facsimile 312 223 6200

Management Consultants

D33

RZ2-R05035.01-ID-018

October 16, 1996

AT KEARNEY

Mr. William Buller
U.S. EPA Region 5 DRE-8J
77 W. Jackson
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W4-0006; EPA Work Assignment No. R05035; Corrective Action Document Review; Techalloy Company Inc., Union, Illinois; EPA ID No. ILD005178975; Review of Corrective Measures Study Work Plan; Task 02 Deliverable

Dear Mr. Buller:

Please find enclosed A.T. Kearney's review of the Corrective Measures Study (CMS) Work Plan, dated September 1996, for the above-referenced facility. A diskette containing the A.T. Kearney comments in WordPerfect for Windows format is provided for your convenience. This document is identified as Attachment 1 for your convenience.

As you requested, A.T. Kearney has reviewed the document, specifically focusing on Section 3. In general, the CMS Work Plan appears to adequately identify the steps which Techalloy proposes for the evaluation of corrective measures at and immediately around the Techalloy facility. However, A.T. Kearney has identified several issues, presented within the attached deliverable, which it appears that Techalloy should evaluate and include in a revised CMS Work Plan or within the Draft CMS Report. Therefore, where modifications are requested in the review comments, Techalloy is directed to include the requested information in a future submittal, rather than specifying the CMS Work Plan or CMS Report.

At this time, the issues and deficiencies presented in Attachment 1 do not appear to be major deficiencies. Therefore, it is our recommendation that the (Draft) CMS Work Plan be conditionally approved and Techalloy be directed to proceed with the completion of the Draft CMS Report, addressing the deficiencies identified in Attachment 1 in the Report. This strategy would remove the need for preparation of a final CMS Work Plan and would allow for faster progression of the CMS.

Please feel free to contact me or the A.T. Kearney Work Assignment Manager, Mr. John Koehnen, at 312/223-6253 if you have any questions regarding this review.

Sincerely,

Patricia Brown-Derocher

Patricia Brown-Derocher
Regional Manager

cc: F. Norling, EPA Region 5
W. Jordan, Central Files
J. Koehnen
D. Walker
A. Williams

TECHALLOY COMPANY INC.
UNION, ILLINOIS
U.S. EPA ID NO. ILD0051 78975

CORRECTIVE MEASURES STUDY WORK PLAN REVIEW

Submitted to:

Mr. William Buller
U.S. Environmental Protection Agency
Region 5 - DRE-8J
77 W. Jackson
Chicago, Illinois 60604

Submitted by:

A.T. Kearney, Inc.
222 W. Adams Street
Chicago, Illinois 60606

EPA Work Assignment No.	**R05035**
Contract No.	**68-W4-0006**
A.T. Kearney WAM	**John Koehnen**
Telephone No.	**(312)223-6253**
EPA WAM	**William Buller**
Telephone No.	**(312)886-4568**

October 16, 1996

ATTACHMENT 1

TECHALLOY COMPANY, INC.
EPA ID NO. ILD005178975
CORRECTIVE MEASURES STUDY WORK PLAN REVIEW

GENERAL COMMENTS

1. The installation of an Interim (Off-site) Measures Groundwater Extraction and Treatment System northwest of the facility is still underway, or has been recently completed. Since the effectiveness of this system has not been evaluated, the Corrective Measures Study (CMS) Report should describe the system as installed, the specifics of the installation, and how this system will also ultimately fulfill the goals of providing corrective measures of the groundwater at the facility and to the northwest. This is important since the offsite groundwater extraction and treatment system may be considered the corrective measures for the groundwater contamination off-site to the northwest, if the system is proven effective. Provide the additional information, as appropriate, in the next CMS submittal.

2. The current and projected future use of the facility is for industrial purposes. This assumption is made throughout the document and is generally believed to be accurate. However, when evaluating the risks associated with both soil and groundwater contamination, Techalloy must either evaluate the risks under the more conservative residential use scenario or provide assurances and certification(s) that the future use of the site, and any potential areas where contamination exists, will be restricted to industrial uses. This step may include the proposed implementation of institutional controls to prevent future contact with both the soils and groundwater. This element of the CMS must evaluate the potential for the off-site groundwater extraction and treatment system to fully remediate the groundwater to levels where residential use scenarios indicate that the risks posed by exposure to the groundwater are at least below 1.0×10^{-6}. These issues must be fully addressed in the next CMS submittal.

TECHALLOY COMPANY, INC.
EPA ID NO. ILD005178975
CORRECTIVE MEASURES STUDY WORK PLAN REVIEW

SPECIFIC COMMENTS

2.0 SUMMARY OF PRESENT SITE CONDITIONS

2.2 RFI FINDINGS (Pages 2-5 to 2-13)

2.2.2 Site Contamination (Pages 2-7 to 2-13)

2.2.2.1 Identification of Solid Waste Management Units (SWMUs) (Page 2-7)

1. It is stated in this section that the five SWMUs under evaluation were identified during the preparation of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report. This statement is not accurate since the five SWMUs were originally identified in a RCRA Facility Assessment (RFA) and were subsequently evaluated in the RFI due to their known or suspected releases of hazardous wastes and/or hazardous constituents to the environment. Ensure that all future CMS documents accurately address the identification of the SWMUs under investigation.

2.2.2.2 Soil Contamination (pages 2-7 to 2-9)

2. A cursory summary of the RFI findings related to the soils within the Techalloy facility is provided in this section. However, the estimated rate of migration of contaminants through the soils is not provided. This information is important to fully and adequately evaluate the potential corrective measures, and specifically the need for either interim measures or stabilization if the potential exists for the contamination to migrate off-site prior to the implementation of corrective measures. Provide additional information regarding the rate of migration of contaminants within the soils.

2.2.2.3 Groundwater Contamination (Page 2-9)

3. It is indicated on page 2-9 that the groundwater at the Techalloy facility contains metals at elevated levels, reportedly only in the groundwater directly underlying the facility. However, no data or figures presenting the concentrations of metals in the groundwater are included to support this conclusion. Ensure that future submittals include data and/or figures that identify the concentration and extent of metals in groundwater at and immediately surrounding the site.

2.3 INTERIM MEASURES (Page 2-14)

4. Interim measures have included the installation and maintenance of an off-site groundwater extraction and treatment system located to the northwest of the Techalloy facility. Since these activities are either in the final stages of completion or have recently been completed, provide a summary of the installation and any changes/deviations which were made during installation.

3.0 CMS SCOPE

3.1 TASK 1 - IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE MEASURE ALTERNATIVE(S) (Page 3-1 to 3-6)

Description of Current Conditions (Page 3-1 to 3-2)

5. The text in this section includes vague references to the completion of this task if it is deemed necessary. At this time, due to the nature of this submittal and the status of the off-site groundwater extraction and treatment system, a revision to the description of current conditions (DOCC) will be required. Provide for revision to the DOCC, subsequent to the completion of the groundwater extraction and treatment system. In addition, the last paragraph of this section does not seem to relate to the DOCC and may be misplaced or incomplete.

Establishment of Corrective Action Objectives (Pages 3-2 to 3-6)

6. The corrective action objective included in the second bullet within this section is incomplete. The second bullet should include the prevention of both on-site and off-site ingestion or direct contact with water/groundwater, instead of just the potential on-site exposures. Provide for the prevention of ingestion or direct contact with water/ groundwater off-site as well.

Soil

7. The exposure pathways for consideration when developing target cleanup levels are incomplete. Direct contact via dermal exposure should be evaluated since the facility is currently active and will likely be active for several years to come. Exposure is possible as a result of activities which may provide dermal exposure such as trenching. Provide for the inclusion of dermal exposure during the development of the target cleanup levels or provide justification for the exclusion of this pathway.

8. The quotation on page 3-4 is accurate as stated. However, depending upon the results of the risk evaluation and the resulting cleanup levels, institutional controls may be required. During the evaluation of potential corrective measures in future submittals, ensure that the

criteria which will be used to evaluate the need for implementing institutional controls is adequately detailed. Provide these criteria, as appropriate, in future submittals. Also see General Comment 2 above.

Groundwater

9. Page 3-5 states that the most probable future use of the site is industrial and therefore cleanup goals which propose a target risk level of 1×10^{-4} will be used based upon that determination. Depending upon the results of the risk evaluation and the resulting cleanup levels, institutional controls will likely be required, unless the cleanup levels equal or exceed those for residential use. During the evaluation of potential corrective measures in future submittals, ensure that the criteria which will be used to evaluate the need for implementing institutional controls is adequately detailed. Provide these criteria, as appropriate in future submittals. Also see General Comment 2 above.

ILD 005 178 975

H. Derrick Peterson, Esq.

Counsel in Environmental Law & Science

D.3.1

2901 Barton Skyway #1713
Austin, Texas 78746

Tel: (512) 329-6714
Fax: (512) 329-6736

August 20, 1996

RECEIVED
AUG 26 1996
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

VIA Facsimile

Mr. Bill Buller
RCRA Enforcement Branch
U.S. Environmental Protection Agency
77 West Jackson
Chicago, IL 60604

Re: Noblesville CMS: Additional Evaluation of On-Site Ditch Remedies

Dear Mr. Buller:

Following up on our recent discussions regarding the additional information needed by EPA to complete remedy selection for the Firestone Industrial Products Company ("FIPCO") facility in Noblesville, Indiana, I have prepared the following description of additions and modifications to the Corrective Measures Study ("CMS") along with a schedule for producing a revised CMS. The additional items will primarily address the protectiveness of the recommended rechanneling remedy for the on-site portion of Wilson Ditch. Specifically, the revised CMS will provide a more detailed evaluation of the potential for human or ecological exposure to polychlorinated biphenyls after the recommended rechanneling is implemented.

Fate & Transport Modeling

Fate and transport modeling will be used to assess polychlorinated biphenyl migration from the filled Ditch channel to points of potential human or ecological exposure. Modeling of this migration is necessary because the processes affecting the distribution of polychlorinated biphenyls in groundwater work too slowly to be accurately characterized by monitoring data available today. The model that will be constructed for this purpose will cover a smaller domain than the existing groundwater model, so that additional focus can be applied to the Ditch area.

