GIS REGISTRY INFORMATION

SITE NAME: ALFA LAVAL/TRI-CLOVER

BRRTS #: 06-30-298092, 02-30-305005 | **FID # (if appropriate): 230009010**

COMMERCE # (if appropriate):

CLOSURE DATE: 03/04/2004

STREET ADDRESS: 9201 WILMOT ROAD

CITY: KENOSHA

SOURCE PROPERTY GPS COORDINATES (meters in WTM91 projection): X= 691015 Y= 233738

CONTAMINATED MEDIA: Groundwater [ ] Soil [X] Both [ ]

OFF-SOURCE GW CONTAMINATION >ES: [ ] Yes [X] No

IF YES, STREET ADDRESS 1:

GPS COORDINATES (meters in WTM91 projection): X= Y=

OFF-SOURCE SOIL CONTAMINATION >Generic or Site-Specific RCL (SSRCL): [ ] Yes [X] No

IF YES, STREET ADDRESS 1:

GPS COORDINATES (meters in WTM91 projection): X= Y=

CONTAMINATION IN RIGHT OF WAY: [ ] Yes [X] No

DOCUMENTS NEEDED:

Closure Letter, and any conditional closure letter issued	X
Copy of most recent deed, including legal description, for all affected properties	X
Certified survey map or relevant portion of the recorded plat map (*if referenced in the legal description*) for all affected properties	X
County Parcel ID number, *if used for county*, for all affected properties	X
Location Map which outlines all properties within contaminated site boundaries on USGS topographic map or plat map in sufficient detail to permit the parcels to be located easily (8.5x14" if paper copy). If groundwater standards are exceeded, the map must also include the location of all municipal and potable wells within 1200' of the site.	X
Detailed Site Map(s) for all affected properties, showing buildings, roads, property boundaries, contaminant sources, utility lines, monitoring wells and potable wells. (8.5x14", if paper copy) This map shall also show the location of all contaminated public streets, highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding ch. NR 140 ESs and soil contamination exceeding ch. NR 720 generic or SSRCLs.	X
Tables of Latest Groundwater Analytical Results (no shading or cross-hatching)	X
Tables of Latest Soil Analytical Results (no shading or cross-hatching)	X
Isoconcentration map(s), *if required for site investigation (SI)* (8.5x14" if paper copy). The isoconcentration map should have flow direction and extent of groundwater contamination defined. **If not available, include the latest extent of contaminant plume map.**	
GW: Table of water level elevations, with sampling dates, and free product noted if present	
GW: Latest groundwater flow direction/monitoring well location map (should be 2 maps if maximum variation in flow direction is greater than 20 degrees)	
SOIL: Latest horizontal extent of contamination exceeding generic or SSRCLs, with one contour	X
Geologic cross-sections, *if required for SI.* (8.5x14' if paper copy)	X
RP certified statement that legal descriptions are complete and accurate	X
Copies of off-source notification letters (if applicable)	
Letter informing ROW owner of residual contamination (if applicable)(public, highway or railroad ROW)	
Copy of (soil or land use) deed restriction(s) or deed notice *if any required as a condition of closure*	X

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

James Doyle, Governor
Scott Hassett, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region
Sturtevant Service Center
9531 Rayne Road, Suite IV
Sturtevant, Wisconsin 53177
Telephone 262-884-2300
FAX 262-884-2307
TDD 262-884-2304

March 4, 2004

Alfa Laval
Pat Hennessy
Corporate EHS Manager
9201 Wilmot Road
Pleasant Prairie, WI 53158

Subject: Final Closure and Cover Letter for Certificate of Completion for Alfa Laval/Tri-Clover Facility, Kenosha, WI FID 230009010 BRRTS 06-30-298092, 02-30-305005

Dear Mr. Hennessy:

The Department of Natural Resources ("the Department") has received your request for issuance of a *Certificate of Completion* for the environmental investigation and cleanup of property owned by Alfa Laval located at 9201 Wilmot Road, Kenosha, WI, which will be referred to in this letter as "the Property". You have requested that the Department determine whether Alfa Laval has met the requirements under s. 292.15(2), Wis. Stats., for issuance of a *Certificate of Completion.*

The Department has reviewed all submittals documenting completion of the investigation and remediation of the Property. Based on the information submitted, the Department has determined that you have attained compliance with the requirements of Chapter NR 726, Wis. Adm. Code, for the hazardous substance releases originating on the Property. The site is being closed with a deed restriction for contaminated soil remaining in place under the building as well as along the eastern edge of the building as well as a Soil GIS Registry for the contaminated soils.

If the building is removed or these soils become accessible in the future they will need to handled as solid waste and properly analyzed and disposed of. The Department will need to be notified if these soils are disturbed and will assist with the appropriate means of handling them at that time.

Determination

As you are aware, s. 292.15, Wis. Stats., authorizes the Department to issue a *Certificate of Completion* to a voluntary party that conducts an approved environmental investigation of a property and restores the environment to the extent practicable and minimizes the harmful effects with respect to hazardous substance discharges on or originating from the property. Based on the information received by the department, the Department has determined that the investigation and cleanup of the Property is complete and that all the conditions in s. 292.15(2), Wis. Stats., have been met. Attached is the *Certificate of Completion* for this Property.

Conclusions

The Department appreciates the work undertaken by the Alfa Laval to investigate and cleanup contamination associated with the Property. The exemption provided by the *Certificate of Completion* applies to any successor or assignee of the Alfa Laval if the successor or assignee complies with the appropriate conditions, pursuant to s. 292.15(3), Wis. Adm. Code.

If you have any questions or concerns regarding this letter or the *Certificate of Completion*, please call me at 262-884-2341 or Attorney Judith Ohm at 608-266-9972.

Sincerely,

Shanna L Laube, P.G.
Hydrogeologist
Southeast Region
Sturtevant Service Center

Cc: Edward Witte, Attorney, Foley & Lardner, 777E. Wisconsin Ave., Suite 3800, Milwaukee, WI 53202

TetraTech Ken Potrykus 262-879-0175 "Comingle Mail"

Checklist of Documents for GIS Registry Packet

GISPKT Complete 3/26/03

WI DNR, Bureau for Remediation and Redevelopment, PUB-RR-688

(Include with closure request – please assemble in this order. ***This checklist applies to closure requests for sites with groundwater exceeding ch. NR 140 standards and/or soil contamination exceeding ch. NR 720 generic or site specific residual contaminant levels (RCLs).)***

RECEIVED MAR 11 2003 By

- ☐ **One-time fee of $250.00 for groundwater,** and/or
- ☒ **$200 for soil,** for each case closed, for maintenance of the registry.

- ✓☒ **Copies of the most recent deed** *including legal descriptions, for all properties within or partially within the contaminated site boundaries.* (Note: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.)
- ✓☒ **A copy of the certified surveyed map or the relevant section of the recorded plat map** *for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map.* (lots on subdivided or platted property (e.g. lot2 of xyz subdivision))
- ✓☒ **Parcel identification number for each property,** *if the county in which the property is located uses parcel identification numbers.*
- ☒✓ **Geographic position** of all properties within or partially within the contaminated site boundaries. *The coordinates need to be for a spot located at least 40 feet inside the property boundary. Refer to NR 716.15(2)(d)7, and (k). The coordinates must be in WTM91 projection. See the following WDNR website address for assistance:* www.dnr.state.wi.us/org/at/et/geo/gwur/index.htm .
- ✓☒ **A location map** which outlines all properties within the contaminated site boundaries on a U.S.G.S. topographic map or plat map in sufficient detail to permit the easy location of all parcels. If groundwater standards are exceeded, the map must also include the location of all municipal and potable wells within 1200 feet of the site. *(If only one parcel, combine with next item.)*
- ☒ **A map of all contaminated properties within site boundaries**, showing buildings, roads, property boundaries, contaminant sources, utility lines, monitoring wells and potable wells. This map shall also show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding ch. NR 140 enforcement standards, and/or in relation to the boundaries of soil contamination exceeding generic or site-specific residual contaminant levels as determined under s.. NR 720.09, 720.11 and 720.19.
- ☒ **A table of the most recent analytical results, with sample collection dates:** from all monitoring wells, and any potable wells for which samples have been collected **for groundwater**, and/or showing results for all contaminants found in pre-remedial sampling and in the most recent soil sampling event, **for soils** (without shading/crosshatching).
- ☐ **An isoconcentration map,** if required as part of the site investigation (SI), of the contaminated properties within the site boundaries. The map should include the areal extent of groundwater contamination exceeding PALs and ESs, groundwater flow directions based on the most recent data, and sample collection dates. **If an isoconcentration map was not required as part of the SI, substitute a map showing the horizontal extent of contamination,** based on the most recent data.
- ☐ **A table of the previous 4 water level elevation measurements from all monitoring wells,** at a minimum, with the date measurements were made, is to be included. If present, free product is to be noted on the table. In addition, **a groundwater flow direction map**, representative of groundwater movement at the site. If the flow direction varies by more than 20° over the history of the site, 2 groundwater flow maps showing the maximum variation in flow direction are to be submitted
- ☒ For sites closing with residual soil contamination, include **a map showing the location of all soil samples and a single contour** showing the horizontal extent of each area of continguous residual soil contamination that exceeds generic or site specific residual contaminant levels.
- ☒ **A geologic cross section,** if required as part of the SI, showing vertical extent and location of residual soil contamination exceeding generic or site specific RCLs and residual groundwater contamination, source extent and location; isoconcentrations for all groundwater contaminants that exceed PALs that remain when closure is requested; water table and piezometric elevations, and the location and elevation of geologic units, bedrock, and confining units, if any.
- ✓☒ **A statement signed by the responsible party, which states that he or she believes that the legal descriptions attached to the statement are complete and accurate.** *(The point here is that the legal descriptions are describing the correct (i.e. contaminated) properties.)*
- ☐ **A copy of the letters sent by the RP to all owners of properties with groundwater exceeding ESs** (including the current source-property owner, if the RP is not the current source-property owner.) *(Off source properties are listed separately with a link to the source property.)*
- ☐ **A copy of all written notifications provided (to City/village/municipality/state agency or other responsible for maintenance) of a public street or highway or railroad right-of-way,** within or partially within the boundaries of the contaminated site, for contamination exceeding groundwater ESs and/or soil exceeding generic or site specific RCLs.

Shading, reduce maps & tables

site map [site analytical data]
table 2 (beginning w/ SS-1-1
FIG 6, 8, 10, 12

February 10, 2003

Alfa Laval Inc.
8201 104th Street
P.O. Box 581909
Pleasant Prairie, WI 53158
USA
Tel: +1 262-947-4700
Fax: +1 262-947-4724
www.alfalaval.com

Subject: Documents for GIS Registry Packet

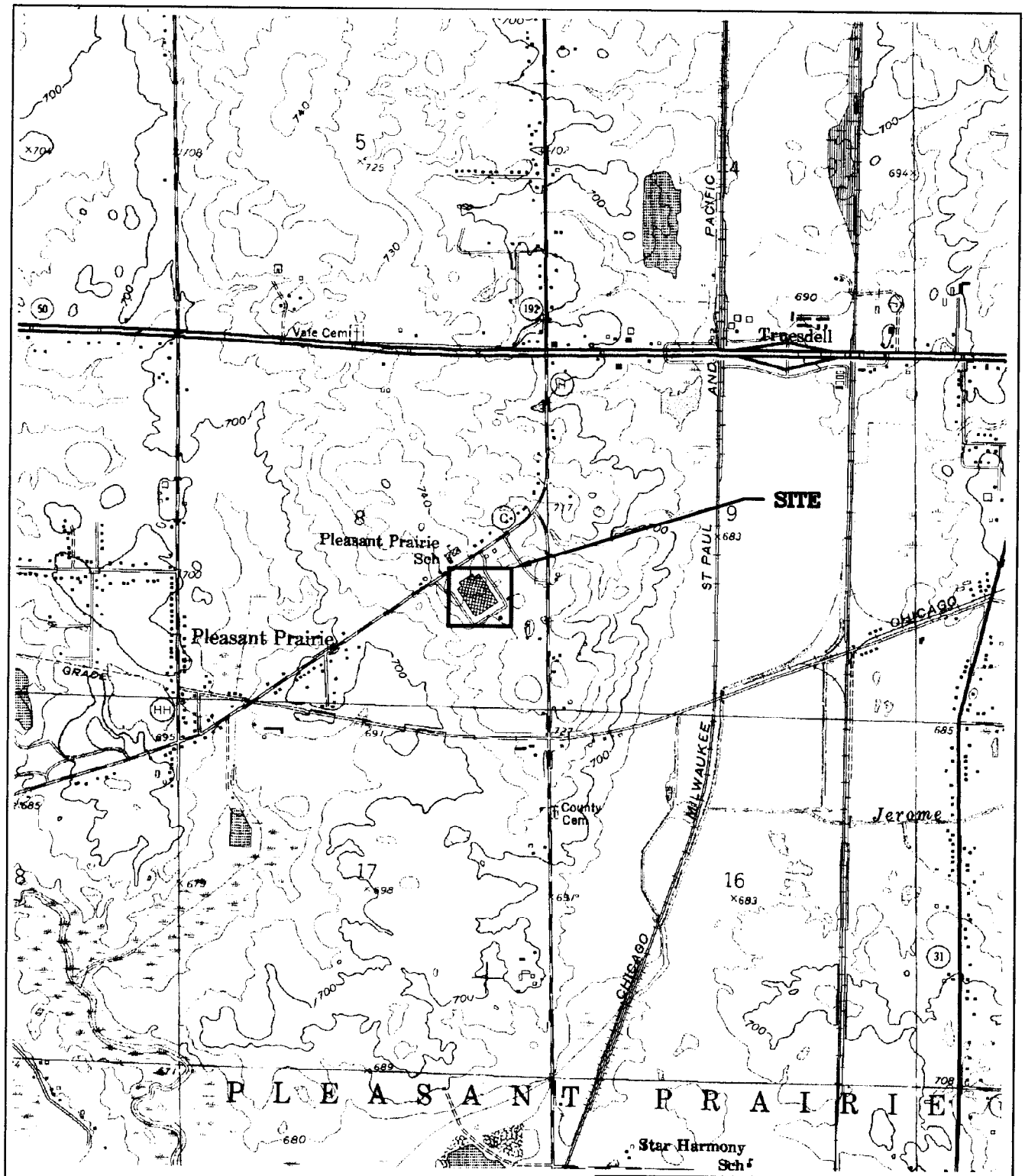
Included with this statement are the documents requested in the "Checklist of Documents for GIS Registry Packet" provided by the WI DNR, Bureau for Remediation and Redevelopment, PUB-RR-688.

