CON 12-15
Doc #22137

GEODE ENVIRONMENTAL

SITE ASSESSMENT WORK PLAN
OSKALOOSA IMPLEMENT
2350 HIGHWAY 23 SOUTH
OSKALOOSA, IOWA

PREPARED FOR
CARL E. BOAT MARITAL TRUST
C/O STEVE BOAT
MESA STRUCTURES, INC.
PO BOX 1989
GLENWOOD SPRINGS, CO 81602-1989

PREPARED BY
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JANUARY 14, 2010

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2350 HIGHWAY 23 SOUTH
OSKALOOSA, IOWA

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SITE ASSESSMENT WORK PLAN
OSKALOOSA IMPLEMENT
2350 HIGHWAY 23 SOUTH
OSKALOOSA, IOWA

I. Introduction

The following document details proposed procedures and protocols for an investigation at Oskaloosa Implement located at 2350 Highway 23 South in Oskaloosa, Iowa. The investigation is being conducted at the request of the Iowa Department of Natural Resources. The current property owner is the Carl E. Boat Trust per the Mahaska County Assessors web site. The purpose of this investigation will be to determine the risk to human health and environment related to reports of hazardous conditions at the property.

II. Site History

A Phase I Environmental Site Assessment (ESA) was performed by West Central Environmental Consultants, Inc. (WCEC) in September 2009 for Dealer Sites, LLC. Information from the Phase I report indicates that the property was undevevloped until 1967. The property was then developed for use as an implement sales dealership by Oskaloosa International. Bulk petroleum use and chemical storage occurred on this site with an underground storage tank (UST) having been reportedly removed from the site in approximately 1984.

WCEC's findings within the Phase I ESA provided the following Recognized Environmental Conditions:

1) A burn pile, including ash and metal debris in the central portion of the property.
2) Oil and other potential contaminants from shop drains potentially impacting soils via the septic drainfield. The septic system is reportedly located north of the main shop.
3) The former UST located at the southwest corner of the main shop.

A Site Plan Map is provided as Figure 1.

As a result of these findings, WCEC was contracted to complete a Phase II ESA. The reported purpose of the Phase II ESA was to assess the outfall of the shop floor drains and to assess the former UST location.

III. Phase II ESA Results

During the week of 10/12/09, a holding tank was installed for the shop floor drains by Erve DeBruin. WCEC mobilized to the site on 10/20/09. WCEC was informed by Jim Vander Werff, facility General Manager, that the floor drains had connected directly to a tile on the western border of the property. This information contradicted previous indications of discharge to the septic tank and drainfield located further to the north. Indications of leakage from the drain pipe were noted during installation of the holding tank.

WCEC collected a soil sample from below the drain pipe west of the holding tank. The sample was labeled as TP-2 and was collected at a depth of approximately 2 feet below grade. Additional samples were obtained near the building foundation east of the holding tank (TP-3) and at the west end of the former UST basin (TP-1). It should be noted that TP-3 was obtained from native soil backfill from soil excavated for the holding tank installation.

Samples were analyzed at Pace Analytical in Minneapolis, Minnesota using Wisconsin Modified Diesel Range (DRO) and Gasoline Range Organics (GRO) analyses. Results indicated that

presence of DRO at a concentration of 7,650 parts per million. While not performed using Iowa Methods, the general indication is that of a diesel concentration exceeding the Iowa Statewide Standard and Tier 1 Look-Up Table value of 3,800 parts per million.

Groundwater sampling was not performed.

Geode makes no warranty or confirmations of work performed by others including, but not limited to methods, protocols and results.

IV. IDNR Response

The Iowa Department of Natural Resources (IDNR) Contaminated Sites Section was provided with copies of the Phase I and Phase II ESA. Review was completed and a response provided in a 12/7/09 letter. The IDNR has required the completion of additional investigation and the completion of a Site Assessment Work Plan to the Department. The Site Assessment Work Plan is to include:

- Additional investigation to determine whether heavy metal and solvent contamination of surface and groundwater is present due to discharge from the floor drains.
- Sampling of soil and groundwater in the septic absorption field.
- Additional investigation to determine whether the waste discharges to an absorption field or to a surface water drainageway. If the tile line or absorption field discharges to a surface drainageway, the drainageway should be assessed for the presence of contamination.

Geode notes that a septic absorption field may not exist at the site. Sampling will be performed in the direction of the septic tank and discharge line. Adaptations to the plan may be completed if additional information is provided which confirms the presence of an absorption field.

IV. Field and Drilling Protocol

In order to further assess the impact to soil and groundwater in the vicinity of the suspect source area(s), Geode Environmental will complete a series of borings which will be converted into monitoring wells. The primary purpose of these sampling points will be to determine concentrations in the suspected source area(s).

IV.1 Preliminary Activities

A minimum of 48 hours prior to drilling activities, Geode Environmental will contact Iowa One Call for a joint utility meet. The joint meet will serve a dual purpose of 1) providing a margin of safety to avoid utilities during boring advancement and 2) assist in the location of receptors which may provide pathways of impact to human health. Geode also requests the location of any private sub-grade structures from the owner and facility management with knowledge of such structures.

Contact will be made with the City and/or County Engineer's Office to locate a benchmark set relative to the USGS ASL. If no benchmark set relative to ASL is located within 0.5 miles, then an on-site benchmark will be set and applied an arbitrary value of 100'.

During completion of the Site Assessment Work Plan, Geode was provided an outflow diagram of the former system and septic tank at the property. Mr. DeBruin indicated that the floor drains previously discharged to the tile line uncovered during previous excavation. The line reportedly runs west and then south 1,500 to 2,000 feet. The current set-up is strictly a holding tank. Facility restrooms and sinks are reported to discharge to the septic tank which is believed to

discharge to the tile line. The diagram is included as Figure 4. Further information is being pursued through contact with Brian Edle of Oskaloosa. According to Mr. DeBruin, Mr. Edle may have better knowledge of the septic tank/system specifics. Calls to Mr. Edle had not been returned at the time of this report. Attempts to finalize this information will continue.

Pre-arrangement will also be made to perform confirmation of the site discharges. This will be performed through the observation of flow and/or tracing of the facility discharges. Access of the septic and holding tanks will be completed if possible. Discharges from all individual facility drains and outflows could be performed through observation at the septic or holding tank. The previously exposed drain pipe should be uncovered and traced to determine its orientation.