The flow portion of the model, constructed using the MODFLOW code, will incorporate stress periods that represent the period during which the existing groundwater

extraction system is operating as well as the post-extraction period. The model will incorporate several aquifer layers to reflect the fact that the polychlorinated biphenyls are found almost exclusively at shallow depths. The model will simulate the hydraulic effects of the new Ditch channel, which is expected to function as a losing stream during the period of groundwater extraction and as both a gaining and losing stream (alternately) during the post extraction period. Potential additions to the recommended remedy, such as supplemental groundwater extraction or the installation of a liner in the new Ditch channel, can also be modeled if they appear to be appropriate.

The transport portion of the model, constructed using the MT3D code, will simulate the movement of polychlorinated biphenyls through the groundwater. This part of the model will project the distributions of polychlorinated biphenyls in the aquifer in the future, based on their relatively low mobility and relatively high resistance to natural degradation. The model will also allow for an evaluation of the degree to which the rechanneling remedy protects ecological receptors in Wilson Ditch. This will be accomplished by comparing the potential flux of polychlorinated biphenyls from the sediments into the existing Ditch channel against the projected flux, if any, from the sediments, through the aquifer and into the new Ditch channel.

The modeling results will be discussed in the text of the CMS. An additional report will be produced to document the modeling work. This report may be separate from the current CMS modeling report or may be an addendum to that report.

Additional Factual Information

The text of the CMS will be expanded to discuss in greater detail the available sampling data for the on-site Ditch sediments and bank soils. The CMS will also include a new figure based on a cross-section along the course of the on-site Ditch. This figure will illustrate both the location and depth of available sediment samples and will show the depth of cover that would be installed over the sediment under the recommended rechanneling remedy. Additionally, data will be added to the CMS regarding any impact of the groundwater treatment system effluent on polychlorinated biphenyl concentrations in Wilson Ditch.

Modifications to Groundwater Monitoring Recommendation

The discussion of recommended groundwater monitoring activities in the CMS will be expanded to designate wells to be sampled for polychlorinated biphenyls and sampling frequencies.

Risk Assessment

EPA expects to finalize revised cancer potency factors for polychlorinated biphenyls before this CMS revision will be completed. Consequently, the revised CMS will contain updated human risk projections for the scenarios in the current CMS that include exposure to polychlorinated biphenyls, such as the recreator scenario in Stony Creek and the construction worker scenario in the comparative risk assessment.

We have discussed the utility of adding to the CMS a risk projection based on a scenario under which the facility is converted to residential use and the deeply buried sediments are excavated to the surface of a residential lawn. The Agency's most recent expression of RCRA Corrective Action Program Management Philosophy included as its first point the guiding principal that corrective actions be "fully protective given *reasonable* exposure assumptions." 61 Fed. Reg. 19,432, 19,441 (col. 1) (emphasis added). As explained below, such a scenario is well beyond a "reasonable worst case" and therefore is not required under this philosophy or by EPA's risk assessment policies and guidelines.

As I have discussed with you and Rick Mattick, the land use around the old Ditch channel will remain industrial, rather than residential, based on factors such as its current use and zoning, the planned RCRA deed restriction and regional development patterns that are already discussed in the CMS. Even if the land use were to change and the institutional controls directly related to the RCRA remedy were to be disregarded, there are several additional reasons to believe that the kind of deep excavation activity needed to bring significant amounts of sediment to the surface would never occur at this location.

First, the County Surveyor prohibits the construction of buildings and even the planting of trees, under state statutory authority, within 75 feet of "regulated drains" such as the Wilson Ditch. The filled Ditch channel will be located within this regulated area along the rechanneled Ditch, so construction of any structure over the filled Ditch channel would be disallowed for reasons unrelated to the RCRA remedy. Second, the filled Ditch channel would be within the 100-year flood plain, imposing additional restrictions on the feasibility and desirability of residential construction. Finally, even if residential construction were to be undertaken, it is unlikely that a house with an excavated basement would be constructed above the filled Ditch channel because of the shallowness of the water table, which would not allow the basement to remain dry. Considering these barriers to any type of construction, much less that involving very deep excavation, it is a virtual certainty that residential development will occur at other readily-available locations and that the cover soil over the old Ditch channel will remain undisturbed even if all RCRA institutional controls were to fail. Consequently, I do not believe that this risk scenario should be incorporated into the revised CMS. Based on our conversations, I understand that you and Rick Mattick agree with this conclusion.

Schedule

The development of the groundwater model is clearly the most time consuming aspect of the CMS revisions discussed above. The consultant who developed the groundwater model for the CMS, Dudek & Associates, has estimated that the development and documentation of the model will require approximately three and one-half months to complete after Bridgestone/Firestone authorizes the work. I expect that this will allow sufficient time to develop the model and apply it to the recommended rechanneling remedy. However, if the preliminary modeling shows that additions to the recommended remedy need to be evaluated, then more time may be required for hydrogeologic evaluation, additional modeling and engineering cost estimation. Because the need for this additional time cannot be determined in advance, I suggest that we proceed on the assumption that the modeling can be completed in three and one-half months, with the understanding that I will advise you promptly of any circumstances that may require additional time. If I receive your agreement to the revisions as I have proposed them by the end of August, then I would expect to have the revised CMS in your hands on December 20, 1996.

After you have had a chance to consider the plan described above, please give me a call to discuss your reaction and to let me know whether it is appropriate to ask the modelers to begin work.

Sincerely,

H. Derrick Peterson
Project Coordinator

Enclosure

cc: Don Stilz, IDEM

RECEIVED
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

WESTON
MANAGERS DESIGNERS CONSULTANTS

Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

26 April 1996

4/7/97 3-3 to Record Order
T.7.9

Mr. William Buller
U.S. EPA Region V
RCRA Enforcement Branch
MI/WI Section
77 West Jackson Blvd.
Chicago, IL 60604

W.O. No.: 01989-018-002

Ref: Groundwater Treatment System-Implementation of Interim Measure Plan.

Dear Mr. Buller:

Techalloy Company, Inc. (Techalloy), Roy F. Weston, Inc. (WESTON®), and the United States Environmental Protection Agency (U.S. EPA) met at your office on 19 April 1996. This letter serves as a summary of the locations and depth of wells to be installed during the implementation of interim measures.

With reference to U.S. EPA's comments in the approval letters dated July 1, 1993 and December 1, 1993 for Groundwater Treatment System-Interim Measures and the meeting of April 19, 1996, WESTON intends to pursue the installation of extraction well, piezometers, and monitoring wells and the subsequent construction of the treatment system. As agreed to by the U.S. EPA and Techalloy, the extraction well, monitoring wells, and the piezometers are to be installed at the locations presented in the enclosed Figure 1. The following summarizes specific locations of depths of all wells.

- The extraction well will be located 720-feet north of the intersection of the Union Road and the Highbridge Road. The well will be installed to a depth of 80 feet with a 30-ft well screen.

- Two piezometers of 1-inch diameter Polyvinyl Chloride (PVC) will be installed near the extraction well. One of these piezometer will be located 50-feet south of the extraction well and the other will be 100 feet south of the first piezometer. Both the piezometers will be screened from 55 to 65 feet bgs.

- Three 2-inch diameter PVC monitoring wells will be installed in a cluster outside the capture zone of the extraction well northwest of the intersection of Union Road and Highbridge Road. These monitoring wells will be screened using 15-foot screen to monitor the groundwater quality 10-25 feet, 40-55 feet and 65-80 feet depths (the enclosed Figure 3-4) during the operation of the extraction well.

If you have any questions, please feel free to call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk

cc: Henry Lopes, Techalloy
Kevin Lesko, IEPA
David Williams, Techalloy
Scott Carr, Techalloy
Jack Thorsen, WESTON
Pat Carmody, WESTON
Jameel Ahmed, WESTON

RECEIVED
APR 10 1996
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA REGION V

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
847-918-4000 • Fax 847-918-4055

ILD 005 178 975

9 April 1996

D.2.9

Mr. William Buller
U.S. EPA Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Ref: Determination of capture zone and radius of influence using WHPA Model's Conceptual MWCAP Module.

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON®) is pleased to present the findings of the United States Environmental Protection Agency's (U.S. EPAs) Wellhead Protection Area (WHPA) conceptual module: MWCAP. The purpose of this work was to assess the radius of influence (R.I) and stagnation point (S.P.) for effective placement of an extraction well. The placement of an extraction well is part of the Interim Measure (IM) groundwater treatment system for Techalloy Company in Union, Illinois.

An aquifer pump test evaluation indicated a hydraulic conductivity (K) of 211 ft/day. Assuming a homogenous aquifer with a steady and uniform groundwater flow, a Transmissivity (T) of 15,825 ft^2/day was calculated for an aquifer with a thickness of 75 feet. Using a well discharge rate of 350 gallons per minute (gpm) or 67.680 ft^3/day, WESTON ran the computational module: MWCAP of U.S. EPA's WHPA Program to determine the R.I or capture zone and S.P. The following are the findings:

T = 15,825 ft^2/day
R.I = 2,000 feet
S.P = 480 feet

The results of the computational modelling showing pathlines of the extent of capture zone are presented in Figure 1. By super-imposing this figure (extraction well and its associated grid lines depicting the capture zone) on Figures 3-1 and 3-2 of the "Supplemental RCRA- Off-site Groundwater Investigation Report" the placement of the extraction well for effective capture of contaminants (for shallow and deep aquifer) can be determined.