To the best of my knowledge, each legal description attached to this statement is complete and accurate.

Sincerely,

Patrick Hennessy

Patrick Hennessy
Corporate EHS Manager



0 1000 2000

SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 1
SITE LOCATION MAP

Tetra Tech EM Inc.

SOURCE: MODIFIED FROM USGS, PLEASANT PRAIRIE, WISCONSIN QUADRANGLE, 1958, PHOTOREVISED, 1971.

Document Number | **DEED RESTRICTION**

DOCUMENT NUMBER
1368046
RECORDED
At Kenosha County, Kenosha, WI 53140
Louise I. Principe, Register of Deeds
on 12/22/2003 at 1:50PM
30078168 $19.00
RESDEED3
JOES

Edward B. Witte
Foley & Lardner
777 E. Wisconsin Avenue
Milwaukee, Wisconsin 53202

19

Declaration of Restrictions

In Re: The property located at 9201 Wilmot Road, Pleasant Prairie, Wisconsin, as described in Attachment A (the "Property").

STATE OF WISCONSIN)
) ss
COUNTY OF KENOSHA)

WHEREAS, Alfa Laval Inc. is the owner of the Property, as successor by merger to Tri-Clover, Inc., formerly known as Package Deal Inc..

91-4-122-084-0100-0
Parcel Identification Number (PIN)

WHEREAS, one or more discharges of 1,1,1-trichloroethane ("TCA"), 1,1-dichloroethene ("DCE"), trichloroethene ("TCE") and 1,2-dichlorethane ("DCA"), and petroleum-related compounds (specifically dibenzo(a,h)anthracene) have occurred at the Property. 1,1,1-TCA, 1,1-DCE, TCE and 1,2-DCA- contaminated soil remains on this Property under the concrete floor slab of the building. The dibenzo(a,h)anthracene contaminated soil remains on the Property south of the building along a drainage way. The attached figure (Figure 1) depicts extent of the contaminant plumes.

WHEREAS, it is the desire and intention of the Property owner to impose on the Property restrictions which, as long as such restrictions are complied with, will make it unnecessary to conduct further remediation activities on the Property at the present time.

NOW, THEREFORE, the owner hereby declares that the Property described above is held and shall be held, conveyed or encumbered, leased, rented, used, occupied and improved subject to the following limitation and restrictions:

The Property may not be used or developed for a residential, commercial, agricultural or other non-industrial use, unless (at the time that such use is proposed) an investigation is conducted to determine the degree and extent of dibenzo(a,h)anthracene, 1,1,1-TCA, 1,1-DCE, TCE and 1,2-DCA contamination in the soil that remains on the Property, and soil remedial action is taken as necessary to meet all applicable non-industrial soil cleanup standards. If soil that remains on the Property in the locations identified on Figure 1 is excavated in the future, it will have to be sampled and analyzed, may be considered solid or hazardous waste if residual contamination remains, and must be stored, treated and disposed in compliance with applicable statutes and rules.

The concrete floor slab of the building that existed on the Property on the date this restriction was signed constitutes an engineered cap that has been approved by the Wisconsin Department of Natural Resources ("DNR") to address the impacted soils identified above, and is also intended to act as a barrier in order to prevent direct contact with residual soil contamination that might otherwise pose a threat to human health. This concrete floor slab is also required in order to minimize the infiltration of water and prevent additional groundwater contamination that would violate the groundwater quality standards in ch. NR 140, Wis. Admin. Code. The concrete floor slab shall be maintained on the above-described Property in compliance with the "Engineering Control Maintenance Plan" dated October 2002, submitted to the DNR by Alfa Laval Inc., unless another barrier with an infiltration rate of 10^{-7} cm/sec or less, is installed and maintained in its place.

In addition, the following activities are prohibited on any portion of the Property where impervious surfaces exist as shown in the figure, unless prior written approval has been obtained from the DNR or its successor or assign: (1) excavating or grading of the land surface in the location of identified soil contamination; (2) filling on capped areas with impervious surfaces; (3) plowing for agricultural cultivation; and (4) construction or installation of a building or other structure on the Property with a foundation that would sit on or be placed within the existing concrete floor slab.

This restriction is hereby declared to be a covenant running with the land and shall be fully binding upon all persons acquiring the Property whether by descent, devise, purchase or otherwise. This restriction inures to the benefit of and is enforceable by the DNR, its successors or assigns. The DNR, its successors or assigns, may initiate proceedings at law or in equity against any person or persons who violate or are proposing to violate this covenant, to prevent the proposed violation or to recover damages for such violation.

Any person who is or becomes owner of the Property may request that the DNR or its successor issue a determination that one or more of the restrictions set forth in this covenant is no longer required. Upon the receipt of such a request, the DNR shall determine whether or not the restrictions contained herein can be extinguished. If the Department determines that the restrictions can be extinguished, an affidavit, attached to a copy of the DNR's written determination, may be recorded by the property owner or other interested party to give notice that this deed restriction, or portions of this deed restriction, are no longer binding.

This instrument was drafted by Edward B. Witte of Foley & Lardner.

By signing this document, EDWARD B WITTE asserts that he/she is duly authorized to sign this document on behalf of Alfa Laval Inc.

IN WITNESS WHEREOF, the owner of the Property has executed this Declaration of Restrictions, this 20th day of October, 2003.

Signature: EBWitte
Printed Name: EDWARD B. WITTE
Title: ATTORNEY FOR ALFA-LAVAL, INC.

Subscribed and sworn to before me
this 20th day of October, 2003.

Katherine E Lazarski
Notary Public, State of Wisconsin.
My commission expires Permanent

KATHERINE E. LAZARSKI ★ NOTARY PUBLIC ★ STATE OF WISCONSIN

This document was drafted by Foley & Lardner based on comments from the Wisconsin Department of Natural Resources.

Table II (cont.)

TRI-CLOVER INDUSTRIES

CONFIRMATION SOIL SAMPLES FROM EXCAVATION

MAY 12, 1994

Sample Log No.	1,1,1 TCA (ug/kg)	Sample Log No.	1,1,1 TCA (ug/kg)
0344-94	122	0365-94	>50.0
0345-94	13.6	0366-94	>50.0
0346-94	29.2	0367-94	8.43
0347-94	36.6	0368-94	<1.0
0348-94	116	0369-94	>50.0
0349-94	16.6	0370-94	>50.0
0350-94	96.6	0371-94	>50.0
0351-94	8.3	0372-94	>50.0
0352-94	37.1	0373-94	2.35
0353-94	7.4	0374-94	4.91
0354-94	<5.0	0375-94	45.5
0355-94	21.4	0376-94	10.7
0356-94	>50.0	0377-94	>50.0
0357-94	>50.0	0378-94	>50.0
0358-94	1.12	0379-94	>50.0
0359-94	<1.0	0380-94	22.8
0360-94	20.4	0381-94	3.00
0361-94	>50.0	0382-94	2.97
0362-94	>50.0	0383-94	2.19
0363-94	29.0	0384-94	>50.0
0364-94	9.2	0385-94	>50.0

Table II

TRI-CLOVER INDUSTRIES

CONFIRMATION SOIL SAMPLES FROM EXCAVATION

MAY 12, 1994

Sample Log No.	1,1,1 TCA (ug/kg)	Sample Log No.	1,1,1 TCA (ug/kg)
0300-94	1.12	0322-94	<5.0
0301-94	1.87	0323-94	<5.0
0302-94	<1.0	0324-94	<5.0
0303-94	<1.0	0325-94	<5.0
0304-94	<1.0	0326-94	<5.0
0305-94	<1.0	0327-94	<5.0
0306-94	<1.0	0328-94	<5.0
0307-94	<1.0	0329-94	<5.0
0308-94	<1.0	0330-94	<5.0
0309-94	<1.0	0331-94	<5.0
0310-94	<1.0	0332-94	<5.0
0311-94	<1.0	0333-94	<5.0
0312-94	<1.0	0334-94	<5.0
0313-94	>50.0	0335-94	2,500
0314-94	1.43	0336-94	51,700
0315-94	<1.0	0337-94	168
0316-94	1.79	0338-94	153
0317-94	<1.0	0339-94	12.7
0318-94	<1.0	0340-94	19.6
0319-94	<1.0	0341-94	53.1
0320-94	<5.0	0342-94	197
0321-94	<5.0	0343-94	57,400

Table IV

TRI-CLOVER INDUSTRIES

CONFIRMATION SOIL SAMPLES FROM EXCAVATION

MAY 26, 1994

Sample Log No.	1,1,1 TCA (ug/kg)	Sample Log No.	1,1,1 TCA (ug/kg)
0440-94	1.7	0455-94	<1.0
0441-94	<1.0	0456-94	1.1
0442-94	3.0	0457-94	<1.0
0443-94	1.5	0458-94	<1.0
0444-94	<1.0	0459-94	1.1
0445-94	<1.0	0460-94	<1.0
0446-94	<1.0	0461-94	2.7
0447-94	<1.0	0462-94	<1.0
0448-94	1.4	0463-94	<1.0
0449-94	2.9	0464-94	<1.0
0450-94	1.9	0465-94	<1.0
0451-94	1.5	0466-94	<1.0
0452-94	2.5	0467-94	<1.0
0453-94	1.2	0468-94	<1.0
0454-94	<1.0	0469-94	<1.0

TABLE 2

SUMMARY OF SEDIMENT ANALYTICAL RESULTS - DRAINAGE DITCH REMEDIATION
ALFA LAVAL, INC. - TRI-CLOVER FACILITY, KENOSHA, WISCONSIN

Sample Number	Sample Date	Polycyclic Aromatic Hydrocarbons (mg/kg)										
		Benzo(a)-anthracene	Benzo(a)pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
DCS-1	09/25/02	**0.0042**	**0.0053**	**0.0062**	**0.0075**	**0.0039**	<0.0039	<0.0035	**0.014**	**0.0048**	<0.0028	**0.013**
DCS-2	09/25/02	<0.00028	<0.00062	**0.0016**	<0.0014	<0.00094	<0.0037	<0.0034	<0.00094	<0.0015	<0.0027	**0.0029**
DCS-3	09/25/02	<0.00029	<0.00064	**0.0022**	<0.0014	**0.0017**	<0.0039	<0.0035	<0.00097	**0.0016**	<0.0028	**0.0040**
DCS-4	09/25/02	**0.10**	**0.15**	**0.18**	<0.0015	**0.092**	<0.0041	**1.1**	**0.36**	**0.15**	**0.11**	**0.33**
DCS-5	09/25/02	**0.0040**	**0.0053**	**0.0065**	**0.0079**	**0.0039**	**0.0075**	<0.0035	**0.012**	**0.0049**	<0.0028	**0.011**
DCS-6	09/25/02	<0.00031	<0.00069	<0.00059	<0.0015	<0.0010	<0.0041	<0.0037	<0.0010	<0.0016	<0.0030	<0.0030
DCS-7	09/25/02	**0.0016**	**0.0027**	**0.0028**	**0.0056**	**0.0021**	<0.0038	<0.0035	**0.0063**	**0.0023**	<0.0028	**0.0055**
Average Concentration*		**0.0157**	**0.0235**	**0.0285**	**0.0034**	**0.0149**	**0.0028**	**0.1587**	**0.0563**	**0.0236**	**0.0169**	**0.0526**
Suggested RCL for groundwater protection (1)		17	48	360	6,800	870	37	38	500	680	1.8	8,700
Suggested RCL for non-industrial setting (1)		0.088	0.0088	0.088	1.8	0.88	8.8	0.0088	600	0.088	18	500
Suggested RCL for industrial setting (1)		3.9	0.39	3.9	39	39	390	0.39	40,000	3.9	390	30,000
EPA Region III Industrial RBCs (2)		ne	0.78	7.8	ne	78	780	0.78	82,000	7,800	ne	61,000
EPA Region III Residential RBCs (2)		ne	0.087	0.87	ne	8.7	87	0.087	3,100	870	ne	2,300

Notes:

* Average concentration was calculated by adding all of the detects and one-half of the non-detects, and dividing by the number of samples.

