119040001 / Madison
Granite City Steel
Inst/Tank Report

National Steel

EPA Region 5 Records Ctr.
320324

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

February 12, 1990

CERTIFIED MAIL NO. P 447 823 199
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Division of Land Pollution Control
Remedial Project Management Section
Leaking Underground Storage Tank Unit
2200 Churchill Road
P. O. Box 19276
Springfield, Illinois 62794-9276

RE: Madison/Granite City - 900074
Granite City Steel

Gentlemen:

This is in response to your letter of January 30, 1990 (copy attached) regarding a release of kerosene at the above referenced facility. The following responses are being provided as requested in items 1-7 of your letter.

1. A completed copy of the contingency plan was submitted to the Agency, certified mail, by the requested date.

2. John Mathes and Associates, Inc. was contracted to excavate and remove a 12,000 gallon kerosene tank on Granite City Steel property. Kerosene contaminated soil was encountered during the excavation process.

   a. Residual kerosene and water was removed from the tank immediately following excavation.

   b. No above ground release was observed. Contaminated soil was encountered under the tank during excavation. Notification was made to I-EPA and the State Fire Marshal immediately upon discovering the contamination.

   c. No free product was encountered during excavation. Immediately upon pulling the tank, a track hoe was used to excavate visible contamination in the hole to the extent possible.

RECEIVED
FEB 15 1990
IEPA/DLPC

d. Local fire department emergency phone number was posted on site by the contractor throughout the duration of the project. No subsurface structures such as sewers or basements are located in the vicinity of the tank.

e. All necessary emergency phone numbers have been posted on site by the contractor. All excavated contaminated soil has been piled on visqueen and securely covered with same.

3. N/A, no free product encountered.

4. N/A, this tank was out-of-service the year prior to removal.

5. N/A, same as above.

6. Excavation of visible contamination, within the limits of the equipment used, has been performed by the contractor on site (John Mathes) and a report is enclosed which has been prepared by a Registered Professional Engineer in accordance with the requirements set forth on page 6-5 of the "Guidance Manual for LUST Cleanups in Illinois (September 1989).

7. John Mathes and Associates, Inc. has been contracted to conduct all phases of the project.

If you have any questions or require further information, please don't hesitate to call.

Very truly yours,

Carl E. Cannon
Manager-Environmental Control

Enclosure
MGC.CEC:lla

Illinois Environmental Protection Agency · P. O. Box 19276, Springfield, IL 62794-9276

217/782-6760

Refer to: Madison/Granite City -- 900074
Granite City Steel
20th and State Streets South Plant
Compliance File

RECEIVED
FEB 01 1990
DEOQ

Certified Mail
Return Receipt

Notice of Release

January 30, 1990

Granite City Steel
ATTN: Guy Lawrence
20th and State Streets South Plant
Granite City, Illinois 62040

Dear Mr. Lawrence:

On or before January 9, 1990, a release of kerosene occurred from an underground storage tank system(s) at 20th and State Streets South Plant. The purpose of this notice is to inform you of your required response under 40 CFR Part 280 -- Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks.

Within 15 days of the date of this letter you must submit to this Agency:

1. The completed pink copy of the contingency plan.

2. A report which describes all action taken initially to control the situation and reduce the hazards on-site. This report must include the following:

   a. Information concerning the removal of as much kerosene from the tank(s) as necessary to prevent further release into the environment.

   b. Information concerning visual inspections of any above ground release or any exposed below ground release.

   c. Information concerning efforts to prevent the released contaminant from migrating further into surrounding soils and groundwater.

   d. Information concerning the monitoring of fire and safety hazards, and steps that were taken to reduce those hazards posed by vapors or free product which have entered into subsurface structures such as sewers or basements.

   e. Information concerning the safety precautions taken to control hazards posed by the excavation or exposure of contaminated soils.

3. A recovery plan for the removal of free product if applicable.

4. A summary of inventory losses for the year prior to the discovery of the release.

5. The results of any tank and line integrity testing performed for the year prior to the release.

6. An outline describing the steps to be taken to determine the scope of the contamination and a timetable for those steps. This outline must at a minimum include a proposed schedule and methodology for soil sampling and analysis. Sampling points must be of sufficient number to locate the boundaries of the plume of contamination both vertically and horizontally. Include a site map indicating sampling points and depths.

7. A written notice listing contractors whose services have been secured to perform the analysis and cleanup.

With the exception of the contingency plan, which is to be submitted to the address indicated on the form, submit the above information to:

Illinois Environmental Protection Agency
Division of Land Pollution Control
Remedial Project Management Section
Leaking Underground Storage Tank Unit
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

Include the site number and facility name referenced at the top of page one with any correspondence concerning this matter. All correspondence should be submitted in duplicate.

Should you have any questions or require further assistance, do not hesitate to contact Dave Pluymers at 618/346-5120.

Sincerely,

S. A. Colantino

Stephen A. Colantino by AMP
LUST Program Manager
Leaking Underground Storage Tank Unit
Remedial Project Management Section
Division of Land Pollution Control

SAC:AMP:dls/0385n/0386n

cc: Gary King -- Enforcement
Ken Burch -- USEPA
Division File
Dave Pluymers

John Mathes & Associates, Inc.