IV.2 Drilling

Drilling will focus on the suspected source area(s). A total of 5 shallow borings/monitoring wells are proposed. Topographical maps suggest overland flow to the southwest. Contractor supplied information suggests a very high water table (<3' bgs). Therefore, it is believed that groundwater flow at the site will follow surface topography to the southwest. The initial boring would be completed adjacent to impact observed at TP-2. Additional borings/monitoring wells will be completed: 1) upgradient near the septic tank/possible absorption field; 2) downgradient (SW); 3) WNW along the drain pipe; and 4) cross gradient to the southeast.

Additionally, a deeper boring will be completed through the first encountered zone of reduced permeability adjacent to the initial boring located at TP-2, or an alternate location if field observations suggest higher levels of contamination elsewhere. Observations of soil consistency, clay content, fracturing and relative oxidation would be utilized as markers to suggest reduced permeability. These borings would be completed a minimum of seven feet into the lower unit with the goal of obtaining samples isolated from the upper unit.

The combination of borings would allow for determination of a direct vertical flow component (up or down) in the immediate vicinity. See Figure 5 for the proposed boring locations.

Drilling will be completed utilizing a truck mounted hydraulic unit. For shallow borings, the drilling unit will advance 3.25" inside diameter (6.625" outside diameter) hollow stem augers. During the advancement of each auger flight the leading end will be equipped with a core barrel sampling device. Following each five foot advancement, the core barrel will be retrieved from the hollow stem, and the soil core will be extracted for observation, lithologic logging and sampling by the on-site scientist. During each advancement, the augers will be allowed to rotate for clearance of the outer bore to provide a clean hole for the installation of the monitoring well. The core barrel will be scrubbed with an alconox/water mixture between advancement to reduce the risk of cross contamination in samples.

Prior to advancing any auger stem in a subsequent boring, it will be pressure washed with detergent to reduce the possibility of cross contamination.

For deeper borings, isolation of the upper unit will be made by blind drilling (no soil cores) the upper limits using an 11" outside diameter auger. Blind drilling will only be used to the depth of terminus of the nearby shallow well. The auger will be removed and an 8" PVC pipe will be set into the top of the reduced permeability layer and grouted into place. Drilling will continue following the method described above for shallow borings.

IV.3 Monitoring Well Construction
Upon completion of each boring, the auger string will be removed using either the drilling rig hydraulics or winch. Prior to removing the auger string, monitoring well piping consisting of 2" diameter PVC will be lowered into the hollow stem. The piping will be provided with an end cap and will consist of 0.01" slotted well screen and a minimum riser length to 3 feet below grade for shallow wells. The screened interval will be determined by observation of soil moisture content due to the lack of information on static water levels. Deeper wells will consist of riser pipe to a depth of 2 feet below the zone of reduced permeability. A minimum of 5 feet of 0.01" slotted well screen will be utilized at the base.

Filter materials will be poured into the hole from the surface. Graded sand filter would be used from the base of the hole to a minimum of 0.5' above the screened interval. Bentonite chips will be utilized from the top of sand to approximately 1' below grade. Flush mount well covers will be utilized. Each access type would be concreted into the surface using a corresponding pad size and depth to minimize heaving.

Figure 6 contains Proposed Monitoring Well Construction Diagrams.

IV.4 Surveying
Upon completion of drilling activities, surveying will be completed of the existing and newly completed borings and monitoring wells. Surveying procedures will include the use of a tripod, self leveling laser and stadia rod. The tripod will be positioned in a location allowing for unobstructed view of the maximum number of locations. At this site, it appears that viewing would generally be considered clear in a number of areas. The tripod will be brought to near level conditions utilizing leg adjustments. The level will then be secured to the top of the tripod utilizing set screws. The instrument will be turned on and allowed to self level. Measurements would then be obtained through a receiver attached to the stadia rod.

For assistance in any future surveying, a chiseled X will be placed on a semi-permanent location on the site. If future surveying is required, this location will be utilized as the temporary benchmark.

For confirmation purposes, triangulation will be performed through the minimum of one movement and resetting of the level. A minimum of two backshots will be completed and will include the temporary on-site benchmark.

Calculations will be performed at each boring location and recorded to provide elevations for all ground surface and top of casing where applicable. Calculations will be applied by subtracting the survey reading from the height of instrument. Height of instrument will be determined by adding the survey reading of the benchmark, or turning point, to its elevation.

V. Soil Sampling Protocol
Soil sampling will be performed at each shallow boring to quantify soil concentrations. Borings will continue until depletion of the field measured soil impact occurs, or sufficient penetration of the groundwater has occurred. For each deeper boring, soils will not be screened until the depth of the adjacent, shallow boring, has been exceeded. Laboratory submittal of soil samples from the deeper strata is not proposed. An additional soil sample will be collected from surface soils of the first tile outfall of the discharge lines.

V.1 Field Screening
At each one foot interval, soil samples will be collected from the core barrel. Split samples will be obtained and placed in plastic baggies with air tight zip seal. One sample will be placed in a cooler on ice. The second sample will allowed to equilibrate with ambient air to allow for vapor accumulation within the bag. In the event that activities occur during cold weather, the screening samples will be subjected to heated air. All samples collected will be obtained utilizing disposable nitrile gloves to reduce the possibility of sample cross contamination and as a protective measure for the sampling personnel.

Field screening will be performed by placing the tip of an organic vapor meter (OVM) or photoionization detector (PID) into the baggie, measuring and recording the maximum observed concentration of the headspace vapor.

V.2 Sampling for Laboratory Analysis
Upon completion of field screening at the shallow borings, the split sample of the sample exhibiting maximum field screening for each respective boring will be placed in a clean 4 ounce glass jar(s), labeled and stored on ice for shipment to a certified laboratory for analysis using the following methods:

EPA Method 8260 covering volatile organic compounds (VOC's) including fuels and solvents:
RCRA Metals
Iowa Method OA2 extractable hydrocarbons

In the event that field screening results are not indicated, the laboratory submittal for the shallow borings will be at a depth of 2 feet below grade. Upon completion of the drilling event and within 72 hours of sample collection, the sample lot will be received at the laboratory with a chain-of-custody.

VI. Water Sampling Protocol
Proposed water sample locations include the six newly installed wells. Prior to sampling, water levels will be gauged using a sounding device. Depth to water will be observed and recorded from the north side of the top of casing. Utilizing this location will allow future events to correspond vertically. Measurements will be subtracted from the surveyed elevation for determination of static water elevation.

