CON 12-15
Doc # 26953

SITE-SPECIFIC ADDENDUM
for the
GENERIC
CONTAMINATED SITES SECTION
QUALITY ASSURANCE PROJECT PLAN

PROJECT INFORMATION:

Site Name: Emmetsburg Metolachlor Investigation	Project Manager: Tami Rice
City: Emmetsburg	County: Palo Alto

APPROVALS:

Brian Tormey
IDNR, Land Quality Bureau Chief
Bureau QA Officer

4/12/12
Date

Cal Lundberg
IDNR, Contaminated Sites Supervisor

4/11/12
Date

1. PROJECT MANAGEMENT

Distribution List

Project Manager: Tami Rice
Field Personnel: Greg Fuhrmann, Matt Culp, Hylton Jackson, Dan Cook, or John Woodland
Contaminated Sites Section Supervisor: Cal Lundberg
Land Quality Bureau Chief: Brian Tormey

Project /Task Organization

IDNR Project Manager: Tami Rice

IDNR QA Project Officer: Tami Rice

1.1 Problem Definition/Background

This is the site-specific addendum for the *IDNR Quality Management Plan, QMP-03, August 1, 2011.* This addendum describes the specific sampling activities for the site described below.

Site Location and Size:
The metolachlor plume to be investigated by the Department originated on or near the former Thermogas property located at 4491 Works Road in Emmetsburg, Palo Alto County, Iowa. The plume has migrated southeast onto the Max Yield Coop property located at 4498 Works Road in Emmetsburg. The former Thermogas property is approximately two acres in size and is currently owned and operated by Ray Stanley with Stanley Propane. The Max Yield Coop property is about 12 acres in size and is operated as an agricultural chemical dealership.
See Attachment A, Figure 2, Site Location

Important Physical Features:
The site is located in the Des Moines lobe of the Wisconsin glaciated area of north central Iowa. Shallow boring and well logs (60 feet deep or less) from the general site vicinity indicated about two feet of topsoil over medium to coarse grain sand and gravel. There is a well log available for Emmetsburg municipal well #8 which is 225 feet deep. The log indicated two feet of topsoil followed by 38 feet of medium to coarse sand and gravel. Below the sand and gravel was about 56 feet of clay with another 29 feet of sand and gravel followed by 20 feet of clay. The clay overlays 79 feet of sandstone with a two foot layer of shale over 30 feet of sandstone with some shale stringers.

The site is 3,500 feet east of the West Fork of the Des Moines River and is located in the 5-year source water protection area for the City of Emmetsburg's wells located in the alluvial aquifer.

Chronological Site History:
A Phase I and Phase II were conducted on the former Thermogas property located at 4491 Rendering Works Road, Emmetsburg, Iowa, in 1996. The reports indicated that the site began operation in 1962 as a propane distributor and began retailing liquid fertilizer in 1968 with bulk liquid pesticide products added in 1987. Storage and handling of row crop production products ceased in 1996 before Cenex (now CHS) purchased the property.

Following the Phase I and II investigation, six permanent monitoring wells (MW-1 through MW-6) were installed on the site. Concentrations of alachlor, metolachlor, cyanazine, ammonia as

nitrogen, and nitrate-nitrite as nitrogen were observed above the applicable standards. Groundwater monitoring was performed onsite annually until 2003 when a second site assessment was conducted with the installation of six additional monitoring wells (MW-7 through MW-12). In response, the Department determined that additional investigation was required to define the horizontal and vertical extent of the contamination. In addition, the Department required semi-annual groundwater sampling until the data indicates a stable or declining trend. Two monitoring wells (MW-13 and MW-14) were installed in 2004 with two more monitoring wells (MW-15 and MW-16) installed in 2006 in attempts to define the extent of the contamination. Groundwater sampling events have been conducted twice per year since 2003.

