SOURCE WATER PROGRAM

SITE ASSESSMENT RESULTS

For

CITY OF ELLIOTT MUNICIPAL WATER SUPPLY
MUNICIPAL WELL #1 (DNR Well ID # 1419)

ELLIOTT, MONTGOMERY COUNTY, IOWA

December 22, 2008

IOWA DEPARTMENT OF NATURAL RESOURCES

Prepared by

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Contaminated Sites Section

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INTRODUCTION

At the request of the Iowa Department of Natural Resources, Source Water Program, the Iowa Department of Natural Resources, Contaminated Sites Section (IDNR), has conducted an environmental assessment around Municipal Water Well Number 1, City of Elliott, Montgomery County, Iowa. The purpose of this investigation was to evaluate the sites hydrological profile and identify possible source(s) for the elevated nitrate and petroleum levels found in Municipal Well Number 1.

SITE DESCRIPTION

2.1 Location

The City of Elliott is located in the SE ¼ of the SE ¼ of Section 1, Tier 73 North, Range 38 West, Montgomery County, Iowa, Latitude 41.149N, Longitude -95.163W (Figure 1).

2.2 Site Description

Elliott, Iowa, founded in 1879, was named for Charles Elliott Perkins, Vice President of Chicago, Burlington, and Quincy (C.B.&Q.) Railroad, and has a current population of 367. Elliott is a farm-oriented community located in the East Nishnabotna River Valley 12 miles north of the City of Red Oak and 8 miles south of the City of Griswold on Iowa Highway 48.

Montgomery County is primarily an agricultural county. The topography is rolling and is in the Nishnabotna and Tarkio watersheds. Major streams that run through the county from north to south include Coe Creek, Indian Creek, Walnut Creek, East Nishnabotna River, West Tarkio Creek and Tarkio River.

Elliott, Iowa is located within a land form known as the Southern Iowa Drift Plain with loess, till, gravel, and sand seams overlying the Fort Benton (Lower Dakota Colorado) Sandstone locally known as the Dakota Sandstone. The City of Elliott Municipal Well Number 1 does not have a well log but is known to be finished in the top of the Dakota Sandstone at 56 feet deep. At this location the surface of the Dakota Sandstone is at 39 feet deep. The City of Elliott Municipal Well Number 2 is located 1,500 feet east of Well Number 1. Well Number 2's log shows loess from the surface down to 20 feet, silt - sand and gravel - and sand from 20 to 45 feet deep, then Dakota Sandstone from 45 feet to the finished depth of 108 feet. Both Well Number 1 and Well Number 2 have had detectable levels of nitrates in the past that approach and sometimes exceed the MCL of 10 mg/L.

2.3 Operational History and Waste Characteristics

Well Number 1 was drilled in 1935 and is located on the southwest corner of Main Street and Chestnut Street.

Well Number 1 was developed in an area surrounded by commercial and residential lots.

A historical records search for petroleum sites has found at least eight (8) former petroleum storage facilities within a short distance of Well Number 1 (Figure 2). Six (6) of the eight (8) facilities were closed prior to any governmental reporting regulations. Laird Service and S & M Oil are both found in the IDNR Underground Storage Tank Section's database. However, S & M Oil is the only site that has completed the soil and groundwater testing and monitoring requirements found in Iowa Administrative Code (IAC) 567-135, *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks*.

Two bulk agriculture chemical dealers are found 500 feet to the south of Well Number 1, Miller Farm Supply and Agriland FS (formerly Elliott Farm Center). Earlier investigations conducted by IDNR have found nitrate impacted groundwater due to the uncontrolled release of fertilizers but determined the two facilities were not contributing to the nitrates found in Well Number 1. Both sites are currently addressing the elevated nitrate levels under the authority of IAC 567-133, *Rules for Determining Cleanup Actions and Responsible Parties*.

2.4 Nitrates and Nitrites

Nitrates and nitrites are nitrogen-oxygen chemical units which combines with various organic and inorganic compounds. Once taken into the body, nitrates are converted into nitrites. The greatest use of nitrates is as a fertilizer.

In 1974, Congress passed the Safe Drinking Water Act. This law requires the US Environmental Protection Agency (EPA) to determine safe levels of chemicals in drinking water which are known to or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals. The MCLG for nitrates has been set at 10 parts per million (ppm), and for nitrites at 1 ppm, because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies. The MCL for nitrates has been set at 10 ppm, and for nitrites at 1 ppm, because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water. These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

Short-term: Excessive levels of nitrate in drinking water have caused serious illness and sometimes death. The serious illness in infants is due to the conversion of nitrate to nitrite by the body, which can interfere with the oxygen-carrying capacity of the child's blood. This can be an acute condition in which health deteriorates rapidly over a period of days. Symptoms include shortness of breath and blueness of the skin (Blue Baby Syndrome).

Long-term: Low to moderate levels of nitrates and nitrites have the potential to cause diuresis, increased starchy deposits and hemorrhaging of the spleen from a lifetime exposure at levels above the MCL.

The regulation for nitrates and nitrites became effective in 1992. Between 1993 and 1995, EPA required your water supplier to collect water samples at least once a year and analyze them to find out if nitrates and or nitrites are present above 50 percent of their MCLs. If it is present above this level, the system must continue to monitor this contaminant every 3 months. If contaminant levels are found to be consistently above their MCLs, your water supplier must take steps to reduce the amount of nitrates/nitrites so that they are consistently below that level. Ion exchange, Reverse Osmosis, Electro-dialysis are treatment methods that have been approved by EPA for removing nitrates/nitrites.

If the levels of nitrates/nitrites exceed their MCLs, the system must notify the public via newspaper, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

3. COLLECTION OF NON-SAMPLING DATA

Soil strata data was collected utilizing the Department's Geoprobe® with the conductivity probe attachment in an earlier investigation (CERCLA Pre-Remedial Extended Site Screening Work Plan Results for the Miller Farm Supply, Elliott, Montgomery County, Iowa, July 15, 2008). In the earlier investigation the data was used to determine continuity of different soil layers and help identify preferential groundwater paths. Conductivity probe data was collected in a south to north line along Chestnut Street from just north of Coe Creek to 2nd Street. The conductivity probe results indicate, in general, the soil consists of loess from the surface down to twelve (12) feet deep then a layer of glacial till from twelve (12) feet to approximately twenty (20) feet deep. Silty sand, sand and gravel layers were found from twenty (20) feet deep down to the Dakota Sandstone at approximately thirty-nine (39) feet deep. The conductivity probe results also indicated the further north you went the more silty material was found in the aquifer material.

During the November 2008 field work groundwater samples were collected in a grid pattern around Municipal Well Number 1 with field observations of the sediment makeup and color collected for the deep sample, at the Dakota

Sandstone, and the shallow sample, at the till/sand interface. Sample observations indicated the area to the south and east of Municipal Well Number 1 consist of a cleaner oxidized (yellow) course sand wile the area north and west consist of unoxidized (grey) silty sands (Figure 3). Groundwater was also more available in the cleaner course sands.

COLLECTION OF SAMPLING DATA

4.1 Soil Samples

No soil samples, other then the sediment in the groundwater samples, were collected during this sampling event.

4.2 Groundwater Samples

Attempts were made to collect twenty-six (26) groundwater samples from thirteen (13) locations identified on Figure 4 for nitrate and ammonia analysis. Two (2) samples were collected from each of the thirteen (13) locations, one from the top of the aquifer (shallow) and the other from the interface between the sand/gravel aquifer and the Dakota Sandstone (deep). However, the shallow sample at SWP-01 did not yield any groundwater so only twenty-five samples were collected. Samples were analyzed for nitrates and ammonia using the HACH DR2800 Spectrophotometer serial number 1254017. HACH Sample Method 10206 was utilized for the nitrate analysis and was capable of measuring nitrate levels as NO_3^- - N in water from 1.0 to 35.0 mg/L. HACH Sample Method 10205 was used to measure nitrogen, ammonia levels in water within a range of 2 to 47 mg/L.

Attempts were also made to collect fourteen (14) groundwater samples from seven (7) locations identified on Figure 5 for petroleum analysis. Again, two (2) samples were collected from each of the fourteen (14) locations, one shallow and the other deep. Once again several shallow locations (SWP-04 and SWP-09) did not yield enough groundwater so only 12 samples were collected. The petroleum samples were analyzed for gasoline using Iowa Method OA-01 and diesel/waste oil using Iowa Method OA-02.

The results for the groundwater samples are found in Table 1, the sample collection information sheets are located in Appendix C and the petroleum lab results are found in Appendix D.

4.3 Surface Water Samples

One (1) surface water sample was collected from Coe Creek near sample point SWP-01. The results for the surface water sample are found in Table 1 and the sample collection information sheet is located in Appendix C.

4.4 Sample Collection Method

All groundwater samples were collected in a manor utilizing the procedures in ASTM D6001-96e1, *Standard Guide for Direct-Push Water Sampling for Geo-Environmental Investigations*, for direct push groundwater sampling. All

groundwater collecting equipment was decontaminated after sample collection was complete at each location in accordance with Quality Assurance Project Plan for Iowa Department of Natural Resources, Land Quality Bureau, Contaminated Sites Section.

The Geoprobe® samples were collected using the procedures found in the SOP and manual for the Geoprobe® Screen Point 15 Groundwater Sampler (SOP; Technical Bulletin No. 95-1500).

FIELD ACTIVITIES

Field personnel traveled to the site on the 19th and the 20th of November 2008. Field activities were performed in Level D personal protective equipment that consisted of steel-toed boots, safety glasses, hearing protection and hard hats. Iowa One Call was contacted at least 48 hours prior to the site visit in order to have all underground utilities located before the field work started. Access agreements were pre-arranged by IDNR Source Water Program staff and City of Elliott officials.

CONCLUSIONS

6.1 Sediment Mapping Results

During the November 2008 field work groundwater samples were collected in a grid pattern around Municipal Well Number 1 with field observations of the sediment makeup and color collected for the deep sample, at the Dakota Sandstone, and the shallow sample, at the till/sand interface. For all the individual sample point locations the same sediment type was noted at the shallow location and the deep location approximately twenty (20) feet deeper. For example, the sediments collected at SWP-07 from the shallow and deep locations were both course oxidized sand. The sediment information is displayed on Figure 3 and notes a clear difference between the northwest and southeast side of town. Municipal Well Number 1 is located in the fine silty unoxidized sands.

6.2 Groundwater Results

In general no clear ‘point source’ for the elevated nitrate levels detected in Municipal Well Number 1 was found; instead it appears the source is most likely from a ‘nonpoint source’ coming from the wide spread application of fertilizers north and northeast of the City of Elliott. A point source is defined as any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area where a contaminant has been deposited, stored, disposed of, or placed, or otherwise come to be located and for some reason is released into the environment contaminating the soil and or groundwater.

A nonpoint source is defined as incidental contamination caused by application of agriculture chemicals such as fertilizer on agriculture crop grounds. Nonpoint source groundwater contamination occurs when fertilizers and or pesticides are applied at proper manufacture recommended rates but the groundwater is close to the surface and inadvertently becomes contaminated. The improper application of agriculture chemicals would be considered a point source and subject to State and Federal environmental regulations.