Purging will be completed by bailing the wells of 3 casing volumes or until dry. Volume calculations will be based on the volume of a cylinder (pi X r^2 X h), and generally approximate 0.5 gallons per foot of water column (3 volumesof a 2" well). Bailing will be completed utilizing a clean, disposable, dedicated bailer. Upon recharge of fresh water, samples will be obtained using a bailer. Water will be carefully poured off the top of the bailer into laboratory supplied sample containers.

In the event separate phase liquids are identified in the water column, Geode will contact the client and determination will be made regarding contact of the IDNR for product reporting purposes. Product will then be removed and stored in a can or drum on-site.

During all sampling procedures, personnel will be wearing disposable nitrile gloves to minimize the potential of cross contamination.

Immediately following collection, samples will be labeled and stored on ice. All sample lots will be shipped to the certified laboratory for receipt within 72 hours of collection. Analyses will be performed as listed for soil above.

VII. Receptor Identification

Geode Environmental will perform background research, utility contact and on-site observation to determine the location of applicable human health receptors. This information will be utilized to determine if the public is currently, or potentially, at risk as a result of conditions associated with the petroleum release.

VII.1 Water Well Research

Determination of the position of water wells will be made through contact with City Officials, the Designated County Authority and Iowa Geological Survey Bureau web based search. Personnel will perform a walkabout survey within 500 feet of the suspect areas to determine if any wells not listed with authorities are present. Landowner interviews will be completed for nearby adjacent properties. This information will be utilized to determine the potential of impact to human health through dermal and ingestion pathways. Separation will be made between drinking and non-drinking water wells as relates to usage and human exposure times.

VII.2 Hydraulic Conductivity Testing

Hydraulic conductivity testing will be performed at 3 monitoring wells chosen based on soil types. Bail down type tests will be completed by bailing the water level down (dry if possible) and recording the water level over time during recharge. Data will be reduced and input into the AQTESOLV for Windows software for determination of hydraulic conductivity using the Bouwer-Rice solution for unconfined aquifers.

VII.3 Water Line Research

Meetings with the utility company during the joint meet will be utilized to determine the proximity and construction of water lines within the immediate area. Completion of this task will be utilized to further address the potential of dermal and ingestion threat to human health due to long term exposure. Of main concern will be the presence of plastic water lines which may be susceptible to permeation and entrance of contaminants into the water supply. Based on the position of the suspect areas, water lines are not anticipated to be a concern relative to identified contamination.

VII.4 Vapor Receptor Research

A visual walkabout survey will be utilized to determine the presence or absence of sanitary sewers and basements within 500 feet of the subject area. The joint meet utility locate will be utilized to provide locations of utility conduits which may be associated with vaults and accesses which could potentially be subject to vapor accumulation. This information will be utilized to determine risk to human health through inhalation and possible explosion hazards. If any locations are identified which may be subject to vapor accumulation, they will be accessed and measurements of the percent of Lower Explosive Limit (LEL) will be made. If identified, hazardous conditions will be reported immediately to the case manager and the field office, and actions will be applied to abate the concerns.

VII.5 Surface Water Research
A visual walkabout survey will be completed to determine the presence of surface water within 500 feet of the site. This information will be supported through aerial photograph research and topographic map research. As part of sampling procedures, discharge of the tile lines will be determined regardless of distance from the property.

VIII. Reporting
Data collected through the course of the investigation will be accumulated, reduced and provided in a format which simplifies the scientific data into a report which summarizes conditions at the site. This will include, but not be limited to site maps, contaminant concentrations, risk receptors, analytical data, and boring logs. The ultimate goal of reporting will be to supply the IDNR with a product which summarizes information and leads to determination of risk conditions if present.

The Chapter 133 Site Assessment is a document which leads to designation as Aggravated Risk, Significant Risk, or Other. Aggravated Risk is presented when contamination presents a potentially catastrophic, immediate and substantial risk to human health and the environment. This scenario requires expedited action to abate the risk. Significant Risk is presented when groundwater is contaminated. This scenario requires cleanup to below action levels or an alternate cleanup level. Other is presented when Aggravated or Significant Risk conditions do not exist. This requires monitoring, preventative measures and management.

VIII.1 Minimum Report Contents
Geode Environmental will include those items listed within the guidelines for a Chapter 133 Site Assessment except where indicated. The list includes:

- Types, amounts and sources of contaminants present-amounts present in the subsurface will not be detailed due to the limited scope of delineation.
- Hydrogeological characteristics of the site-will be limited to soil types and conductivity estimates due to the limited scope of the investigation.
- Horizontal and vertical extent of contamination-will be limited to data presentation as full delineation is not planned.
- Historical data such as management practices, inventory records, literature searches, photographs, and personal interviews
- Groundwater flow maps
- Well placement discussion
- Boring logs
- Groundwater gradient
- Soil transmissivity, permeability and porosity-bail down slug tests will be performed on 3 wells.
- Contaminant plume maps

It should be noted that some omissions or adaptations to this list will occur pending the ability to collect the information. Notations have been provided above.

VIII.2 Risk Classification
The site will be designated as Aggravated Risk, Significant Risk, or Other as outlined in Chapter 133. Any classification applied to the site will be subject to IDNR review and comment.