A Burlington Environmental Inc. Company

210 West Sand Bank Road
P.O. Box 330
Columbia, Illinois 62236-0330
618/281-7173
314/241-1785
FAX 618/281-5120

February 12, 1990
Project 151289

Mr. Guy Lawrence
Granite City Steel
20th and State Street
Granite City, IL 62040

Dear Mr. Lawrence:

Subject: Kerosene Tank Removal Investigation

John Mathes & Associates, Inc., (Mathes) is pleased to submit this letter summarizing the results of the initial groundwater investigation conducted at the Granite City Steel Plant, located in Granite City, Illinois (Figure 1/Attachment 1). This groundwater investigation was conducted in accordance with steps outlined on page 6-5 of the September 1989 Guidance Manual for LUST Cleanups in Illinois prepared by the Illinois Environmental Protection Agency (IEPA).

The investigation was conducted after kerosene-impacted soil was encountered during removal of an 12,000-gallon underground kerosene storage tank. The tank has reportedly been out of service since at least 1975. The use of the tank is unknown; however, pipelines from the tank led to a small aboveground kerosene dispenser and pump. The pipelines did not lead into a building for heating purposes.

The scope of this investigation included:

- summarizing tank excavation activities;
- collecting two soil samples from the tank excavation and having the samples analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX);
- performing seive analyses and liquid limit tests on soil samples from two different lithologies encountered in the tank excavations;

- obtaining water well logs from the Illinois State Water Survey (ISWS) and identifying the locations of recorded wells within 3,000 feet of the former tank area; and

- evaluating the geology of the area based on the water well logs obtained from ISWS.

A summary of these activities and the results are explained below.

Site Excavation Activity

To allow removal of the kerosene tank from the ground, a storage building was demolished because the tank was under the foundation of the building. After the foundation was removed, the soil above the tank was removed. Approximately 230 gallons of water was then removed from the tank. Mr. Wayne Sensel of the Illinois State Fire Marshal's Office was on site during tank removal activities. The tank was pulled from the ground and staged adjacent to the excavation. Several holes were observed in the tank. Stained soil was observed below the tank and kerosene odors were noted. The excavation was scanned using an HNU photoionization detector (HNU) and readings up to 205 needle deflection units (NDU) were measured in the soil beneath the tank.

Soil excavation continued until the depth of the excavation and obstructions prevented further excavation. Impacted soil that was removed from the excavation was stockpiled on plastic sheeting. The stockpiled material was also covered with plastic sheeting. The depth of the excavation was approximately 20 feet. Obstructions that prevented continued excavating activities, as shown in Figure 2 (Attachment 1), included water mains located along the north and south ends of the tanks, and along the east side of the tank; aboveground tanks within 10 feet of the north end of the tank, and a footing of a building foundation located along the west end of the tank. After the soil samples were collected, the excavation was backfilled with clean material.

The tank was cleaned by pressure washing, decommisioned, and then moved to the inside of an existing storehouse located near the tank excavation. Granite City Steel will keep the tank for scrap metal.

Soil Sample Collection and Chemical Analysis

Two composite soil samples were collected from the excavation for chemical analysis. One sample was collected from the side walls and one sample was collected from the floor of the excavation. The samples were shipped to Wadsworth/Alert Laboratories, Inc., of North Canton, Ohio, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX). The analytical results are presented in Table 1 (Attachment 2). Based on visual observations and the analytical results, kerosene-impacted soil is present in the ground; however, the vertical and horizontal extent of the impact has not been determined.

Soil Sample Physical Testing Results

Two soil samples were collected from the excavation for physical testing. One of the samples (No. 1) was collected from the clay unit located beneath the tank at a depth of approximately 16 feet below ground surface. The other sample (No. 2) was collected from a silt unit located beneath the clay unit at a depth of approximately 18 feet below ground surface.

The results of the physical tests are presented in Attachment 2. Sample No. 1 was identified as a dark gray-brown clay wih silt and a trace of sand. Approxiamtely 3.8 percent of the sample was retained on the #200 sieve. The liquid limit is 63. This sample was classified as a high plasticity clay (USCS Classification - CH). Sample No. 2 was identified as a dark gray-brown silt with clay and sand. Approximately 10.6 percent of the sample was retained on the #200 sieve. The liquid limit is 36. This sample was classified as a low plasticity silt (USCS Classification - ML).

Water Well Inventory

Water well logs were obtained from the Illinois State Water Survey (ISWS). An attempt was also made to collect water well information from the Illinois State Public Health offices in Granite City and in Springfield, Illinois; however, these offices could not provide any information.

The locations of the wells within a 3,000-foot radius of the kerosene tank are shown in Figure 3 (Attachment 1). Wells 4, 5, 27, and 28 are located on Granite City Steel property. According to a representative from Granite City Steel, these wells are not in service.