The results for the nitrate samples are found in Table 1 and Figure 4. The levels of nitrates in the groundwater samples were found to be higher northwest of Municipal Well Number 1 and lower to the southeast corresponding to the sediment conditions. Samples collected in the course oxidized sands were significantly lower then the samples collected in the fine silty unoxidized sediments. Additional sampling would be required in order to determine exactly why the course oxidized sands contain lower levels of nitrates but with the lower levels found right next to the higher levels in the unoxidized silty sands it appears conditions are better for more rapid denitrification in the course sands.

Denitrification is a microbially facilitated process of dissimilatory nitrate reduction that may ultimately produce molecular nitrogen (N2) through a series of intermediate gaseous nitrogen oxide products. This respiratory process reduces oxidized forms of nitrogen in response to the oxidation of an electron donor such as organic matter. The wetland located directly up gradient (groundwater flow wise) of the course oxidized sands may be providing the organic matter creating the source for the electron donors. Surface water infiltration from the marsh provides electron donors to the groundwater then the groundwater flows more freely through the course sands than the silt laden unoxidized sands providing the oxidized sands with more denitrification potential (Figure 6).

Select groundwater samples were also analyzed for petroleum products utilizing Iowa Method OA-01 for gasoline and Iowa Method OA-02 for waste oil and diesel. As noted in Table 1 all analysis for petroleum products indicated no detectable levels of gasoline, waste oil, or diesel fuel in the groundwater around Municipal Well Number 1. The petroleum analysis was done due to the numerous former petroleum storage sites found around Well Number 1 (Figure 2).

6.3 Surface Water Results

Only one (1) surface water sample was collected from Coe Creek and was found to be at a level of 2.94mg/L. Surface water bodies are highly susceptible to seasonal fluctuations of nitrate levels. For that reason monthly samples from Coe Creek over several years would be required to determine if Coe Creek is a source for the elevated nitrates in the area.

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APPENDIX A

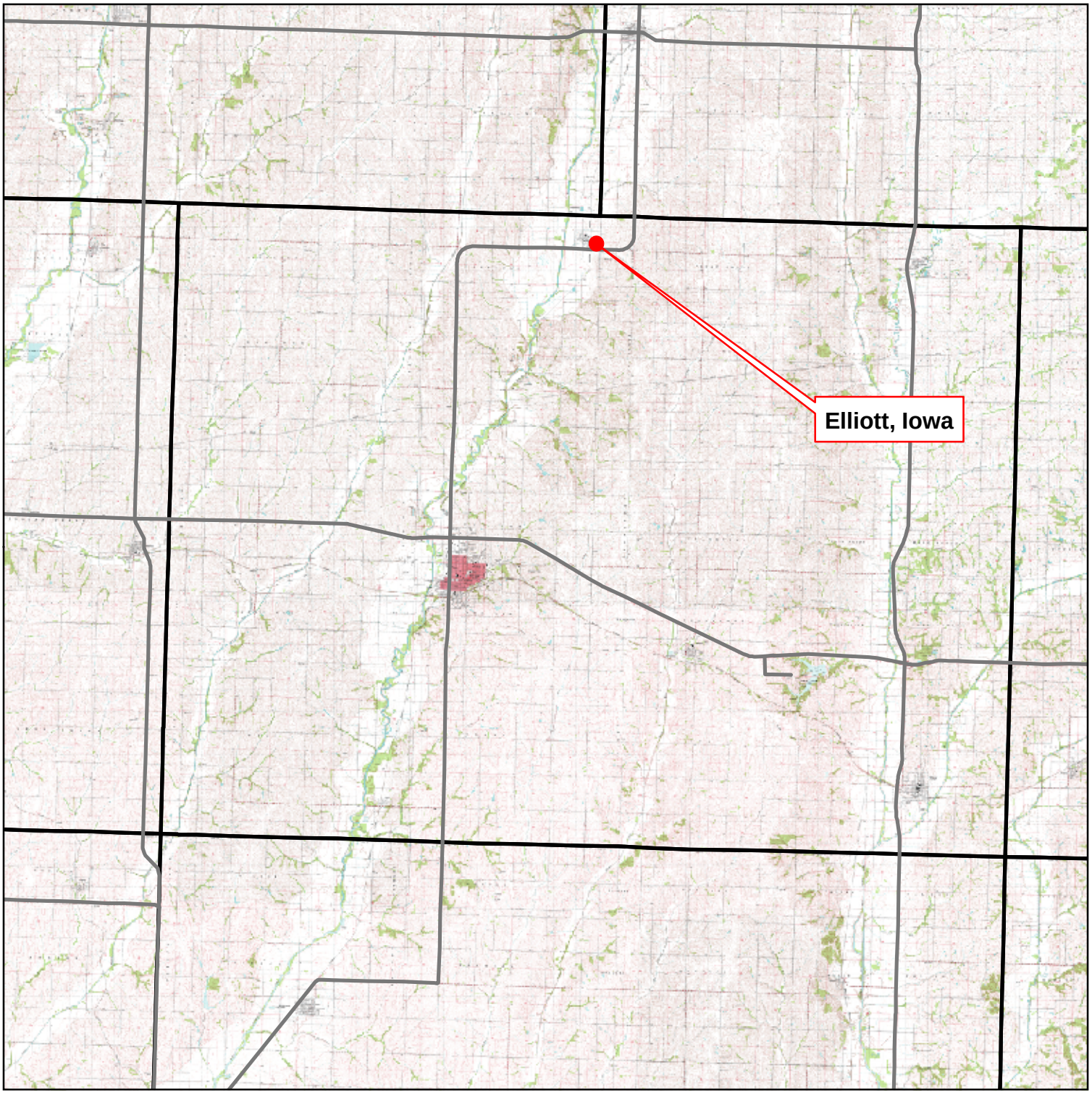
Figures

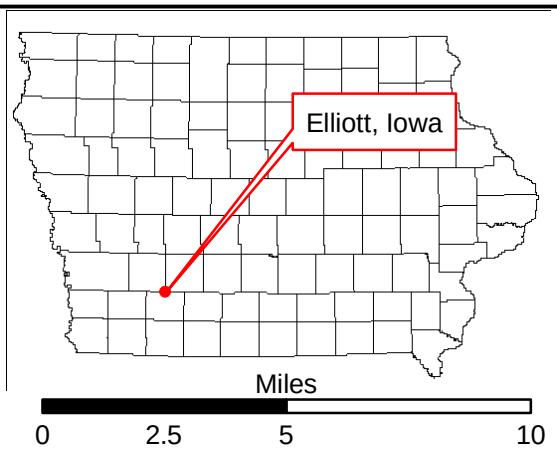
SOURCE WATER PROGRAM

SITE ASSESSMENT RESULTS

For

CITY OF ELLIOTT MUNICIPAL WATER SUPPLY
MUNICIPAL WELL #1 (DNR Well ID # 1419)





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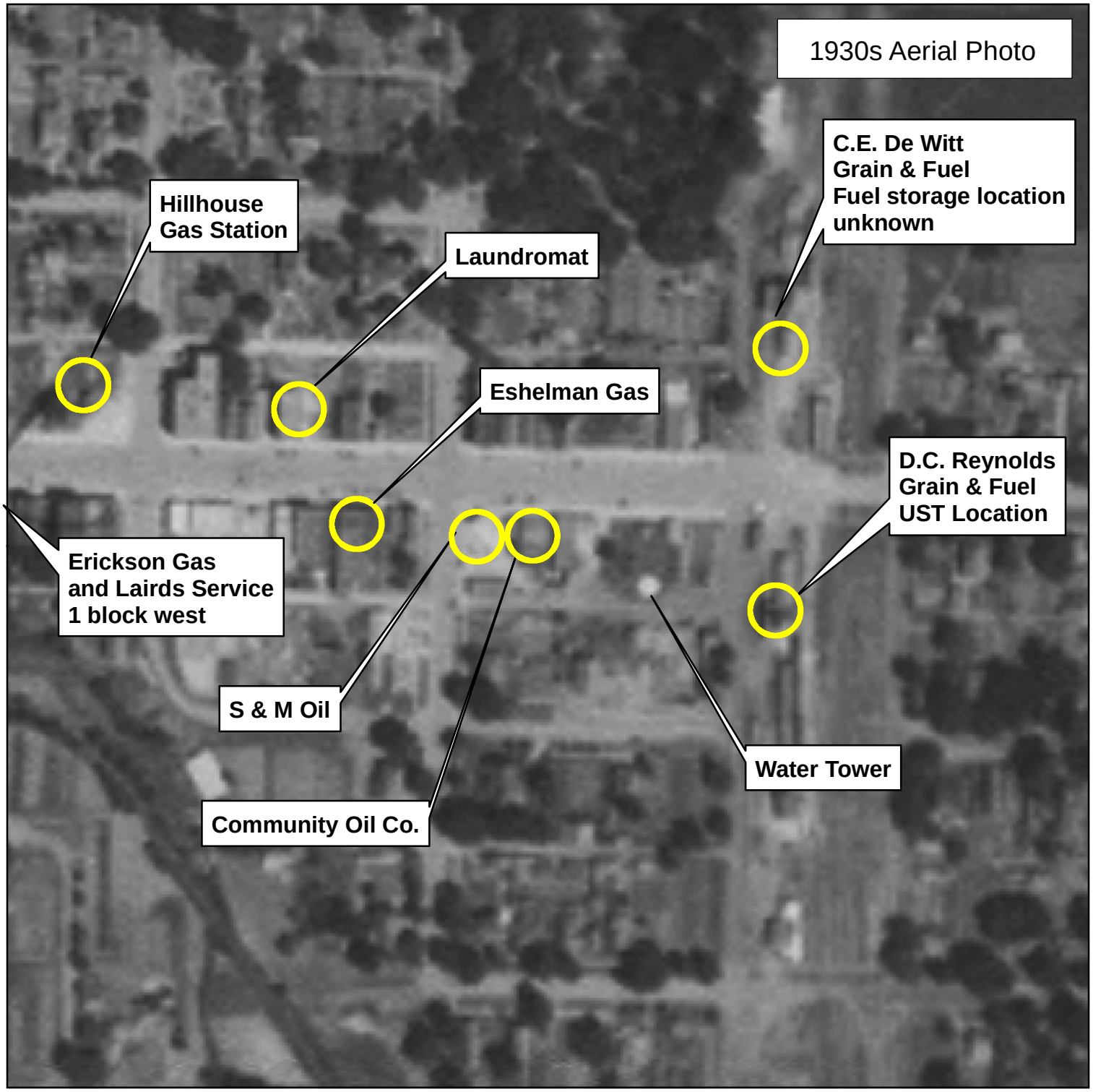
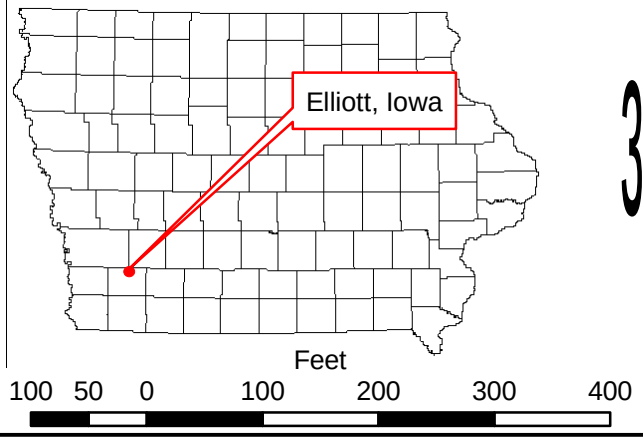
Iowa Department of Natural Resources