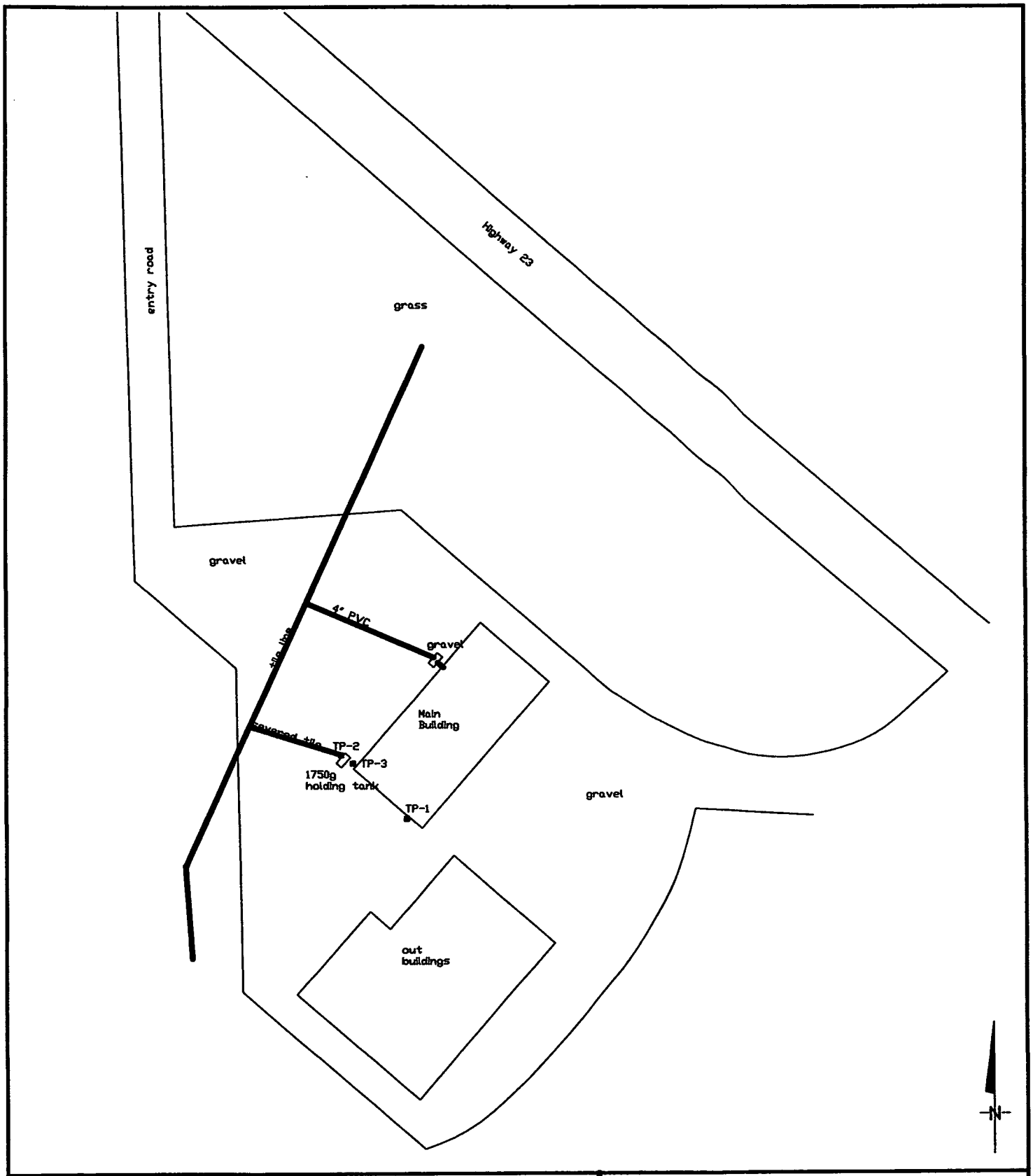
VIII.3 Conclusions and Recommendations
Any reporting will include conclusions, in the form of identification of risk receptors and pathways. Recommendations regarding the future of the project will be made as to whether

further assessment, corrective action and/or monitoring should be performed. All recommendations will be subject to IDNR review and comment.

IX. Recommendations

Geode Environmental recommends the submittal of this report to the IDNR case manager (Jim Kacer, Contaminated Sites) for review. We believe the document supplies sufficient information to allow the case manager to proceed with the approval of the plans and protocols included herein. Following review and comment by the IDNR, we recommend the completion of the provided plan. If the IDNR indicates additional activities, Geode Environmental will review the requests and provide recommendations regarding their applicability to the project. Any additional activities will be subject to further budget approval.

Figure 1 – Site Plan Map



GEODE ENVIRONMENTAL, LLC		Date: January 2010
Oskaloosa Implement 2350 Highway 23 South Oskaloosa, IA	APPROXIMATE SCALE IN FEET 40 0 40 80	SITE PLAN MAP
LUST#NA REG #	Scale: 1" = 80'	

Figure 2 – Site Vicinity Map

Iowa Geographic Map Server - Iowa State University Geographic Information Systems Support & Research Facility

Home | News | Map Search | GIS Tools | Links

Iowa Index Map • | Map Layer Only • | Download map • | Display Streams • | Display Twp-Rng-Sec • | 1990s Index • | 2002 Index • | 2004 Index • | 2005 Index • | 2006 Index • | 2007 NW Iowa Index • | 2007 Index • | 2008 Index • | Remove overlays

Click on the map to

- Recenter
- Zoom IN
- Zoom OUT

Select a map layer

- 2009 Orthophotos - USDA (natural color)
- 2008 Orthophotos - USDA (natural color) Status Map
- 2007 Orthophotos NW Iowa (natural color) Status Map
- 2007 Orthophotos NW Iowa (color-infrared) Status Map
- 2007 Orthophotos - USDA (natural color)
- 2006 Orthophotos - USDA (natural color)

(* Current layer)

Select a zoom level

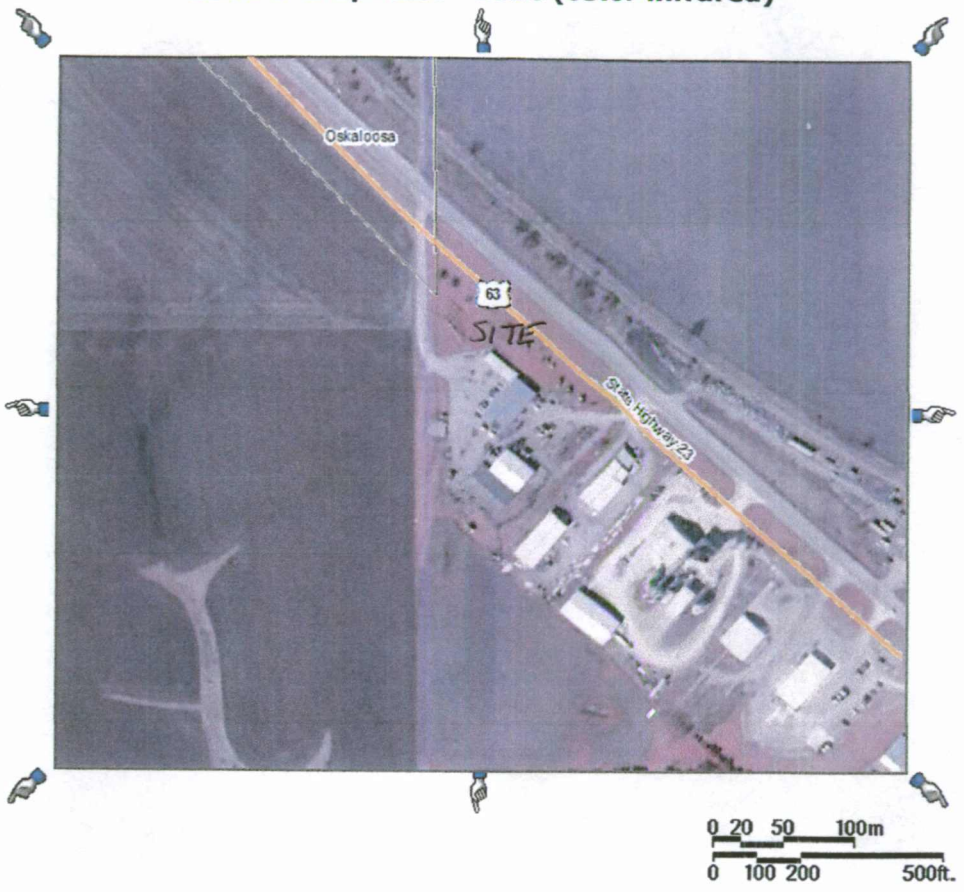
- 900m pixels
- 500m pixels
- 200m pixels
- 100m pixels
- 50m pixels
- 20m pixels
- 10m pixels
- 5m pixels
- 2m pixels
- 1m pixels *
- 0.5m pixels