Site Geology

In general, the logs for wells within a 3,000-foot radius of the former kerosene tank indicate the following geologic sequence:

- o 0 - 10 feet ..... FILL
- o 10 - 20 feet ..... CLAY
- o 20 - 115 feet ..... SAND AND GRAVEL
- o greater than 115 feet ..... LIMESTONE

These depths are approximate and refer to depths below ground surface.

A September 1988 remedial investigation report prepared for the IEPA by O'Brien & Gere at the NL Industries facility, which is located within 1/4 mile of the Granite City Steel facility, indicated groundwater has been encountered in this area at an average depth of 24 feet below ground surface. Groundwater flow direction was reported to be to the south-southwest, toward the Mississippi River.

This summarizes the information requested by the IEPA to determine whether a groundwater study will be required to address the kerosene release. If you have any further questions or require additional information, please do not hesitate to contact me at (618) 281-7173.

Sincerely yours,

JOHN MATHES & ASSOCIATES, INC.

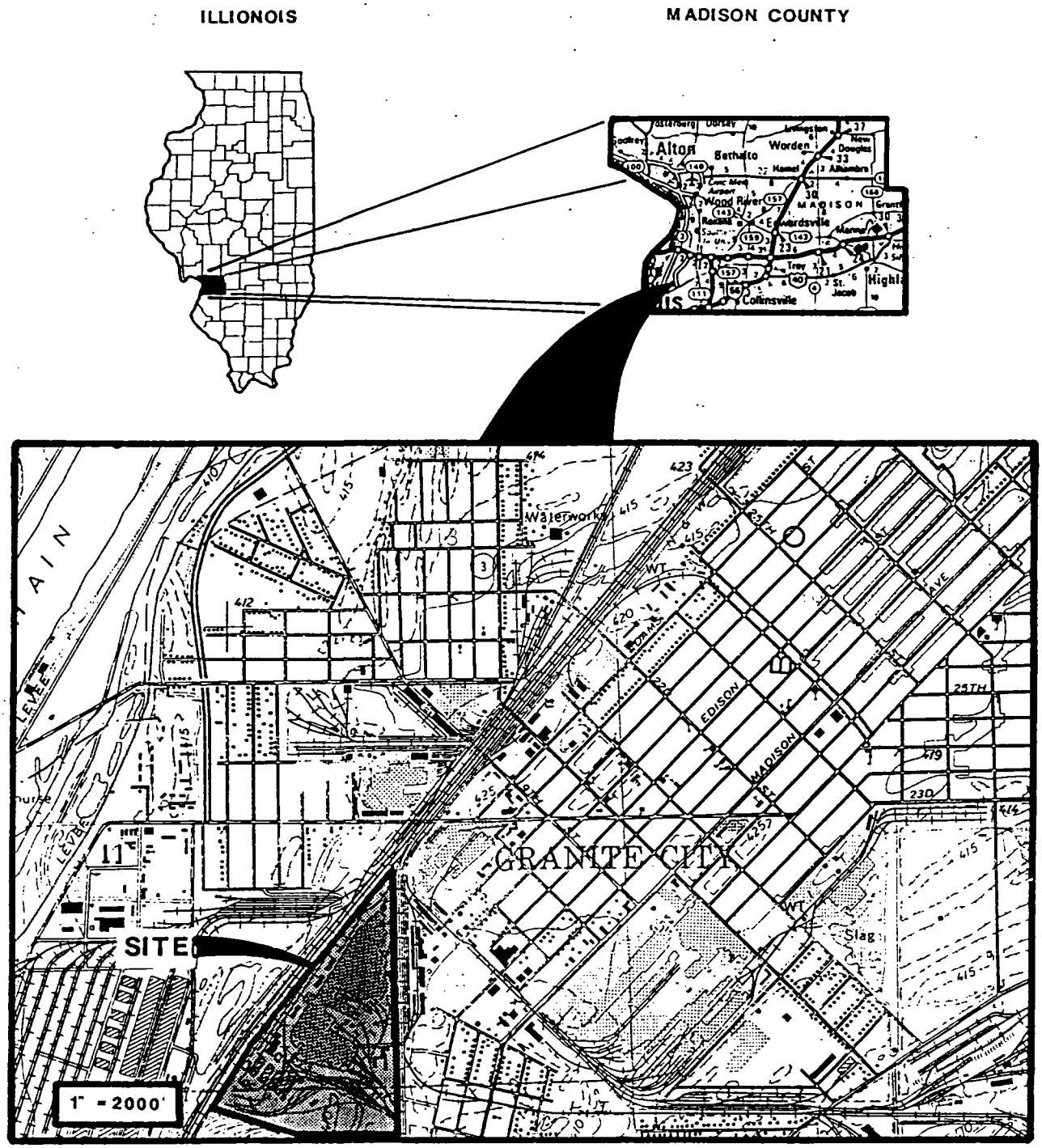
Kathleen C. Duckett, E.I.T.
Hydrogeologist/
Geological Engineer

KCD/kcd/1757S

Attachments: 1. Figures
2. Tables

cc: Mr. Ed Repking

PROJECT MANAGER	
DOCUMENT MANAGER	
CHECKED BY	
DRAWN BY	



SCALE IS VARIBALE

N

John Mathes & Associates, Inc.	
SITE LOCATION MAP	
GRANITE CITY STEEL GRANITE CITY, IL 151289	FIGURE 1