City of Elliott SWP Site Assessment
Elliott, Montgomery County, Iowa

Site Location
Figure 1





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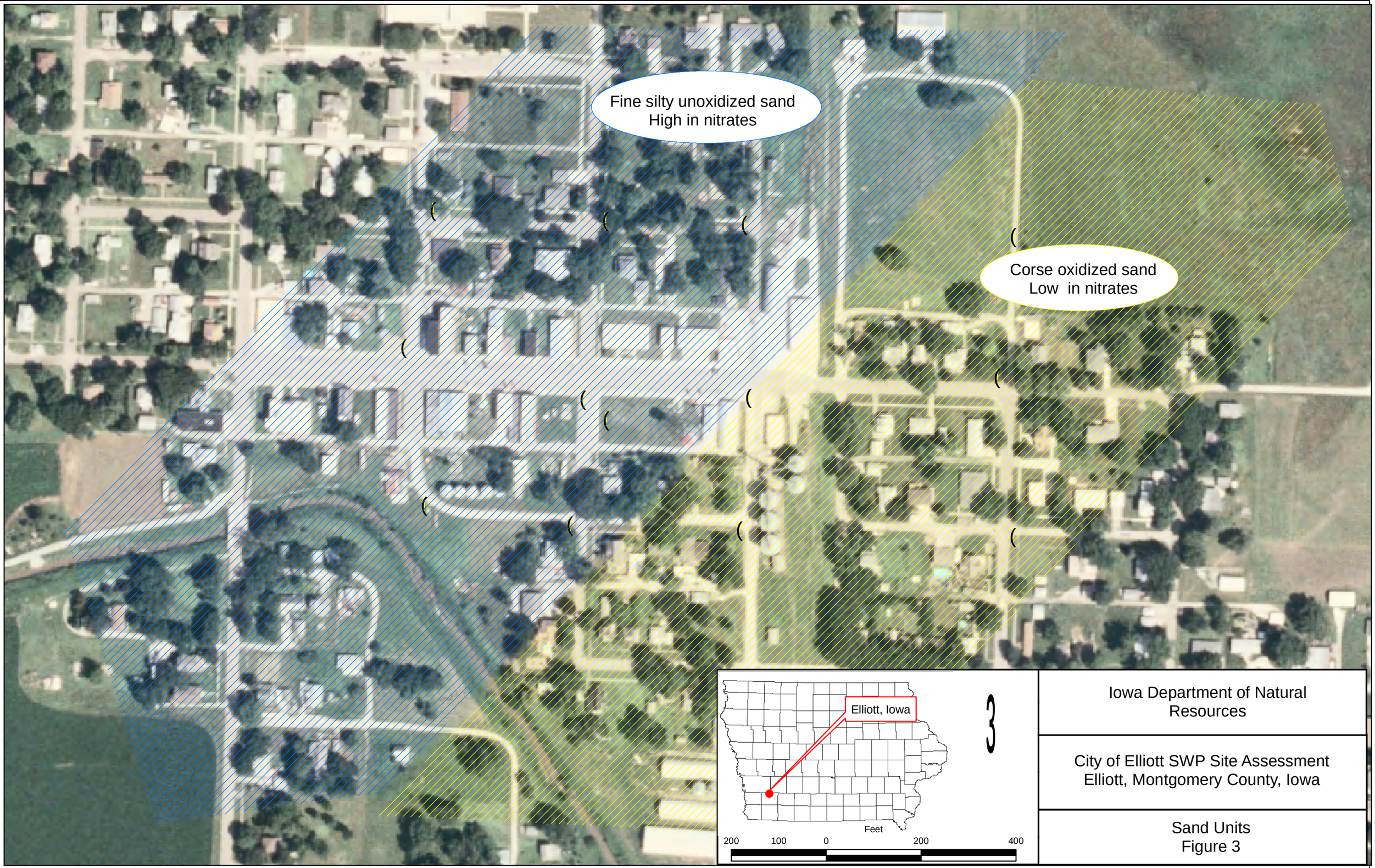
Iowa Department of Natural Resources

City of Elliott SWP Site Assessment
Elliott, Montgomery County, Iowa

Former Petroleum Sites
Figure 2



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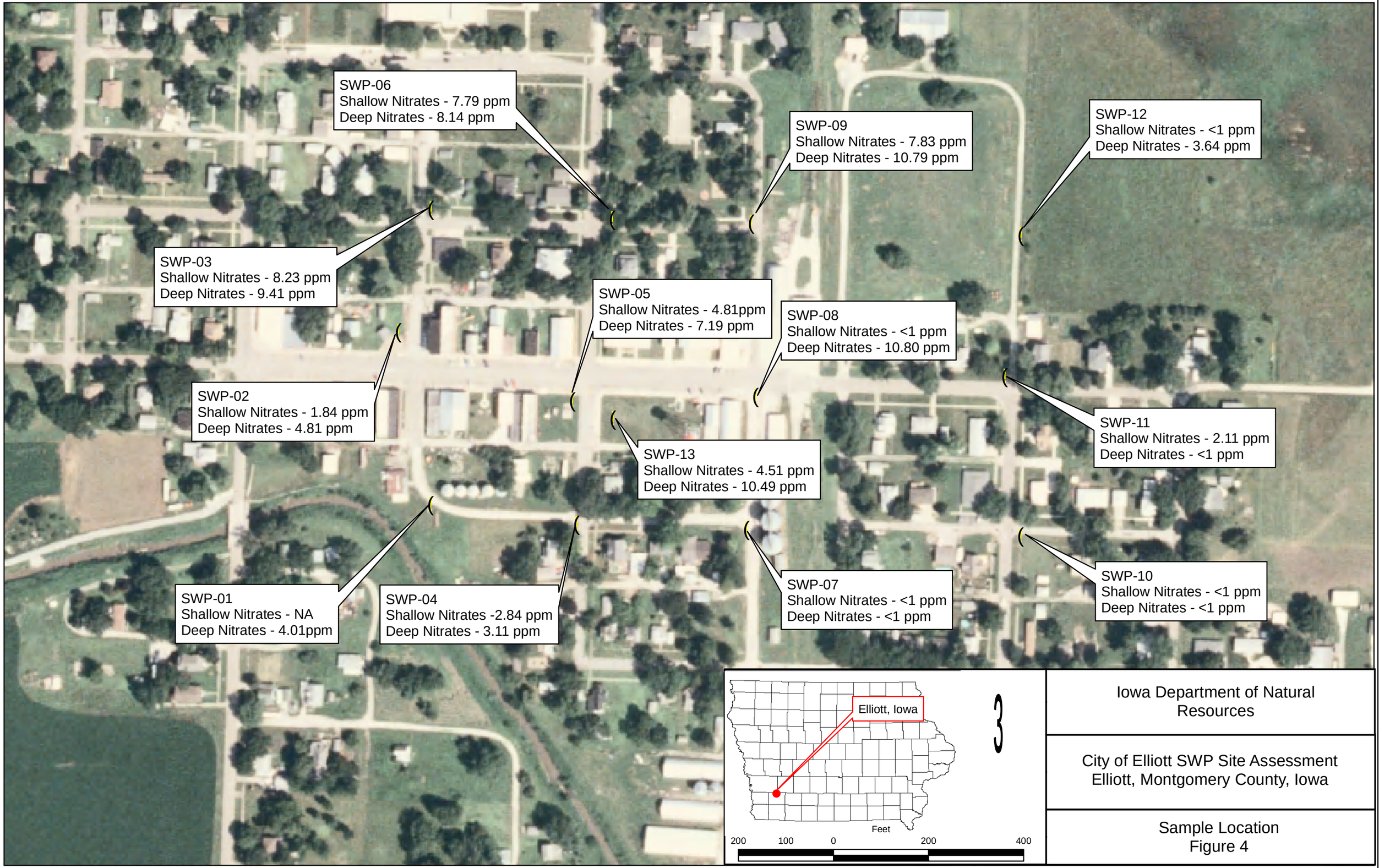
Iowa Department of Natural Resources

