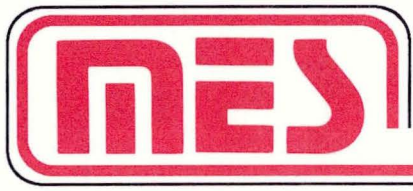


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DEPARTMENT OF
NATURAL RESOURCES
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1990 FEB 21 AM 11: 04



midwest engineering services, inc.

geotechnical, environmental, & materials engineers

UST Excavation Assessment
9510 W. Greenfield Avenue
West Allis, Wisconsin
M.E.S. Project No. 91016

Prepared for
Northern Equipment Sales Co., Inc.

December 26, 1989



midwest engineering services, inc.

S22 W22660 Broadway • Waukesha, WI 53186 • 414-521-2125

December 26, 1989

Mr. Dennis Tetzlaff
Northern Equipment Sales Co., Inc.
N24 W22935 Joseph Road
Waukesha, Wisconsin 53186-1124

Subject: UST Excavation Assessments
9510 W. Greenfield Avenue
West Allis, Wisconsin
M.E.S. Project No. 91016

Dear Mr. Tetzlaff,

As requested, our representative reported to the subject site on December 1, 1989 to perform an assessment of the excavations made for the removal of several underground storage tanks (UST) from two different tank group locations. The scope of work performed on this day included visual observations of the site and excavations, vapor testing of soils obtained from the excavation sides and bottoms, and submitting selected soil samples from each excavation area for analytical testing to determine the Total Petroleum Hydrocarbon (TPH) content.

In total, four tanks were removed from two different tank areas, consisting of the following:

EAST GROUP: Two 4,000 gallon tanks reportedly formerly used for gasoline storage; age undetermined; last time of use undetermined.

WEST GROUP: One tank (5'3" diameter x 6'+/- long) reportedly used for fuel oil, and one tank (3' diameter x 5'+/- long) reportedly used for drain oil; age undetermined, last time of use undetermined.

Captain Frank Zalar of the City of West Allis Bureau of Fire Prevention, who was on site during some of the tank removal work, indicated that the department had no records about the installation or usage of the tanks on this site.

A representative of Northern Equipment Sales indicated that the tanks were pumped prior to commencing removal operations, and contained predominantly water. About 4,000 gallons had been pumped from each of the two tanks in the east group, and several hundred gallons from the west tanks.

The locations of the excavations and UST orientations, and other information for each tank area are shown in Figure 1.

After the removal of the USTs, soil samples were obtained from the excavation sides and bottoms for head space volatile vapor testing with an Hnu 10.2 eV Model PI 101 Photoionization Analyzer. Selected samples were submitted for analytical testing.

The backhoe was utilized to excavate through the tank backfill materials into the native soils, and the samples obtained were taken from the excavation sides and bottoms by sampling with hand tools where possible; the backhoe bucket was utilized in some instances, as described below. Soil samples were transferred into clean, teflon capped glass jars and kept on ice in a styrofoam cooler for transporting to the analytical laboratory; a chain of custody was maintained.

A summary of the field observations for each UST removal location, and a discussion of the results of the field and laboratory testing is included in the following paragraphs. The results of the field and laboratory testing are shown in Figure 2, as well as on the analytical laboratory's data sheet.

EAST GROUP

The excavation work for the two USTs was performed in relatively close proximity to the existing building, as the tank area was situated about 8 feet south of the building wall and 3'+/- east of the entrance way.. The natural soils in the excavation sides and bottom consisted of Brown Clayey Silt to Silty Clay with varying amounts of sands and gravel, to a depth of at least 11 to 12 feet or so below the ground surface.

The south tank was the first of the two removed from the east tank group. After the soil samples from this portion of the excavation were taken, the excavation and removal of the north tank proceeded, and material excavated from the north tank area

was placed in the south portion of the excavation due to space limitations on site. Areas of corrosion and holes were observed in both tanks; in general, the frequency of holes in the northern tank was greater. The tanks were hauled from the site on this date.

Strong petroleum odors were observed during the tank removal operations. Dark gray to black staining was observed in the tank pit backfill materials and various areas of the excavation sides. About 2 to 3 feet of discolored water with a sheen was present in the excavation bottom, although it was not determined whether this water represented a groundwater condition, or water which had permeated the tank pit backfill materials. Since a pump was not available to dewater the excavation, soil samples from the excavation bottom were obtained by sampling from the backhoe bucket after excavating into the natural soils below the level of the tank bottoms. The original tank pit fill materials and removed pavements were used to backfill the excavation, with new fill expected for the final few feet.

