Appendix A

Historic Information: SOCs 4 and 5

DNT IGLOOS – Site 5705
Former Gopher Ordnance Works
UMore Park, Empire Township

Location. The DNT (2,4- and 2,6-dinitrotoluene) Igloos (Site 5705) are located south of the former Gopher Ordnance Works' (GOW) "K' Street (now known as West 160th Street and County Road 46) and west of GOW Ninth Street (now known as Akron Avenue West) in UMore Park in Empire Township (Figures 1. – 2.) . The Public Land Survey (PLS) coordinates are the northeast quarter of the northeast quarter of section 4, Township 114 North, Range 19 West.

Owner. The parcel (Dakota County PIN 12-00400-010-01, 640 acres) is owned by the Regents of the University of Minnesota, 335 Morrill Hall, 100 Church Street Southeast, Minneapolis, Minnesota 55455-0110. Since the 1850s, the property was farmed until seized by the federal government in May 1942 for the purpose of constructing and operating a smokeless gunpowder facility for the military during World War II. In October 1947, this and adjacent parcels were quitclaim-deeded to the University of Minnesota.

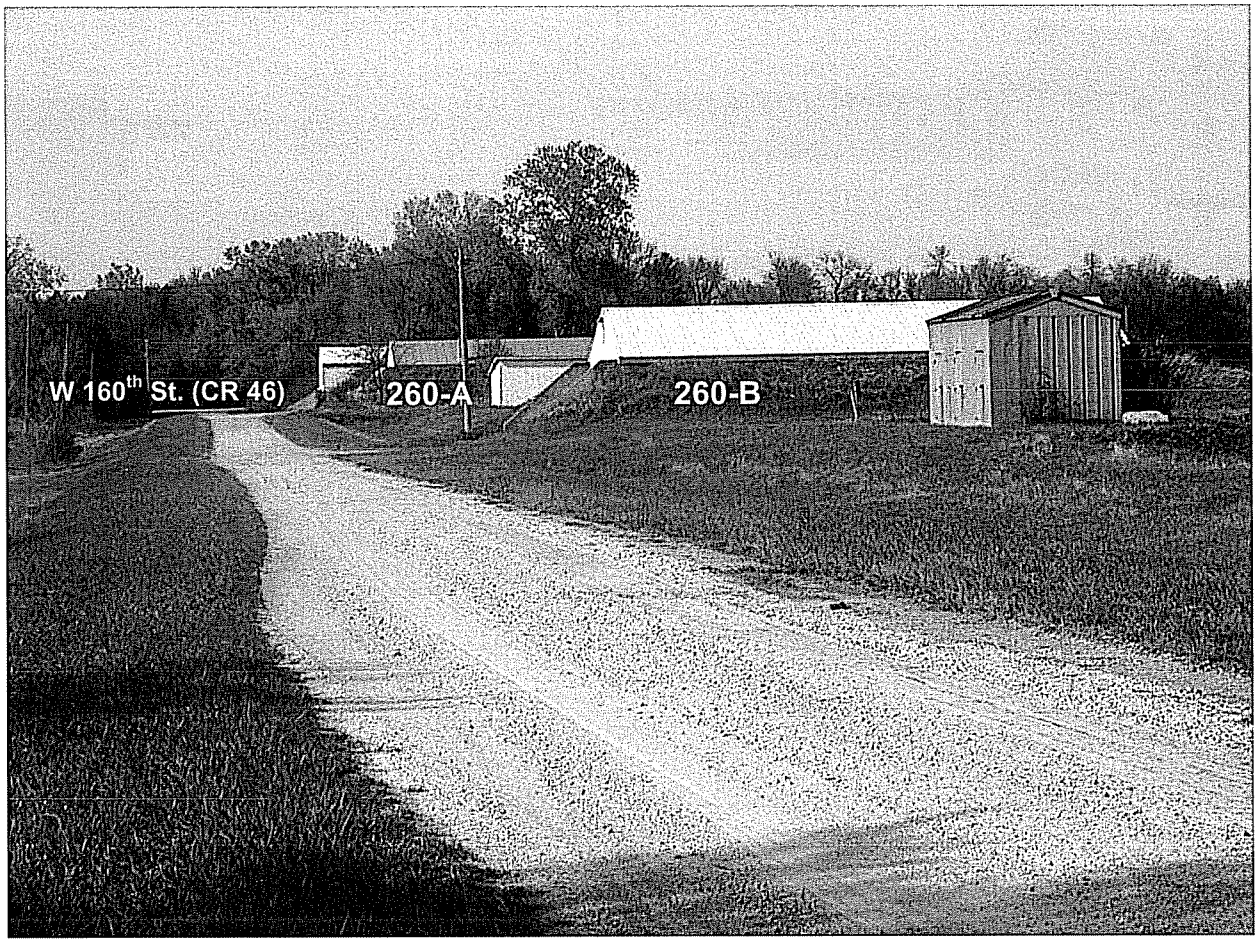


Figure 1. View North of DNT Igloos 260-A and 260-B, UMore Park; Photo 2005

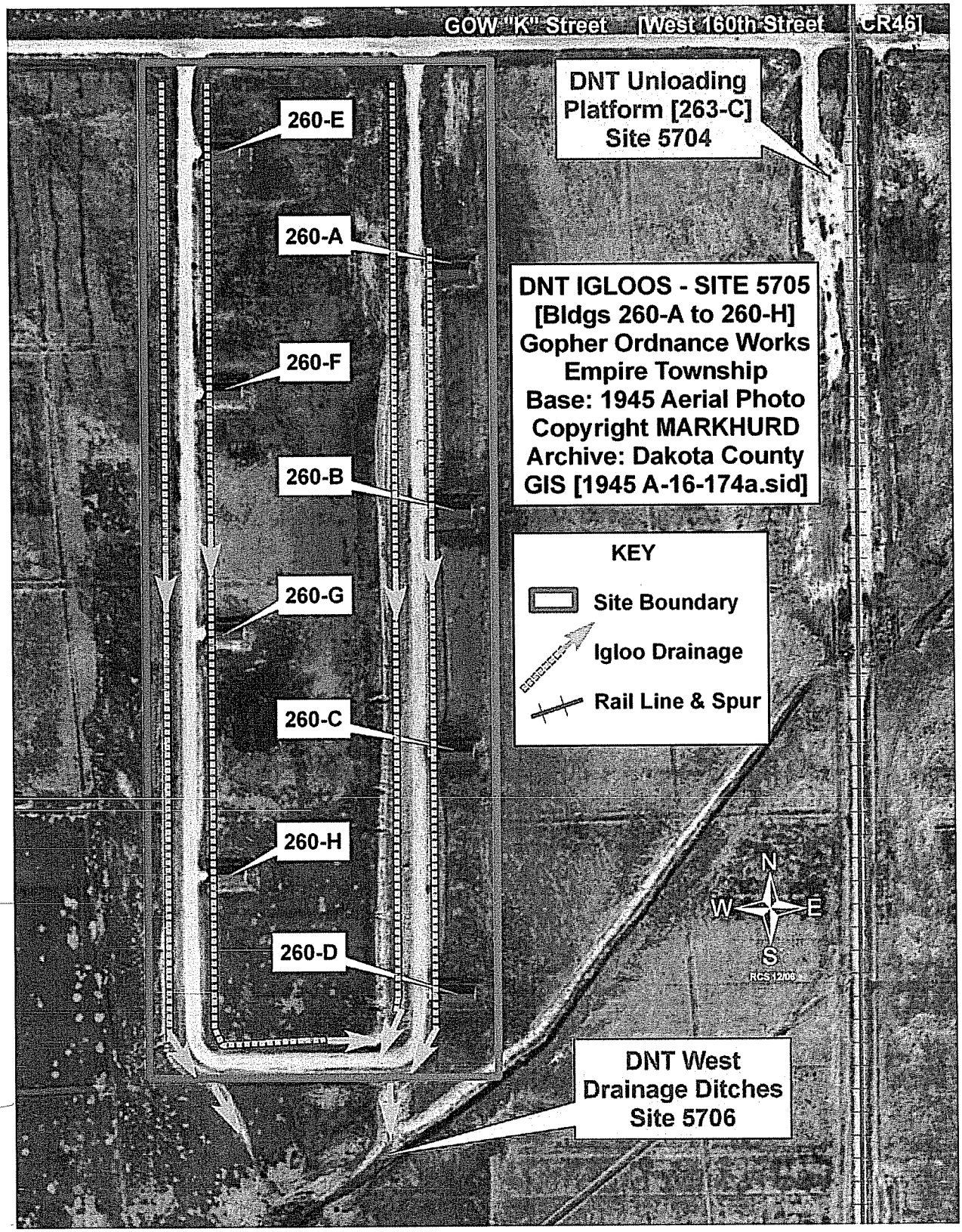


Figure 2. DNT [Dinitrotoluene] Igloos (Site 5705), May 1945 Aerial Photo

Description. The eight DNT Igloos [GOW Bldgs. 260-A to 260-H (Site 5705)] were completed in 1943 being specifically constructed for the safe storage of potentially combustible and explosive chemicals and gunpowder. In particular, each igloo was designed to hold 200,000 pounds of technical grade DNT [i.e., tDNT, a chemically prepared mixture which contains about 80% 2,4-dinitrotoluene (2,4-DNT) and 20% 2,6-dinitrotoluene (2,6-DNT) by weight]. The DNT arrived by rail at the nearby DNT Unloading Platform [GOW Bldg. 263-C (Site 5704)] and was then trucked to the igloos.

Each fiberboard drum of DNT contained about 55 pounds (25 kilograms) of the pale yellow crystalline powder. Caches of those similar drums, albeit burned and buried at the Burning Grounds [GOW Bldg. 616-A (Sites 5073 and 5062)], bore metal lids embossed with "Keystone Drum Co." and labeled either "Pittsburgh PA" or "Radford VA", both cities of which had ordnance works nearby that were similar to GOW, as they manufactured munitions and other chemicals for the war effort.

DNT was an essential additive in the manufacture of single base, multi-perforated cannon powder at GOW. One percent DNT was mixed with nitrocellulose and other chemicals, where it served as a waterproofing agent, gelatinizing agent and a burn deterrent for the cannon powder. Originally, 10% DNT by weight was also to be added as a booster to rifle powder at GOW, but the rifle powder line A2 was converted in 1945 to the manufacture of cannon powder. Rifle powder line A1 was never completed or utilized.

The isolated and heavily bunkered igloos provided the needed protection should one of the storehouses ignite or detonate. The igloos also provided the dark, cool environment conducive to the stability of DNT. Each one-story igloo was constructed on a concrete slab that gradually sloped to the north and south from the centerline to open six-inch half-diameter gutters that ran lengthwise from east to west, the latter of which is where the building entrance was located.

Near the west-building exterior, a vertical 6-inch diameter tile was set three feet into the ground and filled with gravel. It is likely that the vertical tile served as a dry well. There was also a floor drain near the center of each igloo's interior [1]. The gutters and/or the floor drain may have been connected to the dry well or to the surface water drainage ditches. No on-site sewage systems (i.e., septic tank and tile drains), holding tanks or other wastewater treatment utilities were noted on the building plans.

Because of the very level topography, north-to-south drainage ditches with culverts under roadways were constructed on the east and west sides of the igloos. The drainageways eventually merged south of the DNT Igloo area with the drainage ditches constructed along the railroad and the DNT Unloading Platform farther east. From there the collected surface water runoff continued its flow to the southwest and entered a semi-closed depression, which served as an infiltration basin [DNT Drainage Ditches West (Site 5706)].

Thus far, little information has been found in the National Archives concerning the day-to-day use of the DNT Igloos and what was stored in them. In September 1946 correspondence to the University of Minnesota, which was interested in obtaining some of the GOW property, the War Assets Administration (WAA) warned the University not to store or handle food products in the igloos because they had been used to store "...DNT, DPA (diphenylamine) and other smokeless

[1] US Army Ordnance Dept., 1944, "DNT Igloos, 260, Building Plans", Part I, Section 8, p.296, IN: *Industrial Facilities Inventory – Gopher Ordnance Works*, Vol. II.

powder additives…". It further stated that such food storage and handling would be unsafe and "…would quite probably lead to considerable food poisoning." [2] In April 1947, a decontamination inspection of the DNT Igloos discovered DNT in the floor drains of buildings 260-E and 260-F and smokeless powder in the floor drain of building 260-A [3].

In its Preliminary Assessment of the 1947 Quitclaim-deeded property, the US Army Corps of Engineers (USACE) acknowledged DNT was stored in the igloos but suggested that its source was one or more potentially responsible parties, including DuPont, Raymond Laboratories and the University of Minnesota, rather than the federal government (i.e., US Army Ordnance Department) [4].

Sometime after the property was deeded to the University, the Agricultural Experiment Station incorporated the igloos into their agricultural research and development programs. Seven of the eight igloos remain, albeit leaking roofs or other maintenance problems have necessitated replacement or repairs. Two buildings have been removed, and their now open bunkers and concrete pads are used for storing wood, equipment, farm machinery and scrap metal. Second stories have been added to several buildings as well.

Recommendations. The DNT Igloos and related areas have never been investigated. The fact that DNT was observed in the floor drains of two igloos and that approximately 300,000 pounds of DNT were utilized in the production of cannon powder suggests that at least during 1945 a substantial amount of DNT was being transferred into some of the igloos, temporarily stored there, and then trucked to the DNT Screening House [GOW Bldg. 205 (Site 5657)] for processing before being added to nitrocellulose with other chemicals in the Mixer Houses [GOW Bldg. 208-B to 208-F] on powder lines A2, B3, B4, C5 and C6.

Considering the protracted period of time required for the biological degradation of DNT in soils, its potential migration to groundwater and its known human health impacts, an investigation, appropriate remedial actions and closure of the DNT Igloos (Site 5705), DNT Unloading Platform (Site 5704) and the DNT West Drainage Ditches (Site 5706) by the responsible parties, namely the University of Minnesota and the federal government, are warranted. Compliance with Dakota County Ordinance No. 110 (Solid Waste Management) and Minnesota Agency Rules is required. [i]

---

[2] Correspondence from Robert Whittet, WAA Office of Real Property Disposal, to W.T. Middlebrook, Vice President, Business Administration, University of Minnesota, 13 September 1946, 2 pp.

[3] Memorandum from J.S. Jefferds to the War Assets Administration, 28 April 1947, with attached "Travel Report" by C.J. Belger, 23 April 1947, 9 pp., regarding GOW decontamination inspection of 17 April 1947.

[4] USACE – Omaha District, March 2006, *Preliminary Assessment Report – Final – 1947 Quitclaim Property, Former Gopher Ordnance Works, Rosemount MN*, Project E05MN0019, 99 pp. plus appendices.

[i] ***Disclaimer***

The information in this site review is made available as a public service. This information is to be used for reference purposes only. Dakota County makes no representation or warranties, express or implied, with respect to the data provided herein, regardless of its format or means of transmission. There is no guarantee or representation to the user as to the accuracy, currency, suitability or reliability of this data for any purpose. The user accepts the data "as is" and assumes all risks associated with its use. If any discrepancies, inaccuracies, or inconsistencies are found, please contact the Dakota County Water Resources Department - Contaminated Sites Unit at 952-891-7557. This document may be copied, quoted, and otherwise disseminated provided that it is completely intact (all pages including maps and data), unaltered, and properly cited as to authority.

C
O
P
Y

WAR DEPARTMENT

IOWA ORDNANCE PLANT

Burlington, Iowa

In Reply Refer to
CRDCW 333/48-2

GHMathes/kl/2176

28 April 1947

SUBJECT: Inspection of Decontaminated Areas Gopher Ordnance Works

TO: War Assets Administration
Gopher Ordnance Works
Minneapolis, Minnesota
Attention: Mr. E. S. Clark

Attached, hereto, is a travel report of Mr. C. J. Belger listing observations made at Gopher Ordnance Works. The cooperation shown both Mr. Belger and Mr. Topping by you and members of your office is greatly appreciated. As shown on the attached report, certain areas of Gopher Ordnance Works have not been properly decontaminated and your office is cautioned to use extreme care when entering or working in any contaminated area. The office of the Field Director of Ammunition Plants has been advised of the conditions noted and it is expected that further decontamination instructions will be forthcoming.

/s/ J. S. Jefferds
J. S. JEFFERDS
Lt Col, Ord Dept
Commanding

Incl: Travel Report

TRAVEL REPORT

CJBelger/kl
23 April 1947

SECTION I - PURPOSE OF VISIT

Inspection of decontaminated areas, Gopher Ordnance Works, in accordance with letter FDAP-ORDLY-S File: 333/12616.

SECTION II - OBSERVATIONS AND CONCLUSIONS

Inspection tour began 17 April 1947 after meeting WAA officials and obtaining an escort for the tour. Keys for opening the various buildings were obtained from WAA and University of Minnesota.

The following buildings were inspected and results listed:

Igloo (Dry Ingredient Storehouse)
260-A Small quantity of smokeless powder found in floor drain
260-B No contamination observed
260-C " " "
260-D " " "
260-E Small quantity of DNT found in drain
260-F Small quantity of DNT found in drain
260-G No contamination observed
260-H " " "

Powder Shipping Houses (Storage)
229-36 No contamination observed
229-24 " " "
229-12 " " "
229-11 Small quantity of smokeless powder found at North-west Loading Door
229-23 Small quantity of smokeless powder found at South-west Loading Door
229-35 Small quantity of smokeless powder found at West Loading Door
229-34 No contamination observed
229-22 Small quantity of smokeless powder found at North-west Loading Door and on floor of building
229-10 No contamination observed
229-9 " " "
229-21 " " "
229-33 " " "
229-32 " " "
229-20 Small quantity of smokeless powder found at North-west Loading Door
229-7 Small quantity of smokeless powder found at both West Loading Doors
229-19 Small quantity of smokeless powder found at South-west Loading Door
229-31 Small quantity of smokeless powder found at both loading doors and a large quantity (approx. 2/3 quart) of smokeless powder in building between floor joints and under floor at south foundation wall. It was impossible to determine the quantity under floor without removing floor boards.
REMARKS: In the majority of cases where smokeless powder was found inside of the 229-series buildings, the powder was found in floor joints.

SECTION II - continued

The following buildings have been removed and building site only was inspected:

229-4, -16, and -28 Small quantities of smokeless powder were found on adjacent building site area

Blending Tower and Pack House Sites (building and equipment have been removed)

240-D, 240-C, 222-A, and 222-B Building sites: Found small quantities of smokeless powder on surrounding area

Blending Tub possibly removed from Building 240-D: No evidence of explosive material observed

Air Test Building Site: Found small quantities of smokeless powder at unloading dock site and on railroad track bed near building

DNT Screening House Site:
205-A Small quantity of DNT found near building site

Air Test House:
224-A No evidence of explosive material found in building. However, small quantities were found on area outside of building

Blending Houses and Auxiliary Buildings:
240-A, 240-B No evidence of explosive material was found inside of buildings or on equipment. However, small quantities of smokeless powder were found on outside area in quantities ranging from a few grains to a large handful.
REMARKS: According to information received from WAA representative, Buildings 240-A and 240-B were never used in production of smokeless powder but were possibly used for smokeless powder storage

Railroad Equipment and Rolling Stock used in the transfer of smokeless powder: A spot check was made of the above equipment. Twenty flat cars were inspected and three were found with very small quantities of smokeless powder imbedded in floor cracks (2-4 grains). Forty railroad cars with roofs were inspected and no visible evidence of explosive material was found. Thirty railroad powder trucks, used to transfer Solvent Recovery cars, were inspected and no visible evidence of explosive material was found.

Material and Equipment stored inside and outside of Warehouse:
223-B Equipment and material consisting of sweetie barrels, new smokeless powder containers, electric motors, Jordan engines, ventilating equipment, timbers, etc., no visible evidence of explosive material was observed.

Change Houses:
707-XX, 707-X, 707-A, no visible evidence of explosive material on interior of building. However, small quantities of smokeless powder were found on area near buildings.

Travel Report

SECTION II - continued

Area Shop:
722-N No evidence of explosive material observed

Supervisor's Office:
704-E No evidence of explosive material was observed in building. However small quantities of smokeless powder were found on area outside of building.

Rest Houses:
280-A, 280-B No evidence of explosive material was observed in or around buildings. Inspected fifty powder buggies located in these buildings and found no evidence of explosive material present.

Farm House and other buildings located on area: No evidence of explosive material was observed.

Tray Dryer Site:
237-A Site, filter housing and various pieces of pipe. No evidence of explosive material observed.

Operator's Building Office on 300 Line: No evidence of explosive material was observed.

Sulphuric Acid Concentrators:
303 Small quantity of sulphur was found on floor in building, also, small quantity of sludge found in cooler.

301-A No evidence of explosive material or acids was observed. Sulphur bins were found with large quantity of sulphur. Sulphur was also found on area near sulphur bins.