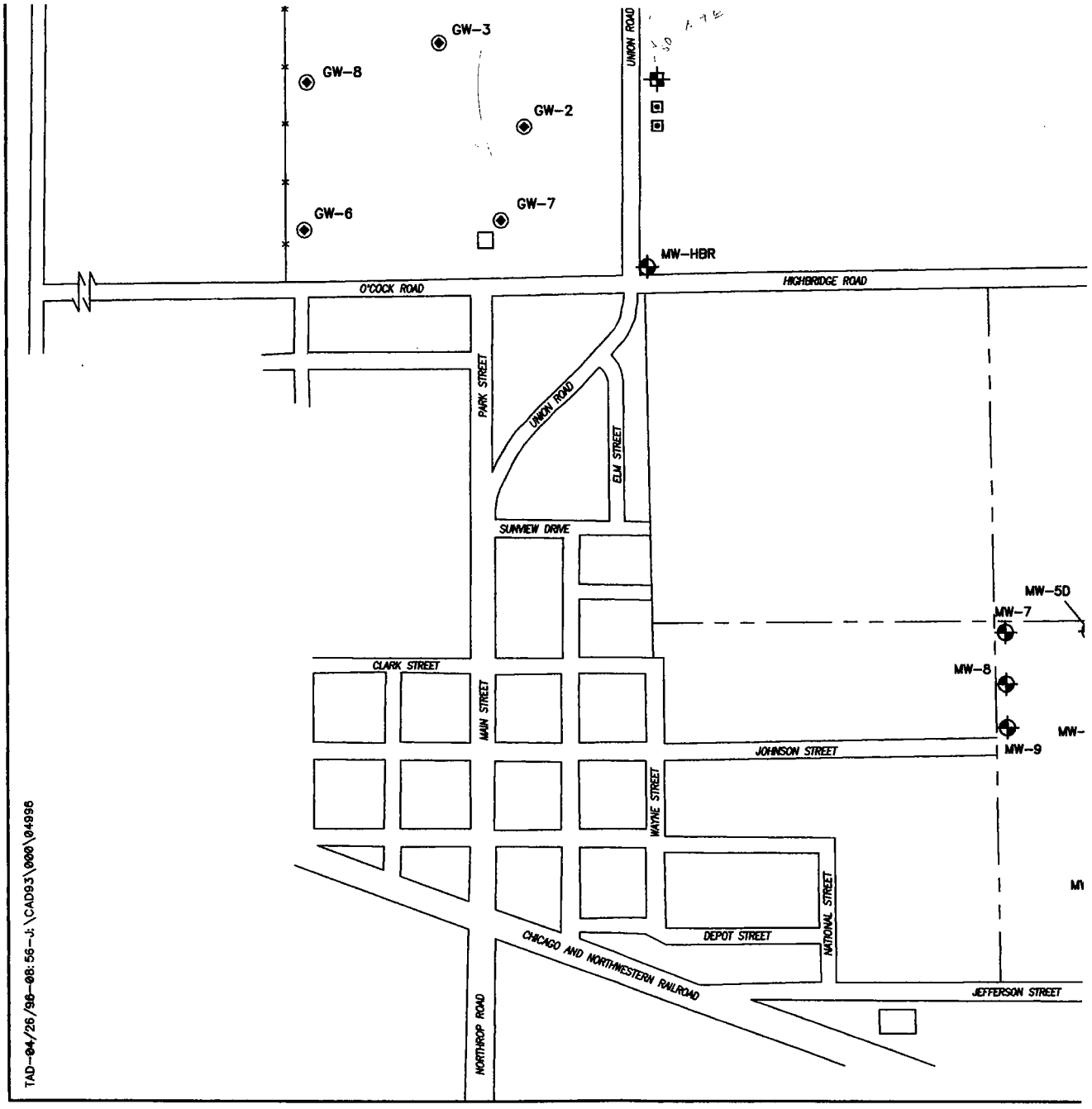
If you have any questions, please feel free to call me at (847) 918-4002.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

Encl: Figure


GW-3
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UNION ROAD
ELM STREET
SUNVIEW DRIVE
MW-5D
MW-7
CLARK STREET
MW-8
MAIN STREET
MW-9
JOHNSON STREET
WAYNE STREET
NATIONAL STREET
DEPOT STREET
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NORTHROP ROAD
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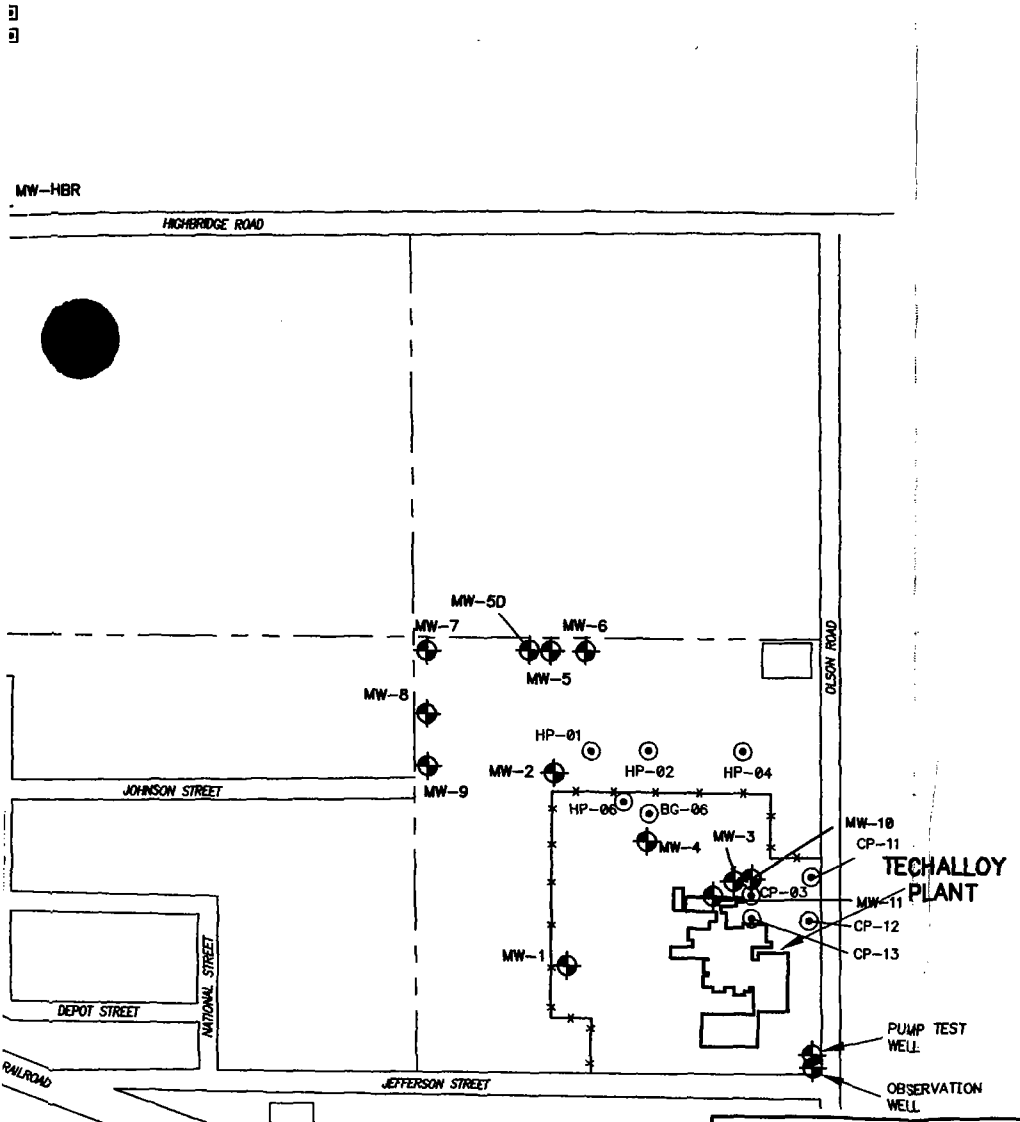


LEGEND

- EXISTING MONITORING WELLS
- GEOPROBE GROUNDWATER SAMPLE LOCATION (RFI STUDY AUGUST 1994)
- LEAD SCREEN AUGER GROUNDWATER SAMPLING (DECEMBER 1995 & JANUARY 1996)

INTERIM MEASURE IMPLEMENTATION

- 8" EXTRACTION WELL
- 1" PIEZOMETERS
- 2" DIAMETER MONITORING WELLS (SHALLOW, INTERMEDIATE & DEEP)

NOTE:
GW-01 IS LOCATED 225 FEET NORTH AND 50 FEET EAST OF THE NORTHEAST INTERSECTION OF ROUTE 176 AND MILLSTREAM ROAD, GW-01 SAMPLED 5 DECEMBER, 1995.