(1) Source: Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons, Interim Guidance, Publication RR-519-97, April 1997 (corrected).

(2) Source: EPA Region III Risk Based Concentration Table, April 2, 2002.

EPA - U.S. Environmental Protection Agency

mg/kg - milligrams per kilograms (parts per million)

ne - none established

RBC - risk based concentration

RCL - residual contaminant levels

SS - soil sample

Bold numbers indicate that the concentration is above laboratory reporting limits.

TABLE 2

SUMMARY OF SOIL ANALYTICAL RESULTS - AREA 1, 2, and 3
ALFA LAVAL, INC. - TRI-CLOVER FACILITY, KENOSHA, WISCONSIN

Area	Sample Number	Sample Date	Depth (ft)	Parameters					
				Volatile Organic Compounds ug/kg					
				1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene
1	SS-28-1	08/08/01	1-2	**430**	**18**	**5,000**	**250**	**25,000**	**900,000**
	SS-28A-2	10/16/01	4-5	**710.88**	**85.22**	**6,507.41**	**128.78**	**4530.2**	ND
	SS-28A-3	10/16/01	8-9	**145.65**	ND	**174.14**	ND	**1,863.06**	**7,268.24**
	SS-32-1	10/08/01	3.5-4	**199**	ND	**190**	ND	**6,710.00**	**23,700**
	SS-32-2	10/08/01	8-9	ND	ND	ND	ND	ND	ND
	SS-33-1	10/08/01	2-3	**62.5**	ND	ND	ND	ND	**752**
	SS-33-2	10/08/01	7-8	ND	ND	ND	ND	ND	ND
	SS-34-1	10/08/01	1-2	ND	ND	ND	ND	ND	ND
	SS-34-2	10/08/01	7-8	ND	ND	ND	ND	ND	ND
	SS-35-1	10/08/01	1-2	ND	ND	ND	ND	ND	ND
	SS-35-2	10/08/01	7-8	ND	ND	ND	ND	ND	ND
	SS-43-1	10/12/01	1-2	ND	ND	ND	ND	ND	ND
	SS-43-2	10/12/01	4-5	ND	ND	ND	ND	ND	ND
2	SS-27-1	08/09/01	1.5-2	**210**	**91**	**568**	**74**	**4,200**	**89,000**
	SS-27A-1	10/12/01	4-5	**355.1**	**10.05**	**2,346.7**	ND	**2,753.3**	**1,493.7**
	SS-27A-2	10/12/01	8-9	ND	**2.63**	ND	ND	**12,005.1**	**40.72**
	SS-36-1	10/09/01	1-2	**46.4**	**70.8**	**130**	**132**	**822**	**36,200**
	SS-36-2	10/09/01	7-8	**395**	**106**	**387**	ND	**67**	**235**
	SS-37-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-37-2	10/09/01	9-10	ND	ND	ND	ND	ND	ND
	SS-44-1	10/12/01	1-2	ND	ND	ND	ND	**45.73**	ND
	SS-44-2	10/12/01	4-5	ND	ND	ND	ND	ND	ND
	SS-44-3	10/12/01	8-9	ND	ND	ND	ND	ND	ND
	SS-45-1	10/12/01	1-2	**102.6**	ND	**471.1**	ND	**1,157.4**	ND
	SS-45-2	10/12/01	4-5	**234.6**	**22.24**	**2,460.7**	ND	**3,812.8**	ND
	SS-45-3	10/12/01	8-9	ND	ND	ND	ND	**11,376.2**	ND
	SS-51-1	03/12/02	1-2	<5.7	<20	<8.0	<9.1	<11	<11
	SS-51-2	03/12/02	8-9	<5.7	<21	<8.0	<9.1	**12**	**310**
	SS-52-1	03/12/02	1-2	<5.7	<20	**12**	<9.1	<11	**15**
	SS-52-2	03/12/02	8-9	<5.8	<21	<81	<9.2	<12	<12
2/3	SS-38-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-38-2	10/09/01	7-8	ND	ND	**92.1**	ND	**817**	ND
	SS-46-1	10/12/01	1-2	ND	ND	ND	ND	ND	ND
	SS-46-2	10/12/01	4-5	ND	**292.63**	ND	ND	ND	ND
	SS-46-3	10/12/01	8-9	**43.58**	ND	**270.80**	ND	**1,720.58**	ND
3	SS-29-1	08/10/01	1.5-2.5	**800**	**120**	**4,700**	<4.7	**6,000**	<8.1
	SS-29A-1	10/12/01	4-5	**502.67**	**41**	**1,510.1**	ND	**955.97**	ND
	SS-29A-2	10/12/01	8-9	**894.29**	**39.67**	**940.5**	ND	**3,575.39**	ND
	SS-39-1	10/09/01	1-2	ND	ND	**29.6**	ND	**77.3**	ND
	SS-39-2	10/09/01	8-9	ND	ND	ND	ND	ND	ND
	SS-40-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-40-2	10/09/01	8-9	ND	ND	ND	ND	ND	ND
	SS-41-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-41-2	10/09/01	7-8	ND	ND	**92.1**	ND	**817**	ND
	SS-42-1	10/12/01	1-2	**44.46**	ND	**292.87**	**88.34**	**1,974.2**	**82.60**
	SS-42-2	10/12/01	4-5	**307.39**	**36.66**	**1,125.5**	ND	**2,066.74**	ND
	SS-42-3	10/12/01	7-8	**1,720.47**	ND	**3,976.2**	ND	**22,397.74**	**24.52**
	SS-53-1	03/12/02	1-2	<5.7	<20	<7.9	<9.1	**15**	<11
	SS-53-2	03/12/02	8-9	<5.5	<20	<7.7	<8.8	<11	<11
	SS-54-1	03/12/02	1-2	<5.7	<20	<8.0	<9.1	**170**	**14**
	SS-54-2	03/12/02	8-9	<5.7	<20	<8.0	<9.1	<11	<11
	SS-56-1	03/12/02	1-2	<5.8	<21	<8.1	<9.2	**77**	<12
	SS-56-2	03/12/02	8-9	<5.8	<21	<8.2	<9.3	<12	<12
	SS-16-1	08/09/01	2-3	<5.7	<3.4	<11	<4.6	**12**	<8.0
State of WI RCLs for groundwater protection [1]				ns	4.9	ns	ns	ns	ns
State of WI Non-Industrial RCLs [2]				ns	ns	ns	ns	ns	ns
State of Wisconsin Industrial RCLs [3]				ns	ns	ns	ns	ns	ns
EPA Region III Industrial RBCs [4]				200,000,000	63,000	9,500	110,000	570,000,000	520,000
EPA Region III Residential RBCs [5]				7,800,000	7,000	1,100	12,000	22,000,000	58,000
Site Specific Clean up Standards [6]				ns	ns	ns	ns	50	ns

Notes:

[1] Source: WAC, Chapter NR 720, Table 1-Baseline Concentrations, Dilution Attenuation Factors and Residual Contaminant Levels Based on Protection of Groundwater.
[2] Source: WAC, Chapter NR 720, Table 2-
[3] Source: WAC, Chapter NR 720, Table 2-
[4] Source: EPA Region III Risk Based
[5] Source: EPA Region III Risk Based
[6] Site-Specific Cleanup standards established by Sigma Environmental Services, Inc for prior remediation of leaking underground storage tank
EPA - U.S. Environmental Protection Agency
ug/kg - micrograms per kilogram (parts per billion)
ns - none established
RBC - risk based concentration
RCL - residual contaminant levels
SS - soil sample
ND-level below laboratory dection limit
Bold numbers indicate that the concentration is in excess of laboratory reporting limits.