Chemical Laboratory:
706-B No evidence of explosive material or acids was observed.

612-A Acid Nutralization Plant, Linestone Storage Tank, Hopper, etc:
Small quantity of linestone was found on floor.

Power House:
401-A Small quantities of the following acids were observed on floor in Line feeder and Indicator Panel Room near laboratory: Sulphuric acid, Acid Acetic Merck, Acid Acetic Glacial, Nitric Acid and Sodium Chloride.

Fire Station:
709-B No evidence of explosive material or acids was observed.

Sewage Treatment Plant:
617-A No evidence of explosive material was observed.

SECTION II - continued

Farm House and other buildings on East side of area marked: Layout E.I. DuPont: No evidence of explosive material was observed in or around these buildings.

Laboratory and Range:
228-A No evidence of explosive material was observed

Atmospheric Powder Magazine:
228-C No evidence of explosive material was observed

Constant Temperature Powder Magazine:
228-B No evidence of explosive material was observed

Ballistic Storage
228-D No evidence of explosive material was observed

Manufacturing and Storage Buildings
101-A, 104-A, 103-A, 105-A, 106-A, 108-A, 109-A, 112-A, 113-A, and Auxiliary Buildings: No evidence of explosive material was observed in the above buildings.
REMARKS: According to information received, these buildings were never used.

101-B, 123-B, 122-B, 104-B, 105-B and Auxiliary Buildings:
No evidence of explosive material was observed

108-B&C, 109-B&C, 112-B&C, and 113-B&C: Due to contamination, the aforementioned buildings were burned.

Solvent Recovery Houses:
Buildings 214-1 thru -6, 214-17 thru -20, and 214-33 thru -38 are still standing but equipment is being dismantled. Balance of buildings of this series, 214-1 thru -49, have been dismantled with only concrete wall and foundation remaining.

According to Decontamination Report prepared by E. W. Hutchinson, Gopher Ordnance Works, all filter media were removed and destroyed. However, inspection revealed several instances where the glass wool media was intact and other instances where small pieces of glass wool were attached to filter. Filter Housings appear to have been washed and are properly marked with (X) Yellow.

Solvent Recovery Cars:
Located on railroad tracks near 214 Buildings, forty cars were inspected and 65% were found with broken welds on small unloading door (Double door w/glass wool lining). Supporting trays are in 75% of cars that were inspected. According to Decontamination Report, the supporting trays were removed from the cars and were stacked at East end of 213-A. Decontamination Report also states that tops of cars were flashed. Inspection failed to reveal evidence of flashing.

Travel Report

SECTION II - continued

Supervisor's Office, Yardmaster:
704-H No contamination observed.

Change House:
707-GGG No contamination observed.

Field Canteen:
746-D No contamination observed.

Farm House, Barn, and other buildings located directly West of 746-D:
No contamination observed.

Sewage Pumping Station:
610-A No contamination observed.

Powder Sample Storage Buildings (metal)
Three buildings located near 706-A Laboratory: No evidence of explosive material found.

Solvent Recovery Cars located in and near 234 buildings were spot checked and no evidence of explosive material was observed. Cars marked with (XXX).

Hydraulic and Refrigeration Building:
226-A No evidence of explosive material was observed.

Knife Grinding and Die Shop:
217-A No explosive material was observed.

Tank Farm:
207-AA, 207-AB, and AC: No explosive materials or acids were observed.

Either and Alcohol Recovery Building:
207-A No explosive material was observed.

Press House Sites:
234-1, -2,-3,-4,-7,-E,-F. All 234 buildings have been dismantled or are in the process of being dismantled by Rose Brothers Lumber and Supply Co., Minneapolis - St. Paul, Minnesota. Building sites, equipment and supplies located in this area were inspected and no explosive material was observed.

First Aid:
719-A No explosive material was observed

SECTION II - continued

Mix House Buildings and Building Sites:
208-1 Site - No explosive material was observed.
208-2 in process of being dismantled. No explosive material was observed.
208-3 No explosive material was observed.
208-6 in process of being dismantled. No explosive material was observed.

Dehydration Buildings and Building Sites:
202-A No explosive material was observed.
202-B No explosive material was observed.
202-SA No explosive material was observed.
202-3 No explosive material was observed, (site)
202-4 Site No explosive material was observed.
202-C, -D, -E No explosive material was observed. However, presses located in this building were marked (X) Yellow, and Powder Carts were marked (XXX). The above buildings have been dismantled or are in the process of being dismantled.

Either Mix House:
206-A, -B, -C These buildings are in the process of being dismantled. No explosive material was observed.

Field Kitchen:
746-C No explosive material was observed.

Main Laboratory:
706-A No explosive material was observed.

Stability Laboratory:
706-D No explosive material was observed.

Ether Reclamation Plant:
251-A No explosive material was observed.

Area Laundry:
723-A No explosive material was observed.

Ether Manufacturing & Alcohol Rectification Tank Farm:
207-EB Ether tanks were found with top cover attached. Slight ether fumes were present. Alchohol tanks had top cover removed and no fumes were present.

Parking Garage:
725-A, -B, -C No explosive material was observed.

Field Office Buildings:
707-H, 704-W, 704-F No explosive material was observed.

Maintenance Shop and Office:
722-D No explosive material was observed.

Rigger Shop:
722-U No explosive material was observed.

CJL:ger/kl
23 April 1947

Travel Report

SECTION II - continued

Transportation Office:
726-A No explosive material was observed.

Change House:
707-JJ No explosive material was observed.

Warehouse Supplies:
713-A No explosive material was observed.

Paint Storage:
715-B No explosive material was observed.

Burning Field:
Burning Field Area and material located at Burning Field were inspected but no evidence of explosive material was observed.

SECTION III

It is recommended that all building sites in which inspection revealed contamination be decontaminated.

All areas surrounding Igloos, Shipping Houses, Blending Towers, Pack Houses and all other buildings in which inspection revealed contamination, be decontaminated.

Remove all traces of filter media (glass wool) from filters. All solvent recovery cars with broken inner lining walls should be decontaminated. All solvent recovery cars with broken inner lining on small unloading door should have lining and door removed and flashed.

SECTION IV

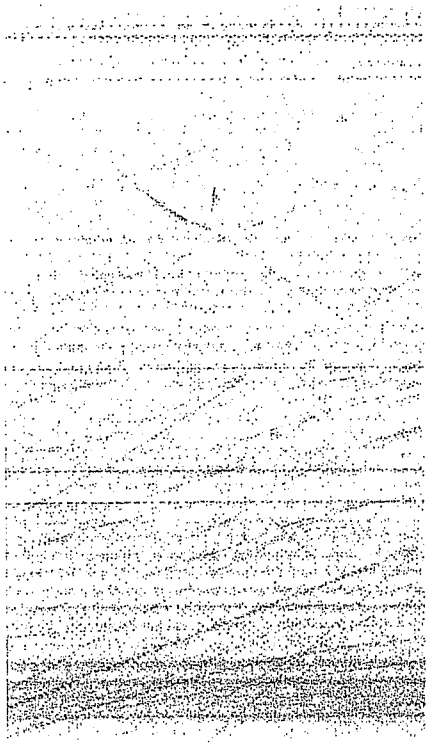
Estimated man-hours to complete decontamination of Gopher Ordnance Works:

1	Inspector-Supervisor	150	man-hours
6	Laborers	720	" "
2	Truck Drivers	240	" "
1	Light Equipment Operator	120	" "

/s/ C. J. Lelger
C. J. Lelger, Inspector

2529

University of Minnesota



Soil Exploration/ Remedial Investigation

Rosemount Agricultural Experiment Station Petroleum Release Site

STS
May 31, 1991

Table A
Chemical Analysis Results

Parameter	Units	Target Detection Limit	B-1/S-9	B-2/S-9	B-5/S-7a	B-5/S-8
Depth	(Feet)	--	20	20	55	60
MTBE	(mg/Kg)	0.06	<0.06	<0.06	<0.06	<0.06
Benzene	(mg/Kg)	0.06	<0.06	**0.93**	<0.06	<0.06
Toluene	(mg/Kg)	0.11	<0.11	**51**	<0.11	<0.11
Ethylbenzene	(mg/Kg)	0.05	<0.05	**1.3**	<0.05	<0.05
Xylenes	(mg/Kg)	0.28	<0.28	**640**	<0.28	<0.28
Total hydrocarbons as gasoline	(mg/Kg)	1.2	<1.2	**2700**	<1.2	<1.2
Lead	(mg/Kg)	1.3 (B-1/S-9 & B-2/S-9)	<1.3	<1.3	--	--
		5 (B-5/S-7a & B-5/S-8)	--	--	<5	<5
HNU Meter Reading	(HNU meter units)	--	260	400	15	9

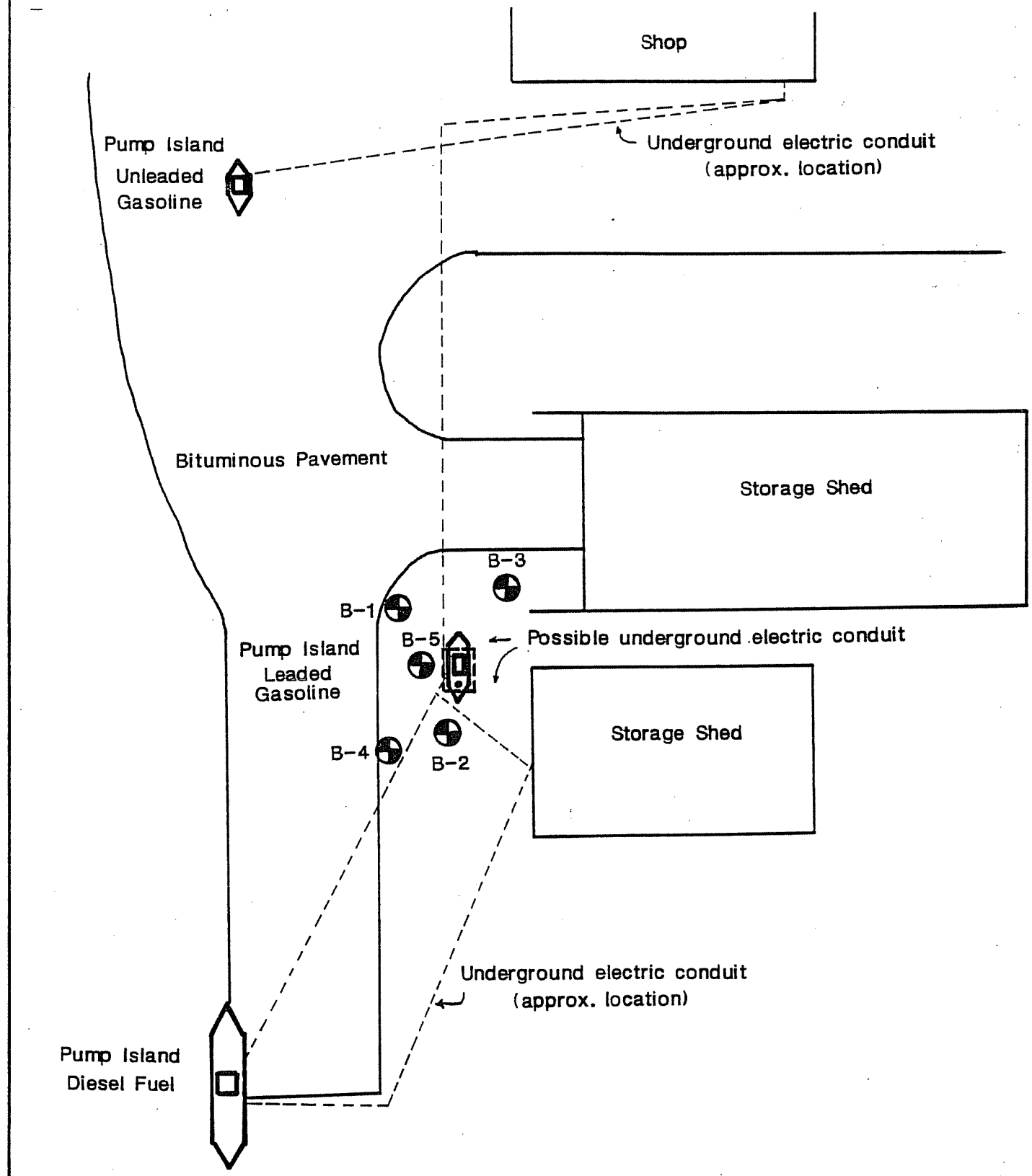
The results of the chemical analyses for soil sample B-2/S-9 confirmed the petroleum impacts identified by high HNU meter readings. The chemical results of B-1/S-9 are inconsistent with the HNU meter reading obtained. The chemical results from soil samples B-5/S-7A and B-5/S-8 indicate concentrations of petroleum related constituents below detection levels for all parameters tested.

DISCUSSION OF RESULTS

The results of the soil exploration indicate that the extent of petroleum impacts appears limited to the zone 10 to 40 feet below the ground surface within a radius of 15 feet around the tank. Vertical movement of gasoline occurred through the sandy soil materials at the site. Limited lateral movement of gasoline appears to have occurred.

Predominantly vertical movement of liquids through sandy soils indicates that gasoline released from the UST likely moved directly downward from the release site. Because soil borings could not be performed through the tank basin, the zone directly below the UST where the greatest depth of vertical migration of gasoline may have occurred could not be evaluated. However, based on HNU meter readings and chemical analysis of soil samples obtained within 5 feet of the water table, vertical migration of gasoline product to the water table does not appear to have taken place.

The petroleum impacted soils are a source for potential impacts to the groundwater. Potential exists that further downward movement of gasoline through the sandy soils to the groundwater surface could be activated by percolating water which infiltrates from the ground surface. The ground surface over the UST is only partially paved to the west of the tank and is unpaved to the east of the tank. Surface runoff collects in a depression in the unpaved area immediately east of the UST and potentially could infiltrate through petroleum impacted soils, resulting in the migration of contaminants.



STS Consultants Ltd.
Consulting Engineers

PROJECT/CLIENT SOIL BORING LOCATION DIAGRAM

Soil Exploration
U of M Agricultural Experiment Station
Rosemount, Minnesota

DRAWN BY	GJR	
CHECKED BY		
APPROVED BY	RDG	
SCALE 1" = 20'	FIGURE NO. 2	
STS DRAWING NO. Proj. 95229-XF		

PEER

Peer Environmental & Engineering Resources, Inc.

August 30, 1994

Mr. Don Milless
Minnesota Pollution Control Agency
Hazardous Waste Division
Tanks and Spills Section
520 Lafayette Road
St. Paul, MN 55155

RE: Teleconference Discussion
Underground Storage Tank Release
University of Minnesota
Agricultural Experimental Station
Rosemount, Minnesota
MPCA Site ID#: LEAK00002529

Dear Mr. Milless:

Peer Environmental & Engineering Resources, Inc. (PEER) has been conducting a Remedial Investigation (RI) at the above referenced site, on behalf of the University of Minnesota (see Figure 1). In addition, PEER has continued the operation and monitoring of the SVE system installed at the site by STS Consultants, Ltd. At this time we would like to request a teleconference to discuss the RI/CAD results to date.

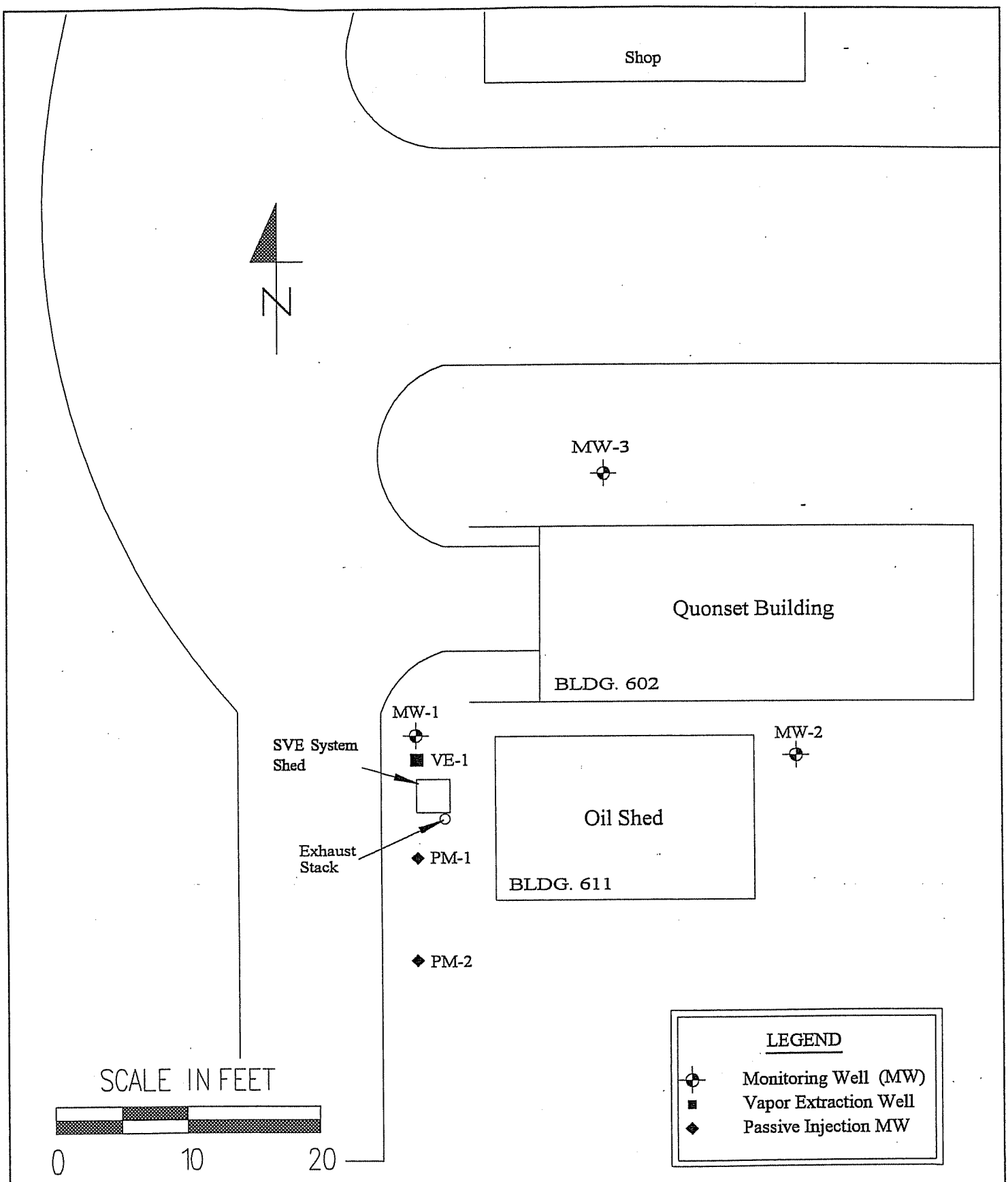
The following information is enclosed for your review:

- Site location and other associated figures.
- Preliminary tables summarizing data with respect to monitoring wells, area water wells, headspace screening and laboratory results.
- Monitoring well boring logs.
- Hydrogeologic Setting and Ground Water Contamination Worksheet.

The following reports have previously been completed for the site:

- Excavation Report, dated December 11, 1992 - Atec Environmental Consultants.
- Soil Exploration/Remedial Investigation, dated May 31, 1991 - STS Consultants Ltd (STS).
- Corrective Action Design, dated November 12, 1991 - STS.
- SVE System Construction Documentation and Start-Up Stack Emissions Report, dated May 13, 1993 - STS.

These reports have previously been submitted to the MPCA. Copies of these reports are not included with this submittal.



Peer Environmental & Engineering Resources, Inc. Minneapolis, Minnesota	Site Diagram University of Minnesota - Rosemount Rosemount, Minnesota	Aug. 94 2

TABLE 1
MONITORING WELL CONSTRUCTION DATA
MPCA Site ID#: LEAK00002529

	MW-1	MW-2	MW-3
Date Installed	4/11/94	4/12/94	4/13/94
Ground Surface Elevation (feet)	99.52	99.61	100.11
Top of Riser Elevation (feet)	101.52	102.13	102.10
Top of Filter Pack Elevation (feet)	49.63	47.67	49.65
Top of Screen Elevation (feet)	47.63	45.67	47.65
Bottom of Screen Elevation (feet)	37.63	35.67	37.65
Depth of Well from Top of Riser (feet)	63.89	66.46	64.45
MDH Unique Well Number	543862	543863 ~~546863~~	543864

NOTES:

Elevations are referenced to the concrete pad of the SVE system (assumed elevation of 100.00 feet).