Modified from U.S. Geological Survey, Granite City quandrangle, Illinois, Photorevised 1968 & 1974

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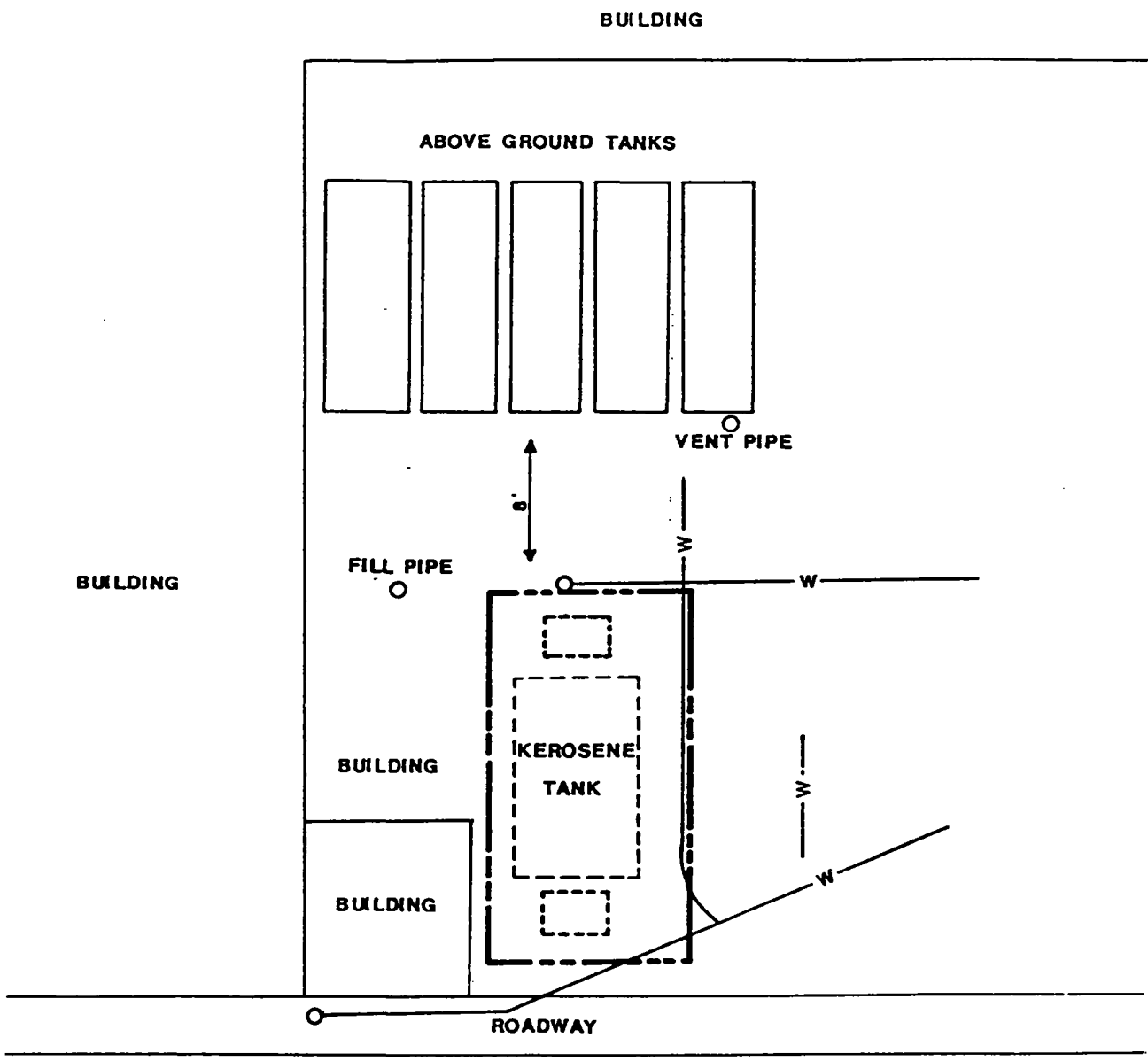
BB 2/12/91	RS 2/12/91	2/12/91	ECO 2/12/91