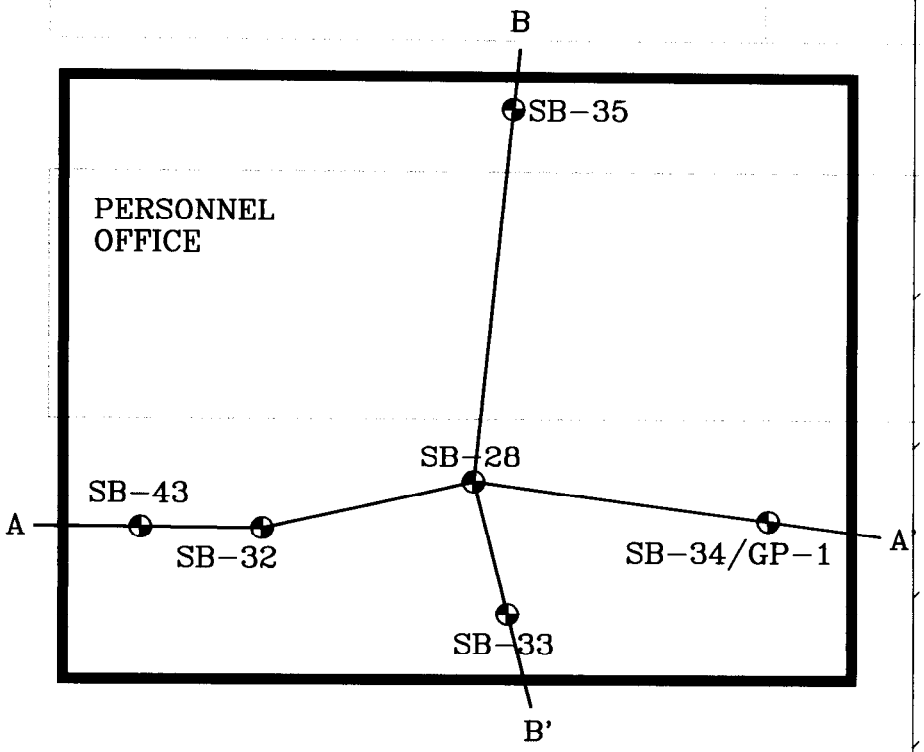
TABLE 2

SUMMARY OF SOIL ANALYTICAL RESULTS
ALFA LAVAL, INC. - TRI-CLOVER FACILITY, KENOSHA, WISCONSIN

Sample Number	Sample Date	Depth (ft)	pH	Metals (mg/kg)									Parameters									
													Volatile Organic Compounds (mg/kg)									
				Arsenic	Barium	Cadmium	Chromium	Lead	Nickel	Selenium	Silver	Mercury	Chloroform	1,3-Dichlorobenzene	Dichlorodifluoro-methane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	Trichloroethene
State of WI RCLs for groundwater protection [1]				ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.0049	ne	ne	1.5	ne	ne
State of WI Non-Industrial RCLs [2]				0.039	ne	8	16,000	50	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
State of Wisconsin Industrial RCLs [3]				1.6	ne	510	ne	500	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
EPA Region III Industrial RBCs [4]				3.8	140000	ne	6,100	ne	41000	10000	10000	ne	940	61000	410000	200000	63	9.5	110	410000	570000	520
EPA Region III Residential RBCs [5]				0.43	5500	ne	230	ne	1600	390	390	ne	100	2300	16000	7800	7.0	1.1	12	16000	22000	58
SS-1-1	08/09/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0075	<0.0050	<0.018	<0.0063	<0.0038	<0.013	<0.0050	<0.0063	<0.0063	<0.0088
SS-2-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0071	<0.0047	<0.016	<0.0059	<0.0035	<0.012	<0.0047	<0.0059	<0.0059	<0.0082
SS-3-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	<0.016	<0.0059	<0.0035	<0.012	<0.0047	<0.0059	<0.0059	<0.0082
SS-4-1	08/09/01	1-2	7.81	-	-	-	-	-	-	-	-	-	<0.0077	<0.0051	<0.018	<0.0064	<0.0038	<0.013	<0.0051	<0.0064	<0.0064	<0.0090
SS-5-1	08/09/01	1.5-2.5	7.68	-	-	-	-	-	-	-	-	-	<0.0077	<0.0051	<0.018	<0.0064	<0.0038	<0.013	<0.0051	<0.0064	<0.0064	<0.0090
SS-6-1	08/09/01	1-2	8.05	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	<0.016	<0.0058	<0.0035	<0.012	<0.0047	<0.0058	<0.0058	<0.0082
SS-7-1	08/09/01	1-2	8.35	-	-	-	-	-	-	-	-	-	<0.0072	<0.0048	<0.017	<0.0060	<0.0036	<0.012	<0.0048	<0.0060	<0.0060	<0.0084
SS-8-1	08/08/01	1-2	8.82	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-9-1	08/08/01	2-3	7.65	-	-	-	-	-	-	-	-	-	<0.0076	<0.0051	<0.018	<0.0063	<0.0038	<0.013	<0.0051	<0.0063	<0.0063	<0.0089
SS-10-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0067	<0.0045	<0.016	<0.0056	<0.0034	<0.011	<0.0045	<0.0056	<0.0056	<0.0079
SS-11-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0068	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	**0.23**	<0.0057	<0.0080
SS-12-1	08/09/01	1.5-2.5	8.11	**4.0**	**45.7**	**0.45**	**14.1**	**9.1**	**22.9**	<0.29	<0.068	**0.014**	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-13-1	08/09/01	3-4	-	-	-	-	-	-	-	-	-	-	<0.0067	<0.0044	<0.016	<0.0056	<0.0033	<0.011	<0.0044	<0.0056	<0.0056	<0.0078
SS-14-1	08/09/01	3.5-4	-	-	-	-	-	-	-	-	-	-	<0.0063	<0.0042	<0.015	<0.0053	<0.0032	<0.011	<0.0042	**0.21**	<0.0053	<0.0074
SS-15-1	08/09/01	1.5-2.5	-	-	-	-	-	-	-	-	-	-	<0.0066	<0.0044	<0.016	<0.0055	<0.0033	<0.011	<0.0044	<0.0055	<0.0055	<0.0078
SS-16-1	08/09/01	2-3	-	-	-	-	-	-	-	-	-	-	<0.0068	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	**0.012**	<0.0080
SS-17-1	08/08/01	2-3	7.10	**3.7**	**44.6**	**0.48**	**16.3**	**9.6**	**26.3**	**0.52**	**0.20**	**0.015**	-	-	-	-	-	-	-	-	-	-
SS-18-1	08/08/01	1-2	8.52	**3.1**	**58.9**	**0.40**	**14.5**	**10.1**	**18.4**	**0.46**	<0.048	**0.025**	-	-	-	-	-	-	-	-	-	-
SS-19-1	08/08/01	3-4	8.79	**5.8**	**15.4**	**0.66**	**11.3**	**11.1**	**19.8**	**0.39**	**0.15**	**0.013**	-	-	-	-	-	-	-	-	-	-
SS-20-1	08/09/01	7-8	8.61	**6.2**	**46.0**	**0.51**	**14.8**	**10.7**	**22.1**	<0.33	<0.076	**0.016**	-	-	-	-	-	-	-	-	-	-
SS-21-1	08/09/01	7.5-8	8.59	**3.9**	**40.0**	**0.46**	**14.3**	**9.3**	**21.3**	**0.34**	**0.071**	**0.015**	-	-	-	-	-	-	-	-	-	-
SS-22-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-22-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-23-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-23-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-24-1	08/10/01	2-3	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0046	<0.016	<0.0058	<0.0035	**0.10**	<0.0046	<0.0058	**2.1**	**0.049**
SS-24-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0058	<0.0058	<0.0058	<0.0081
SS-25-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0072	<0.0048	**0.031**	<0.0060	<0.0036	<0.012	<0.0048	<0.0060	<0.0060	<0.0084
SS-25-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	**0.032**	<0.0058	<0.0035	<0.012	<0.0047	<0.0058	<0.0058	<0.0081
SS-26-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	**0.044**	<0.0058	<0.0035	<0.012	<0.0047	<0.0058	<0.0058	<0.0081
SS-26-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-27-1	08/09/01	1.5-2	-	-	-	-	-	-	-	-	-	-	**0.0082**	<0.0046	<0.016	**0.21**	**0.091**	**0.56**	**0.074**	**0.012**	**4.2**	**89**
SS-28-1	08/08/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	**0.011**	<0.016	**0.43**	**0.018**	**5.0**	**0.25**	**0.54**	**25**	**900**
SS-29-1	08/10/01	1.5-2.5	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	<0.016	**0.80**	**0.12**	**4.7**	<0.0047	<0.0058	**6.0**	<0.0081
SS-30-1	08/09/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0071	<0.0047	<0.016	**0.074**	<0.0035	**0.19**	<0.0047	<0.0059	**9.3**	<0.0082
SS-31-1	08/09/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-49-1	03/12/02	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0069	<0.010	<0.0058	<0.021	<0.0081	<0.0092	<0.0069	<0.0012	<0.012
SS-50-1	03/12/02	1-2	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0070	<0.010	<0.0058	<0.021	<0.0081	<0.0093	<0.0070	<0.0012	<0.012
SS-55-1	03/12/02	1-2	-	-	-	-	-	-	-	-	-	-	<0.0064	<0.0064	<0.0096	<0.0053	<0.019	<0.0074	<0.0085	<0.0064	**0.024**	<0.011

Notes:

[1] Source: WAC, Chapter NR 720, Table 1-Baseline Concentrations, Dilution Attenuation Factors and Residual Contaminant Levels Based on Protection of Groundwater.
[2] Source: WAC, Chapter NR 720, Table 2- Residual Contaminant Levels Based on Human Health Risk From Direct Contact Related to Land Use.
[3] Source: WAC, Chapter NR 720, Table 2- Residual Contaminant Levels Based on Human Health Risk From Direct Contact Related to Land Use.
[4] Source: EPA Region III Risk Based Concentration Table, 2001.
[5] Source: EPA Region III Risk Based Concentration Table, 2001.
EPA - U.S. Environmental Protection Agency
mg/kg - milligrams per kilograms
ne - none established
RBC - risk based concentration
RCL - residual contaminant levels
SS - soil sample
- Indicates sampled not analyzed for.
Bold numbers indicate that the concentration is in excess of laboratory reporting limits.
Only compounds with detections in excess of laboratory reporting limits are identified.



AREA 1

LEGEND

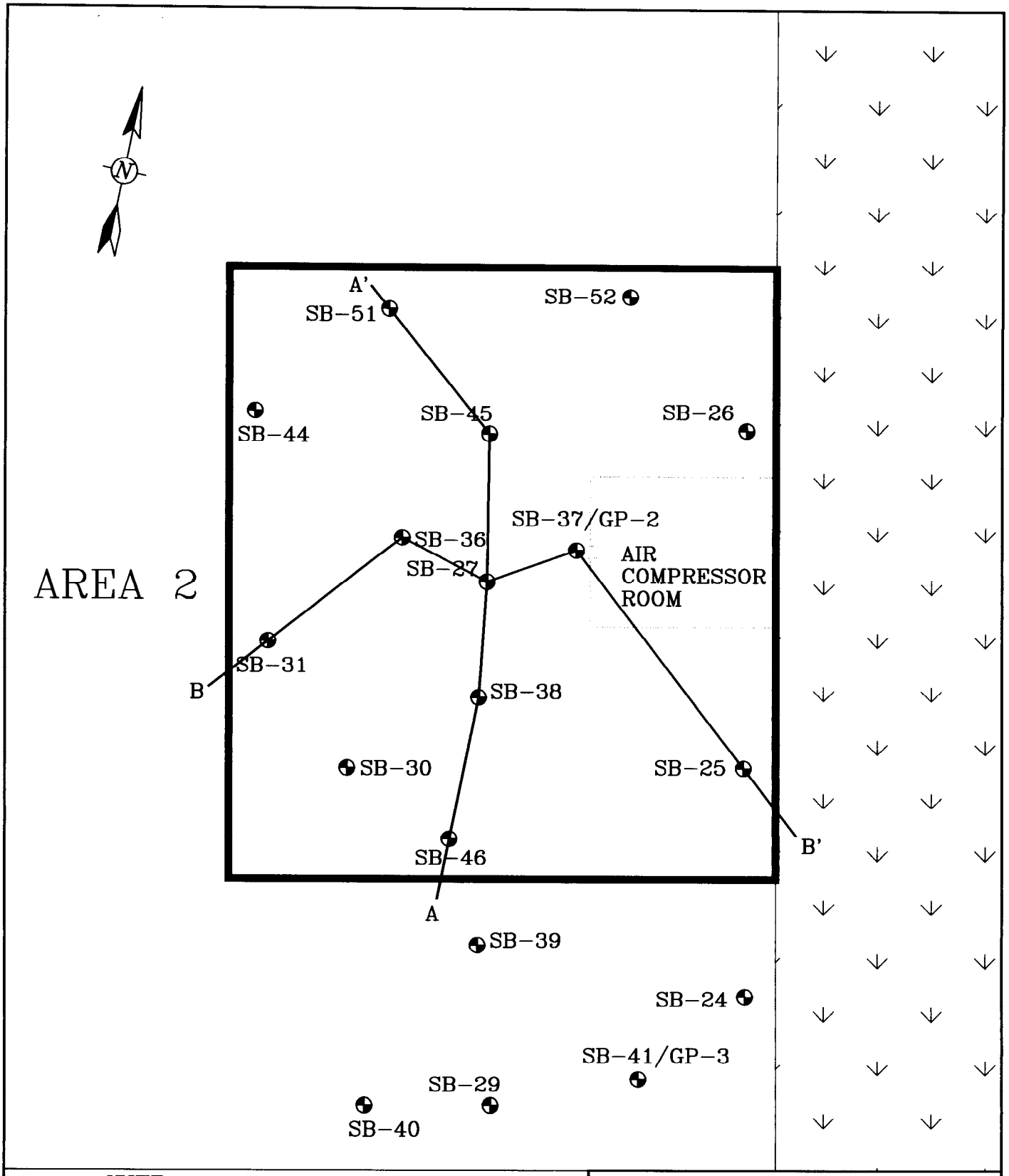
	GRASS
	EXTERIOR WALL
	INTERIOR WALL
SB	SOIL BORING
GP	TEMPORARY WELL
A——A'	CROSS SECTION PROFILE

0 10 20
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 7
AREA 1 SOIL BORING LOCATIONS

Tetra Tech EM Inc.



LEGEND

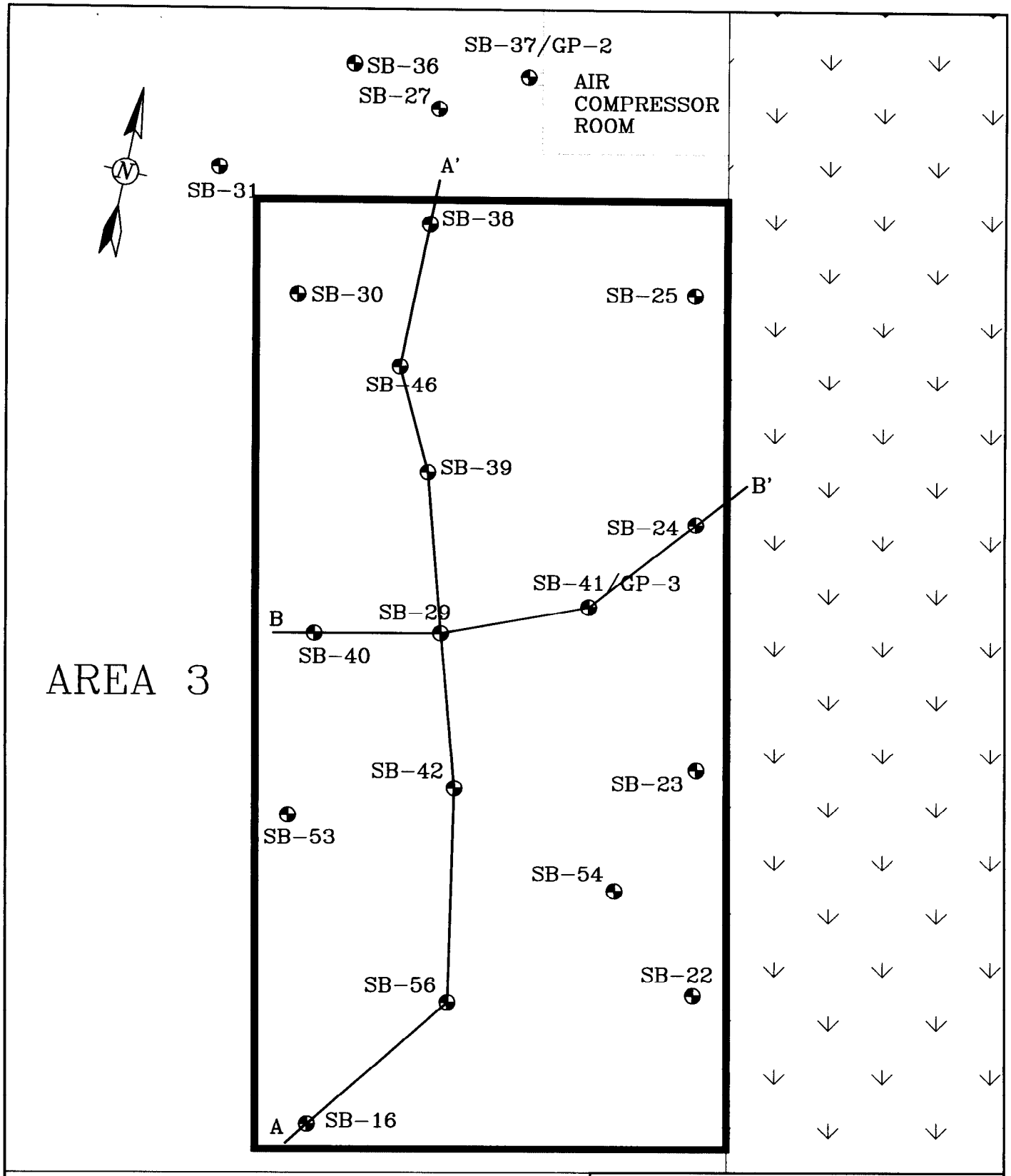
- GRASS
- EXTERIOR WALL
- INTERIOR WALL
- SB — SOIL BORING
- GP — TEMPORARY WELL
- A——A' — CROSS SECTION PROFILE

0 10 20
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 9
AREA 2 SOIL BORING LOCATIONS

Tetra Tech EM Inc.