The vapor levels of the individual soil samples tested from the excavation sides and bottoms, ranged from below detection limits to 190 ppm. The results of the analytical testing indicate that the soils have been affected by relatively high concentrations of petroleum products, identified as gasoline by the analytical screening. The TPH levels in the samples tested ranged from 34 ppm to 490 ppm from the sides, while samples taken from the bottoms were below the detection limit of 4.0 ppm. These higher levels exceed the DNR guideline of 10 ppm TPH in soil.

Upon completion of the tank removal, an 8" diameter PVC pipe, slotted on site with a saw, was placed in the excavation to a depth of about 9 or 10 feet. This may be useful in removing the collected water/product solution from the tank pit.

WEST GROUP

This tank group was directly adjacent to the repair bay overhead door. After removal of the tanks, both of which had holes in the bottoms and sides, the backhoe was utilized to clean excavation's sides and bottoms of tank backfill material so that the naturally occurring soils could be sampled. A hand shovel was used to dig another foot or so into the excavation sides, to obtain the samples for vapor testing and analytical screening. While the depth of most of the excavation made for tank removal was about seven feet deep, the backhoe was used to excavate a small area to about eight feet deep in the center of the bottom, where a soil sample was taken with hand tools.

Black soil staining and other discolorations were observed in each of the excavation walls extending downward to the excavation bottom. Water was seeping into the excavation from the concrete block footing wall, but otherwise the excavation was in a relatively dry condition.

The levels of TPH in four of the five soil samples tested exceed the DNR guidelines of 10 ppm; these were categorized by the analytical laboratory as gasoline, based on similarities to a gasoline standard. While the tanks were reportedly used for fuel oil and drain oil, it is possible that gasoline from some other source has also affected the soils, and/or that gasoline product was once stored in this tank area.

SUMMARY

The levels of the TPH detected in several of the soil samples from both tank group locations are considered high, and exceed the DNR guidelines of 10 ppm. This would indicate that a product release into the subsurface from spills, overfills, and/or tank or piping defects, has occurred. This should be reported to the DNR immediately by the owner/operator by calling the DNR Southeast District Office at 414-562-9684.

Soil borings could be drilled as one method of further exploring the general vicinity around the tank areas, to determine the lateral and vertical extent of affected soil zone and to install groundwater monitoring wells to determine the effect, if any, on the groundwater. The costs of additional exploratory and/or clean-up work, if any, may be reimbursable by the State of Wisconsin PECFA fund. The appropriate guidelines and application forms can be obtained from DILHR, to determine if this site qualified for PECFA assistance.

The removal of the USTs should be reported to the Safety and Buildings Division, Bureau of Petroleum Inspection and Fire Protection (Phone No. 608-266-8076), through the use of the "Tank Inventory Form (SBD-7437), to be completed by the owner/operator of the USTs.

In addition, the reports of the site assessments and laboratory data should be submitted to both DILHR and the DNR at the following locations:

DILHR
Bureau of Petroleum Inspection and Fire Protection
P.O. Box 7969
Madison, WI 53707

UST Excavation Assessments
West Allis, Wisconsin
M.E.S. Project No. 91016
Page 5

DNR
Bureau of Solid and Hazardous Waste Management
P.O. Box 7921
Madison, WI 53707

Should you have any questions regarding the information contained in this report, or if we may be of further assistance, please do not hesitate to call at any time.