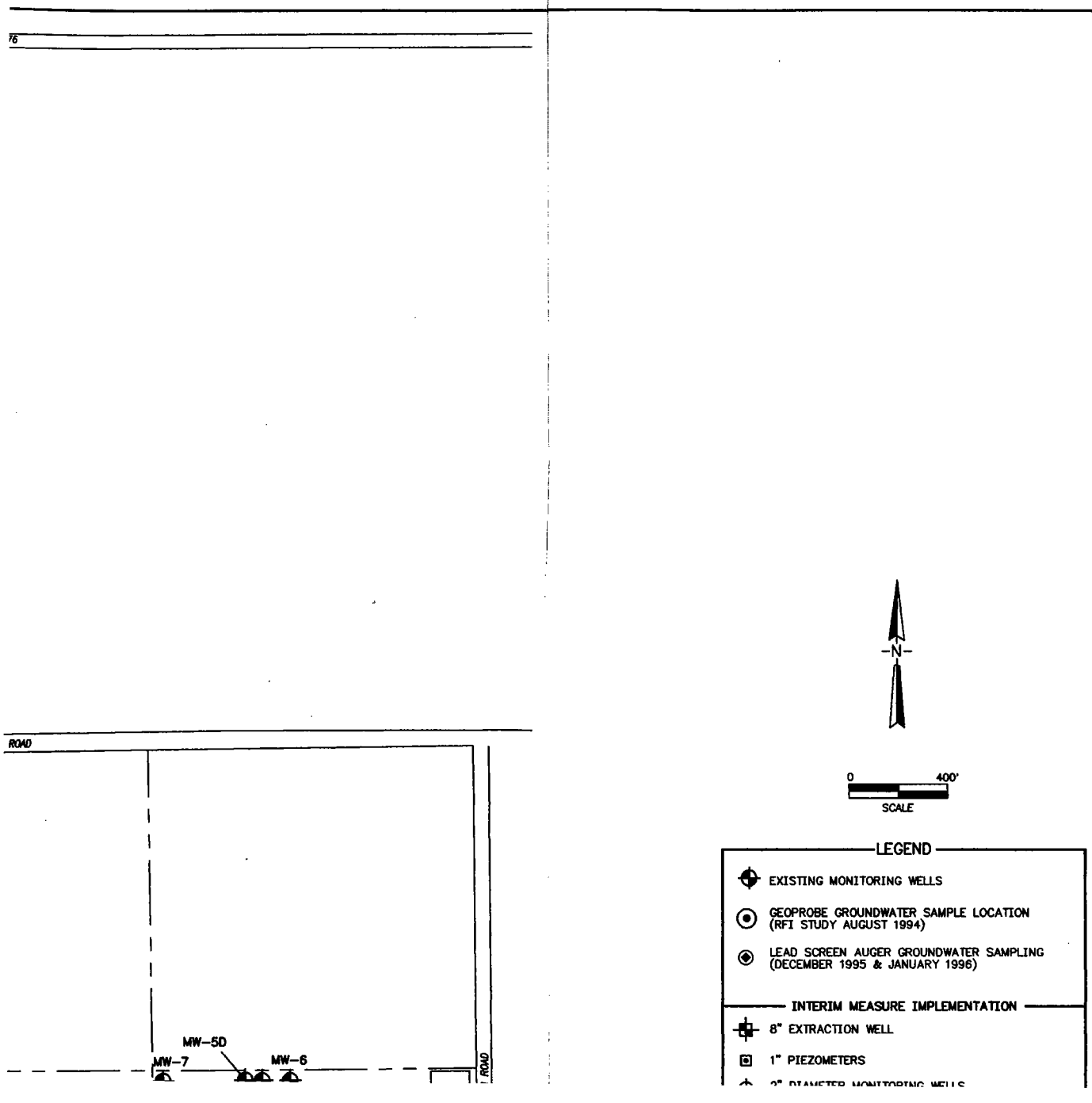
date
4/26

FIGUR

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

LOCATION OF GROUNDWATER EXTRACTIO
MONITORING SYSTEM
INTERIM MEASURE IMPLEMENTATIO
TECHALLOY COMPANY, INC.
Union, Illinois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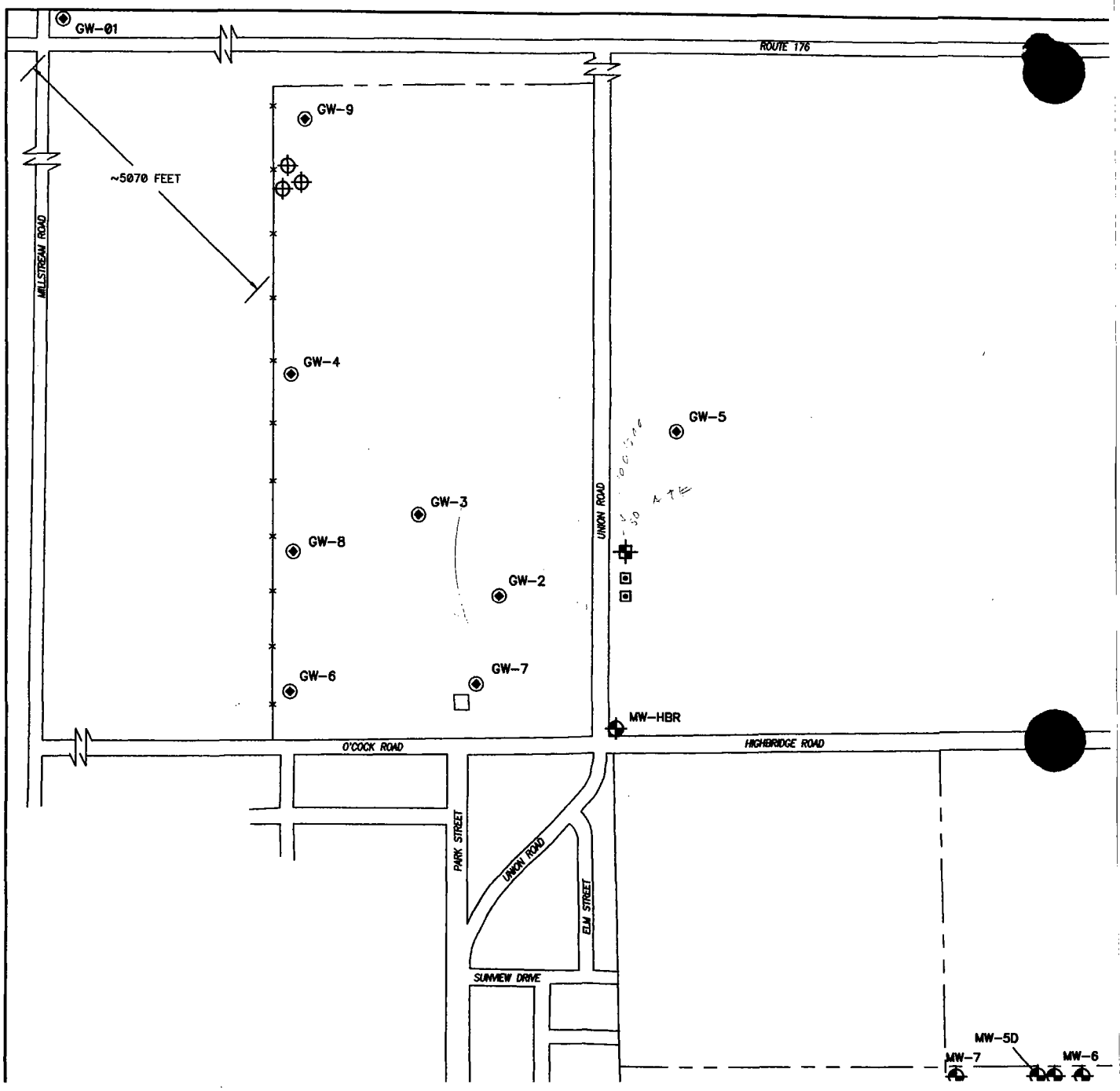
EXISTING MONITORING WELLS
GEOPROBE GROUNDWATER SAMPLE LOCATION
(RFI STUDY AUGUST 1994)
LEAD SCREEN AUGER GROUNDWATER SAMPLING
(DECEMBER 1995 & JANUARY 1996)
INTERIM MEASURE IMPLEMENTATION
8" EXTRACTION WELL
1" PIEZOMETERS


GW-01
ROUTE 176
GW-9
~5070 FEET
MILLSTREAM ROAD
GW-4
GW-5
GW-3
UNION ROAD
GW-8
GW-2
GW-6
GW-7
MW-HBR
O'COCK ROAD
HIGHBRIDGE ROAD
PARK STREET
UNION ROAD
ELM STREET
SUNVIEW DRIVE
MW-5D
MW-7
MW-6

From: DIANE SHARROW
To: BULLER-WILLIAM
Date: Tuesday, December 5, 1995 8:16 am
Subject: Techalloy, Union Ill -Reply

Bill -- I think my notes are packed and around here somewhere. I will look for them today, but as far as I can recall, there was absolutely no information in the Report that indicated that there were any ecological problems in a specific sense. Obviously any soil or groundwater contamination, which if my memory is correct, is limited to the plant operation areas, needs to be addressed to prevent any further environmental impact and thus an ecological impact. If there is something specific that you think I missed, or have a question on, please let me know.

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
THREE HAWTHORN PARKWAY, SUITE 400
VERNON HILLS, IL 60061-1450
708-918-4000 • FAX: 708-918-4055

13 May 1993

RECEIVED
MAY 14 1993
OFFICE OF RCRA
WASTE MANAGEMENT DIV
EPA REGION

Mr. William Buller
U.S. Environmental Protection Agency
Region V
RCRA Enforcement Branch (HRE-8J)
77 West Jackson
Chicago, IL 60604

Re: Pumping Test at the Techalloy Facility in Union, Illinois

Dear Mr. Buller:

Roy F. Weston, Inc. (WESTON®) is seeking the approval of U.S. EPA to conduct the short duration pumping test at the Techalloy Company, Inc. facility located in Union, Illinois. The pumping test is being carried out as part of the design phase of the RFI interim measures to be implemented at the facility. WESTON has consulted with Mr. Ron Hewitt and Mr. Kevin Lesko of the Illinois Environmental Protection Agency (IEPA) Division of Land Pollution Control and Ms. Sandy Bron of the IEPA Division of Water Pollution Control. IEPA has indicated they have no objections to performance of the pumping test with the following two conditions. IEPA has requested that WESTON monitor the nearest downgradient monitoring wells for drawdown during the pumping test. If any drawdown is recorded in these wells the pump test will be stopped. IEPA has also requested that WESTON discharge the extracted groundwater a sufficient distance from the pumping well to ensure recharge of the pumped water will not affect the test. WESTON will comply with IEPA's conditions for performance of the pumping test. Pending your approval, WESTON is planning to perform the pump test the week of 17 May 1993.

If you have any questions or comments regarding this information please do not hesitate to contact me at (708) 918-4000.

Very truly yours,

ROY F. WESTON, INC.

for

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk
cc: Joseph M. Boyle - U.S. EPA

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State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

RECEIVED
APR 5 1993
OFFICE OF RCRA
WASTE MANAGEMENT D
EPA, REGION V

March 31, 1993

Mr. Bill Buller
United States Environmental Protection Agency
Region V
RCRA Enforcement Branch, (HRE-8J)
77 West Jackson Boulevard
Chicago, IL 60604

RE: 1110900003 -- McHenry County
Techalloy, Inc./Union
ILD005178975

Dear Mr. Buller:

The Illinois Environmental Protection Agency (IEPA) would like to provide the following comments on the Private Well Sampling Plan (PWSP), prepared in accordance with the Administrative Order of Consent issued to Techalloy (TA) by USEPA, and submitted by Weston on behalf of TA. The PWSP was dated February 25, 1993 and received by the IEPA on February 26, 1993.