TABLE 2
SOIL HEADSPACE ANALYSIS RESULTS
MPCA Site ID#: LEAK00002529

Depth Interval	MW-1	MW-2	MW-3	B-1	B-2	B-3	B-4	B-5
4 - 6	0.0	0.0	0.0	0	1	3	3	NS
9 - 11	60	0.0	0.0	0	400	2	0	NS
14 - 16	NS	0.0	0.0	6	400	14	150	NS
19 - 21	66	0.0	0.0	260	400	3	7	100
24 - 26	27	0.0	0.0	8	350	5	3	NS
29 - 31	5.0	0.0	0.0	7	260	9	1	30
34 - 36	0.0	0.0	0.0	NS	NS	NS	2	50
39 - 41	0.0	0.0	0.0	NS	NS	NS	2	10
44 - 46	0.0	0.0	0.0	NS	NS	NS	3	2
49 - 57	0.0	0.0	0.0	NS	NS	NS	3	2
54 - 56	0.0	0.0	0.0	NS	NS	NS	NS	15
59 - 61	0.0	NS	NS	NS	NS	NS	1	9
69 - 71	NS	NS	NS	NS	NS	NS	1	0

NOTES:

Monitoring wells MW-1, MW-2 and MW-3 were installed by PEER.
All units in parts per million (ppm).
Depth intervals for the borings completed by STS Consultants Ltd. (B-1 through B-5) are approximate. The headspace results were obtained from the STS Consultants Ltd. boring logs.
NS = No sample obtained.

TABLE 5
SVE STACK EMISSION RATES
MPCA Site ID#: LEAK00002529

Sampling Event	Benzene	Toluene	Ethyl Benzene	Xylenes	TPH as Gas
3/30/93 (initial)	0.5	72	16.6	560	3000
4/5/93 (7 day)	0.38	14.4	8.6	126	560
4/12/93 (14 day)	0.4	12.4	5.8	104	580
7/1/94 (4th quarter)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	not analyzed

NOTES:

All units in ug/L.
ND = not detected above the concentration in parenthesis.

AGSpills

14388
14389
4733
4758

Comprehensive Summary Report
Site Investigation and Corrective Actions
Research and Outreach Center
Rosemount, Minnesota

April 2001

Prepared for:

University of Minnesota

Peer Environmental & Engineering Resources, Inc.
7710 Computer Avenue
Minneapolis, MN 55435

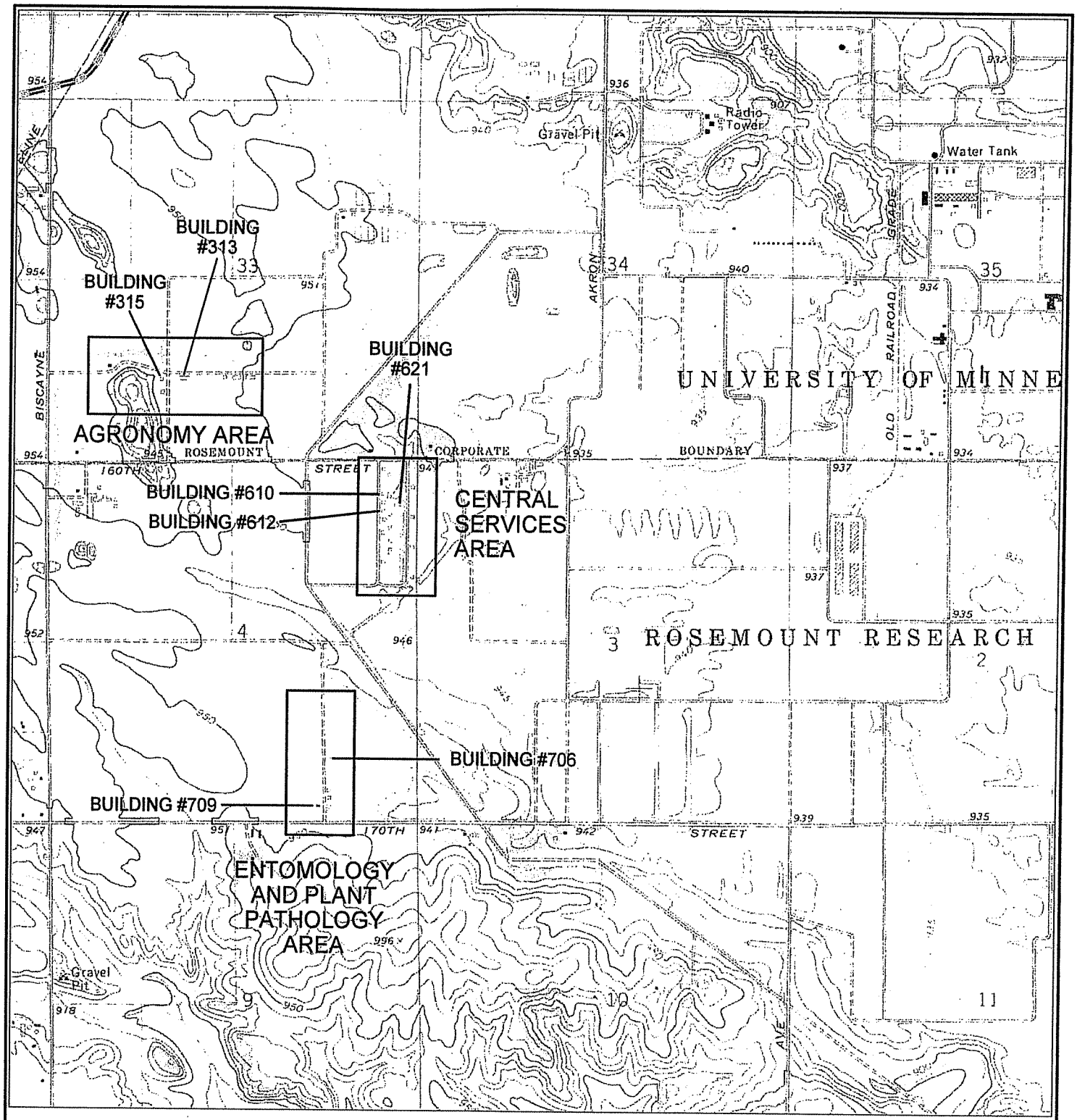
TABLE OF CONTENTS

LIST OF TABLES

Table

LIST OF FIGURES

Figure



TAKEN FROM:
COATES, MINN
7.5 MINUTE SERIES
TOPOGRAPHIC MAP
1974 (REVISED 1993)
UNITED STATES GEOLOGICAL SURVEY

PEER

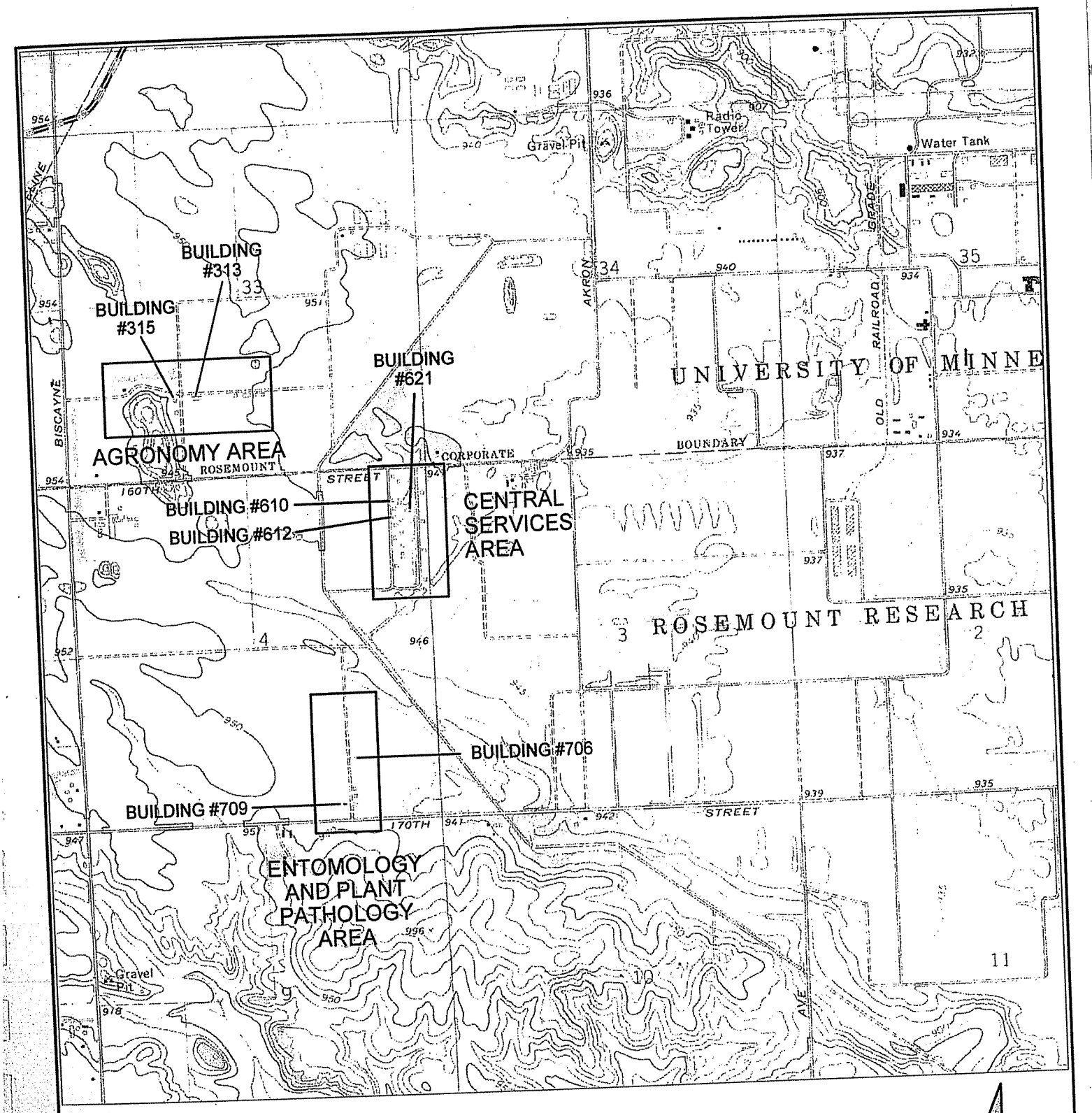
PROJECT #: 4172.05

E:\4000\4172\4172.05 Site Location Color.CAD | 10/5/00

APR. 2001

FIGURE 1

UMP005561



TAKEN FROM:
COATES, MINN
7.5 MINUTE SERIES
TOPOGRAPHIC MAP
1974 (REVISED 1993)
UNITED STATES GEOLOGICAL SURVEY

PEER

PROJECT #: 4172.05

E:\4000\4172\4172.05 Site Location Color.CAD 10/5/00

SITE LOCATION

APR. 2001

UNIVERSITY OF MINNESOTA
RESEARCH AND OUTREACH CENTER
ROSEMOUNT, MINNESOTA

FIGURE 1

TABLE 2
GROUND WATER ANALYTICAL RESULTS
UST RELEASE INVESTIGATION
ROSEMOUNT, MINNESOTA

Compound	MW-1					MW-2		MW-3		MW-4		HRL
	1/10/96	4/4/96	11/9/98	12/15/99	5/30/00	12/15/99	5/30/00	12/15/99	5/30/00	12/15/99	5/30/00	
MDA List 1 Pesticides												
Acetochlor	ND(0.5)	ND (5.0)	ND(0.56)	ND(0.55)	ND(0.56)	0.53	ND(0.60)	ND(0.54)	ND(0.54)	1.3	ND(0.55)	10*
Atrazine	10.1	ND (10.0)	5.7	1.3	1.8	ND(0.51)	ND(0.60)	1.1	1.6	1.1	ND(0.55)	20
Alachlor	10.9	15.5	2.3	1.1	1.5	ND(0.51)	ND(0.60)	ND(0.54)	ND(0.54)	ND(0.52)	ND(0.55)	4
Cyanazine	4.5	ND (5.0)	3.3	0.23	0.63	ND(0.20)	ND(0.24)	ND (0.22)	ND (0.22)	ND(0.21)	ND(0.22)	0.4
Desethyl-Atrazine	NA	NA	1.6	1.2	2	ND(0.51)	ND(0.60)	2.7	1.4	0.55	ND(0.55)	NE
Deisopropyl-Atrazine	NA	NA	0.86	1.1	1.3	ND(0.51)	ND(0.60)	1.1	0.85	0.63	ND(0.55)	NE
EPTC	ND (1.0)	ND (1.0)	ND (0.56)	ND(0.55)	ND (0.56)	ND(0.51)	ND(0.60)	ND(0.54)	ND(0.54)	ND(0.52)	ND(0.55)	200
Metolachlor	ND (0.5)	ND (0.5)	2.3	2.1	130	1.3	ND(0.60)	ND(0.54)	ND(0.54)	15	1.2	100
Metribuzin	ND (0.5)	ND (0.5)	ND (56)	ND(0.55)	ND (0.56)	1.5	1.3	ND(0.54)	ND(0.54)	0.89	ND(0.55)	200
Promaton	ND (0.5)	ND (0.5)	ND (56)	ND(0.55)	ND (0.56)	ND(0.51)	ND(0.60)	ND(0.54)	ND(0.54)	ND(0.52)	0.77	100
Propazine	ND (1.0)	ND (1.0)	0.81	ND(0.55)	ND (0.56)	ND(0.51)	ND(0.60)	ND(0.54)	ND(0.54)	ND(0.52)	ND(0.55)	10
Trifluralin	0.7	4.3	1.3	ND(0.55)	ND (0.56)	ND(0.51)	ND(0.60)	ND(0.54)	ND(0.54)	0.63	ND(0.55)	5
Total List 1 Pesticides	**26.2**	**19.8**	**18.17**	**7.03**	**137.23**	**3.33**	**1.3**	**4.9**	**3.85**	**20.1**	**1.97**	**NE**
Nitrogen												
Nitrate Nitrogen (mg/L)	NA	NA	6.4	NA	NA	NA	NA	NA	NA	NA	NA	10

Notes:
All units are reported in micrograms per liter (ug/l), which is equivilent to parts per billion (ppb), except for nitrate nitrogen which is reported in milligrams per liter (mg/L).
HRL - Minnesota Department of Health (MDH), Health Risk Limit.
NE - Not established.
ND - Not detected at or above the practical reporting limit in parentheses.
* - No HRL has been established for this compound. The concentration reported is the MDH, Health Based Value.

TABLE 4
SOIL ANALYTICAL RESULTS
FACILITY INVESTIGATION
ROSEMOUNT, MINNESOTA

	Location						Soil Cleanup Goals		
	Building #610		Building #621			Former Fertilizer Storage	Low GW Risk	Moderate GW Risk	High GW Risk
Compound	FP-1(2-2.5)	FP-2(2-2.5)	FP-3(2-2.5)	FP-4(2-2.5)	FP-5(2-2.5)	FP-14(2-2.5)			
MDA List 1 Pesticides									
Alachlor	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	2	0.5	0.1
Cyanazine	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	1.3	0.3	0.1
EPTC	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	4	4	4
Ethalfluralin	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	0.5	0.5	0.5
Metolachlor	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	1.5	1.5	1.2
Metribuzin	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	0.3	0.3	0.3
Pendimethalin	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	0.8	0.8	0.5
Trifluralin	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	NA	0.5	0.5	0.3
Total List 1 Pesticides	ND	ND	ND	ND	ND	NA			
Nitrogen									
Total Kjeldahl Nitrogen	NA	NA	NA	NA	NA	1,400	5,000	5,000	5,000
Nitrate Nitrogen	NA	NA	NA	NA	NA	170	150-200	150-200	150-200

Notes:
All units are reported in milligrams-per-kilogram (mg/Kg) which is equivalent to parts-per-million (ppm).
NA = Not analyzed for the indicated compound or parameter.
ND = Compound not detected at or above the concentration indicated in parentheses.

TABLE 4 (cont.)
SOIL ANALYTICAL RESULTS
FACILITY INVESTIGATION
ROSEMOUNT, MINNESOTA

	Location							Soil Cleanup Goals		
	Building #621							Low GW Risk	Moderate GW Risk	High GW Risk
	Inside Former Lagoon				Outside Former Lagoon					
Compound	FP-6(2-2.5)	FP-6(4-4.5)	FP-7(2-2.5)	FP-7(4-4.5)	FP-8(2-2.5)	FP-9(2-2.5)	FP-10(2-2.5)			
MDA List 1 Pesticides										
Alachlor	4.4	ND(0.02)	5.6	2.8	ND(0.02)	ND(0.02)	ND(0.02)	2	0.5	0.1
Cyanazine	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	1.3	0.3	0.1
EPTC	0.08	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	4	4	4
Ethalfluralin	ND (0.02)	ND(0.02)	ND (0.02)	ND(0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.5	0.5	0.5
Metolachlor	ND (0.02)	ND(0.02)	0.02	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	1.5	1.5	1.2
Metribuzin	ND (0.02)	ND(0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.3	0.3	0.3
Pendimethalin	ND (0.02)	ND(0.02)	ND (0.02)	ND(0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.8	0.8	0.5
Trifluralin	0.11	ND(0.02)	0.6	1.5	ND(0.02)	ND(0.02)	ND(0.02)	0.5	0.5	0.3
Total List 1 Pesticides	4.59	ND	6.22	4.3	ND	ND	ND			
Nitrogen										
Total Kjeldahl Nitrogen	NA	NA	NA	NA	NA	NA	NA	5,000	5,000	5,000
Nitrate Nitrogen	NA	NA	NA	NA	NA	NA	NA	150-200	150-200	150-200

Notes:
All units are reported in milligrams-per-kilogram (mg/Kg) which is equivalent to parts-per-million (ppm).
NA = Not analyzed for the indicated compound or parameter.
ND = Compound not detected at or above the concentration indicated in parentheses.

TABLE 5
GROUND WATER ANALYTICAL RESULTS
FACILITY INVESTIGATION
ROSEMOUNT, MINNESOTA

Compound	WP-1 12/1/99	WP-2 12/1/99	HRL
MDA List 1 Pesticides			
Acetochlor	1.9	30	NE
Atrazine	2	13	20
Alachlor	2.8	3.9	4
Cyanazine	18	610	0.4
Desethyl-Atrazine	1.9	6.3	NE
Deisopropyl-Atrazine	1.1	5.4	NE
EPTC	0.75	1.9	200
Metolachlor	120	160	100
Metribuzin	4.3	41	200
Pendimethalin	0.62	ND(0.6)	NE
Propazine	1.3	13	10
Trifluralin	17	ND(0.6)	5
Total List 1 Pesticides	**171.67**	**884.5**	**NE**

Notes:
All units are reported in micrograms per liter (ug/l), which is equivilent to parts per billion (ppb)
HRL - Minnesota Department of Health (MDH), Health Risk Limit.
NE - Not established.
ND - Not detected at or above the practical reporting limit in parentheses.