LEGEND

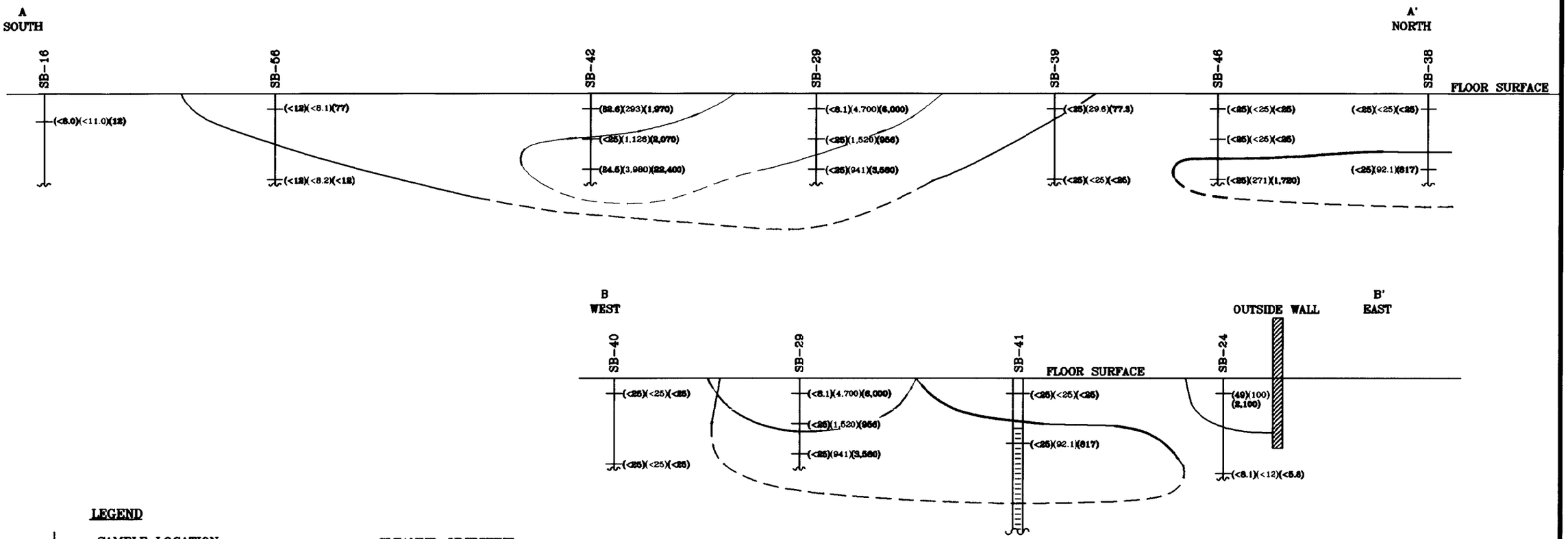
- GRASS
- EXTERIOR WALL
- INTERIOR WALL
- SB — SOIL BORING
- GP — TEMPORARY WELL
- A——A' — CROSS SECTION PROFILE

0 10 20
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 11
AREA 3 SOIL BORING LOCATIONS

Tetra Tech EM Inc.



LEGEND

+	SAMPLE LOCATION
▭	SCREEN
(23,700)	CONCENTRATION OF TRICHLOROETHENE IN ug/kg
(5,000)	CONCENTRATION OF 1,1-DCE IN ug/kg
(4,200)	CONCENTRATION OF 1,1,1-TCA IN ug/kg
SB	SOIL BORING
▨	FACILITY WALL

CLEANUP OBJECTIVE

TCE	58,000 ppb (1)
1,1-DCE	1,100 ppb (1)
1,1,1-TCA	50 ppb (2)

(1) SOURCE: EPA REGION III RISK BASED CONCENTRATION

(2) SITE-SPECIFIC CLEANUP STANDARDS ESTABLISHED BY SIGMA ENVIRONMENTAL SERVICES, INC. FOR PRIOR REMEDIATION OF LEAKING UNDERGROUND STORAGE TANK

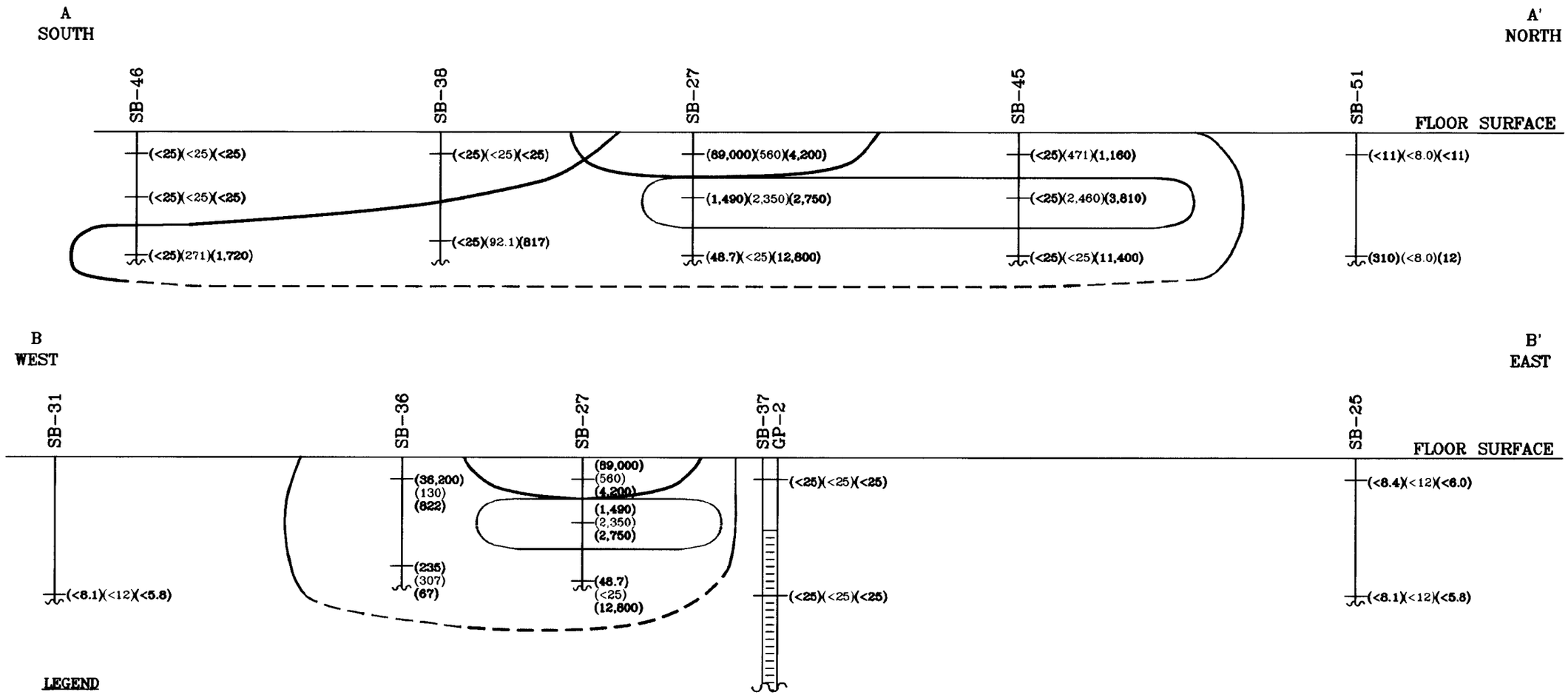
0 6 12
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 12
AREA 3 CONTAMINANT PROFILES

TETRA TECH EM INC.

S:\TetraTech\cad\Alfa Laval\3-18-03\area3.dwg 03/18/2003 15:38:04



LEGEND

+	SAMPLE LOCATION
▤	SCREEN
(23,700)	CONCENTRATION OF TRICHLOROETHENE IN ug/kg
(5,000)	CONCENTRATION OF 1,1-DCE IN ug/kg
(4,200)	CONCENTRATION OF 1,1,1-TCA IN ug/kg
SB	SOIL BORING
GP	TEMPORARY WELL

CLEANUP OBJECTIVE

TCE	58,000 ppb (1)
1,1-DCE	1,100 ppb (1)
1,1,1-TCA	50 ppb (2)

(1) SOURCE: EPA REGION III RISK BASED CONCENTRATION

(2) SITE-SPECIFIC CLEANUP STANDARDS ESTABLISHED BY SIGMA ENVIRONMENTAL SERVICES, INC. FOR PRIOR REMEDIATION OF LEAKING UNDERGROUND STORAGE TANK

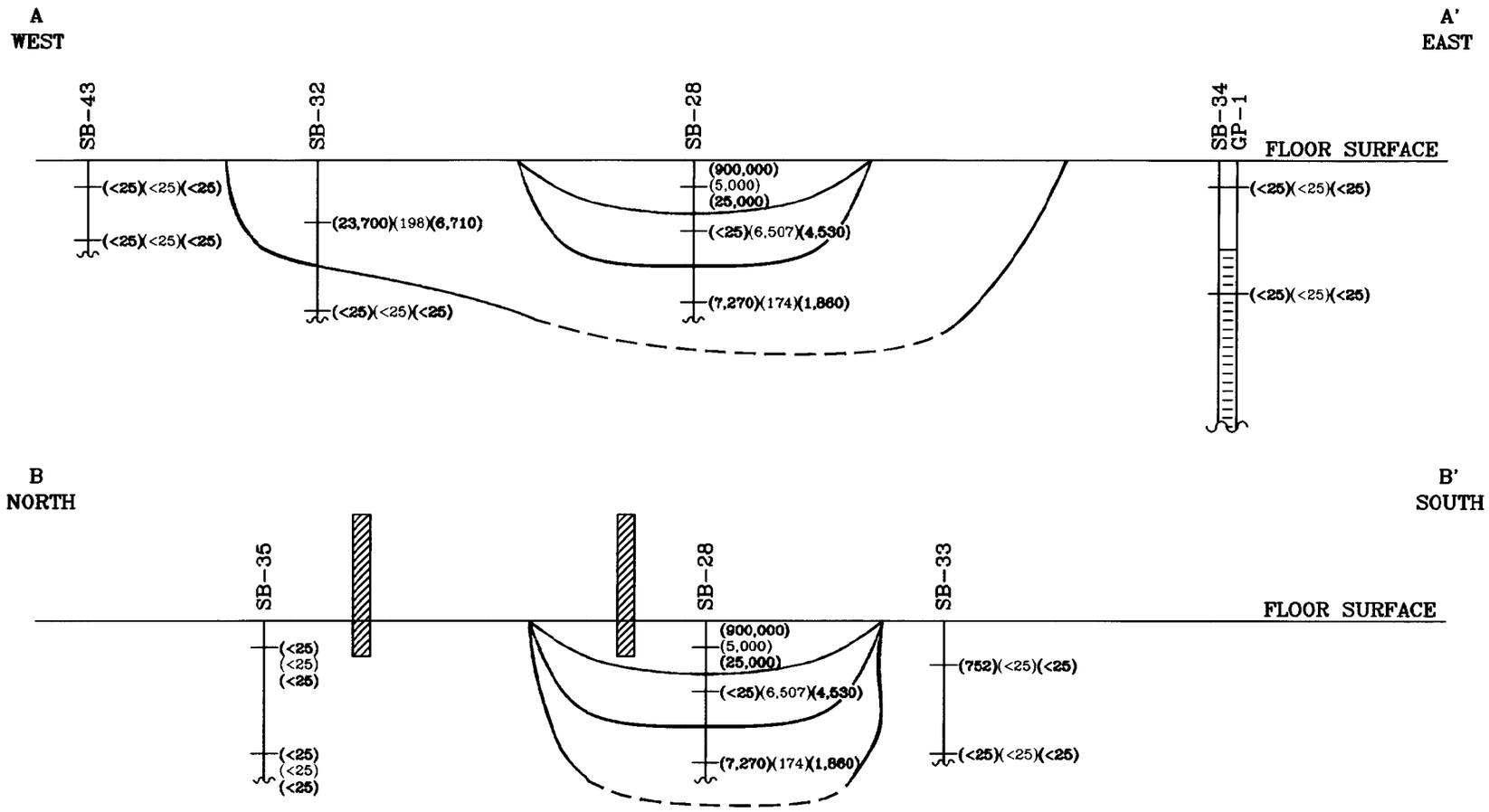
0 4.5 9
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 10
AREA 2 CONTAMINANT PROFILES

TETRA TECH EM INC.