1. In Section 1.3 of the PWSP TA indicates that the analytical results for the four rounds of sampling of the private wells is summarized in Tables 1-1 through 1-4. This data can not be evaluated properly without additional information. At a minimum, the following information should be provided:

   a. the locations of the wells should be identified on a scaled map which includes all private wells along with the known extent of the contaminate plume;

   b. the analytical test method used, detection limits achieved, and compounds analyzed must be identified for each sampling event; and

   c. a description of the sampling procedures, and sample preservation procedures.

2. In Section 2.1 of the PWSP, TA indicates that a well survey was conducted to determine the locations of private wells downgradient of the facility. TA indicates that the wells sampled in the June 1990 to September 1992 sampling event were

not identified in the ISWS database or the ISGS database, i.e., the State has no record of them. TA identified the wells to be sampled based upon the response to an announcement during a city meeting and a notice in a local paper, which indicated that if Union residences had a water well and wanted the well sampled they should contact TA. TA does not indicate if any wells were identified, or if the area was investigated to determine if wells are present to the north of Union in the area bounded by Highway 176, Union Road, O'Cock Road, and Millstream Road. The results of the well survey, i.e. the location of all wells downgradient of the facility that may potentially be impacted by the groundwater plume, should be provided in order to allow proper evaluation of the proposed boundaries of the PWSP.

3. In a correspondence from the Village of Union, dated 12/5/90, from Phyllis Schauer, Village Clerk, the residences which use private wells are identified, see Attachment 1. Comparing the location of the private wells and the location of the plume, as shown in Figure 1-2 of the PWSP, it would appear as though the private well located at 6105 Park Street should be sampled as part of the Private Well Sampling PWSP. This well is closer to the plume than all of the other wells identified in Figure 1-2 of the PWSP, except well 1 and 7 (as identified in Figure 1-2).

4. TA proposes to sample all water wells east of Main and Park Streets. It appears as though this is the only boundary defined by TA. Park Street is not identified on the drawings of Union provided by TA. The boundaries of the sampling PWSP have not been clearly identified.

5. In Section 2.3 of the plan TA states that the groundwater samples will be preserved with hydrochloric acid. Acidification of groundwater samples is not required, according to Table 4-1 of the RCRA Groundwater Monitoring Technical Enforcement Guidance Document (OSWER - 9950.1) for samples which will be analyzed for VOCs. Justification for the addition of hydrochloric acid to the samples should be provided.

6. In Section 2.5 of the plan TA proposes to analyze the groundwater samples using Method 8240 of SW-846. This Method is not adequate for all of the contaminates of concern as the Method 8240 detection limit is greater than MCL for some of the contaminates. In these cases an analytical result of non-detect could not demonstrate that the MCL was not exceeded.

7. TA should provide justification of the analytical parameters chosen. Does the proposed parameter list include all of the contaminates of concern and the associated degradation products?

8. In Section 3.0 TA states, "The wells closest to the groundwater plume with analytical results indicating detection of constituents of concern at or above the MCL should be sampled on a semi-annual basis until the well is secured or until USEPA approves termination of the sampling and analyses." In accordance with Section VI. Paragraph A.2. TA must perform semi-annual sampling/analysis on all wells within the boundaries of the U.S. EPA approved PWSP.

   Section VI. Paragraph A.2. states, "The requirements of this paragraph shall apply to each property, with one or more wells, located within the well sampling area boundaries of the U. S. EPA approved PWSP." Later in the same paragraph it is stated, "After the initial well sampling, the Respondent [TA] shall perform semi annual sampling/analysis of the wells in accordance with the PWSP until the wells are secured or until U.S. EPA approves termination of sampling/analysis."

9. TA failed to provide the following, as required by Section VI. Paragraph A.1.:

   a. the attestation that the list of properties is complete and up to date;

   b. data that establish groundwater background levels of constituents;

Should you have any questions regarding this matter, please contact Kevin D. Lesko at 217/524-3271.

Very truly yours,

Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control

KDL JK
KDL:ta-pwsp

cc: Maywood Region
Division file -- RCRA closure
Jerry Kuhn
Kenn Liss
Ron Hewitt
Stan Black #24
Paul Jagiello -- DLC Maywood Region

EPA United States Environmental Protection Agency

Corrective Action Event List

RCRA Info

TECHALLOY ILLINOIS INC **UNION** **ILD005178975**

Select the event to process or choose the Add New Event button below:

Your search has found **30** event(s).

Seq.	Act Loc	Owner/Event Code Description	Sched Date Orig	Actual Date	Agcy	Linked Authority	Linked Areas
1	IL	HQ - CA550 - CERTIFICATION OF REMEDY COMPLETION (CMI)		8/27/2002	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA725YE - HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE		12/13/2001	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA005EE - FEDERAL ENFORCEMENT LEAD SITE		7/20/2001	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA500 - CMI WORKPLAN APPROVED	7/1/1999	9/11/2000	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA400 - DATE FOR REMEDY SELECTION (CM IMPOSED)	4/1/1998	9/30/1999	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA750YE - RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE		9/30/1999	E	No authorities were found.	ENTIRE FACILITY
1	IL	HQ - CA075HI - CA PRIORITIZATION-HIGH CA PRIORITY	12/31/1991	8/12/1998	E	No authorities were found.	ENTIRE FACILITY
3	IL	HQ - CA600GW - STABILIZATION MEASURES IMPLEMENTED-GROUNDWATER EXTRACTION & TREATMENT	5/11/1998	5/11/1998	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA350 - CMS APPROVED	10/9/1997	10/9/1997	E	A - Consent Order	ENTIRE FACILITY
1	IL	US - CA340 - CMS REPORT RECEIVED		6/20/1997	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA200 - RFI APPROVED	10/19/1996	10/29/1996	E	A - Consent Order	ENTIRE FACILITY
2	IL	US - CA600 - STABILIZATION MEASURES IMPLEMENTED	8/19/1996	8/1/1996	E	A - Consent Order	ENTIRE FACILITY
2	IL	US - CA190 - RFI REPORT RECEIVED	6/28/1996	6/28/1996	E	A - Consent Order	ENTIRE FACILITY
1	IL	US - CA190 - RFI REPORT RECEIVED	8/30/1995	8/30/1995	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA150 - RFI WORKPLAN APPROVED	5/9/1994	7/25/1994	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA167 - RFI SUP WORKPLAN CONDITIONAL APPR	7/2/1993	7/2/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA608 - INTERIM MEASURES WKPLAN APPROVED	6/1/1993	7/1/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA096 - NOTIFICATION CHG IN PROJECT COOR	6/18/1993	6/18/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA097 - QA/QC PLAN DUE/RECEIVED	6/24/1993	6/18/1993	E	A - Consent Order	ENTIRE FACILITY
2	IL	05 - CA606 - INTERIM MEASURES WKPLAN DUE/RECEIVED	5/21/1993	5/20/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	US - CA110 - RFI WORKPLAN RECEIVED	4/27/1993	4/26/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA166 - RFI SUP WORKPLAN MODIFICATION REQ	4/20/1993	4/20/1993	E	A - Consent Order	ENTIRE FACILITY
3	IL	05 - CA606 - INTERIM MEASURES WKPLAN DUE/RECEIVED	3/29/1993	3/26/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	05 - CA606 - INTERIM MEASURES WKPLAN DUE/RECEIVED	2/27/1993	2/26/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA100DC - RFI IMPOSITION-FOCUSED DATA COLLECTION REQ STAB EVAL	1/27/1993	1/27/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA225YE - STABILIZATION MEASURES EVALUATION-FACILITY IS AMENABLE TO STABILIZATION	1/27/1993	1/27/1993	E	No authorities were found.	ENTIRE FACILITY
1	IL	US - CA250 - CMS IMPOSITION	1/27/1993	1/27/1993	E	A - Consent	ENTIRE

1	IL	US - CA250 - CMS IMPOSITION	1/27/1993	1/27/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	US - CA600 - STABILIZATION MEASURES IMPLEMENTED	1/27/1993	1/27/1993	E	A - Consent Order	ENTIRE FACILITY
1	IL	HQ - CA050 - RFA COMPLETED	11/13/1991	11/13/1991	E	No authorities were found.	ENTIRE FACILITY
1	IL	HQ - CA070YE - DETERMINATION OF NEED FOR A RFI-RFI IS NECESSARY	11/13/1991	11/13/1991	E	No authorities were found.	ENTIRE FACILITY

Go To

URL: /CorrectAct/CA_event_main.asp

Matrix Environmental, Inc.
357 Milwaukee Ave. Suite A
Libertyville, Illinois 60048
Phone: 847-367-6835
Fax: 847-367-6845

10 January 2003

Mr. Allen Wojtas
U.S. Environmental Protection Agency
Region V
RCRA Enforcement and Compliance Assurance Branch (DE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Techalloy Site Progress Report for December 2002

Dear Mr. Wojtas:

Enclosed please find the Monthly Progress Report for the Techalloy Company located in Union, Illinois for the month of December 2002. Also, enclosed are the effluent analytical results for this month.

If you have any comments or questions regarding the progress of this project, please do not hesitate to call me at (847) 367-6835.

Sincerely,

Carlos J. Serna, P.G.
Matrix Environmental, Inc.

CJS:sk

Attachment

cc: David Williams, Techalloy
Henry Lopes, Techalloy
Scott Carr, Techalloy
Steve Hughes, Techalloy
Kevin Lesko, IEPA

MONTHLY PROGRESS REPORT
Techalloy Site
1 December through 31 December 2002

1. **Progress Made This Reporting Period** – This reporting period Techalloy continued the operation and maintenance of the groundwater extraction system, air sparging system, and soil vapor extraction system according to specifications. The systems will continue to be operated and the performance evaluated during the course of the year.

2. **Summary of Validated Data and Results** – Sample validation was not necessary this reporting period.