City of Elliott SWP Site Assessment
Elliott, Montgomery County, Iowa

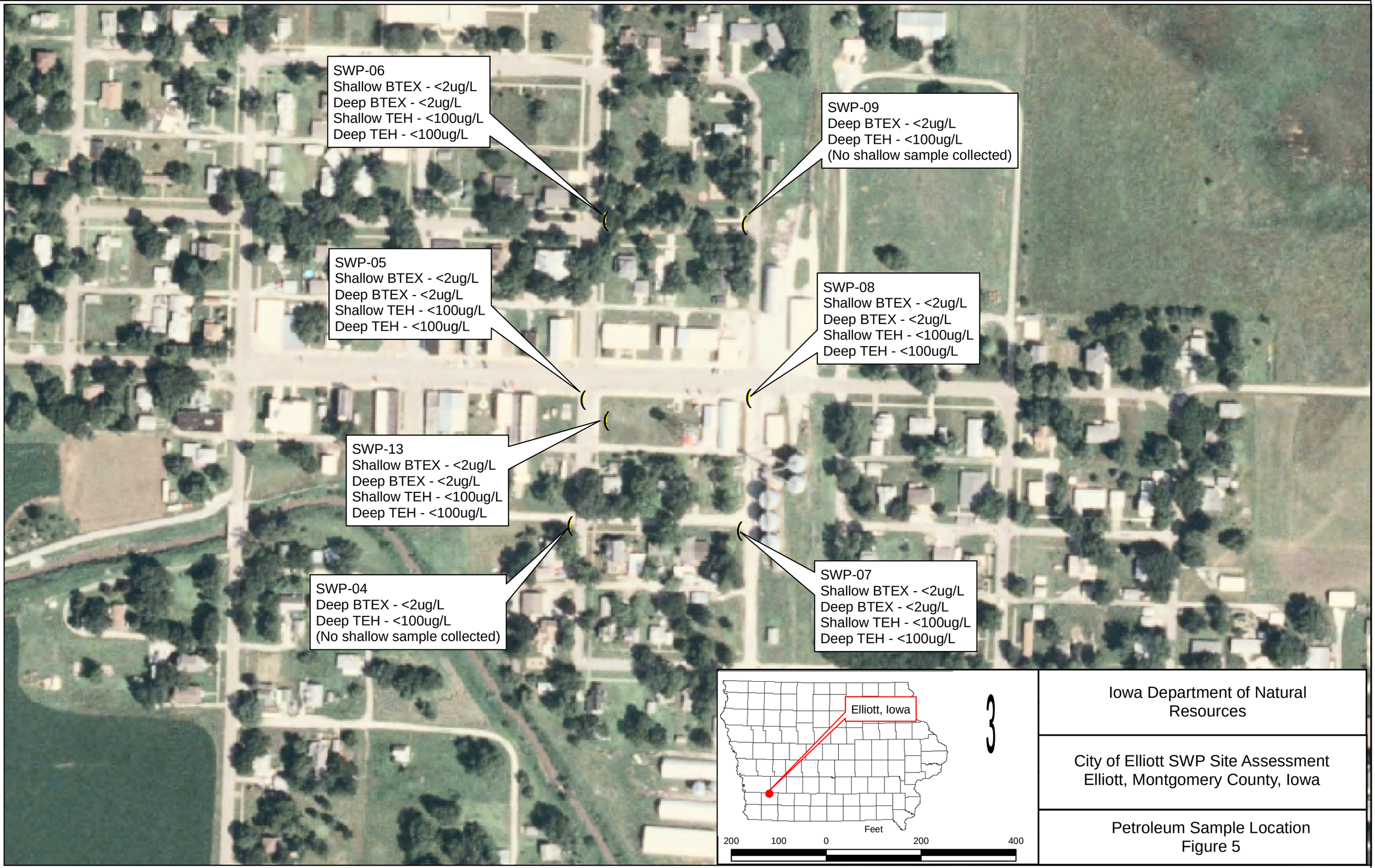
Sand Units
Figure 3



Iowa Department of Natural Resources

City of Elliott SWP Site Assessment
Elliott, Montgomery County, Iowa

Sample Location
Figure 4



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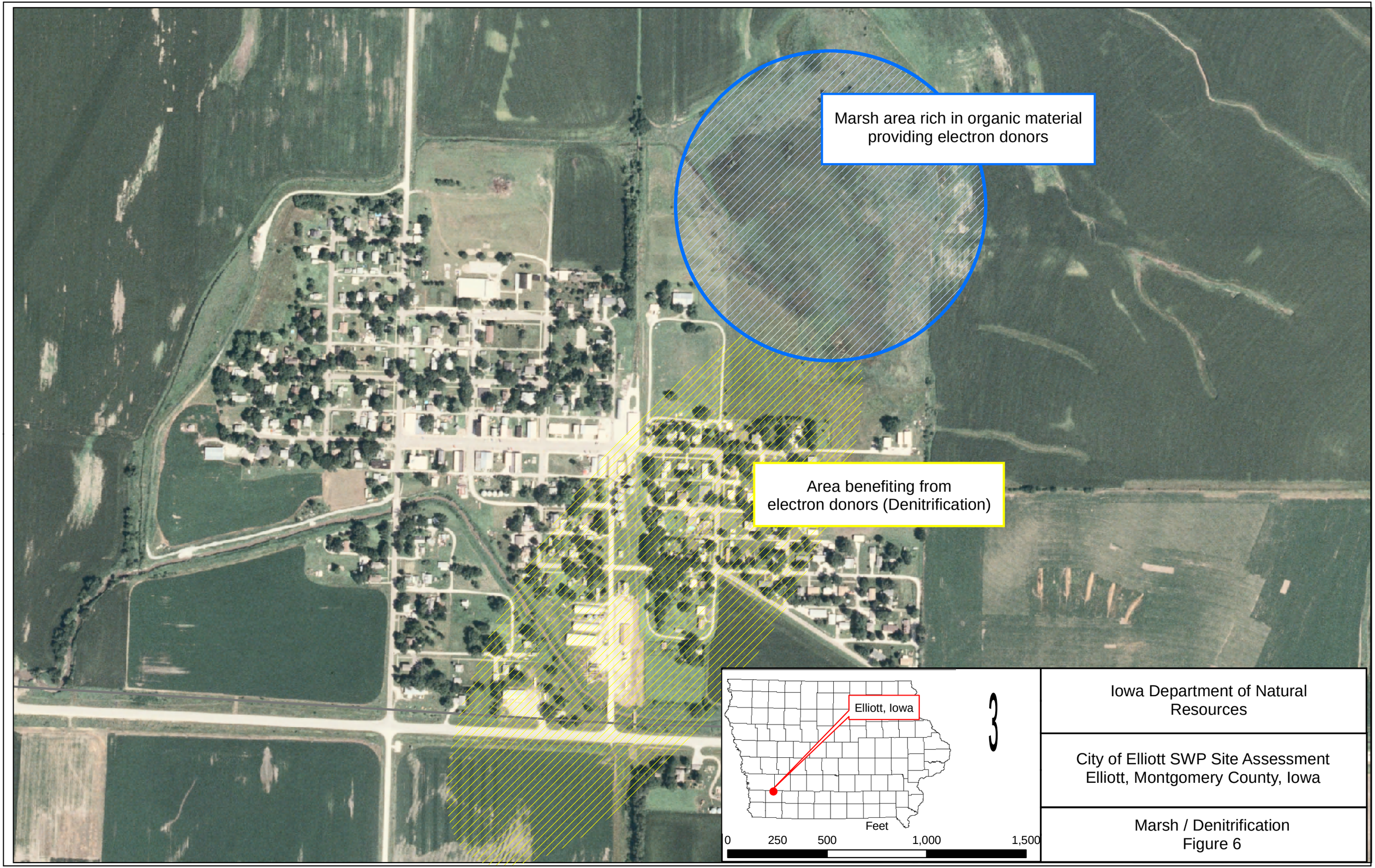
Iowa Department of Natural Resources

City of Elliott SWP Site Assessment
Elliott, Montgomery County, Iowa

Petroleum Sample Location
Figure 5



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Iowa Department of Natural Resources

City of Elliott SWP Site Assessment
Elliott, Montgomery County, Iowa

Marsh / Denitrification
Figure 6

APPENDIX B

Tables

SOURCE WATER PROGRAM

SITE ASSESSMENT RESULTS

For

CITY OF ELLIOTT MUNICIPAL WATER SUPPLY
MUNICIPAL WELL #1 (DNR Well ID # 1419)

Source Water Program

Site Assessment Results

City of Elliott Municipal Water Supply

Groundwater Sample Data

Collected November 19 and 20, 2008

Table 1

Location	Nitrates* (Test Strips)	Nitrates** (HACH)	Ammonia	OA-01 (All Analytes)	OA-02 (All Analytes)
SWP-01S	NA	NA	NA	NA	NA
SWP-01D	3ppm	4.01mg/L	<2mg/L	NA	NA
SWP-02S	2ppm	1.84mg/L	<2mg/L	NA	NA
SWP-02D	5ppm	4.81mg/L	<2mg/L	NA	NA
SWP-03S	6ppm	8.23mg/L	<2mg/L	NA	NA
SWP-03D	10ppm	9.41mg/L	<2mg/L	NA	NA
SWP-04S	4ppm	2.84mg/L	<2mg/L	NA	NA
SWP-04D	5ppm	3.11mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-05S	5ppm	4.81mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-05D	8ppm	7.19mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-06S	5ppm	7.79mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-06D	10ppm	8.14mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-07S	ND	<1mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-07D	ND	<1mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-08S	Trace	<1mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-08D	10ppm	10.80mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-09S	5ppm	7.83mg/L	<2mg/L	NA	NA
SWP-09D	8ppm	10.79mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-10S	Trace	<1mg/L	<2mg/L	NA	NA
SWP-10D	Trace	<1mg/L	<2mg/L	NA	NA
SWP-11S	ND	2.11mg/L	<2mg/L	NA	NA
SWP-11D	Trace	<1mg/L	<2mg/L	NA	NA
SWP-12S	Trace	<1mg/L	<2mg/L	NA	NA
SWP-12S Dup	NA	<1mg/L	<2mg/L	NA	NA
SWP-12D	3ppm	3.64mg/L	<2mg/L	NA	NA
SWP-12D Dup	NA	3.28mg/L	<2mg/L	NA	NA
SWP-13S	5ppm	4.51mg/L	<2mg/L	<2ug/L	<100ug/L
SWP-13D	10ppm	10.49mg/L	<2mg/L	<2ug/L	<100ug/L
Coe Creek	3ppm	2.94mg/L	<2mg/L	NA	NA

* Nitrate Test Strips - HACH Catalog Number 27454-25 with results in ppm nitrate as nitrogen

** HACH DR2800 Spectrophotometer Serial Number 1254017, Sample Method 10206 with results in mg/L nitrate as nitrogen

<1 - Not detected, analyte below method detection limit.

NA - Not analyzed for

ND - Not detected

APPENDIX C

Sample Collection Sheets

SOURCE WATER PROGRAM

SITE ASSESSMENT RESULTS

For

CITY OF ELLIOTT MUNICIPAL WATER SUPPLY
MUNICIPAL WELL #1 (DNR Well ID # 1419)

Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-02 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 08 ' 54.63" N	Collection Date:	11-20-2008
Longitude:	95 ° 09 ' 50.18" W	Collection Time:	D - 11:55am S - 12:20pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

Collection Notes:

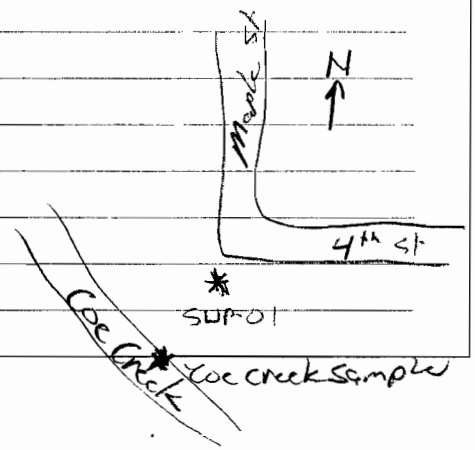
Pushed screen point 15 down to the Dakota Sandstone at 39 feet deep. Aquifer was slow yeilding but got deep sample. Pulled up 3 rods to put screen at 27 feet deep. Found Dry hole so pulled up one more rod placing the screen at 23 feet deep. Still a dry hole so pulled up all equipment and decon'ed

Deep Sediments - Fine silty unoxidized.
Shallow Sediments - None collected.

Nitrate Test Strips
SWP-01D - 3ppm Coe Creek 3ppm
SWP-01S - No sample

DR-2800 sample results NO_3^--N
SWP-01D - 4.01 mg/L
SWP-01S - No sample

Coe Creek 2.94 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-02 S+D	Sample Matrix:	Groundwater
Latitude:	41° 08' 58.22" N	Collection Date:	11/19/2008
Longitude:	95° 09' 51.18" W	Collection Time:	D - 1.15pm S - 2:20pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	~~3 - 40 ml Vials~~		~~Iowa OA-1 plus MtBE~~
	~~Bottle # 18 (Amber Quart Glass/TFE Lid)~~		~~Iowa OA-2~~

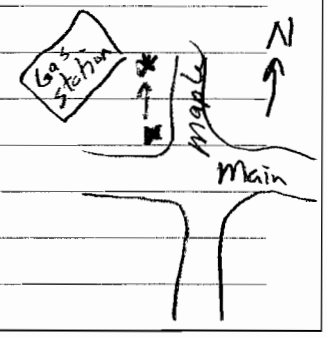
Collection Notes:

Started SWP-02 and pushed the screenpoint 15 down to 39 feet. Had problems deploying the screen so the string was pulled up. Found the screenpoint 15 was damaged, Replaced the screenpoint moved a few feet to the north and pushed to 39 feet deep Collected the deep water sample and a duplicate sample Pulled up 4 rods to place the screen at 23 feet. Collected shallow sample the pulled and decon-ed the equipment.