S:\TetraTech\cad\Alfa Laval\3-18-03\area2.dwg 03/18/2003 15:30:25



LEGEND

+	SAMPLE LOCATION
	SCREEN
(23,700)	CONCENTRATION OF TRICHLOROETHENE IN ug/kg
(5,000)	CONCENTRATION OF 1,1-DCE IN ug/kg
(4,200)	CONCENTRATION OF 1,1,1-TCA IN ug/kg
	FACILITY WALL
SB	SOIL BORING
GP	TEMPORARY WELL

CLEANUP OBJECTIVE

TCE	58,000 ppb (1)
1,1-DCE	1,100 ppb (1)
1,1,1-TCA	50 ppb (2)

(1) SOURCE: EPA REGION III RISK BASED CONCENTRATION

(2) SITE-SPECIFIC CLEANUP STANDARDS ESTABLISHED BY SIGMA ENVIRONMENTAL SERVICES, INC. FOR PRIOR REMEDIATION OF LEAKING UNDERGROUND STORAGE TANK

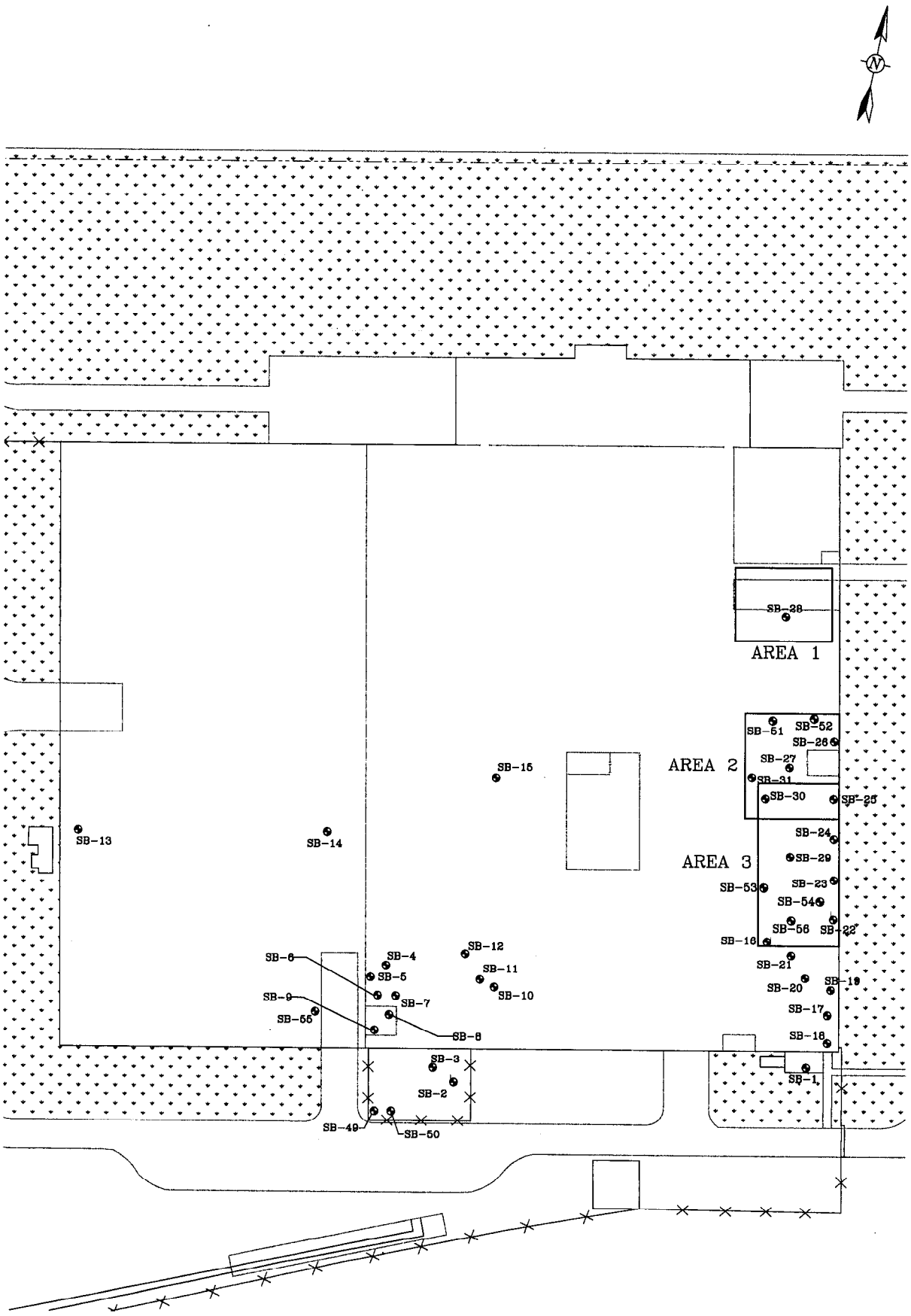
0 4.5 9
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 8
AREA 1 CONTAMINANT PROFILES

Tetra Tech EM Inc.

S:\TetraTech\cad\Alfa Laval\3-18-03\area1.dwg 03/18/2003 15:44:33



LEGEND

- GRASS
- EXTERIOR WALL
- INTERIOR WALL
- FENCE
- SOIL BORING

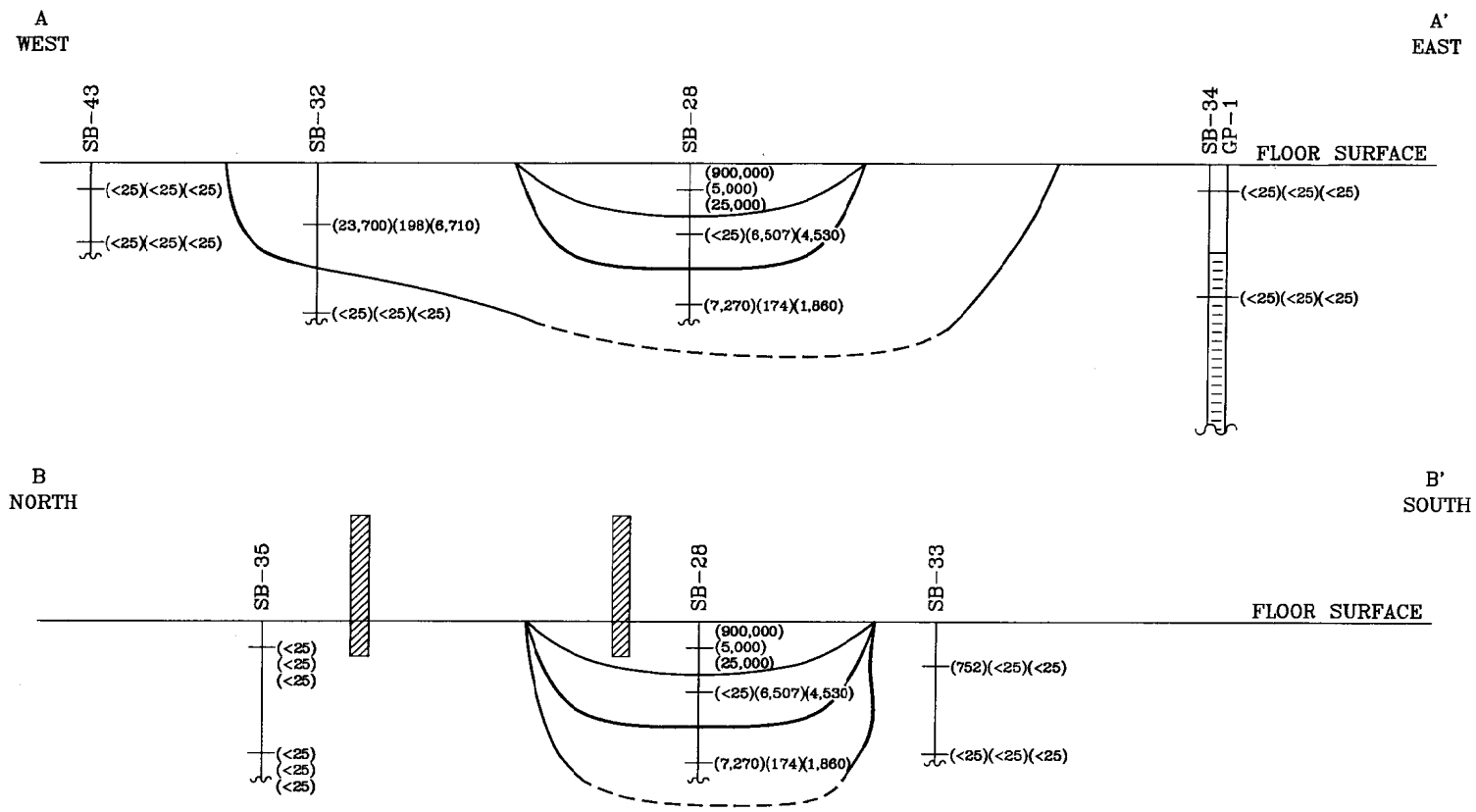
0 40 80
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 6
SITE INVESTIGATION AREAS

Tetra Tech EM Inc.

S:\TetraTech\cad\Alfa Laval\24w01-b.dwg 01/07/2002 10:05:42



LEGEND

+	SAMPLE LOCATION
	SCREEN
(23,700)	CONCENTRATION OF TRICHLOROETHENE IN ug/kg
(5,000)	CONCENTRATION OF 1,1-DCE IN ug/kg
(4,200)	CONCENTRATION OF 1,1,1-TCA IN ug/kg
	FACILITY WALL
SB	SOIL BORING
GP	TEMPORARY WELL

CLEANUP OBJECTIVE

TCE	58,000 ppb (1)
1,1-DCE	1,100 ppb (1)
1,1,1-TCA	50 ppb (2)

(1) SOURCE: EPA REGION III RISK BASED CONCENTRATION

(2) SITE-SPECIFIC CLEANUP STANDARDS ESTABLISHED BY SIGMA ENVIRONMENTAL SERVICES, INC. FOR PRIOR REMEDIATION OF LEAKING UNDERGROUND STORAGE TANK