3. **Upcoming Events/Activities Planned** – Revisions to the Groundwater Sampling Plan and the Performance Monitoring Plan will be made over the next month. The existing remediation systems will continue to operate as planned.

4. **Anticipated Problem Areas and Recommended Solutions** – There are no current or anticipated problem areas to be resolved.

5. **Key Personnel Changes** – There have been no changes of key personnel this reporting period.

6. **Target and Actual Completion Dates** – This project has not deviated from the project schedule.

Form Approved.
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS *(Include Facility Name/Location if Different)*

NAME: TECHALLOY COMPANY, INC.
ADDRESS: GLSON AND JEFFERSON ROADS
UNION IL 60180

FACILITY: TECHALLOY COMPANY, INC.
LOCATION: UNION IL 60180

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER: IL0076406
DISCHARGE NUMBER: 001 A

MINOR
(SUBR 02)
F - FINAL
TREATED GROUNDWATER
EFFLUENT
*** NO DISCHARGE |__| ***

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	02	12	01	TO	02	12	31

NOTE: Read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	UNITS	QUALITY OR CONCENTRATION MINIMUM	QUALITY OR CONCENTRATION AVERAGE	QUALITY OR CONCENTRATION MAXIMUM	UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
Pb	SAMPLE MEASUREMENT	******	******		*.)8.0	******	8.0	(12)	0	285	GR
00400 1 0 0 EFFLUENT GROSS VALU	PERMIT REQUIREMENT	******	******	**** ****	[redacted]	[redacted]	[redacted]	SU			
1,1,1-TRICHLORO-ETHANE	SAMPLE MEASUREMENT	******	******	(26)	******	******	.0001	(19)	0	285	GR
34506 1 0 0 EFFLUENT GROSS VALU	PERMIT REQUIREMENT	******	******	LBS/DY	******	******	[redacted]	MG/L			GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLAN	SAMPLE MEASUREMENT	.865	.865	(03)	******	******	******		0	105	CI
50050 1 0 0 EFFLUENT GROSS VALU	PERMIT REQUIREMENT	[redacted]	[redacted]	MGD	[redacted]	[redacted]	[redacted]	**** ****			[redacted]
TETRACHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	.0001	(19)	0	285	GR
7.389 1 0 0 EFFLUENT GROSS VALU	PERMIT REQUIREMENT	[redacted]	[redacted]	LBS/DY	[redacted]	[redacted]	[redacted]	MG/L			[redacted]
TRICHLOROETHENE	SAMPLE MEASUREMENT	******	******	(26)	******	******	.0001	(19)	0	285	GR
7.391 1 0 0 EFFLUENT GROSS VALU	PERMIT REQUIREMENT	[redacted]	[redacted]	LBS/DY	[redacted]	[redacted]	[redacted]	MG/L			[redacted]
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]				[redacted]
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]				[redacted]

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Scott Carr/Environmental Coordinator
TYPED OR PRINTED

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Scott Carr
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE		DATE		
815-923-2131		02	12	31
AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Results for Dec. are below reporting limits

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN STREET
CHICAGO, IL 60604

REPLY TO THE ATTENTION OF:
5HR-12

OCT 21 1991

Mr. Henry Lopes
Vice President
Technical Development
Techalloy Company, Inc.
84 Business Park Drive
Armonk, New York 10504

Re: Techalloy Company, Inc.
ILD 005 178 975

Dear Mr. Lopes:

The Illinois Environmental Protection Agency has apprised us of the ground-water contamination at your Union, Illinois facility, and your proposal to perform a voluntary clean up program. A review of this matter indicates that Techalloy's efforts, though initially appearing to be quite satisfactory, subsequently have not progressed as would be expected. Existing data indicate that the ground-water contamination has migrated off-site a considerable distance. We are especially concerned that a municipal well has experienced water quality degradation to such an extent that it was taken out of service.

We feel that this matter could best be addressed by Techalloy and the United States Environmental Protection Agency (U.S. EPA) entering into an Administrative Order on Consent pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA). A 3008(h) Consent Order specifies schedules and performance criteria for facilities committed to perform corrective action for environmental damage.

Please state your intentions on this matter by responding in writing within fifteen (15) days of receipt of this letter. Your response should be directed to the undersigned, Waste Management Division, 5HR-12, U.S. EPA, 230 South Dearborn, Chicago, Illinois 60604. If you have any questions please call Jacqueline Kline (Office of Regional Counsel) at 312-886-7167 or William Buller at (312) 886-4568.

Sincerely yours,

Joseph M Boyle

Joseph M. Boyle, Chief
RCRA Enforcement Branch

cc: John P. Waligore, IEPA
Pete Reeves, IEPA

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D 21

WESTON
MANAGERS DESIGNERS CONSULTANTS
Roy F. Weston, Inc.
Suite 400
3 Hawthorn Parkway
Vernon Hills, Illinois 60061-1450
708-918-4000 • Fax 708-918-4055

16 December 1994

Mr. William Buller, HRE-8J
Project Manager
Technical Enforcement Section
U.S. Environmental Protection Agency
Region V
77 West Jackson Blvd.
Chicago, IL 60604-3590

RECEIVED
DEC 1 8 1994
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

Re: Update Related to Interim Measures
Techalloy Company, Inc., Union, Illinois

Dear Mr. Buller:

The Techalloy Company, Inc. (Techalloy) received your inquiry into the progress of the interim measures at the Techalloy facility. As you are aware, there are currently two permits which have been applied for and have not yet been received. These include both the NPDES permit and the Corps of Engineers permit to construct and were submitted to the Illinois Environmental Protection Agency and the Corps of Engineers Chicago District, respectively in February 1994. As indicated Techalloy is still awaiting approval from both agencies. The Army Corps of Engineers has requested that an archeological survey be conducted over the area in which the interim measures system is to be installed. WESTON has contracted the services to Midwest Archeological Research Services. This work has been conducted at the Rader property all along the east side of Union Road. This survey was completed in October 1994. The report was submitted to WESTON on 14 November 1994. The archeological report indicated that no significant historic or prehistoric artifacts were found and the project clearance is recommended. Three copies of this report have been submitted to the Army Corps of Engineers Chicago District.

The Illinois Environmental Protection Agency has been contacted several times to inquire as to the progress of the Techalloy NPDES permit. Recent discussions with the IEPA have indicated that the permit will be expedited and that 30 day public notice could be conducted by the first of January 1995. If there is no public comment, it is anticipated that the NPDES permit could be approved February 1995.

In addition to expediting the required permits, Techalloy has been working to obtain property access to allow installation of the extraction and treatment system. Techalloy has retained the legal services of Campion, Curran, Rosch, Gummerson and Dunlop to prepare a contract for purchase of 1/2-acre parcel at the northern edge of the Rader property. Mr. Dan Curran has been in contact with WESTON to assist and advise relating to zoning issues that may apply to the treatment facility. Mr. Curran has contacted the McHenry County Zoning and Building Department about any requirements pertaining to zoning. The results of that conversation have determined that no special zoning is required.

WESTON has contacted American Surveyors located in Dolton, Illinois to prepare a Plat of Survey of the property parcel to purchased from Dr. Rader. This Plat of Survey will be completed within the next two weeks, and then submitted to Mr. Curran to be incorporated into the contract for purchase. The contract to purchase the Rader property will then be submitted to Dr. Rader. Dr. Rader has indicated his willingness to allow Techalloy to purchase the 1/2-acre property parcel. This purchase would include the 1/2-acre and approximately 75 foot access road from Union Road. WESTON is hopeful that the purchase of this property can be completed within the next eight weeks.

On 15 November 1994, Mr. Litvak contacted WESTON to discuss the access required to install a monitoring well downgradient of the intersection of Highbridge and Union. This monitoring well is required as part of the interim measures to monitor the downgradient water quality. Mr. Litvak inquired about the time period that the monitoring well would be located at this property. WESTON indicated to him that the well would be located at that location for a long period of time, possibly on the order of 10 years. Mr. Litvak has returned the access agreement and has allowed Techalloy access for the installation of the downgradient monitoring well.

In summary, it is Techalloy's hope that the NPDES and Corps of Engineers' permits can be obtained within the next two months and that property access to the Rader can also be obtained within the next two months. Once access has been completed and permits have been received, Techalloy has been allowed according to the Consent Order, 270 days to install the groundwater extraction system. WESTON anticipates that in the Spring 1995 that the extraction and treatment system will be installed and that the system will operating by Summer 1995.

If you have any questions or comments regarding permits and access please do not hesitate to contact me.

Very truly yours,

ROY F. WESTON, INC.

Carlos J. Serna, P.G.
Senior Project Manager

CJS:sk
cc: Henry Lopes, Techalloy
Scott Babcock, Techalloy
Jack Thorsen, WESTON

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

DE-9J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Henry Lopes
Vice President, Technical Operations
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430-1074

Re: Termination of RFI/CMS AOC
EPA Docket No. V-W-007-93
Techalloy Company, Inc.
ILD 005 178 975

Dear Mr. Lopes:

The United States Environmental Protection Agency (U.S. EPA) is providing notice to Techalloy Company (Techalloy) that the Administrative Order on Consent (AOC), dated January 27, 1993, is terminated. U.S. EPA has determined, based upon the information presently available, and pursuant to Section XXIII of the AOC, Termination and Satisfaction, that Techalloy has satisfied the terms of the AOC for performance of a Resource Conservation and Recovery Act Facility Investigation, a Corrective Measures Study, and other work. Techalloy's obligation to preserve records, however, as detailed in Section XI of the AOC, Record Preservation, continues for six years after the date of this letter.

U.S. EPA's termination of the AOC does not limit or otherwise preclude U.S. EPA from taking additional enforcement action pursuant to section 3008(h) of the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6928(h), or other available legal authorities, should U.S. EPA determine that such actions are warranted.

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This letter in no way affects Techalloy Company's obligation to carry out the scope of work as required by the Consent Order for Corrective Measures Implementation, dated September 30, 1999.