Deep Sediment - Fine, silty unoxidized
Shallow Sediments - Fine, silty unoxidized.

Nitrate test strips
SWP-02D - 5 ppm
SWP-02S - 2 ppm

DR-2800 Sample Results (NO_3^- - N)
SWP-02D 4.81 mg/L Dup 4.8 mg/L
SWP-02S 1.84 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-03 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 09 ' 0.76" N	Collection Date:	11-19-2008
Longitude:	95 ° 09 ' 50.31" W	Collection Time:	D - 2:55pm S-3:15pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	~~3 - 40 ml Vials~~		~~Iowa OA-1 plus MtBE~~
	~~Bottle # 18 (Amber Quart Glass/TFE Lid)~~		~~Iowa OA-2~~

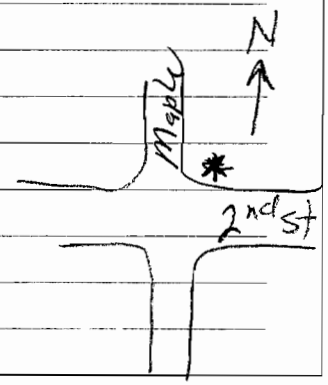
Collection Notes:

Started Location SWP-03 and pushed screenpoint 15 to 37 feet deep to the Dakota Sandstone. Collected the deep sample. Pulled up 4 Rods to place the screen at 23 feet deep. Collected shallow sample then pulled out all equipment and decon-ed

Deep sediments - Fine silty unoxidized
Shallow Sediments - Fine silty unoxidized

Nitrate Test strips
SWP-03D - 10ppm
SWP-03S - 6ppm

DR-2800 Sample Results (NO_3^- -N)
SWP-03D - 9.41 mg/L
SWP-03S - 8.23 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-04 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 08 ' 54.31 " N	Collection Date:	11-20-2008
Longitude:	95 ° 09 ' 46.16 " W	Collection Time:	D - 10:20am S - 10:45am

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

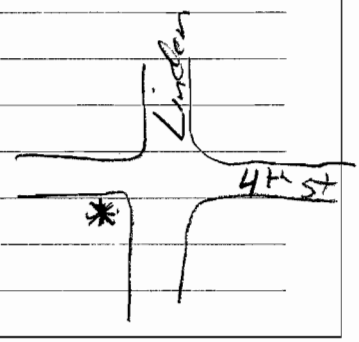
Collection Notes:

Pushed Screenpoint 15 down to 39 feet deep at the Dakota sandstone. Collected the deep samples. Pulled up 4 rods to place the screen at 23 feet deep. Found little water and was only able to collect enough water for the Nitrate test. Pulled up all equipment and decon-ed

Deep Sediments - Fine silty unoxidized
Shallow Sediments - Fine silty unoxidized.

Nitrate test strips
SWP-04D - 5ppm
SWP-04S - 4ppm

DR-2800 Sample Results (NO_3^--N)
SWP-04D - 3.11 mg/L
SWP-04S - 2.84 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-05 S&D	Sample Matrix:	Groundwater
Latitude:	41° 08' 56.89" N	Collection Date:	11-19-2008
Longitude:	95° 09' 46.32" W	Collection Time:	D-12:20 S-12:45

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

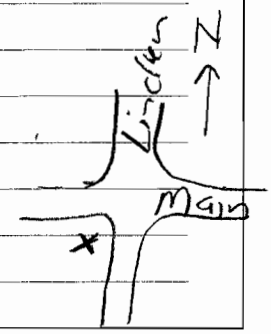
Collection Notes:

Started SWP-05 and pushed the screenpoint 15 down to 39 feet (the Dakota Sandstone). Collected the deep sample. Pulled up 4 rods to place the screen at 23 feet deep. Collected the shallow sample then pulled up all equipment & decomed

Deep Sediments - fine silty unoxidized
Shallow Sediments - Fine silty unoxidized

Nitrate Test strips
SWP-05D - 8 ppm
SWP-05S - 5 ppm

DR-2800 Sample Results (NO_3^- - N)
SWP-05D - 7.19 mg/L
SWP-05S - 4.81 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-06 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 09 ' 0.61 " N	Collection Date:	11-19-2008
Longitude:	95 ° 09 ' 45.37 " W	Collection Time:	D - 3:35pm S - 3:55pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

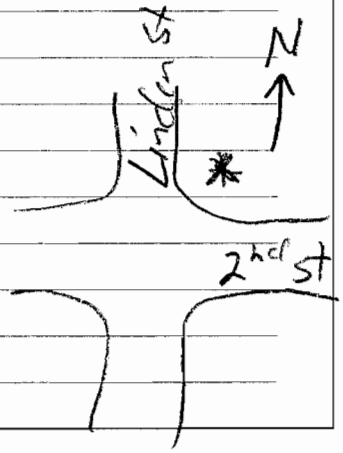
Collection Notes:

Started SWP-06 and pushed to 38 feet deep at the Dakota Sandstone. Collected the deep sample. Pulled up 4 rods to place the screen at 23 feet deep. Collected the shallow sample the decon-ed the equipment. Last Sample collected today.

Deep sediments - Fine silty unoxidized
Shallow Sediments - Fine silty unoxidized.

Nitrate Test Strips
SWP-06D - 10 ppm
SWP-06S - 5 ppm

DR-2800 Sample Results (NO_3^- -N)
SWP-06D - 8.14 mg/L
SWP-06S - 7.79 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-07 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 08 ' 54.28" N	Collection Date:	11-20-2008
Longitude:	95 ° 09 ' 41.50" W	Collection Time:	D - 9:30am S - 10:00am

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

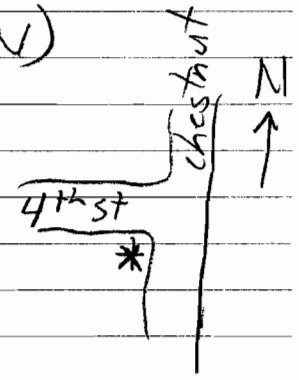
Collection Notes:

Pushed screenpoint 15 down to 38 feet deep at the Dakota sandstone. Collected deep sample. Pulled up 4 rods to place screen at 23 feet deep. Collected the shallow sample then pulled up all equipment and decon-ed

Deep Sediments - corse oxidized sand
Shallow Sediments - Corse oxidized sand

Nitrate Test Strips
SWP-07D - ND
SWP-07S - ND

DR-2800 Sample Results (NO_3^- -N)
SWP-07D <1 mg/L
SWP-07S <1 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-08 D&S	Sample Matrix:	Groundwater
Latitude:	41 ° 08 ' 57.05 " N	Collection Date:	11-19-2008
Longitude:	95 ° 09 ' 41.31 " W	Collection Time:	D - 10.30am S 10:55am

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

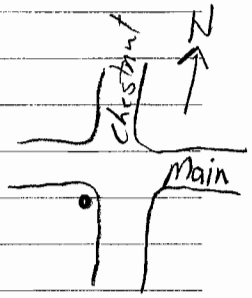
Collection Notes:

Pushed the sweenpoint 15 to 29 feet deep to the Dakota sandstone. Deployed the screen and collected the deep samples. Pulled up 4 rods to place the screen at 23 feet deep and collected the shallow samples. Pulled up all the equipment and Decon-ed.

Deep sediments - Fine silty unoxidized
Shallow Sediments - Fine silty unoxidized

Nitrate Test strips
SWP-08D - 10ppm
SWP-08S - Trace

DR2800 sample results NO_3^- - N
SWP-08D 10.80mg/L
SWP-08S <1.0mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-09 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 09 ' 0.65 " N	Collection Date:	11-20-2008
Longitude:	95 ° 09 ' 41.55 " W	Collection Time:	D - 8:30am S - 8:50am

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

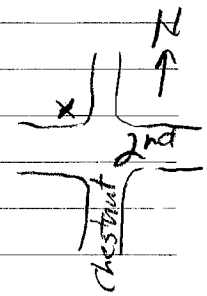
Collection Notes:

Started with SWP-09 and pushed screenpoint 15 down to 36 feet deep at the Dakota sandstone and collected the deep samples. Pulled up 3 rods to place the screen at 23 feet deep but was only able to collect enough groundwater for the DR 2800 sample. Pulled up the equipment and decon-ed.

Deep Sediments - Fine Silty unoxidized
Shallow Sediments - Fine Silty unoxidized

Nitrate Test Strips
SWP-09D - 8ppm
SWP-09S - 5ppm

DR-2800 Sample results NO_3^- - N
SWP-09D - 10.79 mg/L
SWP-09S - 7.83 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-10 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 08 ' 54.30 " N	Collection Date:	11-20-2008
Longitude:	95 ° 09 ' 33.94 " W	Collection Time:	D - 12:45pm S - 1:10pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	~~3 - 40 ml Vials~~		~~Iowa OA-1 plus MtBE~~
	~~Bottle # 18 (Amber Quart Glass/TFE Lid)~~		~~Iowa OA-2~~

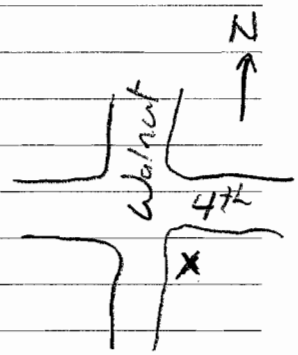
Collection Notes:

Started SWP-10 and pushed the screenpoint 15 to the Dakota Sandstone at 34 feet deep. Collected deep sample. Pulled up 3 rods to place the screen at 23 feet deep. Collected the shallow samples. Pulled up all equipment and decon-ed.

Deep Sediment - corse oxidized sand
Shallow Sediment - corse oxidized sand.

Nitrate Test strips
SWP-10D - Trace
SWP-10S - Trace

DR-2800 sample results NO_3^- - N
SWP-10D <1.0 mg/L
SWP-10S <1.0 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-11 S&D	Sample Matrix:	Groundwater
Latitude:	41° 08' 57.60" N	Collection Date:	11-20-2008
Longitude:	95° 09' 34.49" W	Collection Time:	D - 1:20pm S - 1:35pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	~~3 - 40 ml Vials~~		~~Iowa OA-1 plus MtBE~~
	~~Bottle # 18 (Amber Quart Glass/TFE Lid)~~		~~Iowa OA-2~~

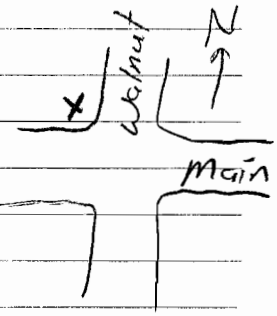
Collection Notes:

Pushed the screenpoint 15 down to the Dakota sandstone at 37 feet deep. Collected the deep sample. Pulled up 4 rods to place the screen at 23 feet deep and collected the shallow sample. Pulled up all equipment and decon-ed.