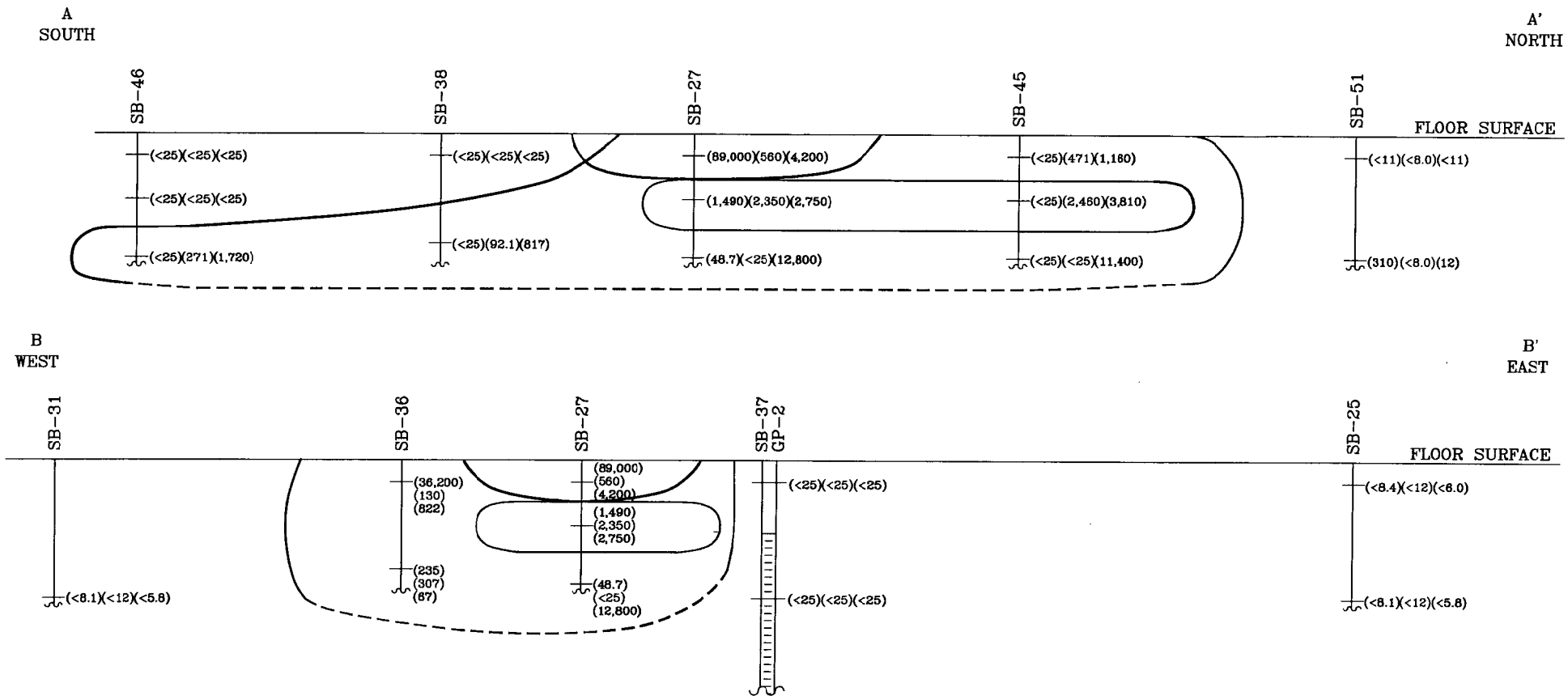
0 3.5 7
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 8
AREA 1 CONTAMINANT PROFILES

Tetra Tech EM Inc.

S:\TetraTech\cad\Alfa Laval\area1.dwg 01/07/2002 104542



LEGEND

+	SAMPLE LOCATION
	SCREEN
(23,700)	CONCENTRATION OF TRICHLOROETHENE IN ug/kg
(5,000)	CONCENTRATION OF 1,1-DCE IN ug/kg
(4,200)	CONCENTRATION OF 1,1,1-TCA IN ug/kg
SB	SOIL BORING
GP	TEMPORARY WELL

CLEANUP OBJECTIVE

TCE	58,000 ppb (1)
1,1-DCE	1,100 ppb (1)
1,1,1-TCA	50 ppb (2)

(1) SOURCE: EPA REGION III RISK BASED CONCENTRATION

(2) SITE-SPECIFIC CLEANUP STANDARDS ESTABLISHED BY SIGMA ENVIRONMENTAL SERVICES, INC. FOR PRIOR REMEDIATION OF LEAKING UNDERGROUND STORAGE TANK

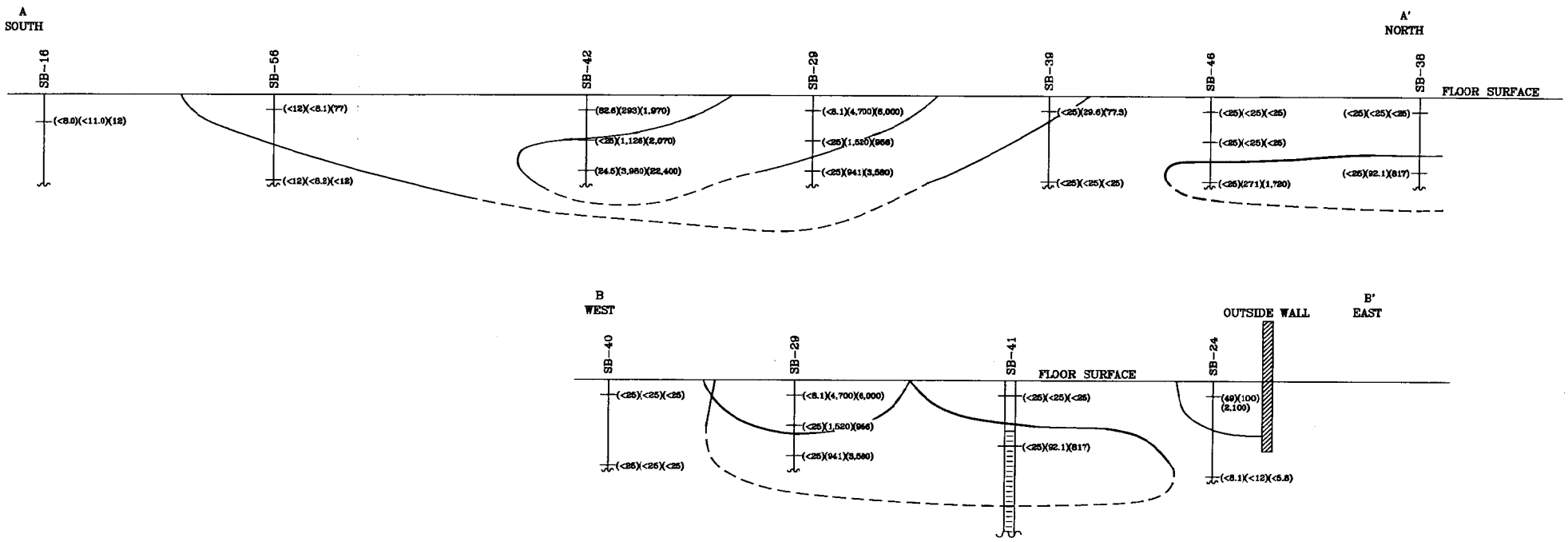
0 3.5 7
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 10
AREA 2 CONTAMINANT PROFILES

TETRA TECH EM INC.

S:\TetraTech\cad\Alfa Laval\area2.dwg 01/07/2002 1005:42



LEGEND

+	SAMPLE LOCATION
	SCREEN
(23,700)	CONCENTRATION OF TRICHLOROETHENE IN ug/kg
(5,000)	CONCENTRATION OF 1,1-DCE IN ug/kg
(4,200)	CONCENTRATION OF 1,1,1-TCA IN ug/kg
SB	SOIL BORING
	FACILITY WALL

CLEANUP OBJECTIVE

TCE	58,000 ppb (1)
1,1-DCE	1,100 ppb (1)
1,1,1-TCA	50 ppb (2)

(1) SOURCE: EPA REGION III RISK BASED CONCENTRATION

(2) SITE-SPECIFIC CLEANUP STANDARDS ESTABLISHED BY SIGMA ENVIRONMENTAL SERVICES, INC. FOR PRIOR REMEDIATION OF LEAKING UNDERGROUND STORAGE TANK

0 3.5 7
SCALE IN FEET

ALFA LAVAL INCORPORATED
TRI-CLOVER FACILITY
KENOSHA, WISCONSIN

FIGURE 12
AREA 3 CONTAMINANT PROFILES

TETRA TECH EM INC.

S:\TetraTech\cad\Alfa Laval\area3.dwg 01/07/2002 1045:42

TABLE 2

SUMMARY OF SOIL ANALYTICAL RESULTS
ALFA LAVAL, INC. - TRI-CLOVER FACILITY, KENOSHA, WISCONSIN

Sample Number	Sample Date	Depth (ft)	pH	Metals (mg/kg)									Parameters									
													Volatile Organic Compounds (mg/kg)									
				Arsenic	Barium	Cadmium	Chromium	Lead	Nickel	Selenium	Silver	Mercury	Chloroform	1,3-Dichlorobenzene	Dichlorodifluoro-methane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	Trichloroethene
State of WI RCLs for groundwater protection [1]				ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.0049	ne	ne	1.5	ne	ne
State of WI Non-Industrial RCLs [2]				0.039	ne	8	16,000	50	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
State of Wisconsin Industrial RCLs [3]				1.6	ne	510	ne	500	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
EPA Region III Industrial RBCs [4]				3.8	140000	ne	6,100	ne	41000	10000	10000	ne	940	61000	410000	200000	63	9.5	110	410000	570000	520
EPA Region III Residential RBCs [5]				0.43	5500	ne	230	ne	1600	390	390	ne	100	2300	16000	7800	7.0	1.1	12	16000	22000	58
SS-1-1	08/09/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0075	<0.0050	<0.018	<0.0063	<0.0038	<0.013	<0.0050	<0.0063	<0.0063	<0.0088
SS-2-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0071	<0.0047	<0.016	<0.0059	<0.0035	<0.012	<0.0047	<0.0059	<0.0059	<0.0082
SS-3-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	<0.016	<0.0059	<0.0035	<0.012	<0.0047	<0.0059	<0.0059	<0.0082
SS-4-1	08/09/01	1-2	7.81	-	-	-	-	-	-	-	-	-	<0.0077	<0.0051	<0.018	<0.0064	<0.0038	<0.013	<0.0051	<0.0064	<0.0064	<0.0090
SS-5-1	08/09/01	1.5-2.5	7.68	-	-	-	-	-	-	-	-	-	<0.0077	<0.0051	<0.018	<0.0064	<0.0038	<0.013	<0.0051	<0.0064	<0.0064	<0.0090
SS-6-1	08/09/01	1-2	8.05	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	<0.016	<0.0058	<0.0035	<0.012	<0.0047	<0.0058	<0.0058	<0.0082
SS-7-1	08/09/01	1-2	8.35	-	-	-	-	-	-	-	-	-	<0.0072	<0.0048	<0.017	<0.0060	<0.0036	<0.012	<0.0048	<0.0060	<0.0060	<0.0084
SS-8-1	08/08/01	1-2	8.82	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-9-1	08/08/01	2-3	7.65	-	-	-	-	-	-	-	-	-	<0.0076	<0.0051	<0.018	<0.0063	<0.0038	<0.013	<0.0051	<0.0063	<0.0063	<0.0089
SS-10-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0067	<0.0045	<0.016	<0.0056	<0.0034	<0.011	<0.0045	<0.0056	<0.0056	<0.0079
SS-11-1	08/09/01	4-5	-	-	-	-	-	-	-	-	-	-	<0.0068	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	0.23	<0.0057	<0.0080
SS-12-1	08/09/01	1.5-2.5	8.11	4.0	45.7	0.45	14.1	9.1	22.9	<0.29	<0.068	0.014	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-13-1	08/09/01	3-4	-	-	-	-	-	-	-	-	-	-	<0.0067	<0.0044	<0.016	<0.0056	<0.0033	<0.011	<0.0044	<0.0056	<0.0056	<0.0078
SS-14-1	08/09/01	3.5-4	-	-	-	-	-	-	-	-	-	-	<0.0063	<0.0042	<0.015	<0.0053	<0.0032	<0.011	<0.0042	0.21	<0.0053	<0.0074
SS-15-1	08/09/01	1.5-2.5	-	-	-	-	-	-	-	-	-	-	<0.0066	<0.0044	<0.016	<0.0055	<0.0033	<0.011	<0.0044	<0.0055	<0.0055	<0.0078
SS-16-1	08/09/01	2-3	-	-	-	-	-	-	-	-	-	-	<0.0068	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	0.012	<0.0080
SS-17-1	08/08/01	2-3	7.10	3.7	44.6	0.48	16.3	9.6	26.3	0.52	0.20	0.015	-	-	-	-	-	-	-	-	-	-
SS-18-1	08/08/01	1-2	8.52	3.1	58.9	0.40	14.5	10.1	18.4	0.46	<0.048	0.025	-	-	-	-	-	-	-	-	-	-
SS-19-1	08/08/01	3-4	8.79	5.8	15.4	0.66	11.3	11.1	19.8	0.39	0.15	0.013	-	-	-	-	-	-	-	-	-	-
SS-20-1	08/09/01	7-8	8.61	6.2	46.0	0.51	14.8	10.7	22.1	<0.33	<0.076	0.016	-	-	-	-	-	-	-	-	-	-
SS-21-1	08/09/01	7.5-8	8.59	3.9	40.0	0.46	14.3	9.3	21.3	0.34	0.071	0.015	-	-	-	-	-	-	-	-	-	-
SS-22-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-22-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-23-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-23-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081
SS-24-1	08/10/01	2-3	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0046	<0.016	<0.0058	<0.0035	0.10	<0.0046	<0.0058	2.1	0.049
SS-24-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0058	<0.0058	<0.0058	<0.0081
SS-25-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0072	<0.0048	0.031	<0.0060	<0.0036	<0.012	<0.0048	<0.0060	<0.0060	<0.0084
SS-25-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	0.032	<0.0058	<0.0035	<0.012	<0.0047	<0.0058	<0.0058	<0.0081
SS-26-1	08/10/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	0.044	<0.0058	<0.0035	<0.012	<0.0047	<0.0058	<0.0058	<0.0081
SS-26-2	08/10/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0057	<0.0034	<0.011	<0.0046	<0.0057	<0.0057	<0.0080
SS-27-1	08/09/01	1.5-2	-	-	-	-	-	-	-	-	-	-	0.0082	<0.0046	<0.016	0.21	0.091	0.56	0.074	0.012	4.2	89
SS-28-1	08/08/01	1-2	-	-	-	-	-	-	-	-	-	-	<0.0069	0.011	<0.016	0.43	0.018	5.0	0.25	0.54	25	900
SS-29-1	08/10/01	1.5-2.5	-	-	-	-	-	-	-	-	-	-	<0.0070	<0.0047	<0.016	0.80	0.12	4.7	<0.0047	<0.0058	6.0	<0.0081
SS-30-1	08/09/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0071	<0.0047	<0.016	0.074	<0.0035	0.19	<0.0047	<0.0059	9.3	<0.0082
SS-31-1	08/09/01	9-10	-	-	-	-	-	-	-	-	-	-	<0.0069	<0.0046	<0.016	<0.0058	<0.0035	<0.012	<0.0046	<0.0058	<0.0058	<0.0081