In November of 2008, concentrations of metolachlor spiked in several monitoring wells onsite with the observed concentrations being much higher than any historical data collected since 1996. Since metolachlor has not been handled onsite since 1996 and the concentrations are much higher than formerly observed onsite, it does not appear that the contamination is from the former operations. With that said, the source of metolachlor has not been identified to date. From 2008 through 2010, the high metolachlor concentrations have migrated from their origin near MW-2 to the two down gradient monitoring wells MW-14 and MW-15. While the concentrations seem to have stabilized in the two down gradient monitoring wells during the 2011 sampling events, there are two shallow, municipal wells located about 2,000 feet down gradient from the site that could be impacted and the extent of the contamination down gradient from MW-14 and MW-15 is unknown. Since the Department has not identified a responsible party, it has been determined that the Department will conduct an environmental assessment in an attempt to establish the extent of the contaminated groundwater.

1.2 Project/Task Description

Phase of Work: ☐ ISS ☒ ESS ☐ PA ☐ PA/SI ☐ PA/SI RSE

Assessment/Oversight:
All assessment and oversight activities are in accordance with the *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

Schedule:
Iowa One-Call will be contacted a minimum of 48 hours prior to commencement of intrusive onsite activities. Field activities are scheduled for April 24-27, 2012. Where necessary, permission will be obtained from landowners and the City of Emmetsburg. Proposed sample locations may be flagged prior to Iowa One-Call notification. (See Attachment A, Figure 3, Sample Locations).

Quality Objectives and Criteria for Measurement Data:
Per the Generic QAPP: ☒ Yes ☐ No (Describe below)
Other:

Special Training:
All DNR personnel have received the OSHA 40-hour HAZWOPER training and are current with the 8-hour refresher requirement. Qualified IDNR personnel will operate the Department's Geoprobe per the Department's SOP.

1.3 Documentation and Records

Per *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

2. MEASUREMENT AND DATA ACQUISITION

2.1 Sampling Process Design

Description of Sampling Design:
The metolachlor plume originated near monitoring well MW-2 and has migrated through monitoring wells MW-1, MW-7, MW-8 and now the highest concentrations are observed in MW-14 and MW-15. There are no monitoring wells down gradient of MW-14 and MW-15. Two transects of borings will be conducted southeast of existing monitoring wells MW-14 and MW-15 for a total of about eight sample locations. Electrical conductivity (EC) probes will be conducted in approximately five of the boring locations to determine the most conductive zones and lithology. One soil boring may be conducted at the most central boring location to verify the EC results; however, no soil samples will be collected as part of this investigation. All of the borings will be drilled to refusal and groundwater samples will be collected at the most conductive intervals based on the EC results as the screen point is removed from the boring. All of the borings will be conducted using the Department's Geoprobe and all of the groundwater samples will be collected using the Geoprobe screen point 15. Nine existing monitoring wells (MW-1 through MW-3, MW-7 through MW-9, and MW-14 through MW-16) associated with the former Thermogas site will also be resampled during this assessment. All of the groundwater samples will be analyzed for metolachlor using the Department's GC/MS. Ten percent of the groundwater samples will be submitted to the State Hygienic Laboratory (SHL) for analysis of metolachlor to verify the results from the Department's GC/MS analysis.

2.2 Sample Methods Requirements

Matrix	Sampling Method
Groundwater	*Geoprobe® screen points*
Groundwater	*PVC Monitoring Wells (MW-1 through MW-3, MW-7 through MW-9, and MW-14 through MW-16)*

2.3 Sample Handling and Custody Requirements

Per *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

Analytical Methods Requirements:

Media Sampled	Analytical Parameter	Analytical Method	Sample Container	Sample Preservation	Special Handling
Groundwater	*Herbicides*	*EPA 8141*	*Amber Quart*	*None*	*Refrigerate at 4°C*

Quality Control Requirements:

QC Sample	Number to be Collected	Location(s)
Groundwater- Field Duplicate	*5*	*As selected from screen point 15 location*
Groundwater- Trip Blank	*1*	*Supplied by SHL*

Instrument/Equipment Testing, Inspection, and Maintenance Requirements:
Per *IDNR Quality Management Plan, QMP-03, August 1, 2011* and IDNR Contaminated Sites equipment SOPs.

Inspection/Acceptance Requirements for Supplies and Consumables:
Per *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

Data Acquisition Requirements:
Per *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

Data Management:
Per *IDNR Quality Management Plan, QMP-03, August 1, 2011.* Sample data for this specific project will be produced internally from IDNR Contaminated Sites analytical equipment with verification sampling conducted by SHL.