Deep sediment - corse oxidized sand
Shallow sediment - corse oxidized sands

Test Strips
SWP-11D - Trace
SWP-11S - Non detect

DR-2800 sample results NO_3^- - N
SWP-11D - <1.0mg/L
SWP-11S - 2.11 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-12 S&D	Sample Matrix:	Groundwater
Latitude:	41 ° 09 ' 0.52 " N	Collection Date:	11-20-2008
Longitude:	95 ° 09 ' 34.18 " W	Collection Time:	D - 2:00pm S - 2:20pm

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

Collection Notes:

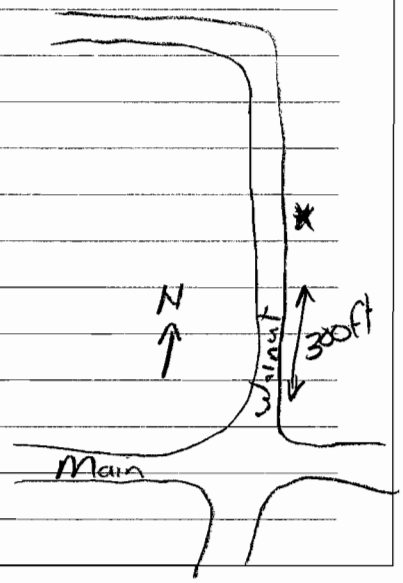
Pushed screenpoint 15 down to the Dakota Sandstone at 34 feet deep. Collected the deep sample and duplicate. Pulled up 3 rods to place the screen at 23 feet deep and collected sample and duplicate. Pulled up all equipment and decon-ed.

Deep Sediment - Corse oxidized sand
Shallow Sediment - Corse oxidized sand

Test Strips
SWP-12D - 3 ppm
SWP-12S - Trace

DR-2800 Sample Results NO_3^- - N
SWP-12D - 3.64 mg/L
SWP-12S - <1.0 mg/L

SWP-12D-Dup - 3.28 mg/L
SWP-12S-Dup - <1.0 mg/L



Sample Collection Field Sheet
Iowa Department of Natural Resources
Des Moines, Iowa

Project Name:	Elliott SWP	Project Manager:	Dan Cook
Address:	(City wide)	Program:	SWP
City, State:	Elliott, Iowa 51532		

Sample Number	SWP-13 S&D	Sample Matrix:	Groundwater
Latitude:	41° 08' 56.49" N	Collection Date:	11-19-2008
Longitude:	95° 09' 45.35" W	Collection Time:	D-11:30am S-11:50am

Container:	1 - 40 ml Vial	Analysis:	Nitrate (HACH TNT 836) Ammoinia (HACH TNT 832)
	3 - 40 ml Vials		Iowa OA-1 plus MtBE
	Bottle # 18 (Amber Quart Glass/TFE Lid)		Iowa OA-2

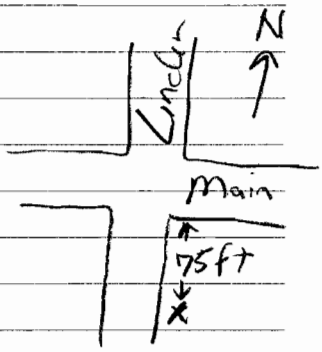
Collection Notes:

Pushed screenpoint 15 to the Dakota sandstone at 39 feet deep. Collected the deep samples. Pulled up 4 rods to place the screen at 23 feet deep and collected the shallow samples. Pulled up all equipment and decon-ed.

Deep Sediments - fine silty unoxidized
Shallow Sediments - fine silty unoxidized

Test strips
SWP-13D - 10 ppm
SWP-13S - 5 ppm

DR-2800 sample results NO_3-N
SWP-13D 10.49 mg/L
SWP-13S 4.51 mg/L



APPENDIX D

UHL Petroleum Lab Sheets

SOURCE WATER PROGRAM

SITE ASSESSMENT RESULTS

For

CITY OF ELLIOTT MUNICIPAL WATER SUPPLY
MUNICIPAL WELL #1 (DNR Well ID # 1419)

Hygienic Laboratory

The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044647**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-20-2008 08:30
Collection Site	swp-09d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-02-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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2220 S. Ankeny Blvd, Ankeny, Iowa 50023
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Hygienic Laboratory

The University of Iowa

The results of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.

Iowa Environmental Laboratory ID #027.

If you have any questions please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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Associate Director

102 Oakdale Campus, #101 OH
Iowa City, Iowa 52242-5002
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Hygienic Laboratory

The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044646**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-20-2008 10:00
Collection Site	swp-07s
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-02-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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Hygienic Laboratory

The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044645**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-20-2008 09:30
Collection Site	swp-07d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-02-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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515/725-1600 Fax: 515/725-1642

Hygienic Laboratory

The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044644**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-20-2008 10:20
Collection Site	swp-04d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-02-2008 Analyst: WB
Method: OA-2 Verified: SM
Date Prepared: 11-26-2008 Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 Analyst: JN
Method: OA-1 Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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2220 S. Ankeny Blvd, Ankeny, Iowa 50023
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Hygienic Laboratory

The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044643**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 11:30
Collection Site	swp-13d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-02-2008 Analyst: WB
Method: OA-2 Verified: SM
Date Prepared: 11-26-2008 Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 Analyst: JN
Method: OA-1 Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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Iowa Environmental Laboratory ID #027.

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Hygienic Laboratory

The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044642**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 11:50
Collection Site	swp-13s
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044641**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 10:30
Collection Site	swp-08d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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The University of Iowa

Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044640**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 10:55
Collection Site	swp-08s
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044639**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 15:35
Collection Site	swp-06d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 Analyst: WB
Method: OA-2 Verified: SM
Date Prepared: 11-26-2008 Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 Analyst: JN
Method: OA-1 Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044638**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 15:55
Collection Site	swp-06s
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 Analyst: WB
Method: OA-2 Verified: SM
Date Prepared: 11-26-2008 Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 Analyst: JN
Method: OA-1 Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter Quant Limit - Lowest concentration reliably measured

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Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044637**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 12:20
Collection Site	swp-05d
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 Analyst: WB
Method: OA-2 Verified: SM
Date Prepared: 11-26-2008 Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 Analyst: JN
Method: OA-1 Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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Date of report: 12-08-2008

DAN COOK
IDNR CONTAMINATED SITES
WALLACE STATE OFFICE BLDG
502 EAST NINTH STREET
DES MOINES IA 50319-0034

Sample Number	**2008044636**
Date Received	11-25-2008
Project	WQUST
Date Collected	11-19-2008 12:45
Collection Site	swp-05s
Collection Town	
Description	water
Reference	ELLIOTT SWP
Collector	COOK DAN
Phone	(515) 281-4171
Purchase Order	

Comments: *Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.*

Results of Analyses

Total Extractable Hydrocarbons

Analyte	Concentration ug/L	Quantitation Limit ug/L
Gasoline	< 100	100
Mineral spirits	< 100	100
Kerosene	< 100	100
Diesel Fuel	< 100	100
Motor Oil	< 100	100
Total Extractable Hydrocarbons	< 100	100

Date Analyzed: 12-01-2008 — Analyst: WB
Method: OA-2 — Verified: SM
Date Prepared: 11-26-2008 — Analyst: MS,KB
Verified: GJ

Volatile Petroleum Hydrocarbons by GC/MS

Analyte	Concentration ug/L	Quantitation Limit ug/L
Methyl-t-butyl ether (MtBE)	< 2	2
Benzene	< 2	2
Toluene	< 2	2
Ethylbenzene	< 2	2
Total Xylenes	< 5	5

Comments: *Please note that the pH of this sample was less than or equal to 2.*

Date Analyzed: 11-26-2008 — Analyst: JN
Method: OA-1 — Verified: TC

Description of units used within this report

ug/L - Micrograms per Liter — Quant Limit - Lowest concentration reliably measured

Page 1 - Continued on next page

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Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V06.D Vial: 14
Acq On : 26 Nov 2008 11:57 am Operator: JN
Sample : 2008044636-1 , 05S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 12:51 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

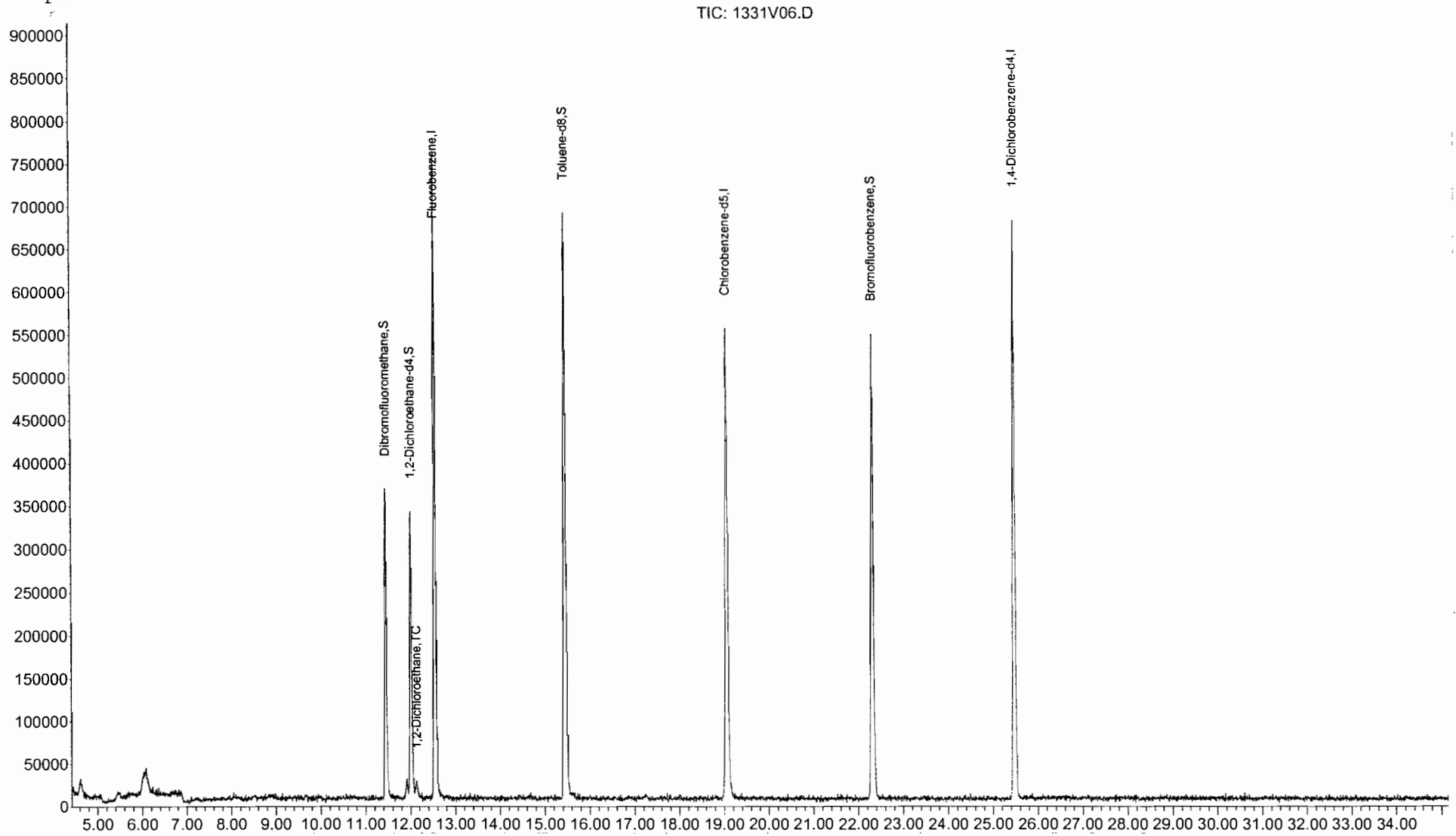
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	1031013	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.06	117	694600	50.00	ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.48	152	394705	50.00	ug/l	0.00
System Monitoring Compounds						
22) Dibromofluoromethane	11.45	113	328808	49.41	ug/l	0.00
Spiked Amount 50.000	Range 85 - 113		Recovery = 98.82%			
23) 1,2-Dichloroethane-d4	12.02	65	359924	48.97	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 97.94%			
42) Toluene-d8	15.46	98	902997	49.65	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 99.30%			
53) Bromofluorobenzene	22.32	95	377120m	45.08	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.16%			
Target Compounds						Qvalue
24) 1,2-Dichloroethane	12.14	62	22688m	2.52	ug/l	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\08_331\1331V06.D Vial: 14
Acq On : 26 Nov 2008 11:57 am Operator: JN
Sample : 2008044636-1 , 05S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 12:51 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V07.D Vial: 15
Acq On : 26 Nov 2008 12:39 pm Operator: JN
Sample : 2008044637-1 , 05D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 13:18 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	930810	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.06	117	628307m	50.00	ug/l	0.01
55) 1,4-Dichlorobenzene-d4	25.48	152	348622m	50.00	ug/l	0.00