(* Current zoom level)

View Width: 600 pixels Height: 500 pixels

Refresh Map

2002 Orthophotos - IGIC (color-infrared)



1" ≈ 417'

The viewport above measures width=600 and height=500 meters on the ground. Each pixel you see measures **1x1** meters. The viewport is centered on X=**532485**, Y=**4568838** (UTM Zone 15, Meters, NAD83).

Iowa Geographic Map Server - Iowa State University Geographic Information Systems Support & Research Facility

Click on the map to

- (•) Recenter
- ( ) Zoom IN
- ( ) Zoom OUT

Select a map layer

- ( ) 2009 Orthophotos - USDA (natural color)
- ( ) 2008 Orthophotos - USDA (natural color) Status Map
- ( ) 2007 Orthophotos NW Iowa (natural color) Status Map
- ( ) 2007 Orthophotos NW Iowa (color-infrared) Status Map
- ( ) 2007 Orthophotos - USDA (natural color)
- ( ) 2006 Orthophotos - USDA (natural color)

(* Current layer)

Select a zoom level

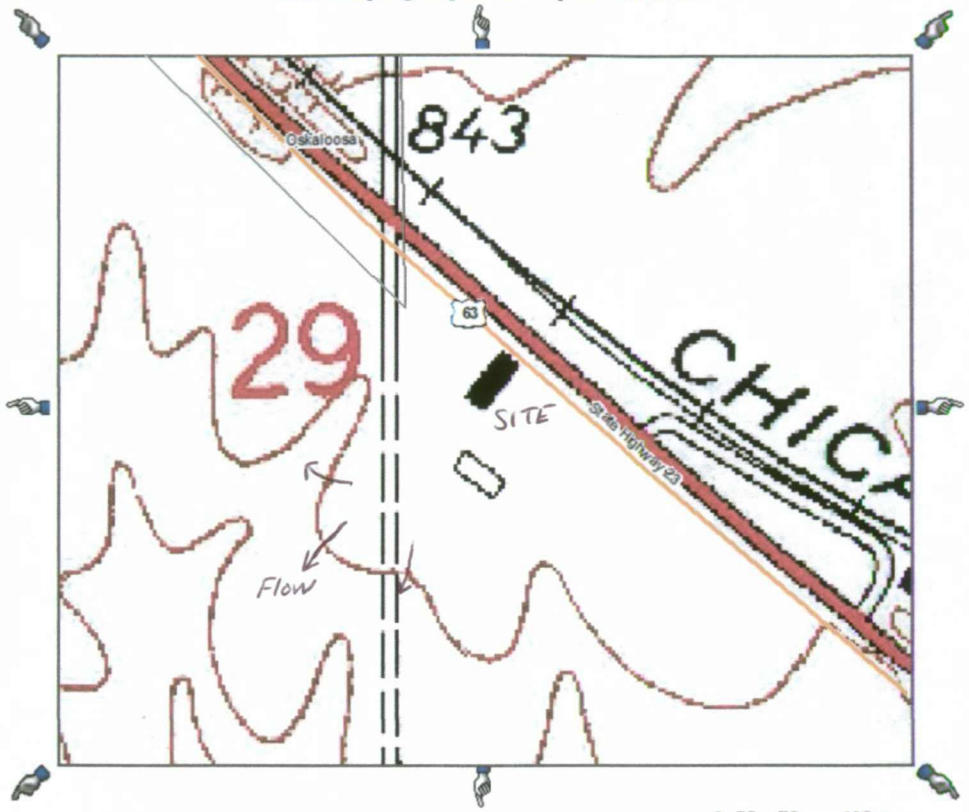
- ( ) 900m pixels
- ( ) 500m pixels
- ( ) 200m pixels
- ( ) 100m pixels
- ( ) 50m pixels
- ( ) 20m pixels
- ( ) 10m pixels
- ( ) 5m pixels
- ( ) 2m pixels
- ( ) 1m pixels *
- ( ) 0.5m pixels

(* Current zoom level)

View Width: 600 pixels Height: 500 pixels

Refresh Map

24K Topographic Maps - USGS



1" = 417'

The viewport above measures width=600 and height=500 meters on the ground. Each pixel you see measures **1x1** meters. The viewport is centered on X=**532508**, Y=**4568850** (UTM Zone 15, Meters, NAD83).

Figure 3 – Previous Analytical Results

Pace Analytical®
www.pacelabs.com

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

October 30, 2009

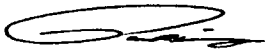
Jeff McCoy
West Central Env. Consultants
14 Green River Road
PO Box 594
Morris, MN 56267

RE: Project: 7331
Pace Project No.: 10115327

Dear Jeff McCoy:
Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Kirchberg

paul.kirchberg@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 7331
Pace Project No.: 10115327

Minnesota Certification IDs
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Alaska Certification #: UST-078
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Wisconsin Certification #: 999407970

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Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 7331
Pace Project No.: 10115327

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10115327001	TP1-4'	Solid	10/20/09 00:00	10/22/09 12:30
10115327002	TP2-2'	Solid	10/20/09 00:00	10/22/09 12:30
10115327003	TP3-2'	Solid	10/20/09 00:00	10/22/09 12:30

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 7331
Pace Project No.: 10115327

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10115327001	TP1-4'	% Moisture	JDL	1
		WI MOD DRO	JLR	2
		WI MOD GRO	AMS1	6
10115327002	TP2-2'	% Moisture	JDL	1
		WI MOD DRO	JLR	2
		WI MOD GRO	AMS1	6
10115327003	TP3-2'	% Moisture	JDL	1
		WI MOD DRO	JLR	2
		WI MOD GRO	AMS1	6