EXPLANATION

APPROXIMATE TEST PIT LOCATION 6' BELOW TANK BOTTOM

— W — WATER LINE

NOT TO SCALE

N

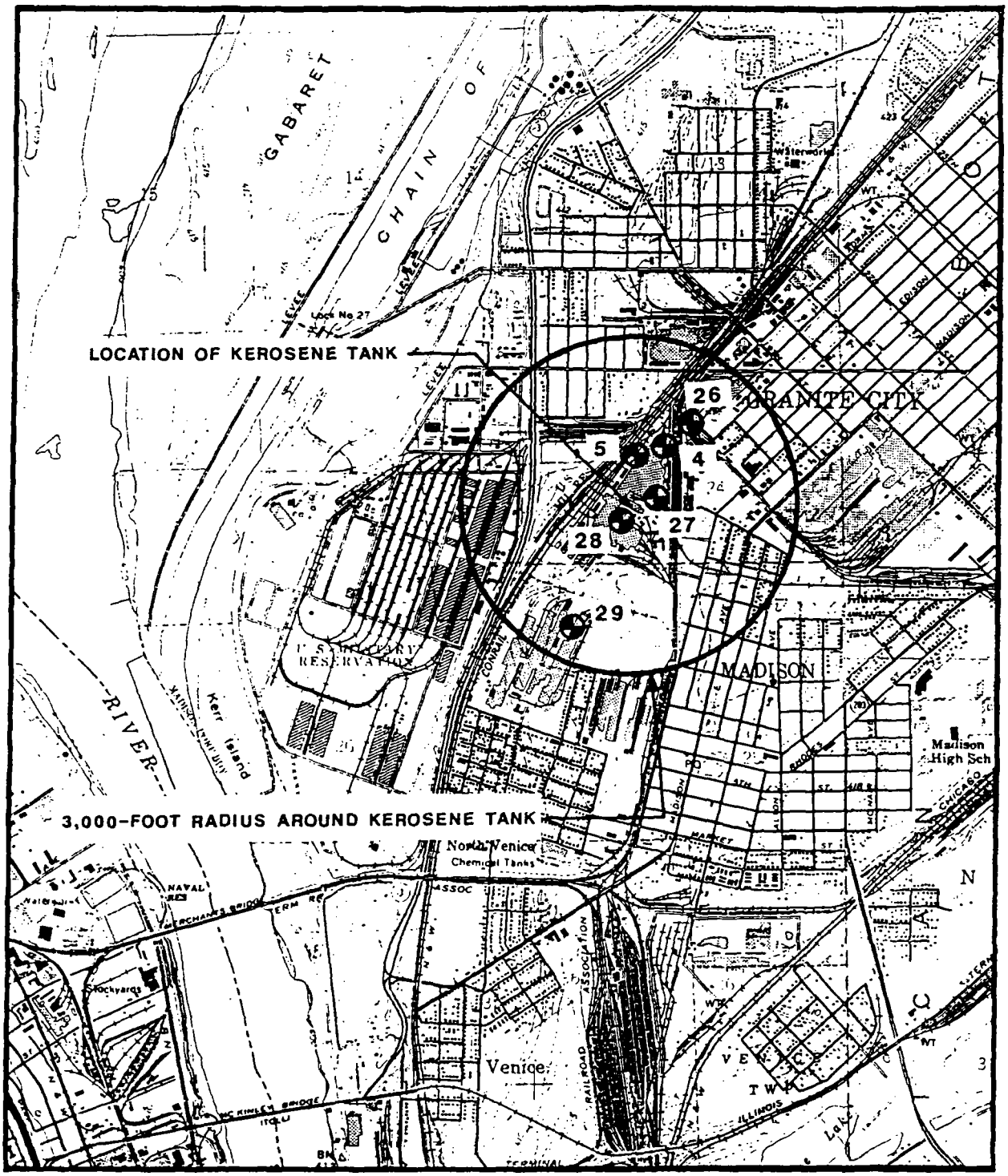
John Mathes & Associates, Inc.

LOCATION OF KEROSENE TANK AND SURROUNDING STRUCTURES

GRANITE CITY STEEL
GRANITE CITY, IL
151289

FIGURE 2

DRAWN BY	CHECKED BY	DOCUMENT MANAGER	PROJECT MANAGER
BA 2/12/90	2/12/93	2/12/90	12/12/90



NOTE: Well numbers correspond to numbers identified in Remedial Investigation Report, Granite City Site, NL Industries, Inc. (O'Brien & Gere, 1988).

John Mathes & Associates, Inc.

WELLS WITHIN 3,000-FOOT RADIUS OF KEROSENE TANK

GRANITE CITY STEEL
GRANITE CITY, ILLINOIS
151289

FIGURE 3

Attachment 2

Table 1

ANALYTICAL RESULTS SUMMARY
EXCAVATION SAMPLES

GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

January 1990

Sample Designation	Concentration (ug/kg)			
	Benzene	Toluene	Ethylbenzene	Total Xylene
Tank 4 (Kerosene):				
Bottom	5	10	325	430
Sides	ND(5)	3 J	6	3 J

J Detected, but below detection limit; quantitation suspect.
ug/kg Micrograms per kilogram.