System Monitoring Compounds

22) Dibromofluoromethane	11.46	113	298572	49.70	ug/l	0.01
Spiked Amount 50.000	Range 85 - 113		Recovery = 99.40%			
23) 1,2-Dichloroethane-d4	12.02	65	320991	48.38	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 96.76%			
42) Toluene-d8	15.45	98	846663	51.47	ug/l	0.01
Spiked Amount 50.000	Range 89 - 110		Recovery = 102.94%			
53) Bromofluorobenzene	22.32	95	344035	45.46	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.92%			

Target Compounds Qvalue

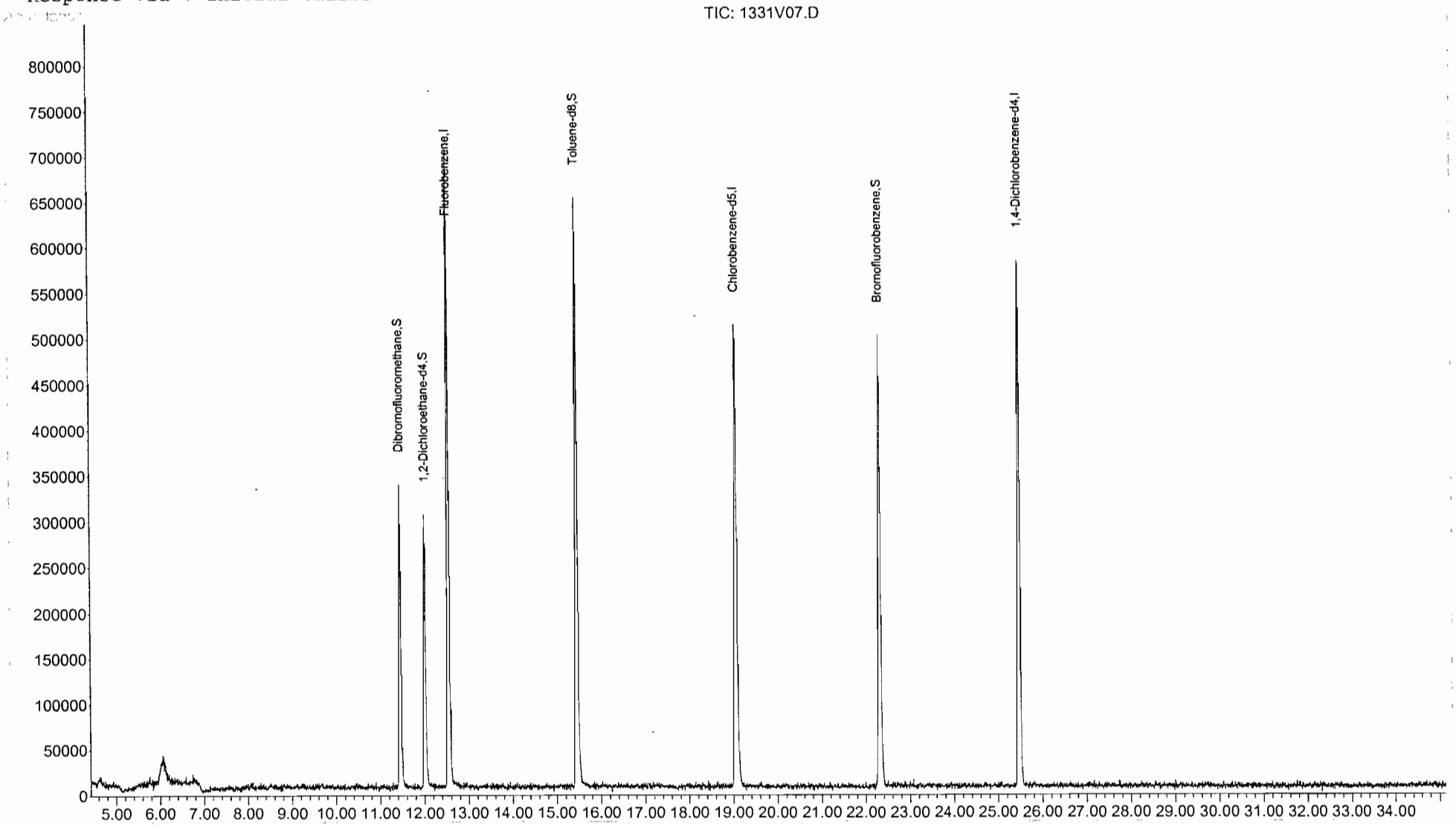
(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V07.D
Acq On : 26 Nov 2008 12:39 pm
Sample : 2008044637-1 , 05D , IDNR OA1
Misc : 5ul V-1908B + 5ml
MS Integration Params: RTEINT.P
Quant Time: Nov 26 13:18 2008

Vial: 15
Operator: JN
Inst : 7001
Multiplr: 1.00

Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V08.D Vial: 16
Acq On : 26 Nov 2008 1:21 pm Operator: JN
Sample : 2008044638-1 , 06S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 14:06 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	923377	50.00	ug/l	0.01
41) Chlorobenzene-d5	19.06	117	630053	50.00	ug/l	0.01
55) 1,4-Dichlorobenzene-d4	25.48	152	357858	50.00	ug/l	0.02

System Monitoring Compounds

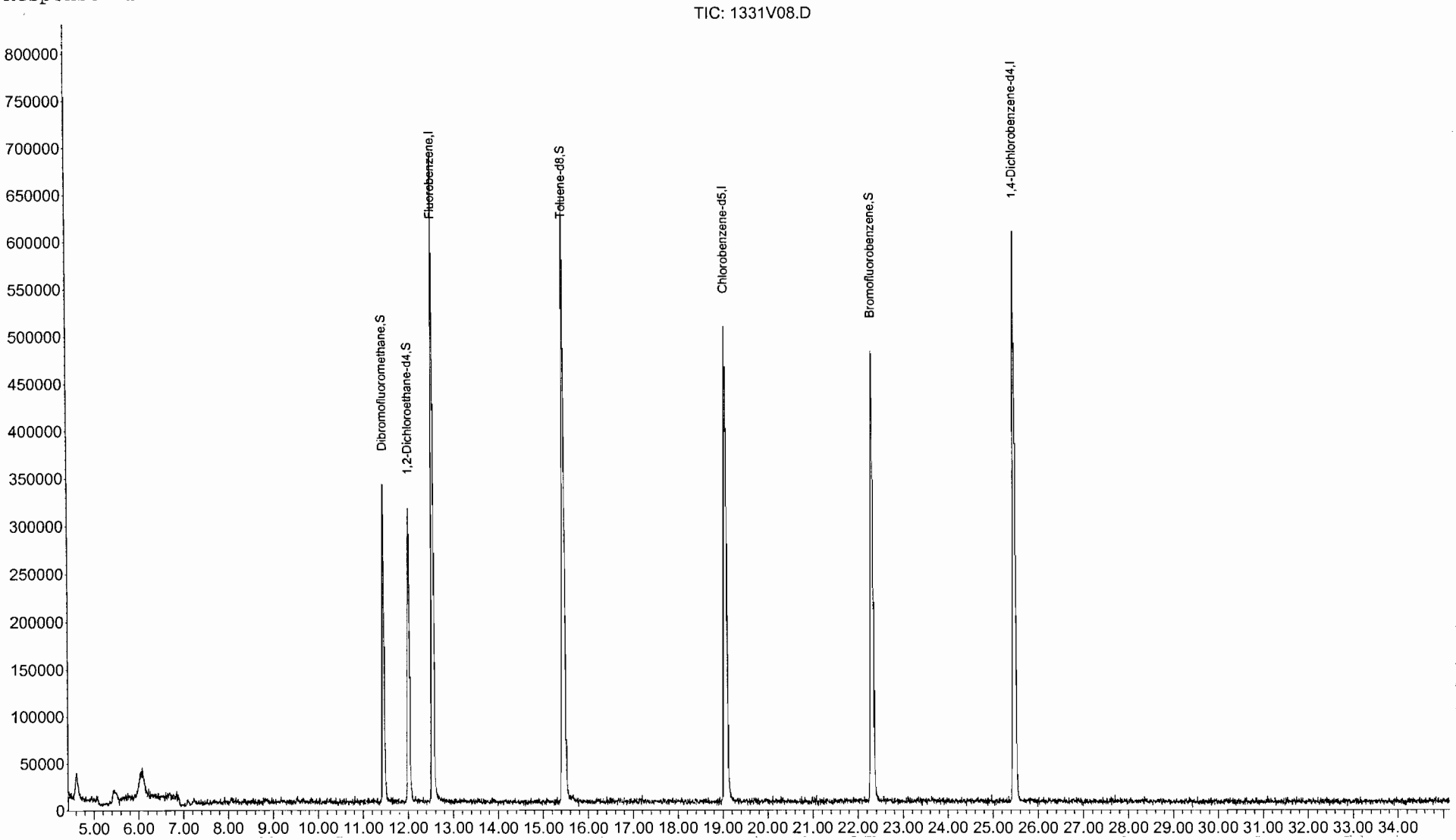
22) Dibromofluoromethane	11.45	113	298316	50.05	ug/l	0.00
Spiked Amount 50.000	Range 85 - 113		Recovery = 100.10%			
23) 1,2-Dichloroethane-d4	12.01	65	339196	51.53	ug/l	0.01
Spiked Amount 50.000	Range 83 - 132		Recovery = 103.06%			
42) Toluene-d8	15.46	98	831234	50.39	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 100.78%			
53) Bromofluorobenzene	22.32	95	341912m	45.06	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.12%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V08.D Vial: 16
Acq On : 26 Nov 2008 1:21 pm Operator: JN
Sample : 2008044638-1 , 06S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 14:06 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V09.D Vial: 15
Acq On : 26 Nov 2008 2:03 pm Operator: JN
Sample : 2008044639-1 , 06D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 14:42 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	12.55	96	909811	50.00 ug/l	0.02
41) Chlorobenzene-d5	19.08	117	614056m	50.00 ug/l	0.03
55) 1,4-Dichlorobenzene-d4	25.48	152	336030	50.00 ug/l	0.01