TABLE 6
CORRECTIVE ACTIONS - ANALYTICAL RESULTS
RESEARCH AND OUTREACH CENTER
ROSEMOUNT, MINNESOTA

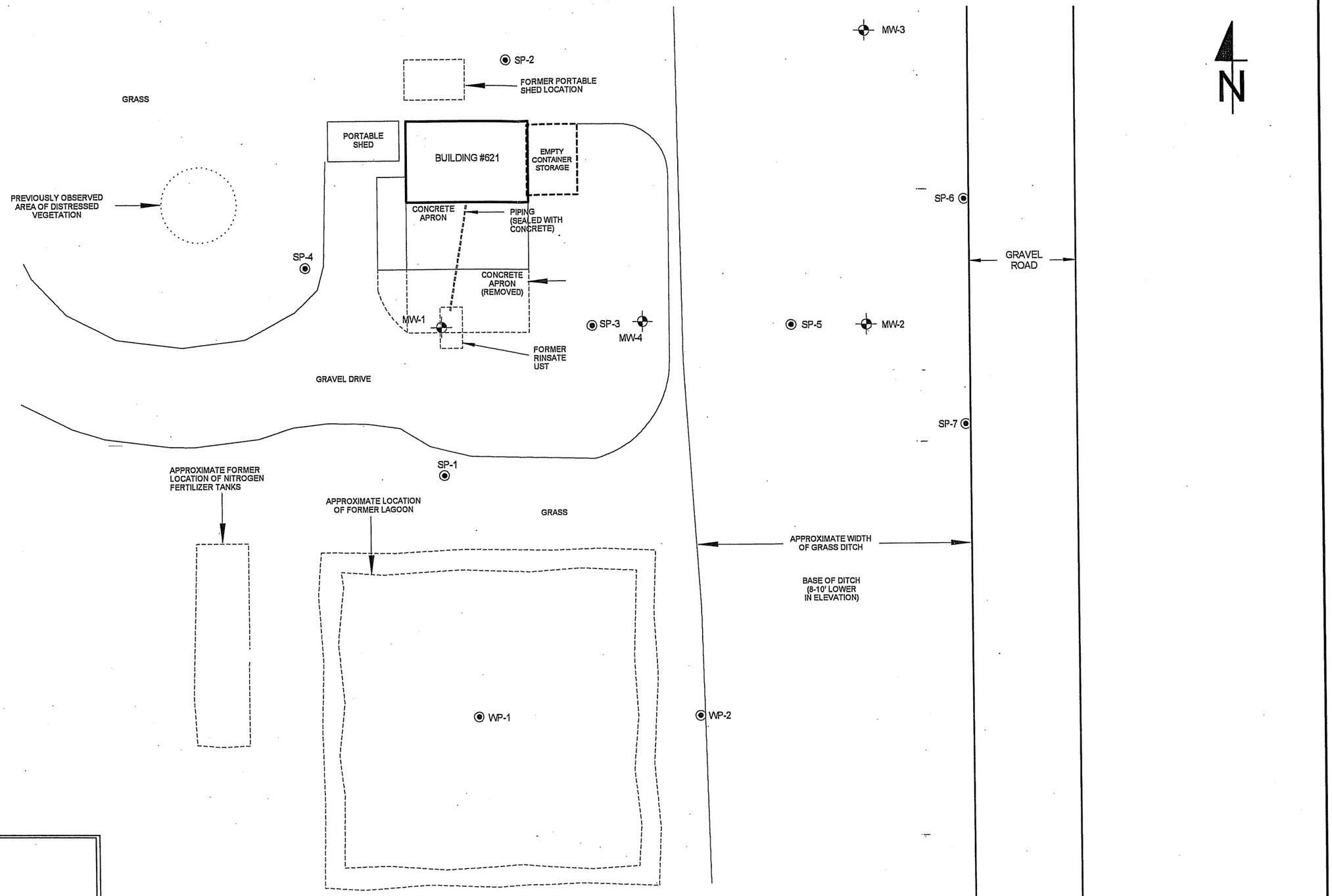
	B-1	B-1 (b)	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	R-1	R-2	R-3	Project Cleanup Goal	MDA Soil Cleanup Goal*
MDA List 1 Pesticides															
Acetochlor	ND(0.02)	ND (0.02)	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.019)	**0.02**	NE	1.0
Alachlor	**2.8**	**0.29**	**0.22**	**0.15**	**0.15**	**0.17**	**0.24**	ND(0.02)	ND(0.02)	ND(0.02)	**3.3**	**4.1**	**0.65**	0.5	0.5
Atrazine	ND(0.02)	ND (0.02)	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	**0.1**	ND(0.02)	NE	2.0
Pendimethalin	ND(0.02)	ND (0.02)	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.019)	**0.03**	NE	0.8
Metolachlor	ND(0.02)	ND (0.02)	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	**0.02**	**0.18**	NE	1.5
Trifluralin	**0.63**	**0.08**	**0.05**	**0.07**	**0.03**	**0.05**	ND(0.02)	**0.03**	**0.03**	ND(0.02)	**1.2**	**2.3**	**0.09**	0.5	0.5
MDA List 2 Pesticides															
All List 2 Pesticides	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND		

Notes:
All units are reported in milligrams per kilogram (mg/Kg) which is equivalent to parts-per-million (ppm).
NE = Not established.
NA = Not analyzed for.
* = MDA soil cleanup goal listed is for a moderate risk to ground water scenario.
ND = Compound not detected at or above the concentration indicated in parentheses.

TABLE 7
GROUND WATER ANALYTICAL RESULTS
CORRECTIVE ACTIONS
ROSEMOUNT, MINNESOTA

Compound	WP-3 12/29/00	WP-4 1/3/01	WP-5 1/3/01	WP-6 1/3/01	HRL
MDA List 1 Pesticides					
Acetochlor	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	NE
Atrazine	**1.3**	**1.6**	**1.2**	ND(0.52)	20
Alachlor	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	4
Cyanazine	ND(0.21)	ND(0.24)	**0.22**	ND(0.21)	0.4
Desethyl-Atrazine	ND(0.52)	**0.81**	**0.75**	ND(0.52)	NE
Deisopropyl-Atrazine	ND(0.52)	ND(0.59)	**0.62**	ND(0.52)	NE
EPTC	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	200
Metolachlor	ND(0.52)	ND(0.59)	**2.2**	ND(0.52)	100
Metribuzin	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	200
Pendimethalin	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	NE
Propazine	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	10
Trifluralin	ND(0.52)	ND(0.59)	ND(0.51)	ND(0.52)	5
Total List 1 Pesticides	**1.3**	**2.41**	**4.99**	**ND**	**NE**

Notes:
All units are reported in micrograms per liter (ug/l), which is equivilent to parts per billion (ppb)
HRL - Minnesota Department of Health (MDH), Health Risk Limit.
NE - Not established.
ND - Not detected at or above the practical reporting limit in parentheses.


SP-2
FORMER PORTABLE SHED LOCATION
GRASS
PORTABLE SHED
BUILDING #621
EMPTY CONTAINER STORAGE
PREVIOUSLY OBSERVED AREA OF DISTRESSED VEGETATION
CONCRETE APRON
PIPING (SEALED WITH CONCRETE)
SP-4
CONCRETE APRON (REMOVED)
MW-1
SP-3
MW-4
FORMER RINSATE UST
GRAVEL DRIVE
SP-1
APPROXIMATE FORMER LOCATION OF NITROGEN FERTILIZER TANKS
APPROXIMATE LOCATION OF FORMER LAGOON
GRASS
WP-1
WP-2
MW-3
SP-6
GRAVEL ROAD
SP-5
MW-2
SP-7
APPROXIMATE WIDTH OF GRASS DITCH
BASE OF DITCH (8-10' LOWER IN ELEVATION)
N
LEGEND
MONITORING WELL
SP GROUND WATER SAMPLING PROBE (1998)
WP GROUND WATER SAMPLING PROBE (1999)
SCALE IN FEET
0 10 20
H:\4000\4172\4172.05 Fig 2 041201.CAD 04/12/01
PEER
PROJECT #: 4172.05
ADDITIONAL INVESTIGATION ACTIVITIES - FORMER RINSATE UST
APR. 2001
UNIVERSITY OF MINNESOTA
RESEARCH AND OUTREACH CENTER
ROSEMOUNT, MINNESOTA
FIGURE
2

UMP005569

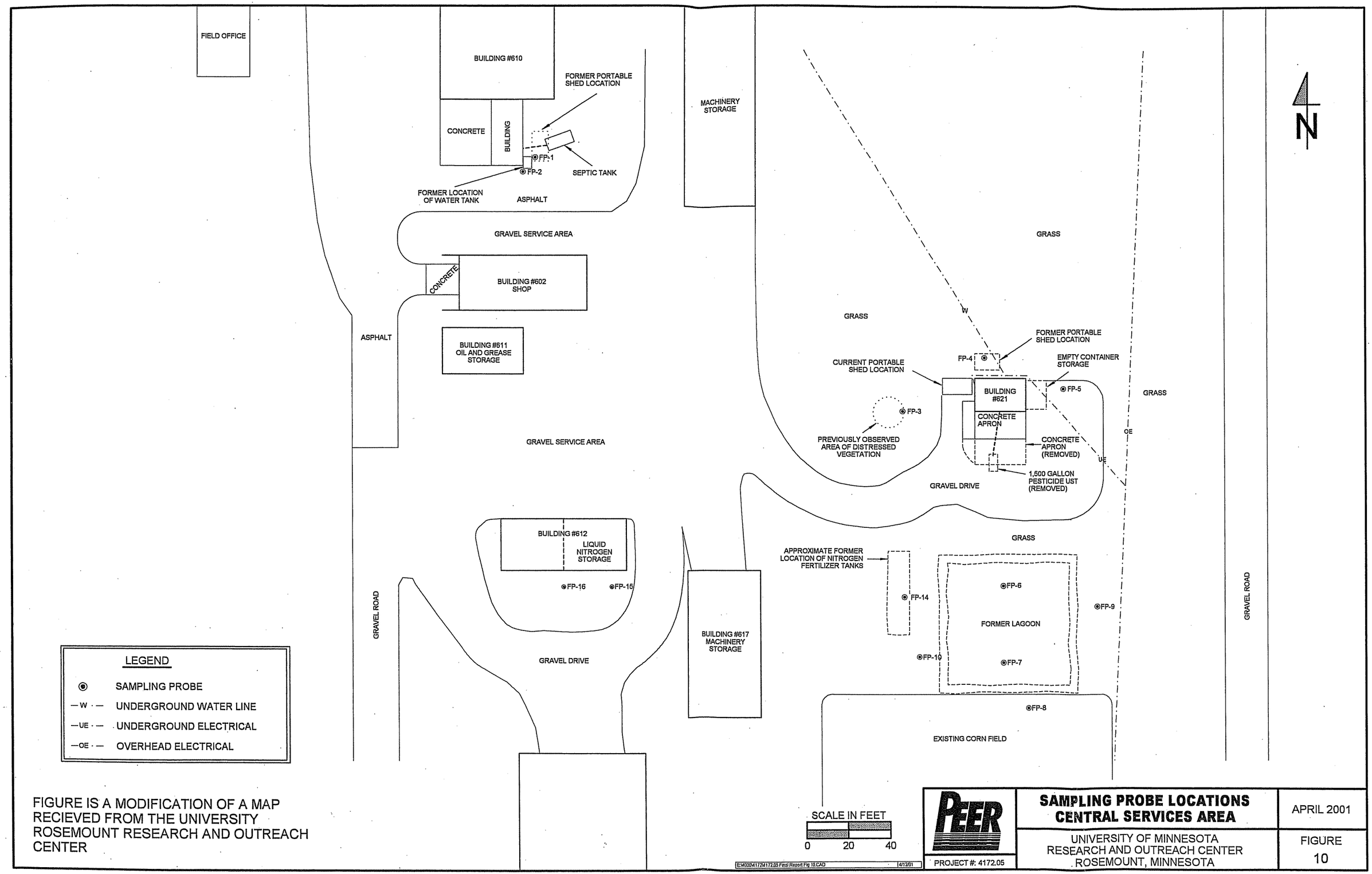
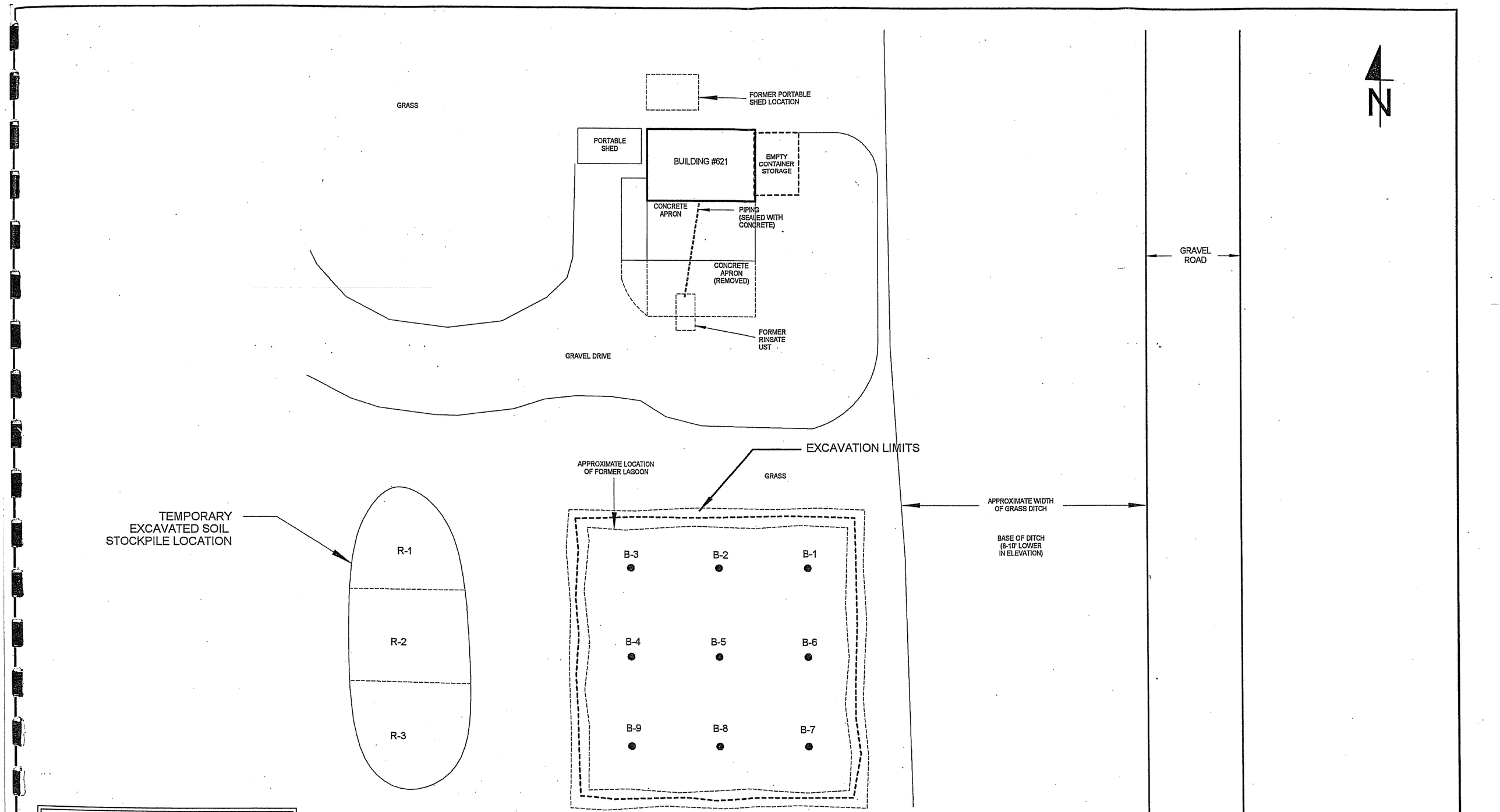


FIGURE IS A MODIFICATION OF A MAP RECIEVED FROM THE UNIVERSITY ROSEMOUNT RESEARCH AND OUTREACH CENTER



H:\4000\4172\4172.05 Building #621 02102000.CAD 11/21/00

PROJECT #: 4172.05

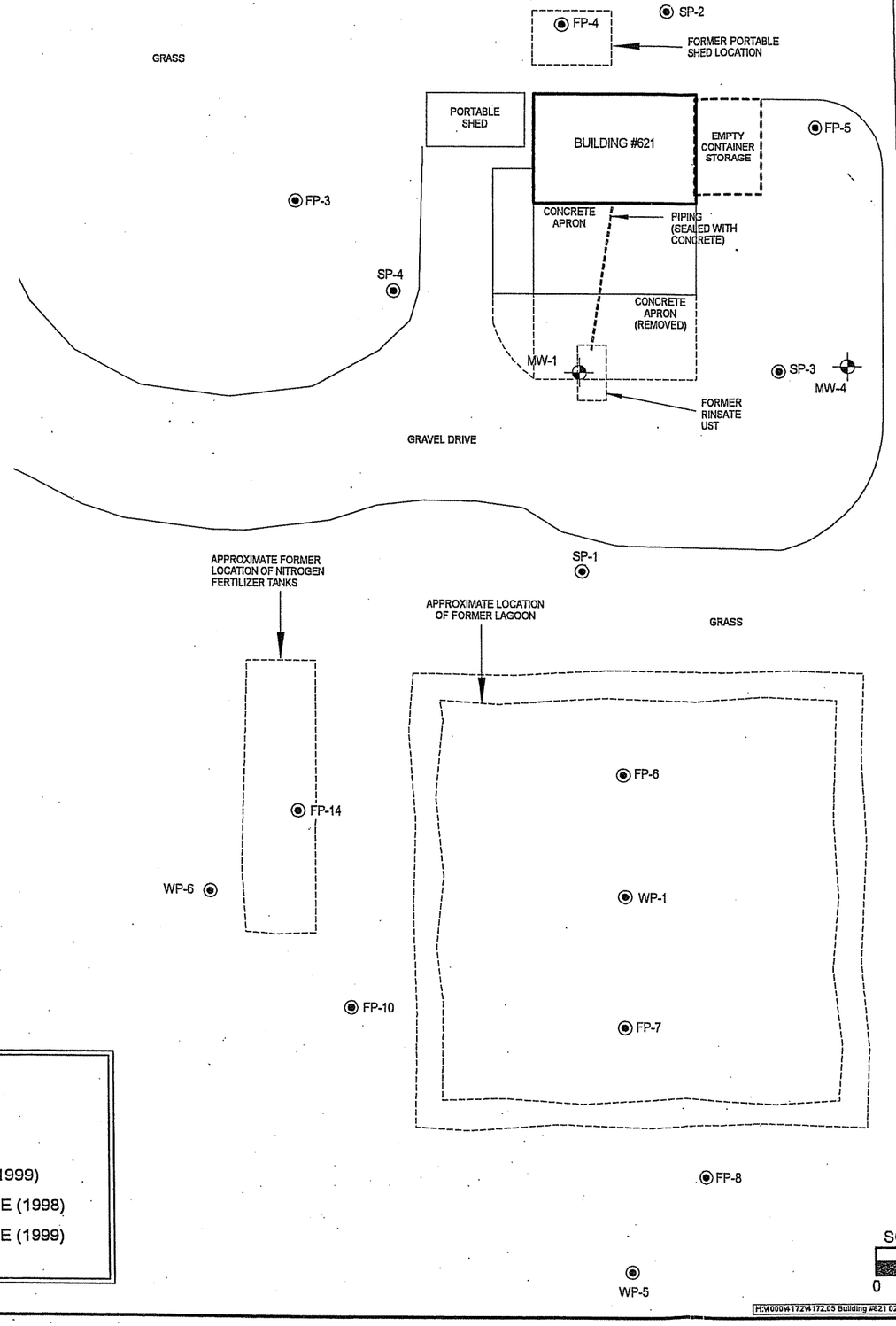
EXCAVATION BASE SOIL SAMPLING LOCATIONS

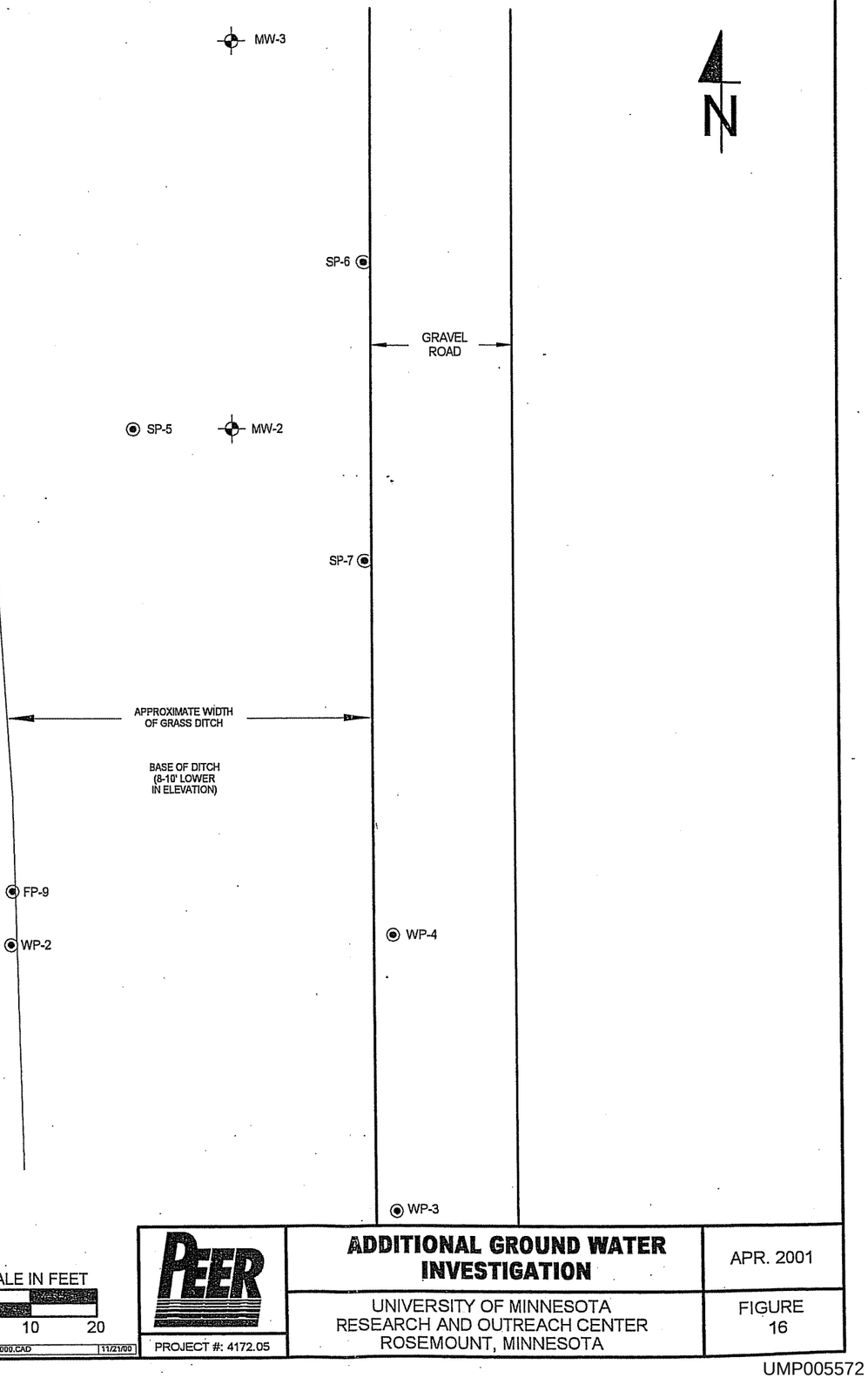
UNIVERSITY OF MINNESOTA
RESEARCH AND OUTREACH CENTER
ROSEMOUNT, MINNESOTA

APR. 2001

FIGURE 15

UMP005571





N

LEGEND

- MONITORING WELL
- SOIL BORING (1996)
- FP — FACILITY INVESTIGATION PROBE (1999)
- SP — GROUND WATER SAMPLING PROBE (1998)
- WP — GROUND WATER SAMPLING PROBE (1999)