02/90/1813S(1289)1

ATTACHMENT 3

Laboratory Physical Test Results

SIEVE ANALYSIS

Job No. 151289 Date 1/19/90

Boring No. _____ Material CLAY below bottom of Kerosene Tank

Sample No. 1 Description of Grain Shape Dark Gray-Brown CLAY w/Silt Trace Sand, CH

Depth, ft. _____ Tare No. #1 wt = 38.97

Initial Dry Weight of Material + Tare 163.35 = (-Tare) 124.38

Dry Weight of Material after Washing Over No. 200 Sieve +Tare 43.73 (-Tare) 4.76

% Ret. #200 = 3.8

% Finer #200 = 96.2

Sieve No.	Wt. Retained Cumulative	% Retained Cumulative	% Finer Cumulative	Wt. Retained on sieve	% Retained on sieve

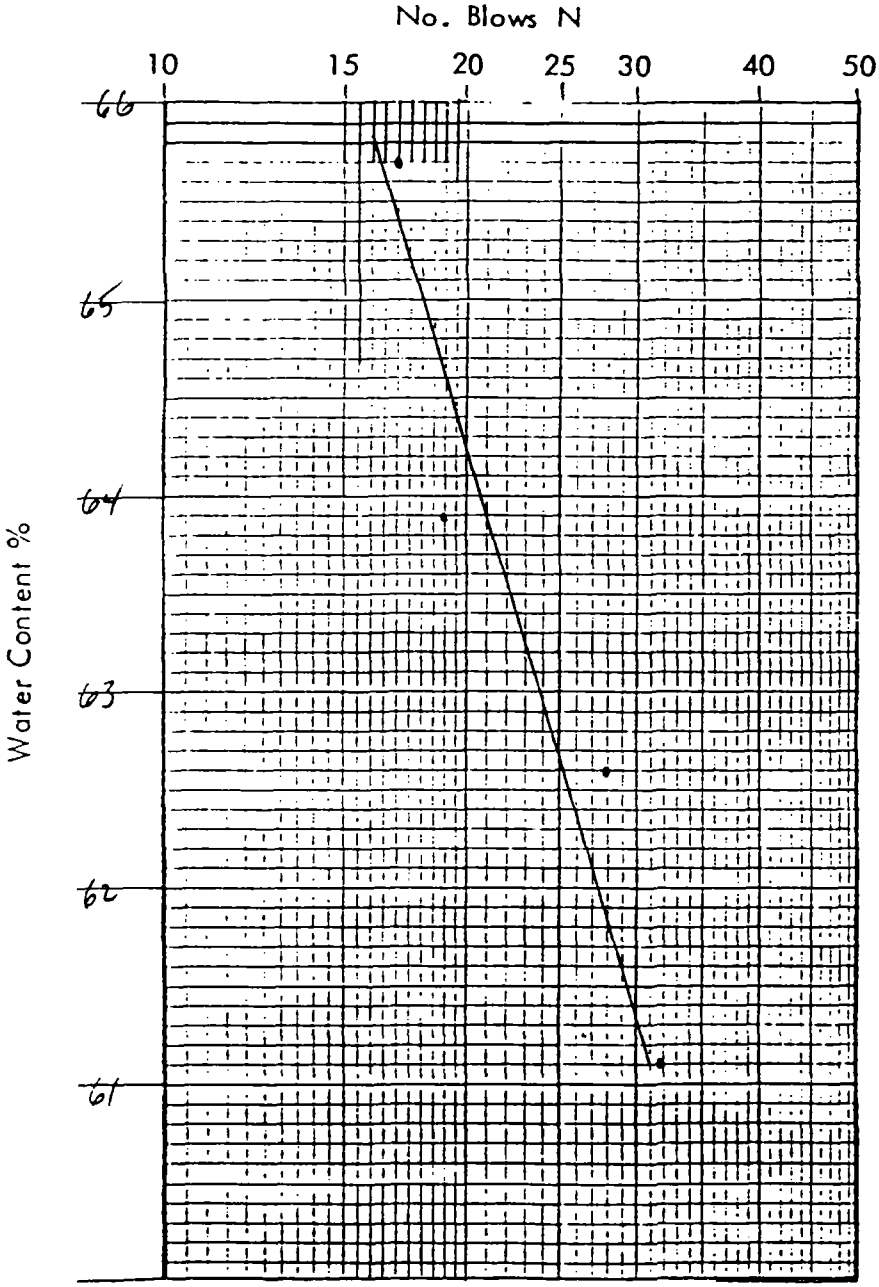
Tested By: _____ Computed By: _____ Checked By: _____

JOHN MATHES & ASSOCIATES, INC.

ATTERBERG LIMIT DETERMINATION

Job Number 151289 Date 1/19/90 Technician Janet

Boring & Sample No.	CLAY below Bottom of			Depth		
Description	Kerosene Tank		Air Dried	Oven Dried	Nat w	
Type of Limit	LIQUID				PLASTIC	
Tare No.	34	412	W32	W10	121	
Wet Weight Soil + Tare	24.49	25.35	22.78	20.59	18.59	
Dry Weight Soil + Tare	19.31	19.95	17.93	17.18	17.02	
Tare Weight	11.04	11.50	11.31	11.60	10.76	
Weight Dry Soil						
Weight Water						
Water Content %	62.6	63.9	65.7	61.1	25.1	
Number of Blows	28	19	17	32		
Limits	63.5	61.8	62.7	63.0		