Assessment/Oversight:
All assessment and oversight activities are in accordance with *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

Data Validation and Usability:
All data validation will be in accordance with *IDNR Quality Management Plan, QMP-03, August 1, 2011.*

APPENDIX A

FIGURES

Figure 1 – Site Topography
Figure 2 – Site Location
Figure 3 – Sample Locations

Emmetsburg Metolachlor Investigation ESS

Figure 1 - Site Topography

Emmetsburg Metolachlor Investigation
Emmetsburg, Iowa

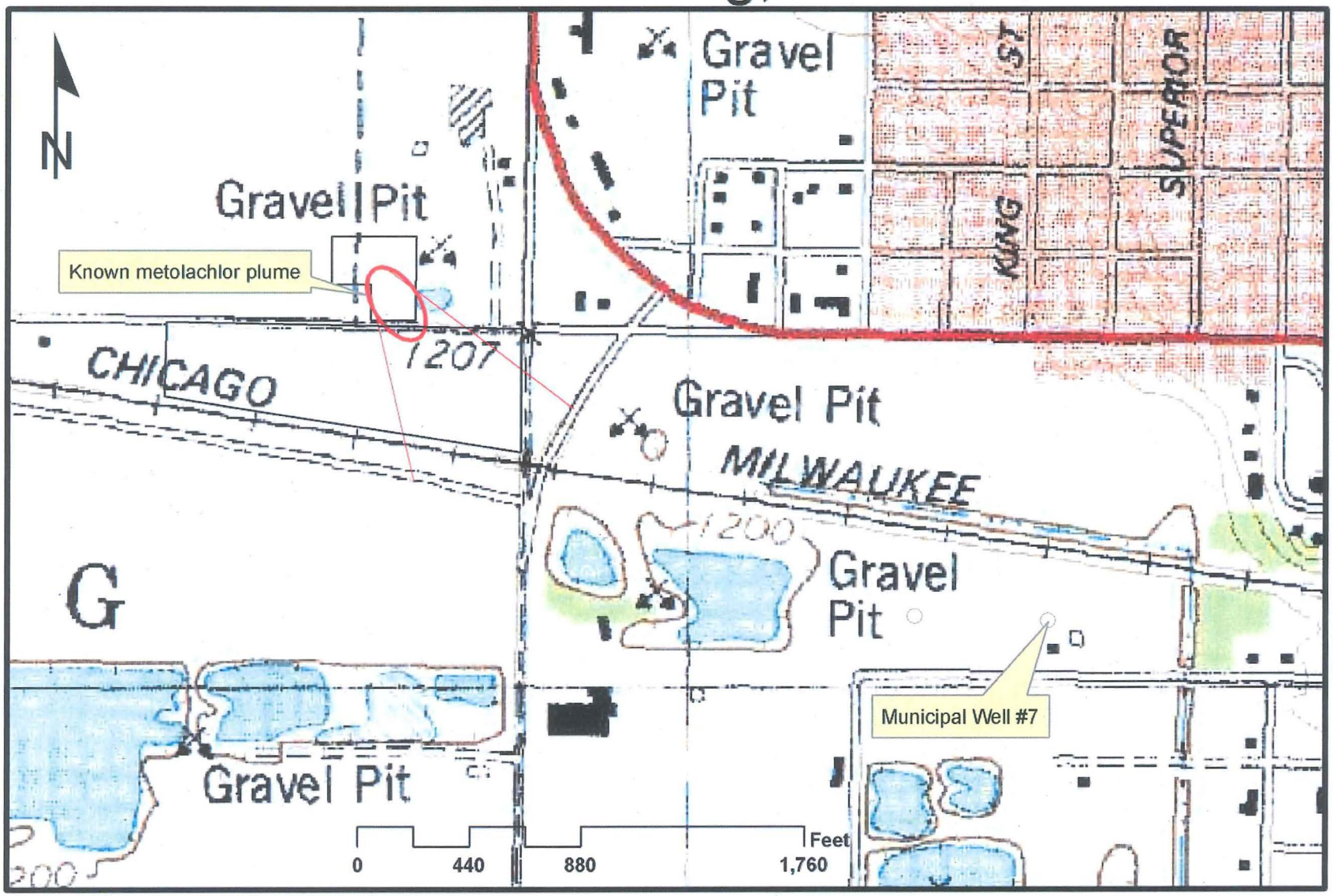


Figure 2 - Site Location

Emmetsburg Metolachlor Investigation
Emmetsburg, Iowa

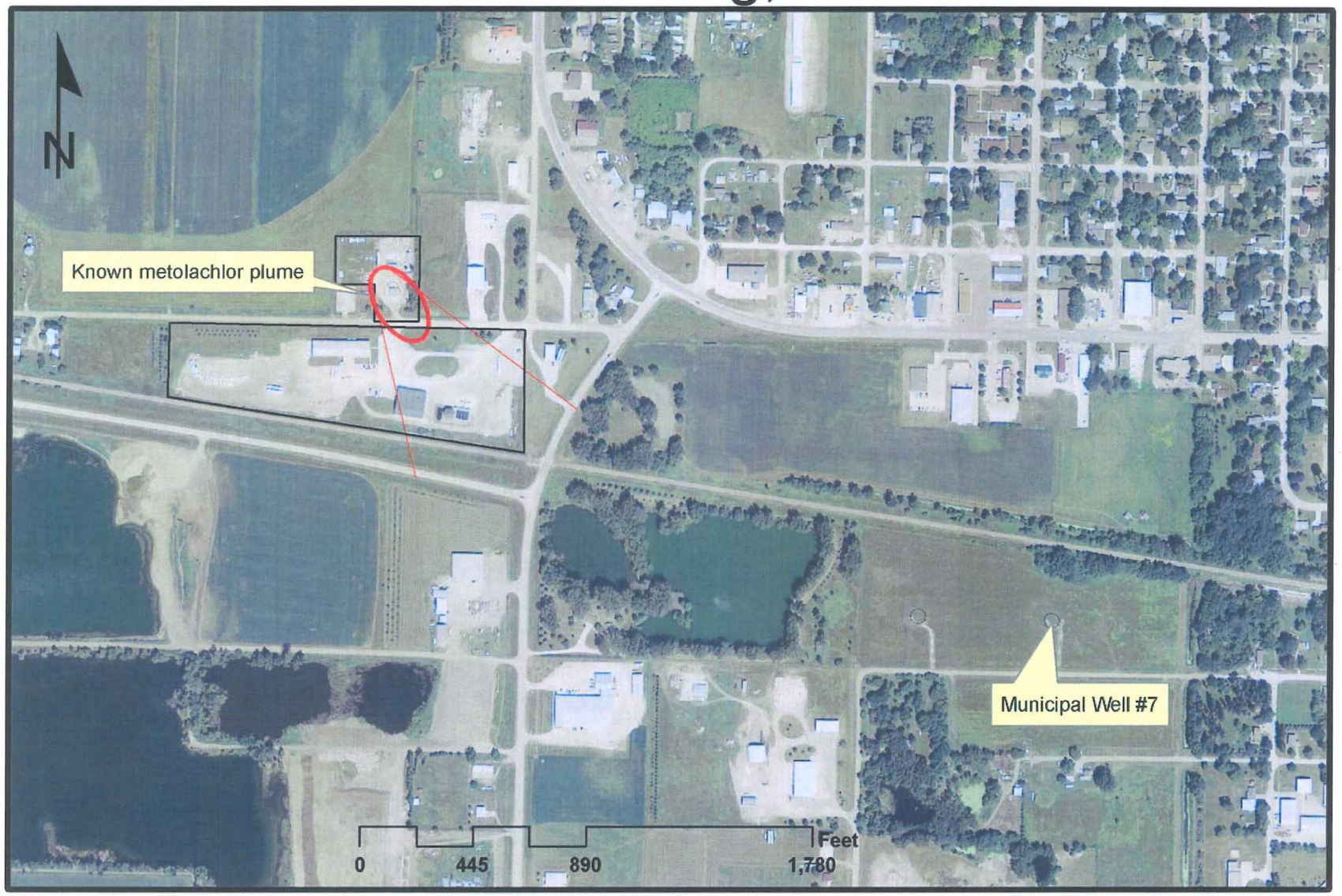
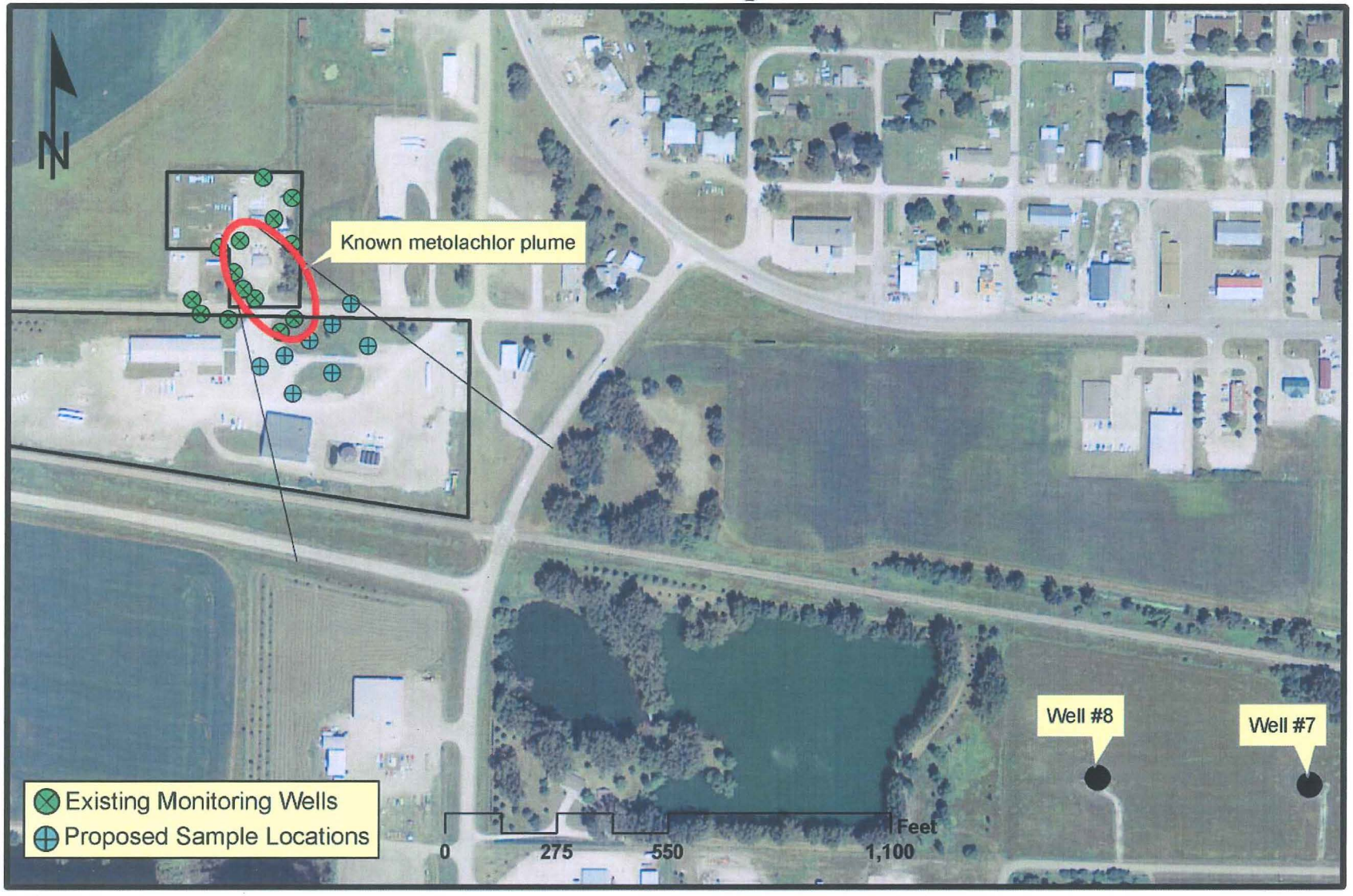