SCALE IN FEET
0 10 20

H:\4000\4172\4172.05 Building #621 021102000.CAD 11/21/00

PEER

PROJECT #: 4172.05

ADDITIONAL GROUND WATER INVESTIGATION

UNIVERSITY OF MINNESOTA
RESEARCH AND OUTREACH CENTER
ROSEMOUNT, MINNESOTA

APR. 2001

FIGURE 16

UMP005572

Final
Focused Site Inspection Report
March 2009

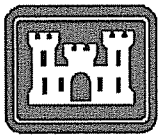
Former Gopher Ordnance Works
Rosemount, Minnesota

United States Army Corps of Engineers - Omaha District

FINAL
FOCUSED SITE INSPECTION REPORT

FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Submitted by



U.S. Army Corps of Engineers
Omaha District
106 South 15th Street
Omaha, Nebraska 68102-1618

March 2009

Table 13
AOC5
Soil Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:					FGOW-AOC5-SS-GP1(0-6INCHES)		FGOW-AOC5-S-GP1(2-4FT)		FGOW-AOC5-SS-GP2(0-6INCHES)		FGOW-AOC5-S-GP2(2-4FT)		FGOW-AOC5-SS-GP3(0-6INCHES)		FGOW-AOC5-S-GP3(2-4FT)		FGOW-AOC5-SS-GP4(0-6INCHES)		FGOW-AOC5-SS-GP4(0-6INCHES)		FGOW-AOC5-S-GP4(2-4FT)		FGOW-AOC5-SS-GP5(0-6INCHES)		FGOW-AOC5-SS-GP5(2-4FT)	
Lab Sample ID:			Screening Criteria		D7I070382001		D7I060355001		D7I070382002		D7I060355002		D7I070382003		D7I060355003		D7I070382004		D7I070382004-RE2		D7I060355005		D7I070382005		D7I070382015	
Sample Matrix:			Tier 1 SRVs	Tier I SLVs	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
Sample Date:					9/6/2007		9/4/2007		9/6/2007		9/4/2007		9/6/2007		9/4/2007		9/6/2007		9/6/2007		9/4/2007		9/6/2007		9/6/2007	
Analyte:	CAS Number	Unit																								
Pesticides																										
4,4-DDD	72-54-8	ug/kg	56000		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
4,4-DDE	72-55-9	ug/kg	40000		<950		<1.8		<18		<1.8		<20		<1.8		13	J			<1.8		<20		<17	
4,4-DDT	50-29-3	ug/kg	15000		510	J	<2.1		9.6	J	<2.1		8.9	J J	<2.1		21	J J			<2.2		<24		<21	
Aldrin	309-00-2	ug/kg	1000		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
alpha-BHC	319-84-6	ug/kg	2000		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
alpha-Chlordane	5103-71-9	ug/kg			<950		<1.8		<18		<1.8		<20		9.7		<21				<1.8		<20		<17	
beta-BHC	319-85-7	ug/kg	7000		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
delta-BHC	319-86-8	ug/kg			<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Dieldrin	60-57-1	ug/kg	800		17000		9.3		4.4	J J	<1.8		85		2.4		<21				<1.8		<20		<17	
Endosulfan I	959-98-8	ug/kg			<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Endosulfan II	33213-65-9	ug/kg			<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Endosulfan sulfate	1031-07-8	ug/kg			<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Endrin	72-20-8	ug/kg	8000		280	J	<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Endrin aldehyde	7421-93-4	ug/kg			<950		<1.8		<18		<1.8		<20		<1.8		8.2	J J			<1.8		<20		<17	
Endrin ketone	53494-70-5	ug/kg			<950		1.4	J	<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
gamma-BHC (Lindane)	58-89-9	ug/kg	9000		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
gamma-Chlordane	5103-74-2	ug/kg			<950		<1.8		<18		<1.8		40	J	10		<21				<1.8		<20		<17	
Heptachlor	76-44-8	ug/kg	2000		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Heptachlor epoxide	1024-57-3	ug/kg	400		<950		<1.8		<18		<1.8		<20		<1.8		<21				<1.8		<20		<17	
Methoxychlor	72-43-5	ug/kg	11000		<1800		0.51	J J	<35		<3.5		<39		<3.5		<40				<3.6		<39		<34	
Toxaphene	8001-35-2	ug/kg	13000		<95000		<180		<1800		<180		<2000		<180		<2100				<180		<2000		<1700	
TPH																										
Diesel Range Organics		mg/kg			39		1.7	J	100		2.3	J	11	J	<10		510				<11		<12		4	J
Gasoline Range Organics		mg/kg			1.7	J B	2.4	J B	1.9	J B	1.9	J B	1.7	J B	1.2	J B	1.7	J B			2.1	J B	1.8	J B	1.5	J B
Explosives																										
2,4-Dinitrotoluene	121-14-2	mg/kg	50	0.001	<0.25		<0.25		<0.25		<0.25		<0.25		<0.25		<0.25				<0.25		<0.25		<0.25	
2,6-Dinitrotoluene	606-20-2	mg/kg	25	0.001	<0.25		<0.25		<0.25		<0.25		<0.25		<0.25		<0.25				<0.25		<0.25		<0.25	
Metals																										
Arsenic	7440-38-2	mg/kg	5	15.1	3.1		1.4	J	7.4		1.9	J	7.5		1.1	J	6.2				1.9	J	6.3		2.1	J
Barium	7440-39-3	mg/kg	1200	842	270		27		250		27		120		24		160				23		95		30	
Cadmium	7440-43-9	mg/kg	25	4.4	2.6		0.25	J	1.2		<0.53		0.34	J	<0.52		0.13	J			<0.54		0.12	J	<0.51	
Chromium	7440-47-3	mg/kg	44000/87	1000000/18	28		6.9	J	25		9.7		20		9.1		16				8		15		8.7	
Lead	7439-92-1	mg/kg	300	525	240		3.5	J	30		3.1	J	36		1.6	J	25				2.6	J	15		3.2	J
Mercury	7439-97-6	mg/kg	500	1600	0.55		<0.034		0.11		<0.035		0.044		<0.035		0.047				<0.036		0.039		<0.034	
Selenium	7782-49-2	mg/kg	160	1.5	<3.4		<3.1		<3.2		<3.2		<3.5		<3.1		<3.6				<3.3		<3.6		<3.1	
Silver	7440-22-4	mg/kg	160	3.9	<1.7		<1.6		<1.6		<1.6		<1.8		<1.6		<1.8				<1.6		<1.8		<1.5	
PAHs																										
2-Methylnaphthalene	91-57-6	ug/kg	100000		<370		<340		<350		<350		<390		<350		420		360	J	<360		<390		<340	
Acenaphthene	83-32-9	ug/kg	1200000	50000	37	J	<340		89	J	<350		<390		<350		2400		2100	J	<360		<390		<340	
Acenaphthylene	208-96-8	ug/kg			<370		<340		<350		<350		<390		<350		<400		<2400		<360		<390		<340	
Anthracene	120-12-7	ug/kg	7880000	942000	69	J	<340		230	J	<350		<390		<350		5700		4600		<360		<390		<340	
Benzo(a)anthracene	56-55-3	ug/kg	BaP	BaP	260	J	<340		1200		<350		<390		<350		8200	E	8000		<360		<390		<340	
Benzo(a)pyrene	50-32-8	ug/kg	2000	10200	220	J	<340		890		<350		42	J	<350		6800		5900		<360		<390		<340	
Benzo(b)fluoranthene	205-99-2	ug/kg	BaP	BaP	390	K	<340		1800	K	<350		75	J K	<350		11000	E K	9500	K	<360		55	J K	<340	
Benzo(ghi)perylene	191-24-2	ug/kg			160	J	<340		590		<350		<390		<350		3200		3000		<360		<390		<340	
Benzo(k)fluoranthene	207-08-9	ug/kg	BaP	BaP	<370		<340		<350		<350		<390		<350		<400		<2400		<360		<390		<340	
Chrysene	65-85-0	ug/kg	BaP	BaP	300	J	<340		1300		<350		55	J	<350		8000	E	8200		<360		<390		<340	
Dibenz(a,h)anthracene	111-44-4	ug/kg	BaP	BaP	55	J	<340		270	J	<350		<390		<350		1500		1200	J	<360		<390		<340	
Diphenylamine	86-74-8	ug/kg	700000		<370		<340		<350		<350		<390		<350		<400		<2400		<360		<390		<340	
Fluoranthene	218-01-9	ug/kg	1080000	295000	600		<340		2400		<350		82	J	<350		13000	E	19000		<360		67	J	<340	
Fluorene	84-74-2	ug/kg	850000	47000	36	J	<340		89	J	<350		<390		<350		2600		2100	J	<360		<390		<340	
Indeno(1,2,3-cd)pyrene	131-11-3	ug/kg			130	J	<340		590		<350		<390		<350		3100		2900		<360		<390		<340	
Naphthalene	87-68-3	ug/kg	10000	7500	<370		<340		<350		<350		<390		<350		410		380	J	<360		<390		<340	
Phenanthrene	78-59-1	ug/kg			380		<340		960		<350		<390		<350		13000	E	16000		<360		42	J	<340	
Pyrene	86-30-6	ug/kg	890000	272000	530		<420		2100		<420		82	J	<420		12000	E	16000		<430		65	J	<410	
Other																										
Nitrocellulose	9004-70-0	mg/kg			2.5	B	0.81	B	6.4		1.5	B	1.6	B	0.93	B	2.4	B			<5.4		1.9	B	<5.1	
Percent Moisture		%			10		3.8		5.8		5.8		15		4.6		18				7.8		16		2.7	

Table 13
AOC5
Soil Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:					FGOW-AOC5-SS-GP6(0-6INCHES)		FGOW-AOC5-SS-GP6(0-6INCHES) DUP		FGOW-AOC5-S-GP6(2-4FT)		FGOW-AOC5-SS-GP7(0-6INCHES)		FGOW-AOC5-SS-GP7(0-6INCHES)	FGOW-AOC5-S-GP7(2-4FT)		FGOW-AOC5-S-GP7(2-4FT)	FGOW-AOC5-SS-GP8(0-6INCHES)		FGOW-AOC5-SS-GP8(0-6INCHES)		FGOW-AOC5-S-GP8(2-4FT)		FGOW-AOC5-SS-GP9(0-6INCHES)		FGOW-AOC5-S-GP9(2-4FT)
Lab Sample ID:			Screening Criteria		D7I070382006		D7I070382013		D7I060355004		D7I070382007		D7I070382007-RE2	D7I060355011		D7J060158004	D7I070382008		D7I070382008-RE2		D7I060355010		D7I070382009		D7I060355009
Sample Matrix:			Tier 1 SRVs	Tier I SLVs	SOLID		SOLID		SOLID		SOLID		SOLID	SOLID		SOLID	SOLID		SOLID		SOLID		SOLID		SOLID
Sample Date:					9/6/2007		9/6/2007		9/4/2007		9/6/2007		9/6/2007	9/5/2007		10/4/2007	9/6/2007		9/6/2007		9/5/2007		9/6/2007		9/5/2007
Analyte:	CAS Number	Unit																							
Pesticides																									
4,4-DDD	72-54-8	ug/kg	56000		<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
4,4-DDE	72-55-9	ug/kg	40000		<17		<17		<1.8		22		<110	0.79	J		10	J			<1.8		15	J	<1.8
4,4-DDT	50-29-3	ug/kg	15000		<20		<20		<2.1		42		<130	0.79	J		43				<2.1		100		<2.1
Aldrin	309-00-2	ug/kg	1000		<17		<17		<1.8		7.6	J J	<110	<2.0			8.3	J			<1.8		<19		<1.8
alpha-BHC	319-84-6	ug/kg	2000		<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
alpha-Chlordane	5103-71-9	ug/kg			<17		<17		<1.8		<22		1100	J 24			<22				<1.8		7.5	J	<1.8
beta-BHC	319-85-7	ug/kg	7000		<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
delta-BHC	319-86-8	ug/kg			<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
Dieldrin	60-57-1	ug/kg	800		<17		<17		<1.8		690	E	760	25			61				<1.8		27	J	<1.8
Endosulfan I	959-98-8	ug/kg			<17		<17		<1.8		<22		<110	0.36	J J		<22				<1.8		<19		<1.8
Endosulfan II	33213-65-9	ug/kg			<17		<17		<1.8		<22		23	J <2.0			<22				<1.8		7.1	J	<1.8
Endosulfan sulfate	1031-07-8	ug/kg			<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
Endrin	72-20-8	ug/kg	8000		<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
Endrin aldehyde	7421-93-4	ug/kg			<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
Endrin ketone	53494-70-5	ug/kg			<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
gamma-BHC (Lindane)	58-89-9	ug/kg	9000		<17		<17		<1.8		<22		<110	<2.0			<22				<1.8		<19		<1.8
gamma-Chlordane	5103-74-2	ug/kg			<17		<17		<1.8		800	E	870	23			<22				<1.8		7.6	J	<1.8
Heptachlor	76-44-8	ug/kg	2000		<17		<17		<1.8		2.9	J	<110	<2.0			<22				<1.8		<19		<1.8
Heptachlor epoxide	1024-57-3	ug/kg	400		<17		<17		<1.8		26	J	<110	2.7	J		<22				<1.8		<19		<1.8
Methoxychlor	72-43-5	ug/kg	11000		<33		<34		<3.5		<43		<210	<3.8			<42				<3.4		<37		<3.4
Toxaphene	8001-35-2	ug/kg	13000		<1700		<1700		<180		<2200		<11000	<200			<2200				<180		<1900		<180
TPH																									
Diesel Range Organics		mg/kg			2	J j	15	j	<11		56			1.4	J		190				29		420		<10
Gasoline Range Organics		mg/kg			1.6	J B	1.4	J B	1.9	J B	1.9	J B				<10	2.1	J B			1.7	J B	1.7	J B	1.6
Explosives																									
2,4-Dinitrotoluene	121-14-2	mg/kg	50	0.001	<0.25		<0.25		<0.25		<0.25			<0.25			<0.25				<0.25		0.35	J	<0.25
2,6-Dinitrotoluene	606-20-2	mg/kg	25	0.001	<0.25		<0.25		<0.25		<0.25			<0.25			<0.25				<0.25		<0.25		<0.25
Metals																									
Arsenic	7440-38-2	mg/kg	5	15.1	1.7	J	1.5	J	2	J	7.5			3.8			6.2				1.3	J	3.9		0.96
Barium	7440-39-3	mg/kg	1200	842	14		14		39		140			67			160				34		120		15
Cadmium	7440-43-9	mg/kg	25	4.4	0.065	J	0.07	J	<0.53		0.89			<0.58			0.45	J			<0.52		1.4		<0.51
Chromium	7440-47-3	mg/kg	44000/87	1000000/18	5.8		6.3		9.5		24			14			17				7.4		15		7.7
Lead	7439-92-1	mg/kg	300	525	3.2	J	3	J	2.1	J	51			5.4	J		43				2.7	J	330		1.9
Mercury	7439-97-6	mg/kg	500	1600	<0.033		<0.034		<0.035		0.093			0.013	J		0.67				<0.034		0.17		<0.034
Selenium	7782-49-2	mg/kg	160	1.5	<3.0		<3.0		<3.2		<3.9			<3.5			<3.8				<3.1		<3.4		<3.1
Silver	7440-22-4	mg/kg	160	3.9	<1.5		<1.5		<1.6		<1.9			<1.7			<1.9				<1.6		<1.7		<1.5
PAHs																									
2-Methylnaphthalene	91-57-6	ug/kg	100000		<330		<340		<350		<430			<380			210	J	180	J	<340		<370		<340
Acenaphthene	83-32-9	ug/kg	1200000	50000	<330		<340		<350		<430			<380			820		800	J	<340		150	J	<340
Acenaphthylene	208-96-8	ug/kg			<330		<340		<350		<430			<380			<420		<1700		<340		<370		<340
Anthracene	120-12-7	ug/kg	7880000	942000	<330		<340		<350		<430			<380			1800		1700		<340		290	J	<340
Benzo(a)anthracene	56-55-3	ug/kg	BaP	BaP	<330		<340		<350		240	J		<380			3900		3700		48	J	990		<340
Benzo(a)pyrene	50-32-8	ug/kg	2000	10200	<330		<340		<350		240	J		<380			3000		2800		<340		830		<340
Benzo(b)fluoranthene	205-99-2	ug/kg	BaP	BaP	<330		<340		<350		410	J K		<380			4700	K	4300	K	50	J K	1400	K	<340
Benzo(ghi)perylene	191-24-2	ug/kg			<330		<340		<350		180	J		<380			1600		1500	J	<340		560		<340
Benzo(k)fluoranthene	207-08-9	ug/kg	BaP	BaP	<330		<340		<350		<430			<380			<420		<1700		<340		<370		<340
Chrysene	65-85-0	ug/kg	BaP	BaP	<330		<340		<350		280	J		<380			3600		3400		44	J	1100		<340
Dibenz(a,h)anthracene	111-44-4	ug/kg	BaP	BaP	<330		<340		<350		56	J		<380			710		380	J	<340		220	J	<340
Diphenylamine	86-74-8	ug/kg	700000		<330		<340		<350		<430			<380			<420		<1700		<340		<370		<340
Fluoranthene	218-01-9	ug/kg	1080000	295000	<330		<340		<350		480			<380			8800	E	7500		81	J	2500		<340
Fluorene	84-74-2	ug/kg	850000	47000	<330		<340		<350		<430			<380			930		850	J	<340		140	J	<340
Indeno(1,2,3-cd)pyrene	131-11-3	ug/kg			<330		<340		<350		150	J		<380			1500		1400	J	<340		490		<340
Naphthalene	87-68-3	ug/kg	10000	7500	<330		<340		<350		<430			<380			310	J	310	J	<340		45	J	<340
Phenanthrene	78-59-1	ug/kg			<330		<340		<350		220	J		<380			7500		6000		87	J	1700		<340
Pyrene	86-30-6	ug/kg	890000	272000	<400		<410		<430		500	J		<460			8400		7100		92	J	1900		<410
Other																									
Nitrocellulose	9004-70-0	mg/kg			<5.1		<5.1		<5.3		3.9	B		1.1	B		3.2	B			0.82	B	5	B	<5.1
Percent Moisture		%			1.2		1.6		5.9		23			13			21				4.3		11		2.9