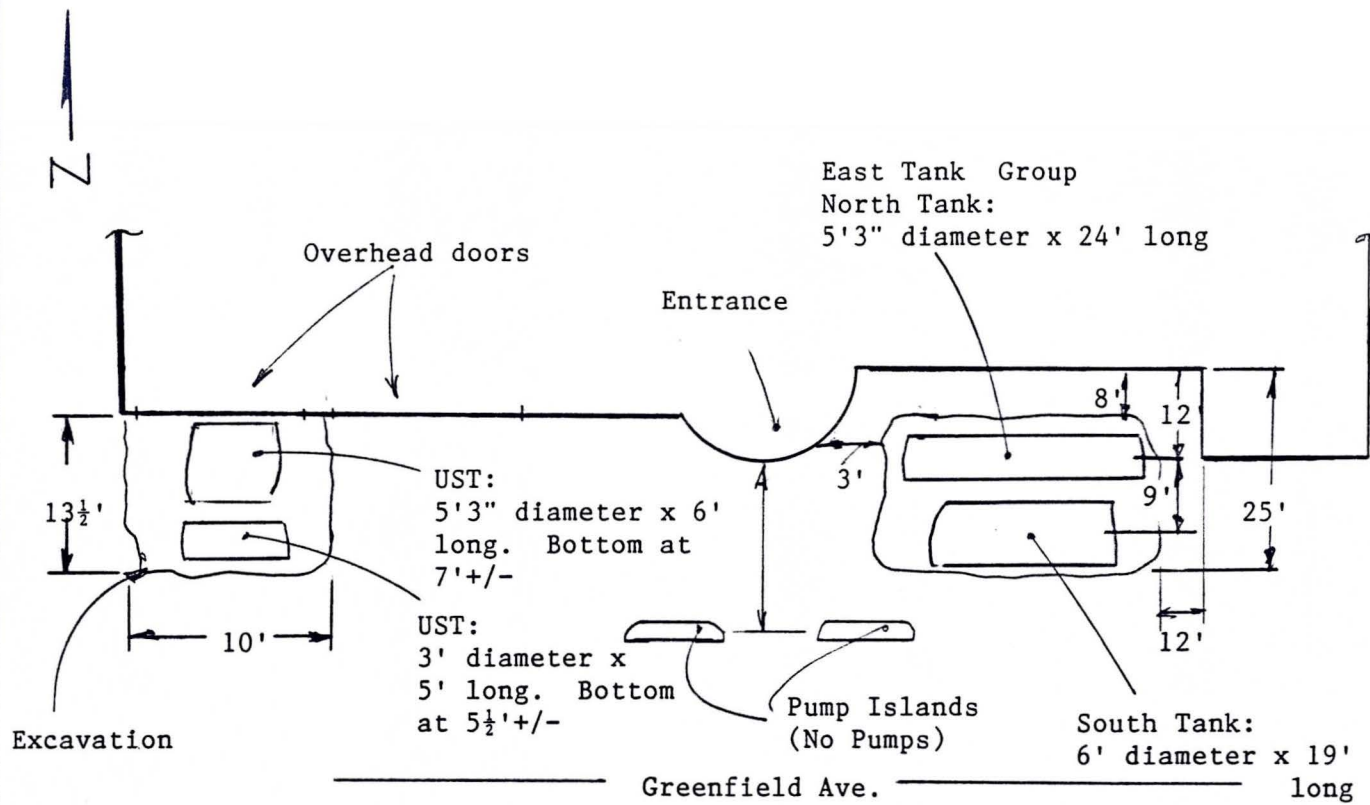
Very truly yours,

MIDWEST ENGINEERING SERVICES, INC.

A handwritten signature in black ink, appearing to read "Edward D. Zyga". The signature is fluid and cursive, with a long horizontal stroke at the end.

Edward D. Zyga, P.E.
Principal of Firm

Enclosures: Figures 1 and 2.
CBC Test Data Sheets



Note: The sketch is not drawn to scale, and is intended to show the approximate locations of the tank excavations relative to site features.



midwest engineering services, inc.

FIGURE 1

UST Excavation Assessment
 9510 W. Greenfield Avenue
 West Allis, WI

PROJECT NUMBER:

91016

DATE:

12-26-89

Figure 2
 Summary of Hnu and Analytical Test Results
 9510 W. Greenfield Avenue
 West Allis, Wisconsin
 M.E.S. Project No. 91016

<u>Sample No.</u>	<u>Location and Soil Classification</u>	<u>Hnu (ppm)</u>	<u>TPH(ppm)</u>
1	East Tank Group: South Excavation wall, Center; -8 1/2', Brown Clayey Silt to Silty Clay, little Sand and Gravel.	24	34
2	East Tank Group: Excavation Bottom, -11 1/2'+/-, Center of south tank; sampled from backhoe bucket.	2	<4.0
3	East Tank Group: West Excavation wall, -6', Center of north tank; Brown Clayey Silt with Sand and Gravel.	82	490
4	East Tank Group: North Excavation wall, Center, -8'; Brown Silty Clay to Clayey Silt, little Sand and Gravel, sampled from backhoe bucket.	23	42
5	East Tank Group: Excavation bottom, -11 1/2'+/-, west 1/3 of north tank; Brown Silty Clay to Clayey Silt, little Sand and Gravel.	4	<4.0
6	East Tank Group: Excavation bottom, -11 1/2'+/-, east 1/3 of north tank; Brown Silty Clay to Clayey Silt with Sand and Gravel.	6	<4.0
7	East Tank Group: Excavation bottom of south tank, -11 1/2'+/-, west end; Brown Clayey Silt to Silty Clay, little Sand and Gravel.	ND	Not Tested
8	West Tank Group: Center of Excavation bottom, -8 1/2', Brown Silty Clay, little Sand and Gravel.	9	5.8

UST Excavation Assessment
West Allis, Wisconsin
Figure 2, Continued
M.E.S. Project No. 91016

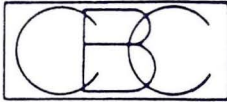
<u>Sample No.</u>	<u>Location and Soil Classification</u>	<u>Hnu (ppm)</u>	<u>TPH(ppm)</u>
9	West Tank Group: East Excavation wall, Center, -3 1/2'; Greenish-Brown Silty Clay (discolored).	55	800
10	West Tank Group: Excavation Wall, Center, -5 1/2', Brown Silty Clay.	22	43
11	West Tank Group: South Excavation wall, Center, -4', Greenish-Brown Clayey Silt (discolored)	90	600
12	West Tank Group: North Excavation wall, Center, -5', Grayish Brown Clayey Silt, with Sand and Gravel (discolored).	32	21

ND: Non-Detectable

ppm: Parts per million

<4.0: Below the analytical detection limits

Note: Depths shown are referenced to surface.