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 7331
Pace Project No.: 10115327

Sample: TP1-4' **Lab ID: 10115327001** Collected: 10/20/09 00:00 Received: 10/22/09 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	ND	mg/kg	5.7	1	10/23/09 19:38	10/27/09 19:02		
n-Triacontane (S)	61	%	50-150	1	10/23/09 19:38	10/27/09 19:02		
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.							
Benzene	ND	mg/kg	0.059	1	10/23/09 13:06	10/23/09 21:18	71-43-2	
Ethylbenzene	ND	mg/kg	0.059	1	10/23/09 13:06	10/23/09 21:18	100-41-4	
Gasoline Range Organics	ND	mg/kg	5.9	1	10/23/09 13:06	10/23/09 21:18		
Toluene	ND	mg/kg	0.059	1	10/23/09 13:06	10/23/09 21:18	108-88-3	
Xylene (Total)	ND	mg/kg	0.18	1	10/23/09 13:06	10/23/09 21:18	1330-20-7	
a,a,a-Trifluorotoluene (S)	101	%	80-125	1	10/23/09 13:06	10/23/09 21:18	98-08-8	
Dry Weight	Analytical Method: % Moisture							
Percent Moisture	**15.9**	%	0.10	1		10/26/09 00:00		

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ANALYTICAL RESULTS

Project: 7331
Pace Project No.: 10115327

Sample: TP2-2' **Lab ID: 10115327002** Collected: 10/20/09 00:00 Received: 10/22/09 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO		Preparation Method: WI MOD DRO					
Diesel Range Organics	**7650**	mg/kg	645	20	10/23/09 19:38	10/28/09 12:56		T6
n-Triacontane (S)	0	%	50-150	20	10/23/09 19:38	10/28/09 12:56		S4
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.065	1	10/23/09 13:06	10/23/09 21:41	71-43-2	
Ethylbenzene	ND	mg/kg	0.065	1	10/23/09 13:06	10/23/09 21:41	100-41-4	
Gasoline Range Organics	ND	mg/kg	6.5	1	10/23/09 13:06	10/23/09 21:41		
Toluene	ND	mg/kg	0.065	1	10/23/09 13:06	10/23/09 21:41	108-88-3	
Xylene (Total)	ND	mg/kg	0.20	1	10/23/09 13:06	10/23/09 21:41	1330-20-7	
a,a,a-Trifluorotoluene (S)	98	%	80-125	1	10/23/09 13:06	10/23/09 21:41	98-08-8	
Dry Weight	Analytical Method: % Moisture							
Percent Moisture	**22.0**	%	0.10	1		10/26/09 00:00		

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ANALYTICAL RESULTS

Project: 7331
Pace Project No.: 10115327

Sample: TP3-2' **Lab ID: 10115327003** Collected: 10/20/09 00:00 Received: 10/22/09 12:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS	Analytical Method: WI MOD DRO		Preparation Method: WI MOD DRO					
Diesel Range Organics	**8.8**	mg/kg	6.4	1	10/23/09 19:38	10/28/09 13:04		
n-Triacontane (S)	80	%	50-150	1	10/23/09 19:38	10/28/09 13:04		
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.063	1	10/23/09 13:06	10/23/09 22:05	71-43-2	
Ethylbenzene	ND	mg/kg	0.063	1	10/23/09 13:06	10/23/09 22:05	100-41-4	
Gasoline Range Organics	ND	mg/kg	6.3	1	10/23/09 13:06	10/23/09 22:05		
Toluene	ND	mg/kg	0.063	1	10/23/09 13:06	10/23/09 22:05	108-88-3	
Xylene (Total)	ND	mg/kg	0.19	1	10/23/09 13:06	10/23/09 22:05	1330-20-7	
a,a,a-Trifluorotoluene (S)	98	%	80-125	1	10/23/09 13:06	10/23/09 22:05	98-08-8	
Dry Weight	Analytical Method: % Moisture							
Percent Moisture	**21.8**	%	0.10	1		10/26/09 00:00		

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QUALITY CONTROL DATA

Project: 7331
Pace Project No.: 10115327

QC Batch: GCV/6568 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10115327001, 10115327002, 10115327003

METHOD BLANK: 701782 Matrix: Solid
Associated Lab Samples: 10115327001, 10115327002, 10115327003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/kg	ND	0.050	10/23/09 20:08	
Ethylbenzene	mg/kg	ND	0.050	10/23/09 20:08	
Gasoline Range Organics	mg/kg	ND	5.0	10/23/09 20:08	
Toluene	mg/kg	ND	0.050	10/23/09 20:08	
Xylene (Total)	mg/kg	ND	0.15	10/23/09 20:08	
a,a,a-Trifluorotoluene (S)	%	98	80-125	10/23/09 20:08	

LABORATORY CONTROL SAMPLE & LCSD: 701783 701784

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	mg/kg	5	4.7	4.8	93	96	80-120	3	20	
Ethylbenzene	mg/kg	5	4.6	4.7	91	95	80-120	4	20	
Gasoline Range Organics	mg/kg	50	50.4	56.5	101	113	80-120	11	20	
Toluene	mg/kg	5	4.6	4.7	91	94	80-120	3	20	
Xylene (Total)	mg/kg	15	13.8	14.2	92	95	80-120	3	20	
a,a,a-Trifluorotoluene (S)	%				100	98	80-125			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 7331
Pace Project No.: 10115327

QC Batch: OEXT/11777 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10115327001, 10115327002, 10115327003

METHOD BLANK: 702192 Matrix: Solid
Associated Lab Samples: 10115327001, 10115327002, 10115327003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	5.0	10/27/09 18:38	
n-Triacontane (S)	%	70	50-150	10/27/09 18:38	

LABORATORY CONTROL SAMPLE & LCSD: 702193 702194

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	61.5	66.3	77	83	70-120	8	20	
n-Triacontane (S)	%				77	73	50-150			

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QUALITY CONTROL DATA

Project: 7331
Pace Project No.: 10115327

QC Batch: MPRP/17956 Analysis Method: % Moisture
QC Batch Method: % Moisture Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10115327001, 10115327002, 10115327003

SAMPLE DUPLICATE: 702428

Parameter	Units	10115375001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	83.1	83.3	0	30	

SAMPLE DUPLICATE: 702429

Parameter	Units	10115449001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.4	11.1	7	30	

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QUALIFIERS

Project: 7331
Pace Project No.: 10115327

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: GCV/6569

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

S4 Surrogate recovery not evaluated against control limits due to sample dilution.