Table 13
AOC5
Soil Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:						FGOW-AOC5-SS-GP10(0-6INCHES)	
Lab Sample ID:			Screening Criteria			D7I070382010	
Sample Matrix:			Tier 1 SRVs	Tier I SLVs		SOLID	
Sample Date:						9/6/2007	
Analyte:	CAS Number	Unit					
Pesticides							
4,4-DDD	72-54-8	ug/kg	56000			<20	
4,4-DDE	72-55-9	ug/kg	40000			<20	
4,4-DDT	50-29-3	ug/kg	15000			19	J
Aldrin	309-00-2	ug/kg	1000			<20	
alpha-BHC	319-84-6	ug/kg	2000			<20	
alpha-Chlordane	5103-71-9	ug/kg				<20	
beta-BHC	319-85-7	ug/kg	7000			<20	
delta-BHC	319-86-8	ug/kg				<20	
Dieldrin	60-57-1	ug/kg	800			<20	
Endosulfan I	959-98-8	ug/kg				<20	
Endosulfan II	33213-65-9	ug/kg				<20	
Endosulfan sulfate	1031-07-8	ug/kg				<20	
Endrin	72-20-8	ug/kg	8000			<20	
Endrin aldehyde	7421-93-4	ug/kg				<20	
Endrin ketone	53494-70-5	ug/kg				<20	
gamma-BHC (Lindane)	58-89-9	ug/kg	9000			<20	
gamma-Chlordane	5103-74-2	ug/kg				<20	
Heptachlor	76-44-8	ug/kg	2000			<20	
Heptachlor epoxide	1024-57-3	ug/kg	400			<20	
Methoxychlor	72-43-5	ug/kg	11000			<39	
Toxaphene	8001-35-2	ug/kg	13000			<2000	
TPH							
Diesel Range Organics		mg/kg				310	
Gasoline Range Organics		mg/kg			J B	1.6	J B
Explosives							
2,4-Dinitrotoluene	121-14-2	mg/kg	50	0.001		<0.25	
2,6-Dinitrotoluene	606-20-2	mg/kg	25	0.001		<0.25	
Metals							
Arsenic	7440-38-2	mg/kg	5	15.1	J	6.1	
Barium	7440-39-3	mg/kg	1200	842		100	
Cadmium	7440-43-9	mg/kg	25	4.4		0.11	J
Chromium	7440-47-3	mg/kg	44000/87	1000000/18		16	
Lead	7439-92-1	mg/kg	300	525	J	15	
Mercury	7439-97-6	mg/kg	500	1600		0.036	J
Selenium	7782-49-2	mg/kg	160	1.5		<3.5	
Silver	7440-22-4	mg/kg	160	3.9		<1.8	
PAHs							
2-Methylnaphthalene	91-57-6	ug/kg	100000			76	J
Acenaphthene	83-32-9	ug/kg	1200000	50000		420	
Acenaphthylene	208-96-8	ug/kg				<390	
Anthracene	120-12-7	ug/kg	7880000	942000		1400	
Benzo(a)anthracene	56-55-3	ug/kg	BaP	BaP		4700	
Benzo(a)pyrene	50-32-8	ug/kg	2000	10200		4500	
Benzo(b)fluoranthene	205-99-2	ug/kg	BaP	BaP		7500	K
Benzo(ghi)perylene	191-24-2	ug/kg				2600	
Benzo(k)fluoranthene	207-08-9	ug/kg	BaP	BaP		<390	
Chrysene	65-85-0	ug/kg	BaP	BaP		5200	
Dibenz(a,h)anthracene	111-44-4	ug/kg	BaP	BaP		1100	
Diphenylamine	86-74-8	ug/kg	700000			<390	
Fluoranthene	218-01-9	ug/kg	1080000	295000		9100	E
Fluorene	84-74-2	ug/kg	850000	47000		480	
Indeno(1,2,3-cd)pyrene	131-11-3	ug/kg				2500	
Naphthalene	87-68-3	ug/kg	10000	7500		130	J
Phenanthrene	78-59-1	ug/kg				5200	
Pyrene	86-30-6	ug/kg	890000	272000		8700	E
Other							
Nitrocellulose	9004-70-0	mg/kg				2.2	B
Percent Moisture		%				15	

Table 13
AOC5
Soil Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:					FGOW-AOC5-SS-GP10(0-6INCHES)		FGOW-AOC5-S-GP10(2-4FT)		FGOW-AOC5-SS-GP11(0-6INCHES)		FGOW-AOC5-S-GP11(2-4FT)		FGOW-AOC5-SS-GP12(0-6INCHES)		FGOW-AOC5-SS-GP12(0-6INCHES) DUP		FGOW-AOC5-S-GP12(2-4FT)	
Lab Sample ID:			**Screening Criteria**		D7I070382010-RE2		D7I060355008		D7I070382011		D7I060355007		D7I070382012		D7I070382014		D7I060355006	
Sample Matrix:			Tier 1 SRVs	Tier I SLVs	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
Sample Date:					9/6/2007		9/5/2007		9/6/2007		9/4/2007		9/6/2007		9/6/2007		9/4/2007	
Analyte:	CAS Number	Unit																
Pesticides																		
4,4-DDD	72-54-8	ug/kg	56000				<1.8		<20		<2.0		<21		<21		<1.8	
4,4-DDE	72-55-9	ug/kg	40000				<1.8		<20		<2.0		4.1	J	4.7	J	0.32	J
4,4-DDT	50-29-3	ug/kg	15000				<2.1		10	J	<2.3		7.6	J	8.8	J	0.76	J
Aldrin	309-00-2	ug/kg	1000				<1.8		<20		<2.0		<21		<21		<1.8	
alpha-BHC	319-84-6	ug/kg	2000				<1.8		<20		<2.0		<21		<21		<1.8	
alpha-Chlordane	5103-71-9	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
beta-BHC	319-85-7	ug/kg	7000				<1.8		<20		<2.0		<21		<21		<1.8	
delta-BHC	319-86-8	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
Dieldrin	60-57-1	ug/kg	800				<1.8		<20		<2.0		<21		<21		<1.8	
Endosulfan I	959-98-8	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
Endosulfan II	33213-65-9	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
Endosulfan sulfate	1031-07-8	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
Endrin	72-20-8	ug/kg	8000				<1.8		<20		<2.0		<21		<21		<1.8	
Endrin aldehyde	7421-93-4	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
Endrin ketone	53494-70-5	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
gamma-BHC (Lindane)	58-89-9	ug/kg	9000				<1.8		<20		<2.0		<21		<21		<1.8	
gamma-Chlordane	5103-74-2	ug/kg					<1.8		<20		<2.0		<21		<21		<1.8	
Heptachlor	76-44-8	ug/kg	2000				<1.8		<20		<2.0		<21		<21		<1.8	
Heptachlor epoxide	1024-57-3	ug/kg	400				<1.8		<20		<2.0		<21		<21		<1.8	
Methoxychlor	72-43-5	ug/kg	11000				<3.4		<39		<3.8		<41		<41		<3.5	
Toxaphene	8001-35-2	ug/kg	13000				<180		<2000		<200		<2100		<2100		<180	
TPH																		
Diesel Range Organics		mg/kg					<10		170		4	J	3.5	J	4.8	J	<11	
Gasoline Range Organics		mg/kg					1.2	J B	1.7	J B	2.2	J B	1.7	J B	1.5	J B	1.8	J B
Explosives																		
2,4-Dinitrotoluene	121-14-2	mg/kg	50	0.001			<0.25		<0.25		<0.25		<0.25		<0.25		<0.25	
2,6-Dinitrotoluene	606-20-2	mg/kg	25	0.001			<0.25		<0.25		<0.25		<0.25		<0.25		<0.25	
Metals																		
Arsenic	7440-38-2	mg/kg	5	15.1			1.2	J	4.8		5		7.8		7.9		5.2	
Barium	7440-39-3	mg/kg	1200	842			19		110		100		160		160		90	
Cadmium	7440-43-9	mg/kg	25	4.4			<0.51		0.084	J	<0.58		0.11	J	0.11	J	<0.53	
Chromium	7440-47-3	mg/kg	44000/87	1000000/18			7.4		15		20		21	J	21		15	
Lead	7439-92-1	mg/kg	300	525			2.2	J	9	J	6.8	J	18		18		7.4	J
Mercury	7439-97-6	mg/kg	500	1600			<0.034		0.032	J	0.04		0.05		0.05		0.021	J
Selenium	7782-49-2	mg/kg	160	1.5			<3.1		<3.5		<3.5		<3.8		<3.7		<3.2	
Silver	7440-22-4	mg/kg	160	3.9			<1.5		<1.8		<1.7		<1.9		<1.9		<1.6	
PAHs																		
2-Methylnaphthalene	91-57-6	ug/kg	100000		<1600		<340		110	J	<380		<410		<410		<350	
Acenaphthene	83-32-9	ug/kg	1200000	50000	380	J	<340		500		<380		<410		<410		<350	
Acenaphthylene	208-96-8	ug/kg			<1600		<340		<390		<380		<410		<410		<350	
Anthracene	120-12-7	ug/kg	7880000	942000	1300	J	45	J	1200		<380		<410		<410		<350	
Benzo(a)anthracene	56-55-3	ug/kg	BaP	BaP	4700		140	J	2900		<380		<410		<410		<350	
Benzo(a)pyrene	50-32-8	ug/kg	2000	10200	4100		140	J	2300		<380		<410		<410		<350	
Benzo(b)fluoranthene	205-99-2	ug/kg	BaP	BaP	6700	K	220	J K	3600	K	<380		<410		<410		<350	
Benzo(ghi)perylene	191-24-2	ug/kg			2500		85	J	1300		<380		<410		<410		<350	
Benzo(k)fluoranthene	207-08-9	ug/kg	BaP	BaP	<1600		<340		<390		<380		<410		<410		<350	
Chrysene	65-85-0	ug/kg	BaP	BaP	4600		160	J	2900		<380		<410		<410		<350	
Dibenz(a,h)anthracene	111-44-4	ug/kg	BaP	BaP	1000	J	<340		520		<380		<410		<410		<350	
Diphenylamine	86-74-8	ug/kg	700000		<1600		<340		<390		<380		<410		<410		<350	
Fluoranthene	218-01-9	ug/kg	1080000	295000	8500		220	J	7100		<380		<410		<410		<350	
Fluorene	84-74-2	ug/kg	850000	47000	440	J	<340		590		<380		<410		<410		<350	
Indeno(1,2,3-cd)pyrene	131-11-3	ug/kg			2300		76	J	1200		<380		<410		<410		<350	
Naphthalene	87-68-3	ug/kg	10000	7500	<1600		<340		120	J	<380		<410		<410		<350	
Phenanthrene	78-59-1	ug/kg			4300		120	J	6000		<380		<410		<410		<350	
Pyrene	86-30-6	ug/kg	890000	272000	8100		260	J	5900		<460		<500		<500		<420	
Other																		
Nitrocellulose	9004-70-0	mg/kg					<5.1		2.6	B	<5.8		2.2	B	2.3	B	<5.3	
Percent Moisture		%					2.9		14		14		20		20		5.2	

Table 14
AOC5
Groundwater Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:					FGOW-AOC5-W-GP7		FGOW-AOC5-W-GP7	FGOW-AOC5-W-GP7	FGOW-AOC5-W-GP7
Lab Sample ID:			Screening Criteria		D7I080197001		D7I150223019	D7I200237016	D7I260277007
Sample Matrix:			Drinking Water Criterion	Drinking Water Basis	WATER		WATER	WATER	WATER
Sample Date:					9/6/2007		9/14/2007	9/18/2007	9/14/2007
Analyte:	CAS Number	Unit							
TPH									
Diesel Range Organics		mg/L	200 T	HBV				0.41	
Gasoline Range Organics		ug/L	200 T	HBV	54	J B			
Explosives									
2,4-Dinitrotoluene	121-14-2	ug/L							<0.40
2,6-Dinitrotoluene	606-20-2	ug/L							<0.40
Metals									
Arsenic	7440-38-2	ug/L	10	MCL			<25		
Barium	7440-39-3	ug/L	2000	HRL			130		
Cadmium	7440-43-9	ug/L	4	HRL			<5.0		
Chromium	7440-47-3	ug/L	100	MCL			<15		
Lead	7439-92-1	ug/L	NA	NA			<15		
Mercury	7439-97-6	ug/L	2	MCL			<0.20		
Selenium	7782-49-2	ug/L	30	HRL			<22		
Silver	7440-22-4	ug/L	30	HRL			<15		
PAHs and Diphenylamine									
2-Methylnaphthalene	91-57-6	ug/L			<10				
Acenaphthene	83-32-9	ug/L	400	HRL	<10				
Acenaphthylene	208-96-8	ug/L			<10				
Anthracene	120-12-7	ug/L	2000	HRL	<10				
Benzo(a)anthracene	56-55-3	ug/L	BaP		<10				
Benzo(a)pyrene	50-32-8	ug/L	0.05	HBV	<10				
Benzo(b)fluoranthene	205-99-2	ug/L	BaP		<10				
Benzo(ghi)perylene	191-24-2	ug/L			<10				
Benzo(k)fluoranthene	207-08-9	ug/L	BaP		<10				
Chrysene	218-01-9	ug/L	BaP		<10				
Dibenz(a,h)anthracene	53-70-3	ug/L	BaP		<10				
Diphenylamine	122-39-4	ug/L	200	LHA	<10				
Fluoranthene	206-44-0	ug/L	300	HRL	1.3	J J			
Fluorene	86-73-7	ug/L	300	HRL	<10				
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	BaP		<10				
Naphthalene	91-20-3	ug/L	300	HRL	<10				
Phenanthrene	85-01-8	ug/L			<10				
Pyrene	129-00-0	ug/L	200	HRL	1.6	J J			
Other									
Nitrocellulose	9004-70-0	mg/L					<0.50		

Table 10
AOC3
Soil Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:					FGOW-AOC3-DA1-SS-GP1(0-6INCHES)		FGOW-AOC3-DA1-S-GP1(2-4FT)	FGOW-AOC3-DA1-S-GP1(8-10FT)	FGOW-AOC3-DA1-SS-SS1(0-6INCHES)		FGOW-AOC3-DA2-SS-GP1(0-6INCHES)		FGOW-AOC3-DA2-SS-SS1(0-6INCHES)		FGOW-AOC3-DA2-SS-SS2(0-6INCHES)	
Lab Sample ID:			**Screening Criteria**		D7I120319003		D7I120319001	D7I120319002	D7I120319004		D7I150223002		D7I150223003		D7I150223004	
Sample Matrix:			Tier 1 SRVs	Tier I SLVs	SOLID		SOLID	SOLID	SOLID		SOLID		SOLID		SOLID	
Sample Date:					9/10/2007		9/10/2007	9/10/2007	9/10/2007		9/12/2007		9/12/2007		9/12/2007	
Analyte:	CAS Number	Unit														
Explosives																
2,4-Dinitrotoluene	121-14-2	mg/kg	50	0.001	<0.25		<0.25	<0.25	<0.25		<0.25		<0.25		<0.25	
2,6-Dinitrotoluene	606-20-2	mg/kg	25	0.001	<0.25		<0.25	<0.25	<0.25		<0.25		<0.25		<0.25	
SVOCs																
Diphenylamine	122-39-4	ug/kg		1600	<440		<430	<350	<360		<390		<410		<400	
Other																
Nitrocellulose	9004-70-0	mg/kg			8.2		1.2	<5.3	1	B	2.1	B	1.2	B	4.1	B
Percent Moisture		%			26		23	6.3	7.7		14		20		17	

Table 11
AOC3
Groundwater Analytical Results
Former Gopher Ordnance Works, Rosemount, MN

Field Sample ID:					FGOW-AOC3-DA1-W-GP1	FGOW-AOC3-DA2-W-GP1
Lab Sample ID:			**Screening Criteria**		D7I120319005	D7I150223001
Sample Matrix:			Drinking Water Criterion	Drinking Water Basis	WATER	WATER
Sample Date:					9/10/2007	9/12/2007
Analyte:	CAS Number	Unit				
Explosives						
2,4-Dinitrotoluene	121-14-2	ug/L			<0.60	<0.14
2,6-Dinitrotoluene	606-20-2	ug/L			<0.60	<0.14
SVOCs						
Diphenylamine	122-39-4	ug/L	200	LHA	<10	<10
Other						
Nitrocellulose	9004-70-0	mg/L			<0.50	<0.50

AOC 3-DA1

950

940

AOC3-DA1-GP1

AOC3-DA1-SS1

FGOW-AOC3-DA1-	SS-GP1	S-GP1	S-GP1	
Depth	0-6 INCHES	2-4 FEET	8-10 FEET	
Sample Date	9/10/2007	9/10/2007	9/10/2007	
2,4-Dinitrotoluene	<0.25	<0.25	<0.25	mg/kg
2,6-Dinitrotoluene	<0.25	<0.25	<0.25	mg/kg
Diphenylamine	<440	<430	<350	ug/kg
Nitrocellulose	8.2	1.2	<5.3	mg/kg

FGOW-AOC3-DA1-W-GP1		
Sample Date	9/10/2007	
2,4-Dinitrotoluene	<0.60	ug/L
2,6-Dinitrotoluene	<0.60	ug/L
Diphenylamine	<10	ug/L
Nitrocellulose	<0.50	mg/L

FGOW-AOC3-DA1-SS-SS1(0-6INCHES)		
Sample Date	9/10/2007	
2,4-Dinitrotoluene	<0.25	mg/kg
2,6-Dinitrotoluene	<0.25	mg/kg
Diphenylamine	<360	ug/kg
Nitrocellulose	1	mg/kg

KEY:

- AOC
- INDEX CONTOUR
- INTERVAL CONTOUR
- DITCH/DRAINAGEWAY
- SURFACE SOIL SAMPLE LOCATION
- SURFACE AND ONE SUBSURFACE SOIL SAMPLE LOCATION
- SURFACE AND TWO SUBSURFACE SOIL SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- GROUND WATER SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION
- (DUP) DUPLICATE
- (RE2) RE-ANALYZED

NOTE:
LOCATIONS OF HISTORICAL BUILDINGS/FEATURES ARE APPROXIMATE.

Screening Criteria	Tier 1 SRVs	Tier I SLVs	Units
2,4-Dinitrotoluene	50	0.001	mg/kg
2,6-Dinitrotoluene	25	0.001	mg/kg
Diphenylamine		1600	ug/kg
Nitrocellulose			mg/kg

Screening Criteria	Drinking Water Criterion	Drinking Water Basis	Units
2,4-Dinitrotoluene			ug/L
2,6-Dinitrotoluene			ug/L
Diphenylamine	200	LHA	ug/L
Nitrocellulose			mg/L

0 100 200

APPROXIMATE SCALE (FEET)

N

ENGR'G B.W.	DATE		BAY WEST Inc. ENVIRONMENTAL SERVICES ST. PAUL, MN
DRAWN K.M.	2/10/07		
REV. T.P.	4/25/08		
PROJECT NAME GOPHER ORDNANCE			
TITLE AOC 3-DA1 – SAMPLING LOCATIONS			
DWG. NO. 060361-B1	SCALE 1:1,200	FIGURE # 5A	

Z:\06\060631-GOPHER ORDNANCE\060361-B1.DWG "AOC 3 DA1 (5A)"

AOC 5

FGOW-AOC5-	SS-GP8	SS-GP8	S-GP8	
Depth	0-6 INCHES	0-6 IN (RE2)	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	9/5/2007	
Dieldrin	61		<1.8	ug/kg
2,4-Dinitrotoluene	<0.25		<0.25	mg/kg
Arsenic	6.2		1.3	mg/kg
Lead	43		2.7	mg/kg
Benzo(a)pyrene	3000	2800	<340	ug/kg
Nitrocellulose	3.2		0.82	mg/kg

FGOW-AOC5-	SS-GP1	S-GP1	
Depth	0-6 INCHES	2-4 FEET	
Sample Date	9/6/2007	9/4/2007	
Dieldrin	17000	9.3	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	mg/kg
Arsenic	3.1	1.4	mg/kg
Lead	240	3.5	mg/kg
Benzo(a)pyrene	220	<340	ug/kg
Nitrocellulose	2.5	0.81	mg/kg

FGOW-AOC5-	SS-GP7	SS-GP7	S-GP7	
Depth	0-6 INCHES	0-6 IN (RE2)	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	9/5/2007	
Dieldrin	690	760	25	ug/kg
2,4-Dinitrotoluene	<0.25		<0.25	mg/kg
Arsenic	7.5		3.8	mg/kg
Lead	51		5.4	mg/kg
Benzo(a)pyrene	240		<380	ug/kg
Nitrocellulose	3.9		1.1	mg/kg

FGOW-AOC5-W-GP7				
Sample Date	9/6/2007	9/14/2007	9/14/2007	
2,4-Dinitrotoluene			<0.40	ug/L
Arsenic		<25		ug/L
Lead		<15		ug/L
Benzo(a)pyrene	<10			ug/L
Nitrocellulose		<0.50		mg/L

FGOW-AOC5-	SS-GP9	S-GP9	
Depth	0-6 INCHES	2-4 FEET	
Sample Date	9/6/2007	9/5/2007	
Dieldrin	27	<1.8	ug/kg
2,4-Dinitrotoluene	0.35	<0.25	mg/kg
Arsenic	3.9	0.96	mg/kg
Lead	330	1.9	mg/kg
Benzo(a)pyrene	830	<340	ug/kg
Nitrocellulose	5	<5.1	mg/kg

FGOW-AOC5-	SS-GP10	SS-GP10	S-GP10	
Depth	0-6 INCHES	0-6 IN (RE2)	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	9/5/2007	
Dieldrin	<20		<1.8	ug/kg
2,4-Dinitrotoluene	<0.25		<0.25	mg/kg
Arsenic	6.1		1.2	mg/kg
Lead	15		2.2	mg/kg
Benzo(a)pyrene	4500	4100	140	ug/kg
Nitrocellulose	2.2		<5.1	mg/kg

FGOW-AOC5-	SS-GP2	S-GP2	
Depth	0-6 INCHES	2-4 FEET	
Sample Date	9/6/2007	9/4/2007	
Dieldrin	4.4	<1.8	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	mg/kg
Arsenic	7.4	1.9	mg/kg
Lead	30	3.1	mg/kg
Benzo(a)pyrene	890	<350	ug/kg
Nitrocellulose	6.4	1.5	mg/kg