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12/18/89

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M772 8443335 W70

MIDWEST ENGINEERING SERVICES
S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14157 SOIL/91016-1
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	34	PPM
GASOLINE		

!

PLEASE CONTACT OUR CLIENT SERVICE DEPARTMENT WITH QUESTIONS. REMAINING WASTE SAMPLES WILL BE RETURNED 6 WEEKS FROM THE RECEIVING DATE OF SAMPLE. WATER SAMPLES ARE DISPOSED OF 30 DAYS AFTER RECEIPT. WI DNR LAB CERTIFICATION #241283020/A.I.H.A. ACCREDITED.

! = REPRINT

N/T = NOT TESTED

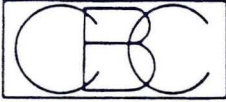
N/A = NOT APPLICABLE

APPROVAL

FAX #414-764-0486

WI DNR LAB CERTIFICATION #241283020

1-800-365-3840



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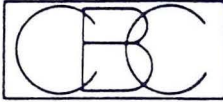
MIDWEST ENGINEERING SERVICES
S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14158 SOIL/91016-2
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	<4.0	PPM

PLEASE CONTACT OUR CLIENT SERVICE DEPARTMENT WITH QUESTIONS. REMAINING WASTE SAMPLES WILL BE RETURNED 6 WEEKS FROM THE RECEIVING DATE OF SAMPLE. WATER SAMPLES ARE DISPOSED OF 30 DAYS AFTER RECEIPT. WI DNR LAB CERTIFICATION #241283020/A.I.H.A. ACCREDITED.

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MIDWEST ENGINEERING SERVICES
S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14160 SOIL/91016-4
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	42	PPM
	GASOLINE	

!

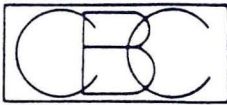
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WAUKESHA ,WI 53186
ATTN: ED ZYGA

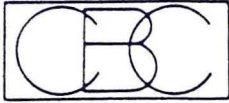
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DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	490	PPM
	AS GASOLINE; BASED ON SIMILARITY TO GASOLINE STANDARD.	

PLEASE CONTACT OUR CLIENT SERVICE DEPARTMENT WITH QUESTIONS. REMAINING WASTE SAMPLES WILL BE RETURNED 6 WEEKS FROM THE RECEIVING DATE OF SAMPLE. WATER SAMPLES ARE DISPOSED OF 30 DAYS AFTER RECEIPT. WI DNR LAB CERTIFICATION #241283020/A.I.H.A. ACCREDITED.

N/T = NOT TESTED N/A = NOT APPLICABLE

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S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

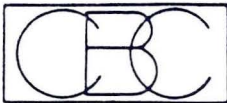
SAMPLE 89335-M14161 SOIL/91016-5
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	<4.0	PPM

!

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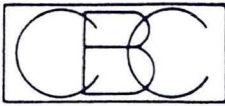
MIDWEST ENGINEERING SERVICES
S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14162 SOIL/91016-6
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	<4.0	PPM

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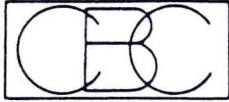
SAMPLE 89335-M14163 SOIL/91016-8
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	5.8	PPM
	GASOLINE. BASED ON SIMILARITIES TO GASOLINE STANDARD.	

!

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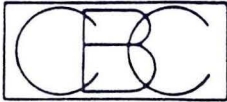
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S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14164 SOIL/91016-9
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	800	PPM
	GASOLINE	

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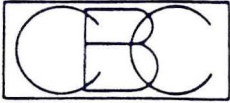
SAMPLE 89335-M14165 SOIL/91016-10
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	43	PPM
	GASOLINE	

!

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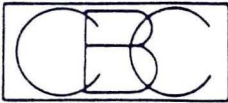
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WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14166 SOIL/91016-11
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	600	PPM
GASOLINE		

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S22 W22660 BROADWAY
WAUKESHA ,WI 53186
ATTN: ED ZYGA

SAMPLE 89335-M14167 SOIL /91016-12
DATE COLLECTED 12/01/89 DATE RECEIVED 12/01/89

TEST NAME	RESULT	UNITS
TOTAL PETROLEUM HYDROCARBONS	21	PPM
GASOLINE		

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