Figure 3 - Sample Locations

Emmetsburg Metolachlor Investigation
Emmetsburg, Iowa



APPENDIX B

FORMS

Form 1 - Sample Collection Form
Form 2 - Chain of Custody

Emmetsburg Metolachlor Investigation ESS

Sample Type/Matrices: *(Must check one)*

▼Water
- ☐ Waste Water
- ☐ Drinking Water
- ☐ Surface Water
- ☐ Ground Water
- ☐ Other_____

▼Solids
- ☐ Soil
- ☐ Foliage
- ☐ Sludge
- ☐ Sediment

DNR Project Codes: *(Must check one)*
- ☐ 17WSTECH
- ☐ WQUST
- ☐ 04WQFS
- ☐ 05WQFK
- ☐ 07WQER
- ☑ WMSF
- ☐ WQSWR
- ☐ 16WSCOMP

REPORT TO:
Name of Person: Tami Rice
IDNR & Office: Contaminated Sites/Wallace Bldg
Street Address: 502 E 9th Street
City, State, Zip: Des Moines, Iowa 50319
Phone Number: 515-281-4420
Fax Number: 515-281-8895
E-MAIL: tami.rice@dnr.iowa.gov

BILL TO: ☑ same as Report to:

Complete the following information only for public water supply

PWS Name: _____

PWS ID: _____ **Water Facility ID #**: _____ **Sampling Point ID**: _____

Sample Category: ☐CH ☐TC ☐RA ☐PB **choose one*
CH–Chemical, TC–Coliform, RA–Radionuclides, PB–Lead

Sample Type: ☐RT ☐SP ☐RP **choose one*
RT – Routine, SP – Special, RP– Repeat

Chlorine Residual: Free _____mg/L Total _____mg/L

Environmental Sample Collection Form

Requested Analyses

Analysis and Method Requested: _____

Complete the following information. Please use one form per site.

Collection Site: _____ Number of bottles submitted per collection site: _____
Specific sample location/SHL bottle #(s)

Collection Location: _____
(Town, County, GPS, Township, Section, Road Intersection, etc)

Collection Date/Time: ____/____/____/_____ Client Reference: _____
Year mm dd Military time Additional client information if needed

Collector's Name: _____ Collector's Phone #: _____
Please print

Collector's Signature: _____

Chain of Custody/Tracking Signatures

Relinquished by: _____ Date/Time ____/____/____/_____

Received by: _____ Date/Time ____/____/____/_____

Relinquished by: _____ Date/Time ____/____/____/_____

Received by: _____ Date/Time ____/____/____/_____
SHL Custodian

For SHL use only. Please do not write below here.

SAMPLE INTACT: ☐ Yes ☐ No pH: _____ TEMPERATURE: _____

Comments: _____

Place Label Here | Place Label Here | Place Label Here

State Hygienic Laboratory

Lakeside Laboratories
1838 Highway 86
Milford, IA 51351
Phone #: 712-337-3669 ext: 6
Fax #: 712-337-0227

2220 S. Ankeny Blvd
Ankeny, IA 50021
Phone #: 515-725-1600
Fax #: 515-725-1642

U of I Research Park
Iowa City, IA 52242-5002
Phone #: 319-335-4500
Fax #: 319-335-4555

http://www.uhl.uiowa.edu

IDNR Contaminated Sites Use Only: Project: Cost center: Activity code:	Comments:				Analysis Requested											Sample Labels - SHL USE ONLY
Collection Site	**Date year/mm/dd**	**Time military**	**sample matrix see below or identify other**	**# of Bottles**												

Sample Type/Matrices:

▼Water
- Waste Water
- Drinking Water
- Surface Water
- Ground Water

▼Solids
- Soil
- Foliage
- Sludge
- Sediment

Print Form

5-16-11 Revised

APPENDIX C

SITE-SPECIFIC SAFETY AND HEALTH PLAN

Emmetsburg Metolachlor Investigation ESS

Health and Safety Plan
Emmetsburg Metolachlor Investigation, Emmetsburg, Iowa

Operation of Field Equipment

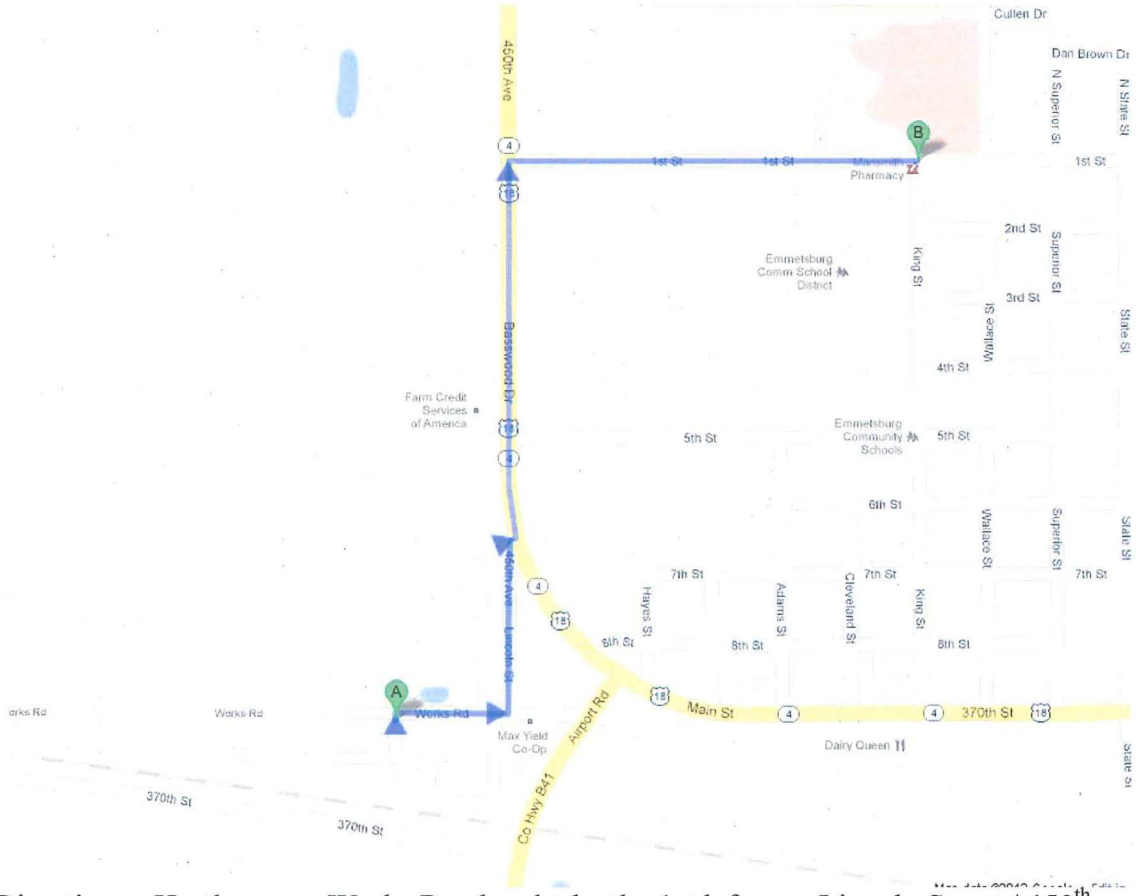
Operation of all equipment (Geoprobe) during fieldwork will follow safety recommendations described by the manufacturer and as referenced in the Department's Quality Management Plan.

Personal Protection

All IDNR staff participating in fieldwork will have Level D Personal Protection to include safety glasses, hearing protection, hardhat, long-sleeve shirt, long pants and safety shoes. IDNR personnel will evacuate the area if any condition is encountered that would require a higher level of personal protection.

Route to Nearest Hospital

The hospital nearest to the site is the Palo Alto County Hospital, located at 3201 1st Street, Emmetsburg, Iowa 50536.



Directions: Head east on Works Road and take the 1st left onto Lincoln Street / 450th Avenue. Turn left onto Basswood Drive/ US-18/ IA-4. Take the 2nd right onto 1st Street and the hospital will be located on the left (north) side of 1st Street.

First Aid

All Field Staff are familiar with the location and contents of the first aid kit on-board the Geoprobe vehicle, the route to the hospital, and have had the 40-hour HAZWOPER training w/ the 8-hour refresher training.

Safety Meetings

All Field Staff will participate in daily safety meetings to review safety issues on site and each member will sign the safety log.