FGOW-AOC5-	SS-GP3	S-GP3	
Depth	0-6 INCHES	2-4 FEET	
Sample Date	9/6/2007	9/4/2007	
Dieldrin	85	2.4	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	mg/kg
Arsenic	7.5	1.1	mg/kg
Lead	36	1.6	mg/kg
Benzo(a)pyrene	42	<350	ug/kg
Nitrocellulose	1.6	0.93	mg/kg

FGOW-AOC5-	SS-GP6	S-GP6	S-GP6	
Depth	0-6 INCHES	0-6 IN (DUP)	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	9/4/2007	
Dieldrin	<17	<17	<1.8	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	<0.25	mg/kg
Arsenic	1.7	1.5	2	mg/kg
Lead	3.2	3	2.1	mg/kg
Benzo(a)pyrene	<330	<340	<350	ug/kg
Nitrocellulose	<5.1	<5.1	<5.3	mg/kg

FGOW-AOC5-	SS-GP11	S-GP11	
Depth	0-6 INCHES	2-4 FEET	
Sample Date	9/6/2007	9/4/2007	
Dieldrin	<20	<2.0	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	mg/kg
Arsenic	4.8	5	mg/kg
Lead	9	6.8	mg/kg
Benzo(a)pyrene	2300	<380	ug/kg
Nitrocellulose	2.6	<5.8	mg/kg

FGOW-AOC5-	SS-GP5	SS-GP5	
Depth	0-6 INCHES	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	
Dieldrin	<20	<17	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	mg/kg
Arsenic	6.3	2.1	mg/kg
Lead	15	3.2	mg/kg
Benzo(a)pyrene	<390	<340	ug/kg
Nitrocellulose	1.9	<5.1	mg/kg

FGOW-AOC5-	SS-GP12	SS-GP12	S-GP12	
Depth	0-6 INCHES	0-6 IN (DUP)	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	9/4/2007	
Dieldrin	<21	<21	<1.8	ug/kg
2,4-Dinitrotoluene	<0.25	<0.25	<0.25	mg/kg
Arsenic	7.8	7.9	5.2	mg/kg
Lead	18	18	7.4	mg/kg
Benzo(a)pyrene	<410	<410	<350	ug/kg
Nitrocellulose	2.2	2.3	<5.3	mg/kg

FGOW-AOC5-	SS-GP4	SS-GP4	S-GP4	
Depth	0-6 INCHES	0-6 IN (RE2)	2-4 FEET	
Sample Date	9/6/2007	9/6/2007	9/4/2007	
Dieldrin	<21		<1.8	ug/kg
2,4-Dinitrotoluene	<0.25		<0.25	mg/kg
Arsenic	6.2		1.9	mg/kg
Lead	25		2.6	mg/kg
Benzo(a)pyrene	6800	5900	<360	ug/kg
Nitrocellulose	2.4		<5.4	mg/kg

AOC5-GP8, AOC5-GP1, AOC5-GP7, AOC5-GP9, AOC5-GP2, AOC5-GP10, AOC5-GP3, AOC5-GP6, AOC5-GP11, AOC5-GP5, AOC5-GP4, AOC5-GP12

950 940 940 940 0.47

KEY:

- AOC
- INDEX CONTOUR
- INTERVAL CONTOUR
- DITCH/DRAINAGEWAY
- SURFACE SOIL SAMPLE LOCATION
- SURFACE AND ONE SUBSURFACE SOIL SAMPLE LOCATION
- SURFACE AND TWO SUBSURFACE SOIL SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- GROUND WATER SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION
- DNR STORAGE BUNKERS
- (DUP) DUPLICATE
- (RE2) RE-ANALYZED

NOTE:
LOCATIONS OF HISTORICAL BUILDINGS/FEATURES ARE APPROXIMATE.

Screening Criteria	Tier 1 SRVs	Tier I SLVs	Units
Dieldrin	800		ug/kg
2,4-Dinitrotoluene	50	0.001	mg/kg
Arsenic	5	15.1	mg/kg
Lead	300	525	mg/kg
Benzo(a)pyrene	2000	10200	ug/kg
Nitrocellulose			mg/kg

Screening Criteria	Drinking Water Criterion	Drinking Water Basis	Units
2,4-Dinitrotoluene			ug/L
Arsenic	10	MCL	ug/L
Lead	NA	NA	ug/L
Benzo(a)pyrene	0.05	HBV	ug/L
Nitrocellulose			mg/L

0 200 400

APPROXIMATE SCALE (FEET)

N

ENGR'G B.W.	DATE	BAY WEST Inc.	
DRAWN K.M.	2/10/07	ENVIRONMENTAL SERVICES	
REV. T.P.	4/25/08	ST. PAUL, MN	

PROJECT NAME GOPHER ORDNANCE

TITLE AOC 5 – SAMPLING LOCATIONS

DWG. NO. 060361-B1 | SCALE 1:2,400 | FIGURE # 7

Z:\06\060631-GOPHER ORDNANCE\060361-B1.DWG "AOC 5 (7)"

Excerpts from Peer Phase I Environmental Site Assessment (2006)

- University of Minnesota or Agricultural Experiment Station, 1605 160th Street West, EDR Map ID# 19, identified on the UST, LUST, the bulk pesticides/fertilizers facility (MN BULK), and the agricultural chemical spills (MN AGSPILLS) databases.

According to a supplemental EDR Site report, the following four USTs are registered to the Agricultural Experiment Station:

1. A 500-gallon gasoline UST installed on January 1, 1949 and removed on October 25, 1991.
2. A 500-gallon gasoline UST installed on January 1, 1950 and removed on October 25, 1991.
3. A 1,000-gallon gasoline UST installed on January 1, 1952 and removed on October 25, 1991.
4. A 3,600-gallon diesel UST installed on May 10, 1975 and removed on July 20, 1994.

The EDR report lists four "closed" petroleum release sites on this portion of the subject property (i.e. 1605 160th Street); the EDR report does not specify which former tank was associated with each release. An underground storage tank release (gasoline) was reported on May 14, 1990 (LEAK# 2529). The file regarding this release was closed by the MPCA on October 4, 1994. According to the EDR report, ground water was reportedly impacted by the release and contaminated soils remain at the property. This release is discussed further in Section 7.2.11.

A second release (gasoline) was reported on October 25, 1991 (LEAK# 4758). The file regarding this release was closed by the MPCA on January 21, 1993. According to the EDR report, ground water was reportedly not impacted by the release and no contaminated soils remain at the property.

A third release (gasoline) was reported on October 26, 1991 (LEAK# 4759). The file regarding this release was closed by the MPCA on January 21, 1993. According to the EDR report, ground water was reportedly not impacted by the release and no contaminated soils remain at the property.

A fourth release (diesel) was reported on June 21, 1994 (LEAK# 7504). The file regarding this release was closed by the MPCA on September 13, 1995. According to the EDR report, contaminated soils remain at the property.

The MN BULK database is a list of facilities that use bulk pesticides and fertilizers. According to the EDR report, the University of Minnesota has a bulk pesticide/fertilizer storage permit (License# 20058982).

The release date and the material(s) released were not identified for the MN AGSPILLS listing. The release was closed by the Minnesota Department of Agriculture (MDA) on September 25, 1992.

- Ag Research Center, 2375 160th Street West, EDR Map ID# 20, identified on the LAST database.

An aboveground storage tank release (fuel oil #1 and #2) was reported on January 19, 1994 (LEAK# 7154). The MPCA closed the file on this release on September 26, 1994. According to the EDR report, ground water was reportedly not contaminated by the release; however, contaminated soil remains at the property.

- Rosemount Compost Facility, 16200 Barbara Avenue, EDR Map ID# 26, identified on the AST database.

One 1,000-gallon diesel AST is registered to this facility. According to an EDR Site Report, the tank was installed in 2002 on a concrete base and is active. No releases have been reported in association with the use of the tank.

- Rosemount Research Center, 160th/Blaine, EDR Map ID# 23, identified on the MN SPILLS database.

A release of an estimated 55 gallons of used or waste oil was reported on July 2, 2004. The EDR report states that a plastic drum was discovered on the property. The only label on the drum was the drum manufacturer. The drum split open and released the contents, thus impacting the soil. The caller reportedly handled the clean-up and the disposal of the drum. The spill was closed by the MPCA on July 8, 2004. According to the EDR report, there is no file associated with this release.

- U of MN Rosemount Experimental Station, EDR Map ID# 13, identified on the MN AGSPILLS database.

Three releases are reported under this database listing. The investigation location description is listed as Buildings 313 and 315, Buildings 610, 612, and 621, and Buildings 706 and 709. The material(s) released is not identified. However, available information indicates the releases were pesticide rinsate from former USTs. All three releases were closed by the MDA on August 1, 2002. These releases are discussed further in Section 7.2.17.

According to the available information, the Oxidation Pond is a man-made system which serves as the collection point for sanitary sewage at RRC. The sanitary sewer system associated with the Oxidation Pond consists of several thousand feet of trunk line serving the RRC complex. The system is in use for sanitary sewer discharge only by a limited number of tenants. The pond system has been in existence since the late 1950s and has not been upgraded because of its limited use and accessibility. The pond is assumed to have been designed as an evaporation/infiltration lagoon since there is no discharge structure from the pond. The study determined that the pond needed to be permitted with the State.

A Notice of Violation (NOV) for the wastewater evaporation/infiltration lagoon was issued on May 26, 1987. The alleged violations include the lagoon was constructed and was being operated without MPCA review or approval. The University supplied the Agency with an incomplete permit application on April 23, 1987. The second alleged violation was that the system was constructed without any primary treatment of sanitary sewage or other wastes.

The site investigation identified ten industrial users, one residence and RRC shop facilities as dischargers to the sewer system. Based on the site investigation, it was determined the sources of waste discharges are domestic use, clear water flow from drinking water fountains, and domestic fixture leakage. Based on a December 16, 1987 RCRA Facility Assessment Site Visit Report, the MPCA concluded that "no evidence of PCB contamination has occurred at the site (i.e. Oxidation Pond) to warrant corrective action clean up".

7.2.9 2001-2002 Ground Water Monitoring Results, UMRRC, Rosemount, MN, prepared by Delta, February 28, 2002.

Delta collected ground water samples from two monitoring wells located just east of Blaine Avenue and east of the former GOW "A", "B" and "C" production lines and analyzed the samples for VOCs. Chloroform was detected in the ground water at concentrations of 11 and 18 micrograms per liter (ug/l), less than the MDH drinking water criteria of 60 ug/l.

7.2.10 Remedial Investigation, 2375 – 160th Street West, Rosemount, MN (MPCA Leaksite ID# 7154), prepared by STS, August 3, 1994.

The remedial investigation was conducted to determine the extent and magnitude of soil impacts associated with a fuel oil release at a rental home on the University's Agricultural Experiment Station (located at the former dairy facility). The fuel oil leaked from an AST in the basement of the house into a floor drain and then into a septic system. Three soil borings were advanced and two soil samples were collected from each boring for analysis for benzene, toluene, ethyl benzene, and xylenes (BTEX)

and DRO. No BTEX compounds were identified above method detection limits. DRO was detected in one soil sample. The release appeared to be limited to the soils adjacent to the pumping chamber and distribution box of the septic system. STS recommended the MPCA be requested to close the release. As discussed in Section 4.3.2, the MPCA issued closure on September 26, 1994.

7.2.11 Soil Exploration/Remedial Investigation at Rosemount Agricultural Experiment Station, Petroleum Release Site (MPCA Leaksite No. 2529), prepared by STS, May 31, 1991.

The soil exploration was conducted to determine the extent and magnitude of impacts associated with a petroleum release at the Service Station complex on the University's Agricultural Experiment Station. Soil samples were collected for analysis for BTEX and total petroleum hydrocarbons (TPH) as gasoline and total lead. BTEX and TPH compounds were detected in one soil sample. Remediation of the release was recommended. As discussed in Section 4.3.2, the MPCA issued closure on October 4, 1994.

7.2.12 Excavation Report for Petroleum Release Site, UMRRC, 15325 Babcock Avenue, Building 717A, Rosemount, MN, MPCA Leak No.: 4928, prepared by Nova Environmental Services, Inc., February 18, 1992.

A 1,000-gallon UST was removed on December 23, 1991. Approximately eight cubic yards of petroleum-impacted soil was excavated and stockpiled on-site. Based on field measurements and laboratory analysis, the impacted soil was limited to the sandy clay fill material from below the UST to a depth of approximately nine feet. No petroleum impacts were detected in the native soil at a depth of 10 feet. No additional investigation was recommended. As discussed in Section 4.3.2, the MPCA issued closure on May 26, 1992.

7.2.13 Limited Site Investigation Report, Building 719 Blaine, UMRRC, Rosemount, MN, prepared by Meisch & Associates, Ltd., October 26, 2000.

A 3,000-gallon fuel oil AST was removed on April 26, 2000. During removal hydrocarbon impacts to soil were observed on the ground surface beneath the tank valve location and the piping inlet into the building. Three soil borings were advanced a soil sample was collected from each boring for analysis for DRO, GRO, and BTEX. No detectable concentrations were identified. Meisch & Associates recommended the MPCA be requested to close the release (MPCA Leaksite No.: 13435). The MPCA issued closure on December 20, 2000.

The following is a general description of wastes stored within Building E.

- Waste reactive materials.
- Waste shock-sensitive materials.

The following is a general description of wastes stored within Building F.

- Waste flammable liquids.
- Waste corrosive (alkaline) materials.
- Waste toxic materials.
- Waste corrosive (acidic – organic acids) materials.

Peer assisted the University in completing closure of Buildings A through E of the RRC hazardous waste storage facility. Closure activities were completed in accordance with applicable regulations for hazardous waste storage facilities including Minnesota Rules Chapter 7045 (Minnesota Hazardous Waste Regulations), and 40 CFR Part 264 (Federal Hazardous Waste Regulations). A Closure Plan for the RRC hazardous waste storage facility was prepared by the University and included in their facility permit (RCRA Part B Permit). The Closure Plan provided general information concerning facility closure requirements. Prior to initiating facility closure, a Closure Work Plan dated March 27, 1996 was prepared by Peer and submitted to the MPCA. The Closure Work Plan included detailed descriptions of the methods, procedures and approach for facility closure. The Closure Work Plan was approved by the MPCA in a letter to the University dated April 17, 1996. Subsequently, the University implemented the Closure Work Plan and prepared closure certification reports for each building. These closure reports were ultimately submitted to and approved by the MPCA, and the MPCA issued closure letters for each building.

7.2.16 Rosemount Agricultural Center Petroleum Release Remedial Investigation and Corrective Actions, 1994-95 (Peer File #4033).

Peer assisted the University on MPCA Leak #2529. A 500-gallon leaded gasoline UST was removed from the Station Service Center in 1991. Approximately 180 cubic yards of petroleum impacted soil was excavated at the time the UST was removed. A remedial investigation and corrective action design (RI/CAD) were subsequently completed at the site. As part of the CAD, a soil vapor extraction (SVE) well was installed. Analytical testing of a ground water sample collected from a temporary monitoring well installed in the extraction borehole indicated potential ground water contamination existed at the site. The MPCA requested that additional investigation be completed to evaluate potential ground water impacts. The investigation was to include installation of three additional ground water monitoring wells.

The soil vapor extraction system had been previously operating for a period of approximately one year; however, the system had been shut down by early 1994. The system needed to be re-started and operated for an additional year with quarterly monitoring.

Peer was retained to install three additional ground water monitoring wells; re-start the vapor extraction system; develop and survey the three new monitoring wells; sample the three monitoring wells and have the samples analyzed for GRO, VOCs, BTEX, total xylenes, methyl tert-butyl ether, and/or dissolved lead; sample the vapor extraction system emissions on a quarterly basis and monitor the system's operating parameters; complete a ground water receptor survey; and complete an annual report and three quarterly reports for submittal to the MPCA.

Significant findings of Peer's RI/CAD activities included the following:

- Native soil consists of well graded outwash sand.
- Ground water flow fluctuated to the south, southwest, and northwest.
- In two rounds of ground water sampling, none of the analytical parameters tested for were detected at or above method detection limits in any of the monitoring wells.
- The results of the analytical tests performed on the SVE stack emissions were all below the laboratory detection limit.

Based on the data, it appeared that the extent and magnitude of the petroleum release had been defined with a limited amount of impacted soils remaining in-place. Ground water was not impacted by the release. The MPCA closed the file on this release on October 4, 1994.

7.2.17 RROC, 1605 160th Street South, Pesticide Site Investigations and Corrective Actions, 1994-2002, and Land Application of Pesticide Contaminated Soil and Rinsate, 1995 and 2000 (Peer File #4172).

In 1994, USTs used for collecting pesticide rinsate were removed from three locations on the site. During tank removal activities, visual evidence of pesticide contaminated soil was observed surrounding the tanks. The Minnesota Duty Officer and the Minnesota Department of Agriculture (MDA) were notified of the release on October 4, 1994.

In 1998, a comprehensive remedial investigation examined eight additional areas at the site, which were identified as being high risk areas for agricultural chemical contamination. Of the areas investigated, Peer recommended and the MDA approved corrective actions for the following four areas:

- The Herbicide and Fungicide Storage building and Rinsate Tank Area located adjacent to Building 621 where 100 cubic yards of soil was excavated to a depth of approximately 13.5 feet along with the removal of the rinsate tank in 1994.
- The UST area near Building 706 where 20 cubic yards of soil was excavated to a depth of seven feet along with a rinsate tank in 1994.
- The UST area near Building 709 where 20 cubic yards of soil was excavated to a depth of seven feet along with a rinsate tank in 1994.
- The former lagoon area where 730 cubic yards of soil to a depth of six feet was excavated in 2000.

All excavated soil was land applied to 169 acres of land as approved by the MDA. Land application was completed in May 1995 and in November and December 2000. At the conclusion of the soil corrective actions completed at the site, one subsurface sample in the former lagoon area and one near Building 709 slightly exceeded soil cleanup goals for alachlor and trifluralin. There were also slight exceedances of pesticide cleanup goals at the base of the UST excavation near Building 621. This soil was not removed because it was determined that the contaminants left in place did not pose an unreasonable risk for adverse affects to human health or the environment.

The remedial investigation also included the installation of four monitoring wells and temporary ground water sampling probes, which identified deep ground water contamination immediately downgradient from identified sources areas. Subsequent to soil corrective actions and periodical ground water monitoring, it was determined that the contamination in ground water did not pose an unreasonable risk for adverse affects to human health or the environment. The monitoring wells were properly abandoned in 2001.

Based on the available information, the MDA issued a determination on July 21, 2002 to take no further action under Minn. Stat. 18D (2000) and 115B (2000) against the University Research and Outreach Center and successive owners of the property with respect to the identified release at the site.

- Dakota County provided a list and associated map which reportedly identifies 110 alleged abandoned waste disposal sites at the subject property. Based on descriptions provided by the County, these waste sites appear to be related to past GOW operations and post-GOW property use by the University and University tenants. There is limited information regarding the nature and/or potential for impacts from these waste sites. There is a potential that one or more of these waste site may contain hazardous materials that could impact soils and/or ground water at the property. This potential for impacts to soils and ground water represents a recognized environmental condition.

- A number of past and present tenants that previously leased or are currently leasing portions of the subject property have or currently store and handle hazardous substances and/or petroleum products and generate associated waste materials. Activities of several past tenants resulted in releases which have been addressed (see Section 8.2). Given the nature of some of the past and current tenant operations (e.g. automotive repair, above and underground petroleum storage, painting and manufacturing operations, research labs, land application of manure) there is a potential that unreported releases of hazardous substances and/or petroleum products may have occurred at the subject property. This potential for impacts to soils and ground water represents a recognized environmental condition.

8.2 HISTORICAL RECOGNIZED ENVIRONMENTAL CONDITIONS

The ASTM E 1527-05 Standard defines the term *historical recognized environmental condition* as meaning "an environmental condition, which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently".

This assessment has identified the following historical recognized environmental conditions in connection with the subject property:

- Based on a review of the government records search (see Section 4.3.2), the following releases have been reported on the subject property:

    1. LEAK# 4928: University of Minnesota – Rosemount, 15325 Babcock Avenue, an underground storage tank release was reported on December 23, 1991 and was closed by the MPCA on May 26, 1992.
    2. LEAK# 3682: Navy Reserve Intelligence Area 10, 14950 Akron Avenue, an underground storage tank release was reported on December 20, 1990 and was closed by the MPCA on January 23, 1991.