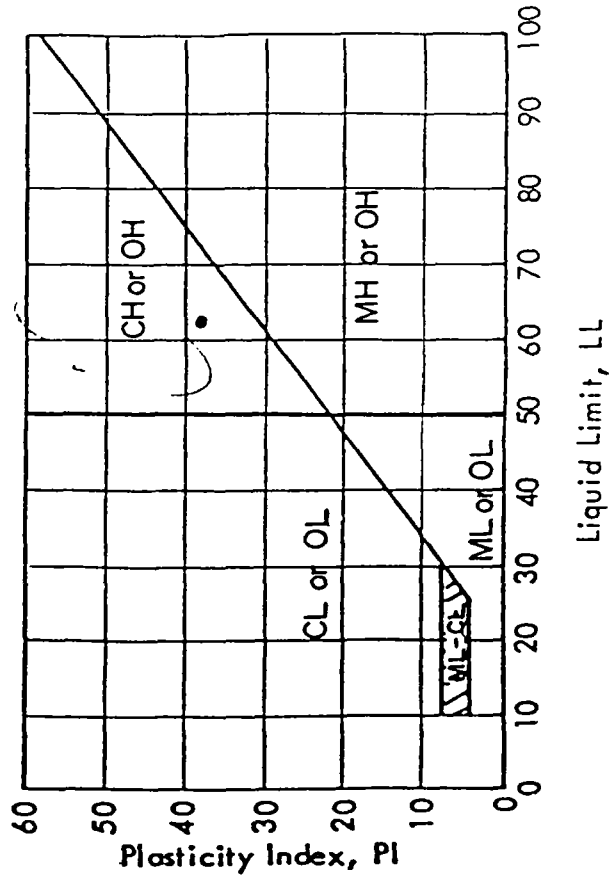


LL 63

PL 25

PI 38

CLASS CH



Computed by: _____

Checked by: _____

John Mathes & Associates, Inc.

SIEVE ANALYSIS

Job No. 151289 Date 1/19/90

Boring No. _____ Material SAND below bottom of Kerosene Tank

Sample No. 3 Description of Grain Shape Dark Gray-Brown SILT w/Clay, Sand, ML

Depth, ft. _____ Tare No. AC-7 wt = 54.21

Initial Dry Weight of Material + Tare 241.57 = (-Tare) 187.36

Dry Weight of Material after Washing Over No. 200 Sieve + Tare 73.98 (-Tare) 19.77

% Ret. #200 = 16.6

% Finer #200 = 89.4

Sieve No.	Wt. Retained Cumulative	% Retained Cumulative	% Finer Cumulative	Wt. Retained on sieve	% Retained on sieve

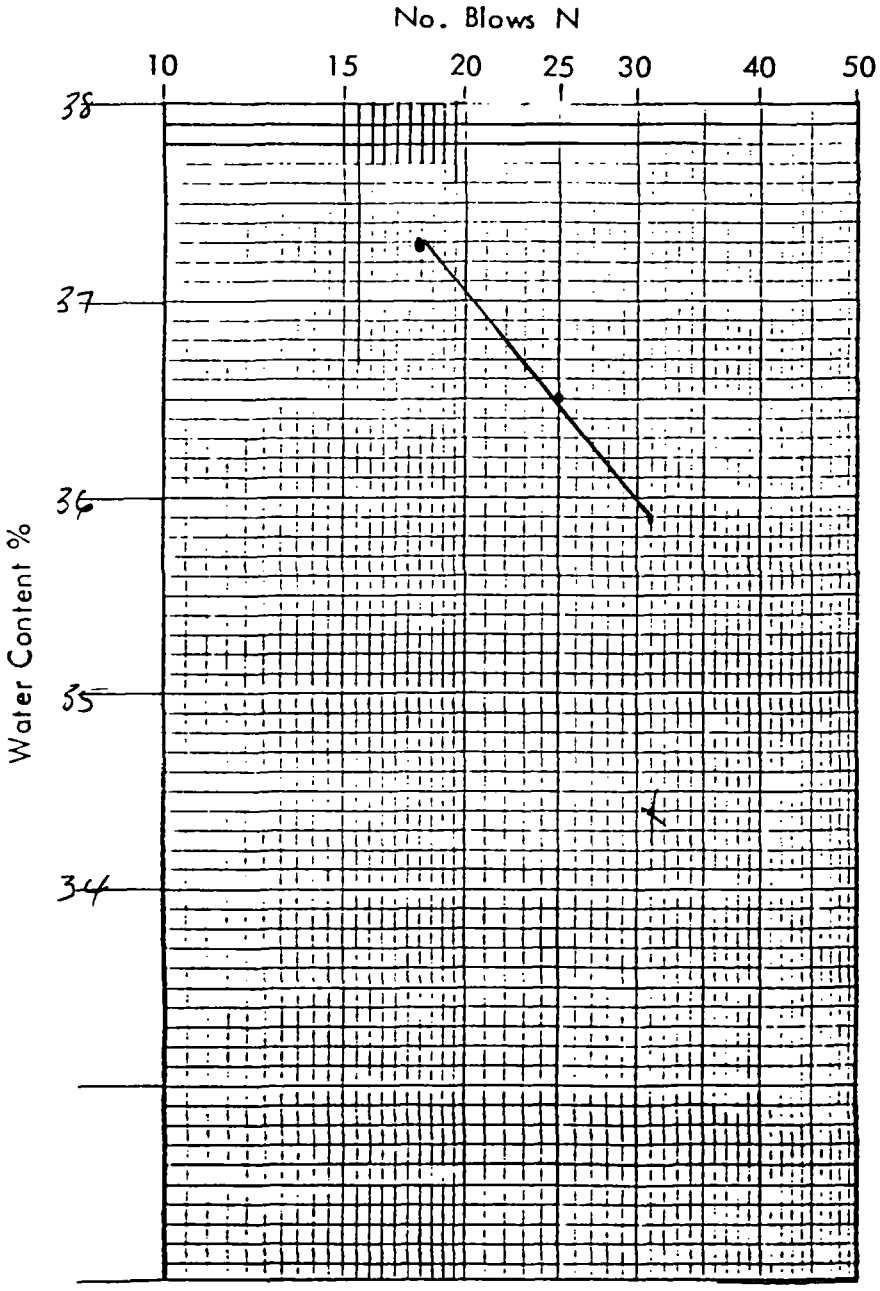
Tested By: _____ Computed By: _____ Checked By: _____