Sincerely,

Joseph M. Boyle, Chief
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division

cc: Jacqueline Kline, ORC
Carlos Serna, Integreyted Consultants

bcc: Section file

ENFORCEMENT AND COMPLIANCE ASSURANCE BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
				MAS w/corrs 09JAN02	
AUTHOR/ TYPIST	~~COMPLIANCE SECTION 1 SECTION CHIEF~~	~~COMPLIANCE SECTION 2 SECTION CHIEF~~	CA SECTION SECTION CHIEF	ECAB BRANCH CHIEF	WPTD DIVISION DIRECTOR
1/9/02			1-9-02	1/24/02	

ORC
1/23/02

5HR-12

NOV 18 1991

Mr. Henry Lopes
Vice President
Technical Development
Techalloy Company, Inc.
84 Business Park Drive
Armonk, New York 10504

and

Mr. Thomas O. Stotler
Registered Agent for
Techalloy Company, Inc.
Jefferson and Olson Street
Union, Illinois 60180

Re: Techalloy Company, Inc.
ILD 005 178 975

Dear Mr. Lopes:

The Illinois Environmental Protection Agency has apprised us of the ground-water contamination at your Union, Illinois facility, and your proposal to perform a voluntary clean up program. A review of this matter indicates that Techalloy's efforts, though initially appearing to be quite satisfactory, subsequently have not progressed as would be expected. Existing data indicate that the ground-water contamination has migrated off-site a considerable distance. We are especially concerned that a municipal well has experienced water quality degradation to such an extent that it was taken out of service.

We feel that this matter could best be addressed by Techalloy and the United States Environmental Protection Agency (U.S. EPA) entering into an Administrative Order on Consent pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA). A 3008(h) Consent Order specifies schedules and performance criteria for facilities committed to perform corrective action for environmental damage.

Please state your intentions on this matter by responding in writing within fifteen (15) days of receipt of this letter. Your response should be directed to the undersigned, Waste Management Division, 5HR-12, U.S. EPA, 230 South Dearborn, Chicago, Illinois 60604. If you have any questions please call Jacqueline Kline (Office of Regional Counsel) at 312-886-7167 or William Buller at (312) 886-4568.

Sincerely yours,

ORIGINAL SIGNED BY
JOSEPH M. BOYLE
Joseph M. Boyle, Chief
RCRA Enforcement Branch

cc: John P. Waligore, IEPA
Pete Reeves, IEPA

P.S. Mr. Stotler, please assure that the enclosed letter is presented to the appropriate executive officer for Techalloy Company, Inc. If you have any questions please call William Buller at (312) 886-4568.

bcc: Jacqueline Kline, ORC

5HR-12:WB:be:8/22/91:Filename-LOPES
rev:10/16/91/be
rev:11/14/91

OFFICIAL FILE COPY

ap 11/15/91

SIGNATURE/INITIAL CONCURRENCE REQUESTED - RCRA ENFORCEMENT BRANCH (REB)

TYP.	AUTH	IL/IN TES CHIEF	MI/WI TES CHIEF	MN/OH TES CHIEF	IL/MI/WI EPS CHIEF	IN/MN/OH EPS CHIEF	REB BRANCH CHIEF	RCRA ASSOC. DIR.	WMD DIVISION DIRECTOR
BE 11/14/91	WB 11/14/91	JOA for S. Synowiec 11/14/91					JMB 11/15/91		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN STREET
CHICAGO, IL 60604

REPLY TO THE ATTENTION OF:
5HR-12

OCT 21 1991

Mr. Henry Lopes
Vice President
Technical Development
Techalloy Company, Inc.
84 Business Park Drive
Armonk, New York 10504

Re: Techalloy Company, Inc.
ILD 005 178 975

Dear Mr. Lopes:

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Sincerely yours,

Joseph M Boyle

Joseph M. Boyle, Chief
RCRA Enforcement Branch

cc: John P. Waligore, IEPA
Pete Reeves, IEPA

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111 0900003 -- McHenry Co
Union/Techalloy Illinois Inc
SF / ~~Gen Corr~~
Tech Reports

WESTON
MANAGERS DESIGNERS/CONSULTANTS
100 CORPORATE NORTH, SUITE 101
ROUTE 22 AND LAKESIDE DRIVE
BANNOCKBURN, ILLINOIS 60015
(312) 295-6020

3 May 1990

Mr. James Janssen, Manager
Emergency Response Unit
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62706

LP52#648

Subject: Notification of a Release and Intent to Implement Voluntary Clean-up by Techalloy Company, Inc., Union, Illinois

Dear Mr. Janssen:

Techalloy Company, Inc. has requested that Roy F. Weston, Inc. (WESTON) inform you of a situation they have just become aware of at their Union, Illinois plant. Based on investigations in early 1990 by IMPHY Alloys Inc., arising out of its purchase of the stock of Improvator, Inc. (the parent company of Techalloy Company, Inc.), it was determined that there was volatile organic compounds were present in the soil in groundwater at the plant site. As a result of finding this material, additional wells were placed at the property boundary. These wells also indicated the presence of volatile organic compounds. Because of the presence of volatile organic compounds in water, as well as the fact that they have apparently migrated off-site, Techalloy Company, Inc. has determined that a groundwater recovery and treatment facility must be constructed to recover and treat contaminated groundwater.

Techalloy is committed to the successful recovery and treatment of contaminated groundwater and is currently awaiting a proposal from WESTON.

Should you have any questions please do not hesitate to contact Mr. Tom Stotler at Techalloy's Illinois plant at (815) 923-2131 or Mr. John Thorsen at (708) 615-4102.

RECEIVED
MAY 90
IEPA/DLPC

AB861

EXHIBIT NO. 1

WESTON

We look forward to working with the Illinois Environmental Protection Agency on this project.

Very truly yours,

ROY F. WESTON, INC.

John W. Thorsen, P.E.
Vice President

JWT/iec

cc: Philippe Maitrepierre, Techalloy Company, Inc.
Tom Stotler, Techalloy Illinois Plant
Brian Martin, IEPA

AB861

1110900003 - McHenry
Union / Techalloy
Superfund / Tech. Repts.

Techalloy Company, Inc.
WIRE DIVISION
OLSON & JEFFERSON STREETS, UNION, IL 60180-4023 Phone: 815-923-2131
800-435-8317, FAX: 815-923-2126

19 June 1990

Mr. Henry J. Konzelmann, Project Manager
Division of Land Pollution Control
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276 Work Order No.: 1989-06-03

Subject: Response to IEPA Comments on Techalloy Report

Dear Mr. Konzelmann:

This letter addresses your comments on the report prepared by Roy F. Weston, Inc. (WESTON) documenting the groundwater investigation at the Techalloy facility in Union, Illinois. The responses are organized below according to the comment numbers in your letter to Techalloy dated 7 June 1990.

1. Information regarding the installation and sampling of monitoring wells 1 through 4 will be provided to the Illinois Environmental Protection Agency (IEPA) as a separate deliverable.

2. Techalloy has identified and sampled at least one downgradient residential well since the WESTON report was submitted. In addition, the Work Plan for the Phase II Investigation (see response to comment no. 5) provides for the installation and sampling of a monitoring well downgradient of the Techalloy property. Results from all private well and monitoring well sampling will be included in the Phase II report.

3. A corrected version of Figure 1 is attached to this letter as Attachment A.

4. A complete copy of the drilling/well construction log for MW-5D is attached to this letter as Attachment B.

5. WESTON has prepared a Work Plan for a Phase II Investigation at the Techalloy facility. This Work Plan is currently being reviewed by Techalloy prior to submission to IEPA.

Very truly yours,

Techalloy Company, Inc.