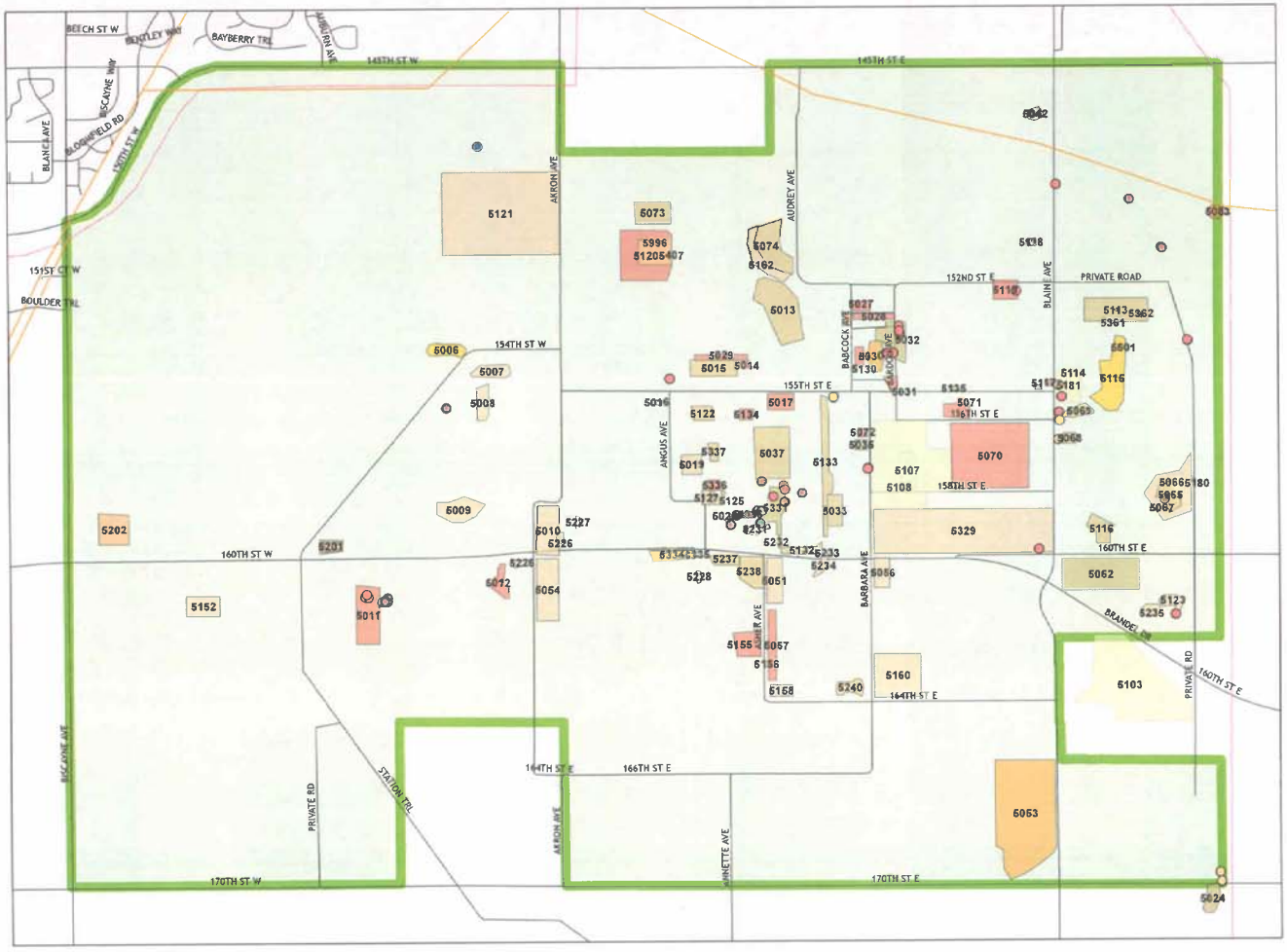
3. LEAK# 13710: Navy Reserve Intelligence Area 10, 14950 Akron Avenue, a release of gasoline was reported on October 27, 2000 and was closed by the MPCA on January 29, 2002.
4. Navy Reserve Intelligence Area 10, 14950 Akron Avenue, a release of 30 gallons of mineral oil was reported on October 25, 2005 and was closed by the MPCA on October 31, 2005.
5. LEAK# 2529: Agricultural Experiment Station, 1605 160th Street West, an underground storage tank release was reported on May 14, 1990 and was closed by the MPCA on October 4, 1994.
6. LEAK# 4758: Agricultural Experiment Station, 1605 160th Street West, an underground storage tank release was reported on October 25, 1991 and was closed by the MPCA on January 21, 1993.
7. LEAK# 4759: University of Minnesota, 1605 160th Street West, an underground storage tank release was reported on October 26, 1991 and was closed by the MPCA on January 21, 1993.
8. LEAK# 7504: Rosemount Agricultural Center, 1605 160th Street West, an underground storage tank release was reported on June 21, 1994 and was closed by the MPCA on September 13, 1995.
9. LEAK# 7154: Ag Research Center, 2375 160th Street West, an aboveground storage tank release was reported on January 19, 1994 and was closed by the MPCA on September 26, 1994.
10. A release of 55 gallons of used/waste oil was reported at the Rosemount Research Center, 160th and Blaine, on July 2, 2004 and was closed by the MPCA on July 8, 2004.
11. Three releases of unidentified material were reported at Buildings 313, 315, 610, 612, 621, 706, and 709 at the University of Minnesota Rosemount Experimental Station and were subsequently closed by the MDA on August 1, 2002.
12. LEAK# 13435: U of MN Building 179, Rosemount Research Center, an aboveground storage tank release was reported on May 12, 2000 and was closed by the MPCA on May 20, 2000.

The "closed" designation indicates that the regulatory agency has determined that the concerns at these sites do not appear to represent a material threat to human health or the environment but does not necessarily indicate that no contamination exists. Documented soil and/or ground water impacts may remain at some or all of these sites. Since these releases have been "closed" by the MPCA and/or MDA, these releases represent a historical recognized environmental condition as defined by the ASTM Standard at this time. However, any future redevelopment and/or property transfer of these areas may require additional investigation and/or cleanup; thus, reclassifying these releases as recognized environmental conditions.

FROM PEER 2006 Phase I
ANNOTATION: Jim Aiken of Barr

Building ID No.	Water Supply	Heating Source	Sewer System	GOW Use	Post GOW Use	Notes	General Comments
Solar House	University system	Electric and wood	Private septic	NA	Residential	Built 1974. Not accessed.	
TC-42	Formerly on University system	Formerly LP and oil	Formerly on private septic		Residential	Demolished approx four years ago. ACM removed by University.	
TC-192	Private well	LP	Private septic		Residential	Consists of dwelling, garage, and former milk chiller house (which also has a well). Septic updated in 1980s. Pipe insulation.	
Tri-Valley RC Field	NA	Electric	NA		radio-controlled airplanes	Consists of a small office	
Veterinary Medicine	University system	Natural gas	Private septic		Veterinary Medicine	Consists of a house (TC-87), a barn, a garage, an equipment shed, a silo, an open hay storage shed, an old dairy barn, a liquid manure pit, and two open-air animal housing buildings. House, barn, and animal housing buildings have individual septic. Vehicle maintenance chemicals stored in metal shed with floor staining.	NOT IN UMA Concrete-lined liquid manure pit. Animal fluids to septic. Chemical and petroleum run-off.
Ag Exp Station - Area 1	Private well	LP	Private septic		Administration	One office building	CENTRAL SERVICES (SOC 5)
Ag Exp Station - Area 2					Dairy - demolished in the 1980s	Not accessed.	DAIRY COMPLEX (Biscayne)
Ag Exp Station - Area 3	Private well	LP	Private septic		Agronomy	Buried gas tank and pump depicted on map. Multi-building.	WEST COMPLEX
Ag Exp Station - Area 4	Private well	Natural gas	Private septic		Turkey	Multi-building. Two wells. Pesticides and disinfectant storage. Drain fields for bird houses except for Bldg 411, which drain directly into ground. No current storage tanks. Minor petroleum storage.	Poultry Past tank use.
Ag Exp Station - Area 5	Private well	LP	Private septic		North Beef, Sheep and Swine	Multi-building. Two water wells. Former petroleum ASTs.	Past tank use. NOT IN UMA
Ag Exp Station - Area 6	Private well	LP	Private septic		Station Service Center	Multi-building. Petroleum ASTs present. Former USTs pulled (investigated). Pesticide storage in Bldg 606. In-ground hydraulic lift and vehicle maintenance chemical and oil storage in Bldg 610 (maintenance shop) with floor staining. Floor drain reportedly discharges to catch basin and then directly into ground.	Investigated by Peer (File #4172)
Ag Exp Station - Area 7	Private well	LP	Private septic		Plant Pathology	Multi-building. Not accessed. Two water wells. Petroleum AST.	Investigated. South Complex SOC6
Ag Exp Station - Area 10	Private well	LP	Private septic		Agricultural Engineering	Multi-building (not accessed). Gas AST for generator.	Tank use. SOC#3

Post Gopher Ordnance Works



Waste Sites

Key

Waste Sites

- Other
- Agricultural Disposal
- Hazardous Waste Disposal
- Household or Farm Dump
- Industrial Waste Disposal
- Large, Unlimited Variety
- Mixed Municipal/Industrial
- Mixed Municipal/Industrial/Hazardous Waste
- Municipal waste facility/site
- Spill, Leak, Leach or Inject Release

Monitoring Wells

Current vs Original Use

- Monitoring, Monitoring
- Registered, Monitoring
- Sealed, Monitoring
- Sealed, Test Well

- Pipelines
- Electric Transmission Lines
- Electric Substations
- Study Area

NOTE
This map includes dumps from Gopher Ordnance Works.

N
W E
S

0 0.5 1 Miles

Dakota COUNTY

Prepared on 20 July 2006 by Dakota County Environmental Management Department staff.

University of Minnesota U More Park
Dakota County Environmental Managment Waste Site Inventory List
May 22, 2006

Site ID Number	Site Name	Site Size (Acres)	Address - City	MPCA Leak #	Waste Site Type - Description
5006	AES 155th Street West / North Dump	2.62	Rosemount	0	Mixed Municipal/Industrial
5007	AES 155th Street West / Central Dump	2.53	Rosemount	0	Large, Unlimited Variety
5008	AES 155th Street West / South Dump	2.31	Rosemount	0	Large, Unlimited Variety
5011	AES Hazardous Waste Generator Shops	7.96	Empire Township	0	Hazardous Waste Disposal
5010	AES Akron Avenue Dump East	6.55	Rosemount	0	Large, Unlimited Variety
5073	GOW Burning Ground	4.74	Rosemount	0	Industrial Waste Disposal
5074	RRC Audrey North	9.12	Rosemount	0	Industrial Waste Disposal
5013	RRC Audrey South	11.95	Rosemount	0	Industrial Waste Disposal
5014	RRC HWF Building D	0.51	Rosemount	0	Hazardous Waste Disposal
5015	Jensen Airstrip	4.65	Rosemount	0	Industrial Waste Disposal
5016	Minnesota Resource Stockpile	0.32	Rosemount	0	Industrial Waste Disposal
5017	Jensen Office Disposal	2.57	Rosemount	0	Hazardous Waste Disposal
5018	RRC HWF Building B	0.32	Rosemount	0	Hazardous Waste Disposal
5019	GOW Waste Dump	2.40	Rosemount	0	Large, Unlimited Variety
5020	RRC HWF Building C	0.20	Rosemount	0	Hazardous Waste Disposal
5021	GOW Tunnel & Sumps	0.10	Rosemount	0	Industrial Waste Disposal
5022	GOW Coal & Tear Gas	0.08	Rosemount	0	Industrial Waste Disposal
5023	RRC Hazardous Waste West Burn Pit	0.31	Rosemount	0	Mixed Municipal/Industrial/Hazardous Waste
5025	MPD Bomb Disposal	0.17	Rosemount	0	Industrial Waste Disposal
5331	RRC 160th Street East Dump	4.14	Rosemount	0	Mixed Municipal/Industrial/Hazardous Waste
5335	RRC Septage Sludge	1.12	Rosemount	0	Industrial Waste Disposal
5108	SMC Composting	50.32	Rosemount	0	Regulated Waste Facility
5107	SMC Processing	3.12	Rosemount	0	Regulated Waste Facility
5103	SKB Organic Composting	35.99	Empire Township	0	Regulated Waste Facility
5009	AES Akron Dump West	5.03	Rosemount	0	Large, Unlimited Variety
5029	Jensen Hanger Disposal	1.92	Rosemount	0	Hazardous Waste Disposal
5133	GOW Rail Yard	5.70	Rosemount	0	Industrial Waste Disposal
5033	GOW Train Pole Yard	2.84	Rosemount	0	Industrial Waste Disposal
5051	RRC AES	4.25	Empire Township	0	Large, Unlimited Variety
5152	AES Disposal	4.03	Empire Township	0	Large, Unlimited Variety
5054	AES Akron Dump SE	8.09	Empire Township	0	Large, Unlimited Variety
5155	RRC Cesspool & Seepage	3.77	Empire Township	0	Hazardous Waste Disposal
5156	RRC Transformer Fire	0.13	Empire Township	0	Large, Unlimited Variety
5057	Astro Reese Hazardous Waste Generator	3.32	Empire Township	0	Hazardous Waste Disposal
5158	Dakota County Technical College Junkyard & Dump	1.57	Empire Township	0	Large, Unlimited Variety
5056	AES / RRC #2	2.78	Empire Township	0	Large, Unlimited Variety
5160	AES / RRC #3	12.16	Empire Township	0	Large, Unlimited Variety
5062	Local #49 Disposals	14.13	Empire Township	0	Mixed Municipal/Industrial/Hazardous Waste
5065	Gravel Pit Disposal	11.04	Rosemount	0	Large, Unlimited Variety
5066	RRC Pond Sludge	2.93	Rosemount	0	Industrial Waste Disposal
5067	RRC Oxidation Pond	0.25	Rosemount	0	Regulated Waste Facility
5068	GOW Sewage Plant	0.86	Rosemount	0	Industrial Waste Disposal
5069	RRC #49 Stockpile	1.63	Rosemount	0	Industrial Waste Disposal
5070	Minneapolis Bomb Squad	30.12	Rosemount	0	Hazardous Waste Disposal
5071	RRC Building 217A	2.15	Rosemount	0	Hazardous Waste Disposal
5072	RRC Building 706D-706AA	0.46	Rosemount	0	Hazardous Waste Disposal
5113	GOW & UMRRC Oleum	8.93	Rosemount	0	Industrial Waste Disposal
5114	UMRRC HWF Building A	0.32	Rosemount	0	Hazardous Waste Disposal
5115	UMRRC Local #49 South	9.07	Rosemount	0	Mixed Municipal/Industrial
5116	GOW Ballistics Lab STS	2.64	Rosemount	0	Industrial Waste Disposal
5117	RRC Building 723A Klug Sheetmetal	0.23	Rosemount	0	Hazardous Waste Disposal
5118	RRC US Transformer Betz Disposal	0.42	Rosemount	0	Hazardous Waste Disposal
5119	RRC US Transformer Disposal	2.73	Rosemount	0	Hazardous Waste Disposal
5330	RRC Building 719A Recke Engineering	0.18	Rosemount	0	Hazardous Waste Disposal
5027	RRC Building 713A	1.02	Rosemount	0	Hazardous Waste Disposal
5028	RRC Building 717A	1.44	Rosemount	0	Hazardous Waste Disposal
5130	Building 725A	1.00	Rosemount	0	Hazardous Waste Disposal
5031	Porter Electric Disposals	0.73	Rosemount	0	Hazardous Waste Disposal
5032	George's Used Equipment	5.13	Rosemount	0	Mixed Municipal/Industrial/Hazardous Waste
5134	HWF Building B Solvent	0.90	Rosemount	0	Hazardous Waste Disposal
5135	746C	0.20	Rosemount	0	Mixed Municipal/Industrial/Hazardous Waste
5035	706A	0.73	Rosemount	0	Mixed Municipal/Industrial/Hazardous Waste
5036	RRC East Burn Pit	0.34	Rosemount	0	Hazardous Waste Disposal
5037	Local #49 Heavy Equipment	10.76	Rosemount	0	Industrial Waste Disposal
5362	Sulfuric Acid Tank (H2SO4)	0.11	Rosemount	0	Industrial Waste Disposal
5360	Fuel Oil Tanks	0.03	Rosemount	0	Spill, Leak, Leach or Inject Release
5361	Liquid Nitrogen Tank (NH4)	0.05	Rosemount	0	Industrial Waste Disposal
5042	Superintendent PCB Disposal	0.92	Rosemount	0	Hazardous Waste Disposal
5053	Organic Conversions Manure Compost	37.58	Empire Township	0	Agricultural Disposal
5120	GOW Hazardous Waste Burn Pit	15.16	Rosemount	0	Hazardous Waste Disposal
5121	AES Beef Research North	57.71	Rosemount	0	Large, Unlimited Variety
5122	RRC Minnesota Resource Fe stock	1.77	Rosemount	0	Industrial Waste Disposal
5336	RCC HWF Building C	0.89	Rosemount	0	Hazardous Waste Disposal
5337	RRC Waste Disposal Site	1.03	Rosemount	0	Industrial Waste Disposal
5125	RRC NG Teargas Disposal	0.35	Rosemount	0	Industrial Waste Disposal
5334	Septage Disposal Complaints	2.94	Rosemount	0	Industrial Waste Disposal
5127	RRC Clearwell Sumps Building C	0.71	Rosemount	0	Industrial Waste Disposal
5024	170th Street East Dump	2.19	Empire Township	0	Mixed Municipal/Industrial/Hazardous Waste
5162	RRC 152nd Street East Dump	3.54	Rosemount	0	Large, Unlimited Variety
5329	Dump NW of 160th Street E & Blaine Avenue	47.42	Rosemount	0	Large, Unlimited Variety
5225	GOW Akron Avenue & 160th Street Fill	0.58	Empire Township	0	Large, Unlimited Variety

5226	GOW Building 251-D Mound	0.46	Rosemount	0	Industrial Waste Disposal
5227	GOW Building 208-M mound	0.30	Rosemount	0	Industrial Waste Disposal
5229	GOW Coal Storage Ditch Fill	0.12	Rosemount	0	Industrial Waste Disposal
5230	GOW Coal Storage Road Fill	0.15	Rosemount	0	Industrial Waste Disposal
5231	GOW East Burn Pit & Demolition	1.05	Rosemount	0	Industrial Waste Disposal
5232	GOW Incinerator Stack Ruins	0.12	Rosemount	0	Industrial Waste Disposal
5132	GOW Salvage Yard	1.82	Rosemount	0	Industrial Waste Disposal
5233	GOW Incinerator Circa 1945	0.02	Rosemount	0	Industrial Waste Disposal
5234	GOW Rail Bend	0.88	Empire Township	0	Large, Unilimited Variety
5235	GOW East Pit Demolition & Logs	1.11	Empire Township	0	Large, Unilimited Variety
5240	GOW 222-A Foundations & Debris	2.03	Empire Township	0	Industrial Waste Disposal
5239	GOW Wood Debris Circa 1945	0.06	Empire Township	0	Industrial Waste Disposal
5237	GOW Sperry-Univac	1.61	Empire Township	0	Industrial Waste Disposal
5238	GOW Machine Storage Yard	4.15	Empire Township	0	Industrial Waste Disposal
5012	AES Storage & Spill	1.99	Empire Township	0	Hazardous Waste Disposal
5228	GOW Building 213-B Mound	0.32	Empire Township	0	Large, Unilimited Variety
5123	University of MN SE of 160th Street East Dump	1.86	Empire Township	0	Large, Unilimited Variety
5083	Wenzel Engineering Disposal South	1.27	Rosemount	0	Hazardous Waste Disposal
5030	Feed Lot	2.38	Rosemount	0	Agricultural Disposal
5407	Naval Satellite Operations Center LUST	1.75	Rosemount	3682	Spill, Leak, Leach or Inject Release
5996	Navy Reserve Intell Area 10 LUST	4.80	Rosemount	13710	Spill, Leak, Leach or Inject Release
5201	Rosemount Agricultural Center LUST	1.78	Rosemount	7504	Spill, Leak, Leach or Inject Release
5202	Ag Research Center LUST	5.57	Rosemount	7154	Spill, Leak, Leach or Inject Release
5203	Rosemount Research Center LUST	0.63	Rosemount	4928	Spill, Leak, Leach or Inject Release
5205	U OF M AGRONOMY UNIT LUST	1.25	Rosemount	4758	Spill, Leak, Leach or Inject Release
5204	U OF M STATION SERVICE CENTER LUST	0.82	Rosemount	4759	Spill, Leak, Leach or Inject Release
5206	Agricultural Experiment Station LUST	0.43	Rosemount	2529	Spill, Leak, Leach or Inject Release
5501	GOW Salt Disolving Pit	0.03	Rosemount	0	Industrial Waste Disposal
5181	GOW Power Plant A Disposals	5.02	Rosemount	0	Industrial Waste
5180	GOW Coal Ash Pond	1.27	Rosemount	0	Industrial Waste