JOHN MATHES & ASSOCIATES, INC.

ATTERBERG LIMIT DETERMINATION

Job Number 151289 Date 1/19/90 Technician Jared

Boring & Sample No.	SAND below Bottom of				Depth	
Description	Kerosene Tank		Air Dried		Oven Dried	Nat w
Type of Limit	LIQUID				PLASTIC	
Tare No.	7	W29	132	6-10	511	
Wet Weight Soil + Tare	25.66	23.21	21.36	23.62	24.41	
Dry Weight Soil + Tare	21.95	20.18	18.63	20.51	~~20.5~~ 21.33	
Tare Weight	11.47	11.74	11.32	11.99	11.10	
Weight Dry Soil						
Weight Water	34.7	35.9	37.3	36.5	30.1	
Water Content %	31	31	18	25		
Number of Blows		3				
Limits		36.8	35.8	36.5		

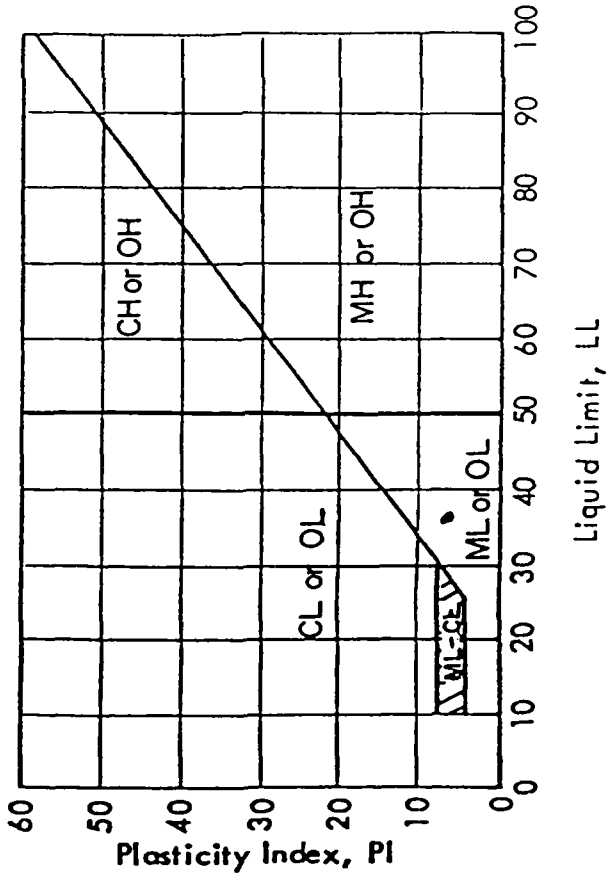


LL 36

PL 30

PI 6

CLASS ML



Computed by: _____

Checked by: _____

John Mathes & Associates, Inc.

LABORATORY TEST ASSIGNMENTS

PROJECT Granite City Steel
CONTRACT NUMBER 7/5/289

DATE ASSIGNED 1/90
PROJECT ENGINEER EI/KCD

BORING NUMBER	SAMPLE NUMBER	SAMPLE TYPE	VISUAL CLASSIFICATION	MOISTURE CONTENT	PENETROMETER	DRY DENSITY	RIMAC	UNCONFINED COMPRESSION	ORGANIC HOT OVEN	SHRINKAGE LIMITS	ATTERBERG LIMITS, 1 PT or 3 PT	SIEVE ANALYSIS	PERCENT PASSING #200	HYDROMETER ANALYSIS	CONSOLIDATION	SWELL PRESSURE	SPECIFIC GRAVITY	MOISTURE DENSITY STANDARD	MOISTURE DENSITY MODIFIED	RELATIVE DENSITY	CBR or IBR	PERMEABILITY K-620	PERMEABILITY BACK PRES.	DIRECT SHEAR	TRIAXIAL SHEAR	SPECIAL INSTRUCTIONS
CLAY											/	4/5	/													
																										LL =
SAND											/	10	/													
																										SIEVE TESTS

JOHN MATHES & ASSOCIATES, INC.

ASSIGNED TECH. _____