T6 High boiling point hydrocarbons are present in the sample.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10115327

Page: of 1288802

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: WCEC	Report To: Jeff McCoy	Attention:
Address: Morris	Copy To:	Company Name:
		Address:
Email To: MCoy.JL@WCEC.com	Purchase Order No.:	Pace Quote Reference:
Phone: 320-561-2239 Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT:	Project Number: #7331	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test ↓ DRO GRO/BTEX Mn/Fe	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TP1-4'	Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT			10/21/09	per sample											X			XXX		10115327001
2	TP2-2'				↓	comments											X			XXX		002
3	TP3-2'				↓	JL 10/23/09											X			XXX		003
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Jeff McCoy	10/21/09	9:00	Chad Norlien	10/21/09	11:30				
	Chad Norlien	10/21/09	12:00	S Hunter/Pace	10/22/09	1230	14	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jeff McCoy

SIGNATURE of SAMPLER: Jeff McCoy DATE Signed (MM/DD/YY): 10/20/09

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: WCEC Project # 10115327

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes ✓ No _____

Thermometer Used 80344042 of 179425 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.4 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents: 10/24/08 LH

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☑No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☑N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☐No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

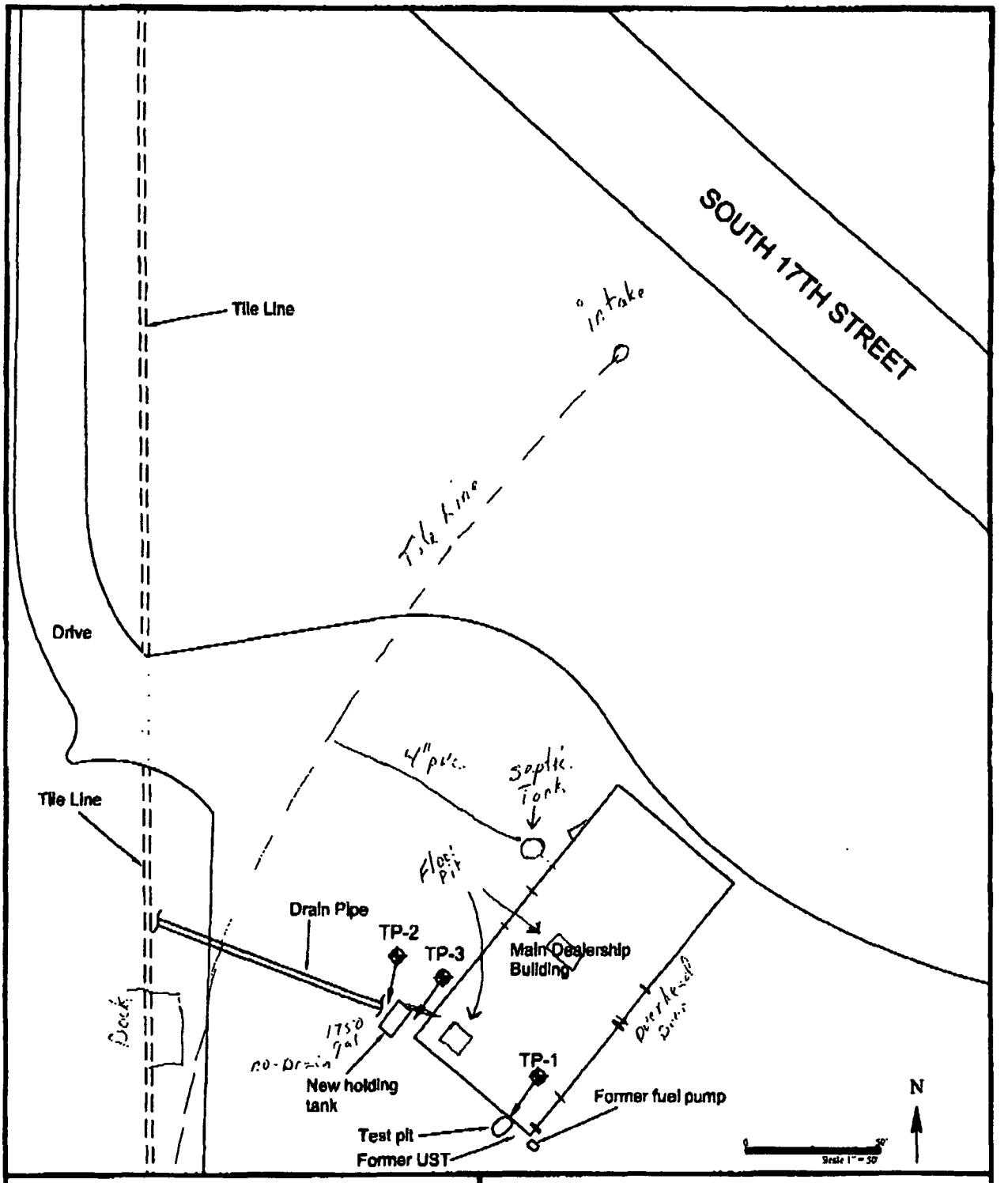
Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 10/23/08

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR. Pace Analytical Services, Inc.
F-L213Rev.00, 05Aug2009 1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