Notes:

[1] Source: WAC, Chapter NR 720, Table 1-Baseline Concentrations, Dilution Attenuation Factors and Residual Contaminant Levels Based on Protection of Groundwater.
[2] Source: WAC, Chapter NR 720, Table 2- Residual Contaminant Levels Based on Human Health Risk From Direct Contact Related to Land Use.
[3] Source: WAC, Chapter NR 720, Table 2- Residual Contaminant Levels Based on Human Health Risk From Direct Contact Related to Land Use.
[4] Source: EPA Region III Risk Based Concentration Table, 2001.
[5] Source: EPA Region III Risk Based Concentration Table, 2001.
EPA - U.S. Environmental Protection Agency
mg/kg - milligrams per kilograms
ne - none established
RBC - risk based concentration
RCL - residual contaminant levels
SS - soil sample
- Indicates sampled not analyzed for.
Bold numbers indicate that the concentration is in excess of laboratory reporting limits.
Only compounds with detections in excess of laboratory reporting limits are identified.
Shading indicates that the concentration is in excess of regulatory standards.

TABLE 2

SUMMARY OF SOIL ANALYTICAL RESULTS - AREA 1, 2, and 3
ALFA LAVAL, INC. - TRI-CLOVER FACILITY, KENOSHA, WISCONSIN

Area	Sample Number	Sample Date	Depth (ft)	Parameters: Volatile Organic Compounds ug/kg					
				1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene
	SS-28-1	08/08/01	1-2	**430**	**18**	**5,000**	**250**	**25,000**	**900,000**
	SS-28A-2	10/16/01	4-5	**710.88**	**85.22**	**6,507.41**	**120.78**	**4530.2**	ND
	SS-28A-3	10/16/01	8-9	**145.65**	ND	**174.14**	ND	**1,863.86**	**7,268.24**
	SS-32-1	10/08/01	3.5-4	**199**	ND	**198**	ND	**6,710.00**	**23,700**
	SS-32-2	10/08/01	8-9	ND	ND	ND	ND	ND	ND
	SS-33-1	10/08/01	2-3	**62.5**	ND	ND	ND	ND	**752**
1	SS-33-2	10/08/01	7-8	ND	ND	ND	ND	ND	ND
	SS-34-1	10/08/01	1-2	ND	ND	ND	ND	ND	ND
	SS-34-2	10/08/01	7-8	ND	ND	ND	ND	ND	ND
	SS-35-1	10/08/01	1-2	ND	ND	ND	ND	ND	ND
	SS-35-2	10/08/01	7-8	ND	ND	ND	ND	ND	ND
	SS-43-1	10/12/01	1-2	ND	ND	ND	ND	ND	ND
	SS-43-2	10/12/01	4-5	ND	ND	ND	ND	ND	ND
	SS-27-1	08/09/01	1.5-2	**210**	**91**	**560**	**74**	**4,200**	**89,000**
	SS-27A-1	10/12/01	4-5	**355.1**	**10.05**	**2,346.7**	ND	**2,753.3**	**1,493.7**
	SS-27A-2	10/12/01	8-9	ND	**2.63**	ND	ND	**12,805.1**	**48.72**
	SS-36-1	10/09/01	1-2	**46.4**	**70.8**	**130**	**132**	**822**	**36,200**
	SS-36-2	10/09/01	7-8	**395**	**106**	**307**	ND	**67**	**235**
	SS-37-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-37-2	10/09/01	9-10	ND	ND	ND	ND	ND	ND
	SS-44-1	10/12/01	1-2	ND	ND	ND	ND	**45.73**	ND
2	SS-44-2	10/12/01	4-5	ND	ND	ND	ND	ND	ND
	SS-44-3	10/12/01	8-9	ND	ND	ND	ND	ND	ND
	SS-45-1	10/12/01	1-2	**182.6**	ND	**471.1**	ND	**1,157.4**	ND
	SS-45-2	10/12/01	4-5	**234.6**	**22.24**	**2,460.7**	ND	**3,812.8**	ND
	SS-45-3	10/12/01	8-9	ND	ND	ND	ND	**11,376.2**	ND
	SS-51-1	03/12/02	1-2	<5.7	<20	<8.0	<9.1	<11	<11
	SS-51-2	03/12/02	8-9	<5.7	<21	<8.0	<9.1	**12**	**310**
	SS-52-1	03/12/02	1-2	<5.7	<20	**12**	<9.1	<11	**15**
	SS-52-2	03/12/02	8-9	<5.8	<21	<81	<9.2	<12	<12
	SS-38-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-38-2	10/09/01	7-8	ND	ND	**92.1**	ND	**817**	ND
2/3	SS-46-1	10/12/01	1-2	ND	ND	ND	ND	ND	ND
	SS-46-2	10/12/01	4-5	ND	**292.63**	ND	ND	ND	ND
	SS-46-3	10/12/01	8-9	**43.58**	ND	**270.80**	ND	**1,720.58**	ND
	SS-29-1	08/10/01	1.5-2.5	**800**	**120**	**4,700**	<4.7	**6,000**	<8.1
	SS-29A-1	10/12/01	4-5	**302.67**	**41**	**1,518.1**	ND	**955.97**	ND
	SS-29A-2	10/12/01	8-9	**894.29**	**39.67**	**940.5**	ND	**3,575.39**	ND
	SS-39-1	10/09/01	1-2	ND	ND	**29.6**	ND	**77.3**	ND
	SS-39-2	10/09/01	8-9	ND	ND	ND	ND	ND	ND
	SS-40-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-40-2	10/09/01	8-9	ND	ND	ND	ND	ND	ND
	SS-41-1	10/09/01	1-2	ND	ND	ND	ND	ND	ND
	SS-41-2	10/09/01	7-8	ND	ND	**92.1**	ND	**817**	ND
3	SS-42-1	10/12/01	1-2	**44.46**	ND	**292.87**	**88.34**	**1,974.2**	**82.60**
	SS-42-2	10/12/01	4-5	**307.39**	**36.66**	**1,125.5**	ND	**2,066.74**	ND
	SS-42-3	10/12/01	7-8	**1,720.47**	ND	**3,976.2**	ND	**22,397.74**	**24.52**
	SS-53-1	03/12/02	1-2	<5.7	<20	<7.9	<9.1	**15**	<11
	SS-53-2	03/12/02	8-9	<5.5	<20	<7.7	<8.8	<11	<11
	SS-54-1	03/12/02	1-2	<5.7	<20	<8.0	<9.1	**170**	**14**
	SS-54-2	03/12/02	8-9	<5.7	<20	<8.0	<9.1	<11	<11
	SS-56-1	03/12/02	1-2	<5.8	<21	<8.1	<9.2	**77**	<12
	SS-56-2	03/12/02	8-9	<5.8	<21	<8.2	<9.3	<12	<12
	SS-16-1	08/09/01	2-3	<5.7	<3.4	<11	<4.6	**12**	<8.0
State of WI RCLs for groundwater protection [1]				ne	4.9	ne	ne	ne	ne
State of WI Non-Industrial RCLs [2]				ne	ne	ne	ne	ne	ne
State of Wisconsin Industrial RCLs [3]				ne	ne	ne	ne	ne	ne
EPA Region III Industrial RBCs [4]				200,000,000	63,000	9,500	110,000	570,000,000	520,000
EPA Region III Residential RBCs [5]				7,800,000	7,000	1,100	12,000	22,000,000	58,000
Site Specific Clean up Standards [6]				ne	ne	ne	ne	50	ne

Notes:

[1] Source: WAC, Chapter NR 720, Table 1-Baseline Concentrations, Dilution Attenuation Factors and Residual Contaminant Levels Based on Protection of Groundwater.
[2] Source: WAC, Chapter NR 720, Table 2-
[3] Source: WAC, Chapter NR 720, Table 2-
[4] Source: EPA Region III Risk Based Concentration
[5] Source: EPA Region III Risk Based Concentration
[6] Site-Specific Cleanup standards established by Sigma Environmental Services, Inc for prior remediation of leaking underground storage tank
EPA - U.S. Environmental Protection Agency
ug/kg - micrograms per kilograms (parts per billion)
ne - none established
RBC - risk based concentration
RCL - residual contaminant levels
SS - soil sample
ND-level below laboratory dection limit
Bold numbers indicate that the concentration is in excess of laboratory reporting limits.
Shading indicates that the concentration is in excess of regulatory or site-specific standards.

TABLE 2

SUMMARY OF SEDIMENT ANALYTICAL RESULTS - DRAINAGE DITCH REMEDIATION
ALFA LAVAL, INC. - TRI-CLOVER FACILITY, KENOSHA, WISCONSIN

Sample Number	Sample Date	Polycyclic Aromatic Hydrocarbons (mg/kg)										
		Benzo(a)-anthracene	Benzo(a)pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
DCS-1	09/25/02	**0.0042**	**0.0053**	**0.0062**	**0.0075**	**0.0039**	<0.0039	<0.0035	**0.014**	**0.0048**	<0.0028	**0.013**
DCS-2	09/25/02	<0.00028	<0.00062	**0.0016**	<0.0014	<0.00094	<0.0037	<0.0034	<0.00094	<0.0015	<0.0027	**0.0029**
DCS-3	09/25/02	<0.00029	<0.00064	**0.0022**	<0.0014	**0.0017**	<0.0039	<0.0035	<0.00097	**0.0016**	<0.0028	**0.0040**
DCS-4	09/25/02	**0.10**	**0.15**	**0.18**	<0.0015	**0.092**	<0.0041	**1.1**	**0.36**	**0.15**	**0.11**	**0.33**
DCS-5	09/25/02	**0.0040**	**0.0053**	**0.0065**	**0.0079**	**0.0039**	**0.0075**	<0.0035	**0.012**	**0.0049**	<0.0028	**0.011**
DCS-6	09/25/02	<0.00031	<0.00069	<0.00059	<0.0015	<0.0010	<0.0041	<0.0037	<0.0010	<0.0016	<0.0030	<0.0030
DCS-7	09/25/02	**0.0016**	**0.0027**	**0.0028**	**0.0056**	**0.0021**	<0.0038	<0.0035	**0.0063**	**0.0023**	<0.0028	**0.0055**
Average Concentration*		**0.0157**	**0.0235**	**0.0285**	**0.0034**	**0.0149**	**0.0028**	**0.1587**	**0.0563**	**0.0236**	**0.0169**	**0.0526**
Suggested RCL for groundwater protection (1)		17	48	360	6,800	870	37	38	500	680	1.8	8,700
Suggested RCL for non-industrial setting (1)		0.088	0.0088	0.088	1.8	0.88	8.8	0.0088	600	0.088	18	500
Suggested RCL for industrial setting (1)		3.9	0.39	3.9	39	39	390	0.39	40,000	3.9	390	30,000
EPA Region III Industrial RBCs (2)		ne	0.78	7.8	ne	78	780	0.78	82,000	7,800	ne	61,000
EPA Region III Residential RBCs (2)		ne	0.087	0.87	ne	8.7	87	0.087	3,100	870	ne	2,300

Notes:

* Average concentration was calculated by adding all of the detects and one-half of the non-detects, and dividing by the number of samples.

(1) Source: Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons, Interim Guidance, Publication RR-519-97, April 1997 (corrected).

(2) Source: EPA Region III Risk Based Concentration Table, April 2, 2002.

EPA - U.S. Environmental Protection Agency

mg/kg - milligrams per kilograms (parts per million)

ne - none established

RBC - risk based concentration

RCL - residual contaminant levels

SS - soil sample

Bold numbers indicate that the concentration is above laboratory reporting limits.

Shading indicates that the concentration is in excess of regulatory or site-specific standards.