Henry Lopes
Vice President

RECEIVED
SEP

IEPA/DLPC
EXHIBIT NO. 5

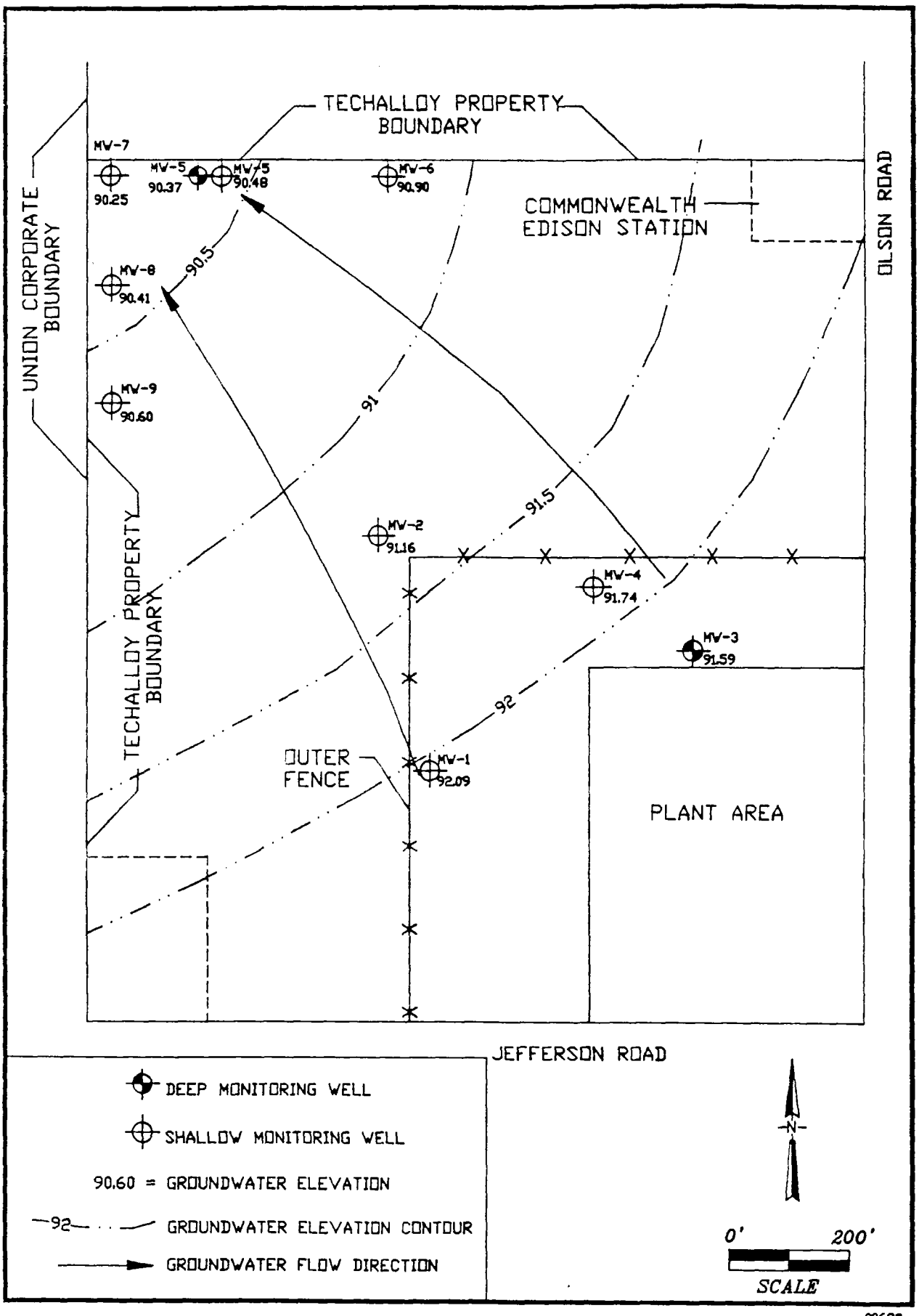
HL/ieh

H:\WO\W1500\0357.L-1

ATTACHMENT A

FIGURE 1

WESTON



00690

FIGURE 1
GROUNDWATER ELEVATION CONTOUR MAP
TECHALLOY – UNION, ILLINOIS

ATTACHMENT B

DRILLING/WELL CONSTRUCTION
LOG FOR MW-5D

GEOLOGIC DRILL LOG

PROJECT NAME AND LOCATION	PAGE NO.	HOLE NO.
Techalloy, Union, IL	1 of 3	MW-5D

START	FINISH	DRILLER	DRILL METHOD	BOREHOLE DIAMETER	WELL DIAMETER	TOTAL DEPTH
3/27/90	3/29/90	Layne-West.	4.25 I.D. HSA	8"	2" SST	90.00'

LOGGER	TOP of CASING ELEV.	GROUND ELEVATION	DEPTH/ELEVATION GROUNDWATER · DATE MEASURED
W.L. Niemann			6.25'/'

Deep well at downgradient (North) property line.

SAMPLE NO.	SAMPLE TYPE	RECOVERY "	SAMPLE BLOWS*	ELEV	DEPTH	CLASS-IFICATION	DESCRIPTION	NOTES
01	SS	14	4 6 8		4	sm sp	SAND: very fine to medium, poorly sorted; some Silt; little fine gravel; medium dense; brown; moist.	
02	SS	18	10 11 10		9	sm sp sw	SAND & GRAVEL: medium to coarse Sand, poorly sorted; fine to medium Gravel; medium dense; brown; wet.	
03	SS	18	10 11 11		14	sw	As above, fine to coarse Sand.	
04	SS	12	11 15 15		19	sp	SAND: fine to medium; well sorted; dense; brown; wet.	
05	SS	0	- - -		24	--	No recovery.	
06	SS	14	18 34 82/4"		29	sw	SAND & GRAVEL: very fine to coarse Sand, very poorly sorted; fine Gravel; extremely dense; brown; wet.	
07	SS	12	6 14 35		34	sp ml	SAND: very fine to medium, poorly sorted; some fine Gravel; dense; brown; wet. Bottom 2": Silt with trace fine Sand.	
08	SS	18			37	ml	SILT: very well sorted; some very fine Sand; brown; wet.	
09	SS	14	20 26		39	sw	SAND & GRAVEL: very fine to coarse Sand, very poorly sorted; fine to medium Gravel; very dense; brown;	

*ASTM D1586
SS = SPLIT SPOON ST = SHELBY TUBE
D = DENNISON C = CORE CS = CONTINUOUS SAMPLER
CT = CUTTINGS BA = BUCKET AUG.

GEOLOGIC DRILL LOG

PROJECT NAME AND LOCATION: Techalloy, Union, IL

 HOLE NO. MW-5D

SAMPLE NO.	SAMPLE TYPE	RECOVERY "	SAMPLE BLOWS*	ELEV	DEPTH	GRAPHIC LOG	WELL CONSTRUCTION	CLASS-IFICATION	SAMPLE INTERVAL	DESCRIPTION	NOTES
			30		41					wet.	
					42						
					43						
					44						
					45						
					46						
					47						
					48						
10	SS	18	15 56 50/4"		49			sp		SAND: fine to coarse, poorly sorted; little fine Gravel; pounding rock; brown; wet.	
					50						
					51						
					52						
					53						
					54						
					55						
					56						
					57						
					58						
11	SS	4	24 30 48		59			sp		As above: very fine to fine; well sorted; pounding rock in slough material.	
					60						
					61						
					62						
					63						
					64						
					65						
					66						
					67						
					68						
12	SS	6	26 20 22		69			sw		SAND & GRAVEL: very fine to coarse Sand, very poorly sorted; fine to medium Gravel; dense; brown; wet.	
					70						
					71						
					72						
					73						
					74						
					75						
					76						
					77						
					78						
13	SS	6	55/6"		79			sm gm		SAND & SILT: very fine to medium Sand, poorly sorted; some fine to medium Gravel; little Clay; gray to brown; wet.	
					80						
					81						
					82						Driller notes chai in drill pressure at 82 feet (Clay layer).
					83						

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Techalloy
Union, IL

GEOLOGIC DRILL LOG

PROJECT NAME AND LOCATION: Techalloy, Union, IL

HOLE NO. MW-5D

SAMPLE NO.	SAMPLE TYPE	RECOVERY "	SAMPLE BLOWS*	ELEV	DEPTH	GRAPHIC LOG	WELL CONSTRUCTION	CLASS-IFICATION	SAMPLE INTERVAL	DESCRIPTION	NOTES
					85						
					86						
					87						
					88						
14	SS	18	15 19 23		89 90			cl ml		**SILT & CLAY**: trace coarse Sand; trace fine Gravel; hard; gray; wet.	
										End of boring at 90 feet.	

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CT = CUTTINGS
CS = CONTINUOUS SAMPLER
BA = BUCKET AUG.

C.1

Mr. Jerry Kuhn

Dear Mr. Kuhn:

As you are aware, Techalloy Company is performing Corrective Action at their Union, Illinois facility under a United States Environmental Protection Agency (U.S. EPA) Consent Order. ~~The~~ [[corrective action process has now progressed to the ~~point~~ where] Recently U.S. EPA has developed a Statement of Basis for the Techalloy facility which presents the Agency's proposed remedy to clean up the site. & a copy was provided to your Agency Waste management units at the facility are undergoing closure and it is highly desirable that the closure of the units be integrated with the remedial action performed under the Order. [[Though Techalloy has submitted closure plans for certain waste management units, In a recent telephone conversation Kevin Lesko of your staff advised me that Techalloy needs to revise their closure plans to provide specific information as to how the proposed remedial action under the Order would address the closure requirements.

I advised Techalloy that they must provide the closure information to the State in timely fashion. To avoid delay in corrective action process the closure process needs to be expedited . it is requested that the State followup on the closure process and quidkly as possible to avoid delay in the corrective action process. Thanks in advance for you cooperation.

D31

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Henry Lopes
Techalloy Company, Inc.
370 Franklin Turnpike
Mahwah, New Jersey 07430

Mr. Carlos Serna
Roy F. Weston, Inc.
Suite 400
3 Hawthorne Parkway
Vernon Hills, Illinois 60061-1450

DRE-8J

Re: Techalloy Company, Inc.
CAMU Designation Request
Administrative Order on consent
Docket No. V-W-07-93
ILD 005 178 975

Dear Mr Lopes and Mr Serna:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the Corrective Action Management Unit (CAMU) Designation Request for the Techalloy Facility and determined that certain revisions are needed prior to approval. Please provide within fifteen (15) days of receipt of this letter, a revised CAMU Designation Request that addresses the comments provided in Attachment I. The revised document shall be provided as a complete document with revised pages identified.

If you have any questions please call me at (312) 886-4568.

Sincerely,

William Buller

William Buller, Project Coordinator
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division
MI/WI Section

cc: Kevin Lesko, IEPA
Todd Quillen, A.T. Kearney

bcc: Jacqueline Kline, ORC

ATTACHMENT 1

U.S. EPA Comments on CAMU Designation Request

1. The Toxicity Characteristic Leaching Procedure soil test results shall be presented. Waste codes for the remediation soil shall include D008.

2. The text shall specify that, following excavation of the delineated soil areas, proper verification sampling/analysis will be performed to assure soils exceeding target clean up levels are treated by stabilization.

3. U.S. EPA method SW 1311 (Appendix II of 40 CFR 261) shall be specified for testing for Toxicity Characteristic.

4. Figure 2-3 shall be revised to show a CAMU area encompassing the four excavation areas and the treatment pad area.

5. The text pertaining to bench scale/preliminary testing shall provide a discussion on how potential interference by volatile organic compounds (VOC)s on the soil stabilization process will be addressed. For soil that does not respond properly to the stabilization process due to VOC interference, off-site disposal shall be presented as an option.

6. The text shall note that the Spent Acid Holding Pond is below grade, and that some stabilized soil may be placed at the Holding Pond to allow for the volume increase created by the stabilization process.

7. Monitoring wells MW-2, MW-6, MW-7, and MW-8 shall be included in the groundwater monitoring program. At least one initial sampling/analysis of an up gradient well shall be included in the monitoring program. Analysis shall be for total metals, analysis for dissolved metals may be performed as an option.

8. The text pertaining to groundwater assessment monitoring shall discuss how significant increases of metal concentrations will be determined.

9. Identify the analysis that will be performed (pre and post stabilization) to establish that 95-99 percent reduction has been achieved.