Figure 4 – Outflow Map

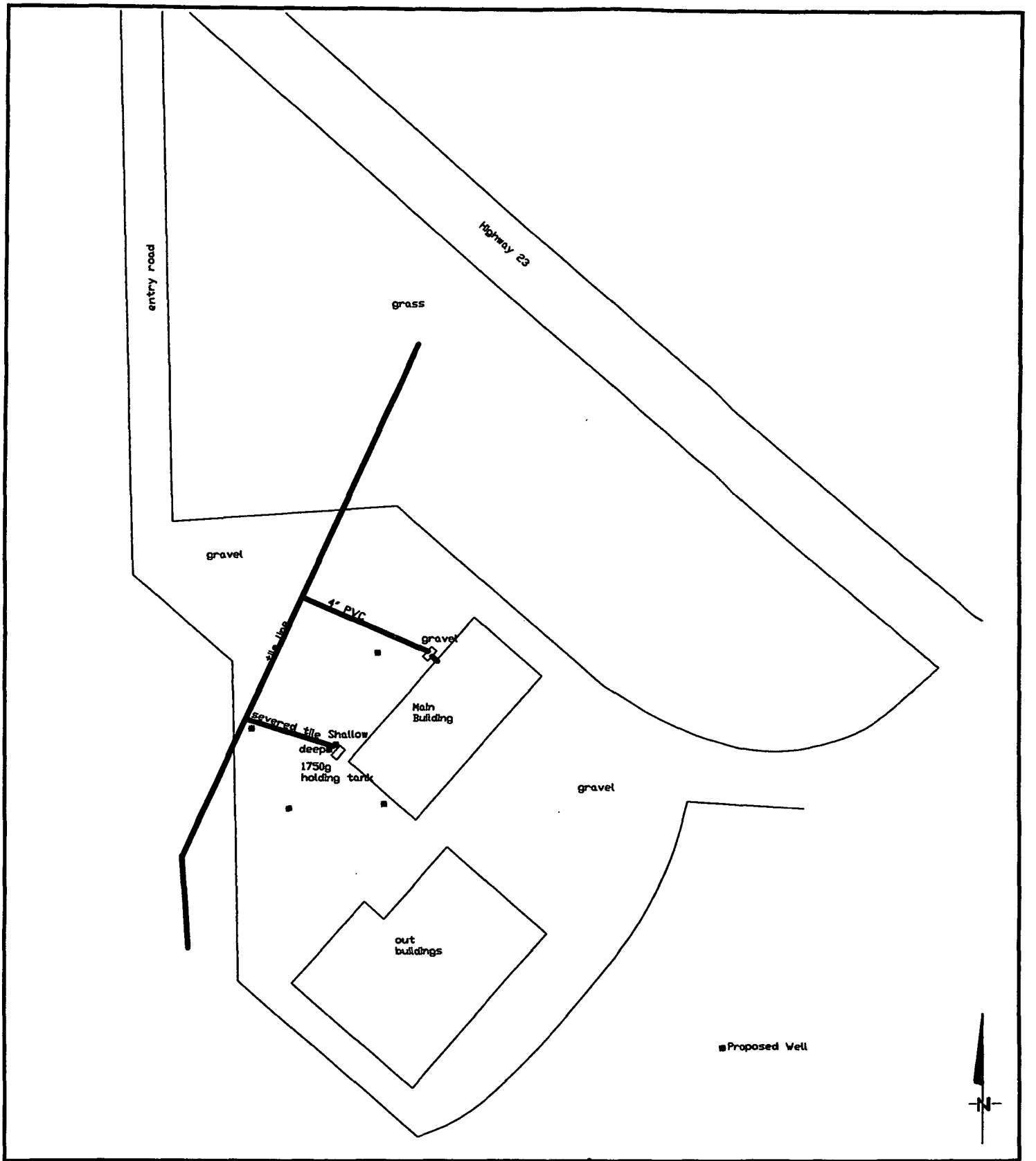


WCEC
ENVIRONMENTAL CONSULTANTS
14 Green River Road, Morris, Minnesota 56267

FIGURE 2
Detailed Site Location Map
Oskaloosa Implement
Oskaloosa, Iowa
WCEC PROJECT No. 09-7331-60

from: Irv DeBruin

Figure 5 – Proposed Boring Locations



GEODE ENVIRONMENTAL, LLC		Date: January 2010
Oskaloosa Implement 2350 Highway 23 South Oskaloosa, IA	APPROXIMATE SCALE IN FEET 40 0 40 80	PROPOSED BORING MAP
LUST#NA REG #	Scale: 1" = 80'	

Figure 6 – Proposed Well Construction Diagram

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number:	Facility:	Facility Street Address:
MW# (shallow)	Oskaloosa Implement	2350 Highway 23 South, Oskaloosa, IA
Boring Depth (ft) X Diameter (in):	N' X 6.625"	Drilling Method: Rotary Hydraulic
Well contractor Name:		Logged By:
Registration Number:		Ray Widder

Ground Surface Elevation (ASL):	Top of Casing Elevation (ASL):

Date: Start Time:	Date: End Time:	UST Number:	LUST Number:

Depth (feet)	Well Construction Details 2" PVC Casing	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0					NA		Overlay Material - Soil cover
1							0-15' Unsaturated soil over saturated soil
2							
2.5	riser						
3							
4							
5							
6							
7	screen						
8	Sand						
9							
10							
11							
12							
13							
14							
15							15'+-Dense clay (reduced permeability)
16	example depth only						
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

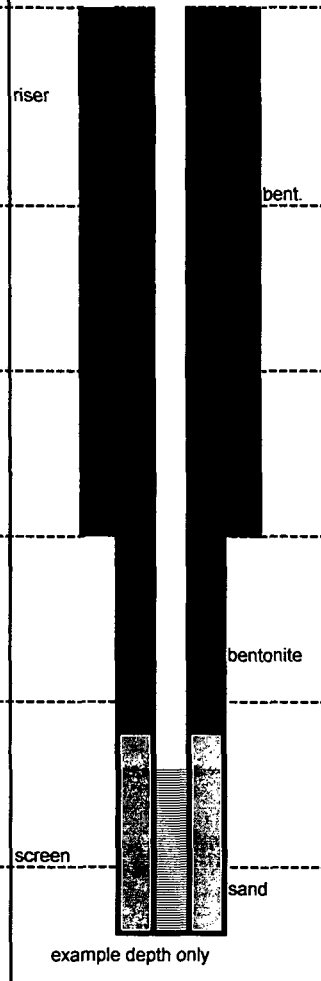
* SS (Split Spoon) HSA (Hollow Stem Auger)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number:	Facility:	Facility Street Address:
MW# (deep)	Oskaloosa Implement	2350 Highway 23 South, Oskaloosa, IA
Boring Depth (ft) X Diameter (in): N'X11", N'X6.625"		Drilling Method: Rotary Hydraulic
Well contractor Name:		Logged By:
Registration Number:		Ray Widder
Ground Surface Elevation (ASL):		Top of Casing Elevation (ASL):
Date: Start Time:	Date: End Time:	UST Number: / LUST Number:

Depth (feet)	Well Construction Details 2" PVC Casing	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0					NA		Overlay Material - Soil cover
1							0-15' Unsaturated soil over saturated soil
2							
2.5	riser						
3							
4							
5	bent.						
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							15'-20' Dense clay (reduced permeability)
16							
17							
18							
19	bentonite						
20							20'+ Oxidized zone (increased permeability)
21							
22							
23							
24							
25	screen						
26	sand						
27							
28	example depth only						
29							
30							



* SS (Split Spoon) HSA (Hollow Stem Auger)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					