System Monitoring Compounds

22) Dibromofluoromethane	11.46	113	284503	48.45 ug/l	0.01
Spiked Amount 50.000	Range 85 - 113		Recovery = 96.90%		
23) 1,2-Dichloroethane-d4	12.02	65	310710	47.91 ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 95.82%		
42) Toluene-d8	15.46	98	809327	50.34 ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 100.68%		
53) Bromofluorobenzene	22.32	95	335789m	45.40 ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.80%		

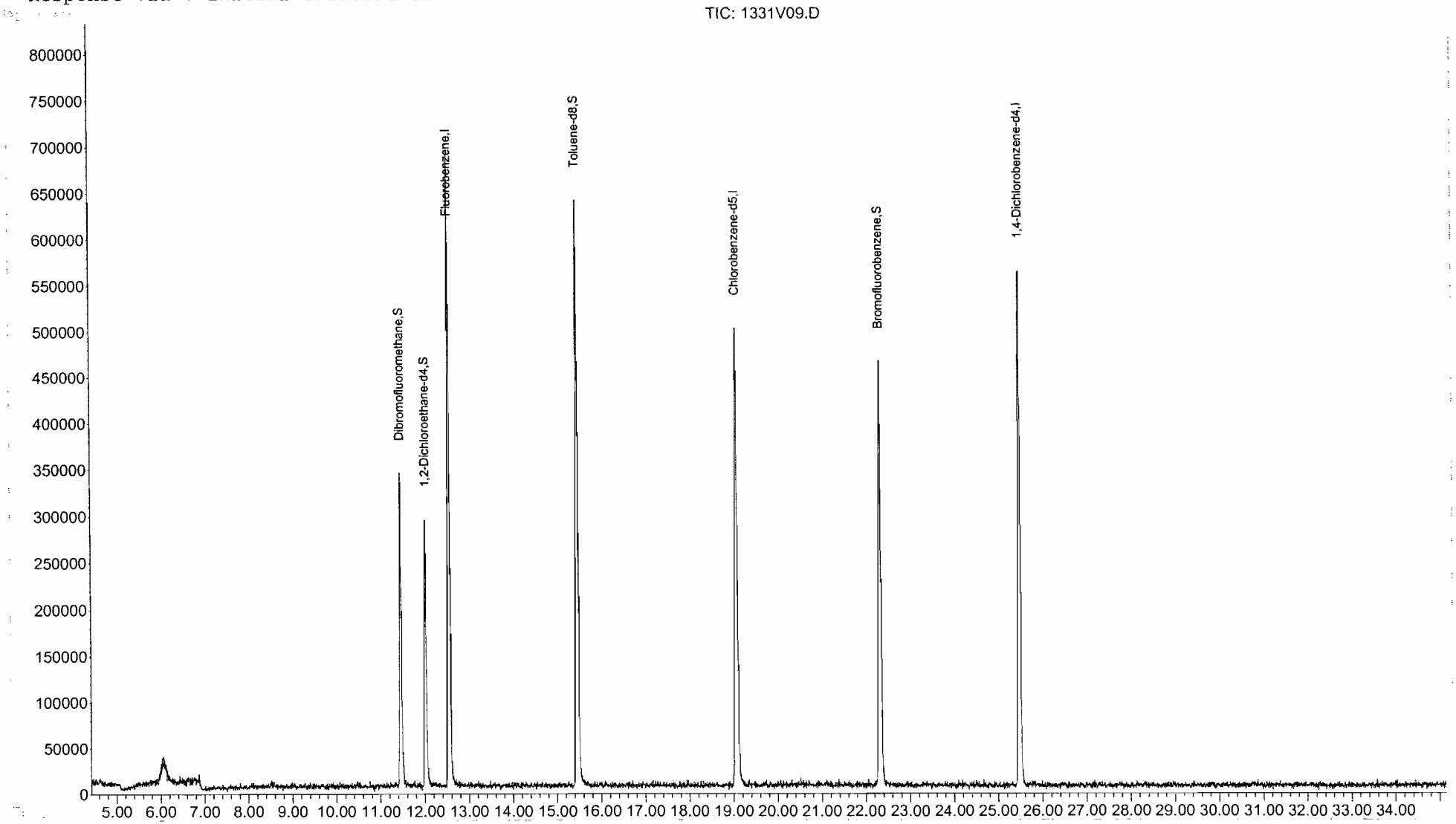
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V09.D
Acq On : 26 Nov 2008 2:03 pm
Sample : 2008044639-1 , 06D , IDNR OA1
Misc : 5ul V-1908B + 5ml
MS Integration Params: RTEINT.P
Quant Time: Nov 26 14:42 2008

Vial: 15
Operator: JN
Inst : 7001
Multipir: 1.00
Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V10.D Vial: 16
Acq On : 26 Nov 2008 2:44 pm Operator: JN
Sample : 2008044640-1 , 08S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 15:22 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

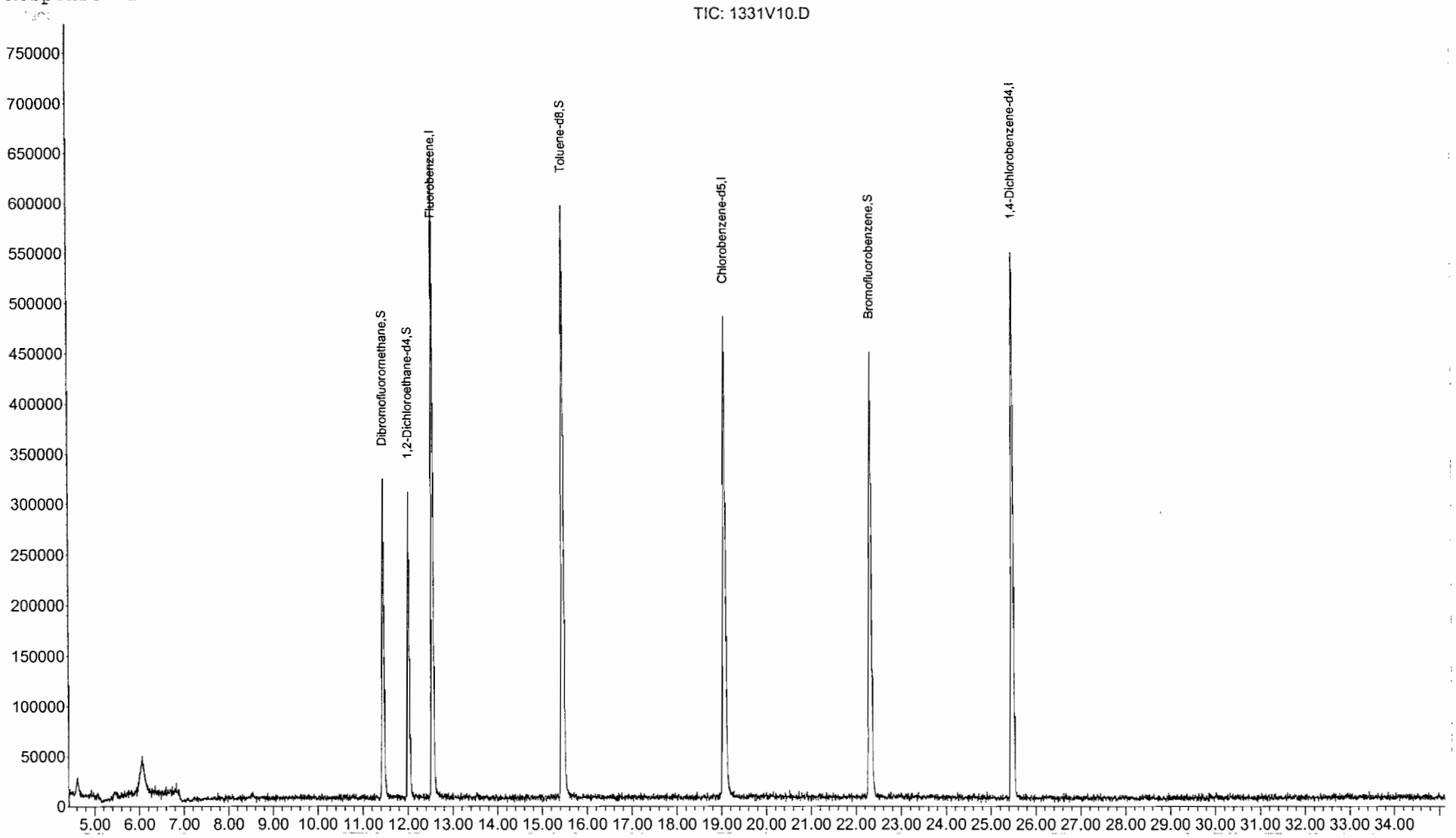
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	841864	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.07	117	587038	50.00	ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.48	152	324232	50.00	ug/l	0.02
System Monitoring Compounds						
22) Dibromofluoromethane	11.46	113	279720	51.48	ug/l	0.01
Spiked Amount 50.000	Range 85 - 113		Recovery = 102.96%			
23) 1,2-Dichloroethane-d4	12.02	65	317813	52.96	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 105.92%			
42) Toluene-d8	15.46	98	770172	50.11	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 100.22%			
53) Bromofluorobenzene	22.32	95	319255m	45.15	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.30%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V10.D Vial: 16
Acq On : 26 Nov 2008 2:44 pm Operator: JN
Sample : 2008044640-1 , 08S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 15:22 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V11.D Vial: 9
Acq On : 26 Nov 2008 3:26 pm Operator: JN
Sample : 2008044641-1 , 08D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:40 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	919997	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.08	117	612596	50.00	ug/l	0.03
55) 1,4-Dichlorobenzene-d4	25.48	152	353708	50.00	ug/l	0.02

System Monitoring Compounds						
22) Dibromofluoromethane	11.46	113	298352	50.24	ug/l	0.02
Spiked Amount 50.000	Range 85 - 113		Recovery = 100.48%			
23) 1,2-Dichloroethane-d4	12.02	65	323749	49.37	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 98.74%			
42) Toluene-d8	15.46	98	828316	51.64	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 103.28%			
53) Bromofluorobenzene	22.32	95	337890m	45.79	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 91.58%			

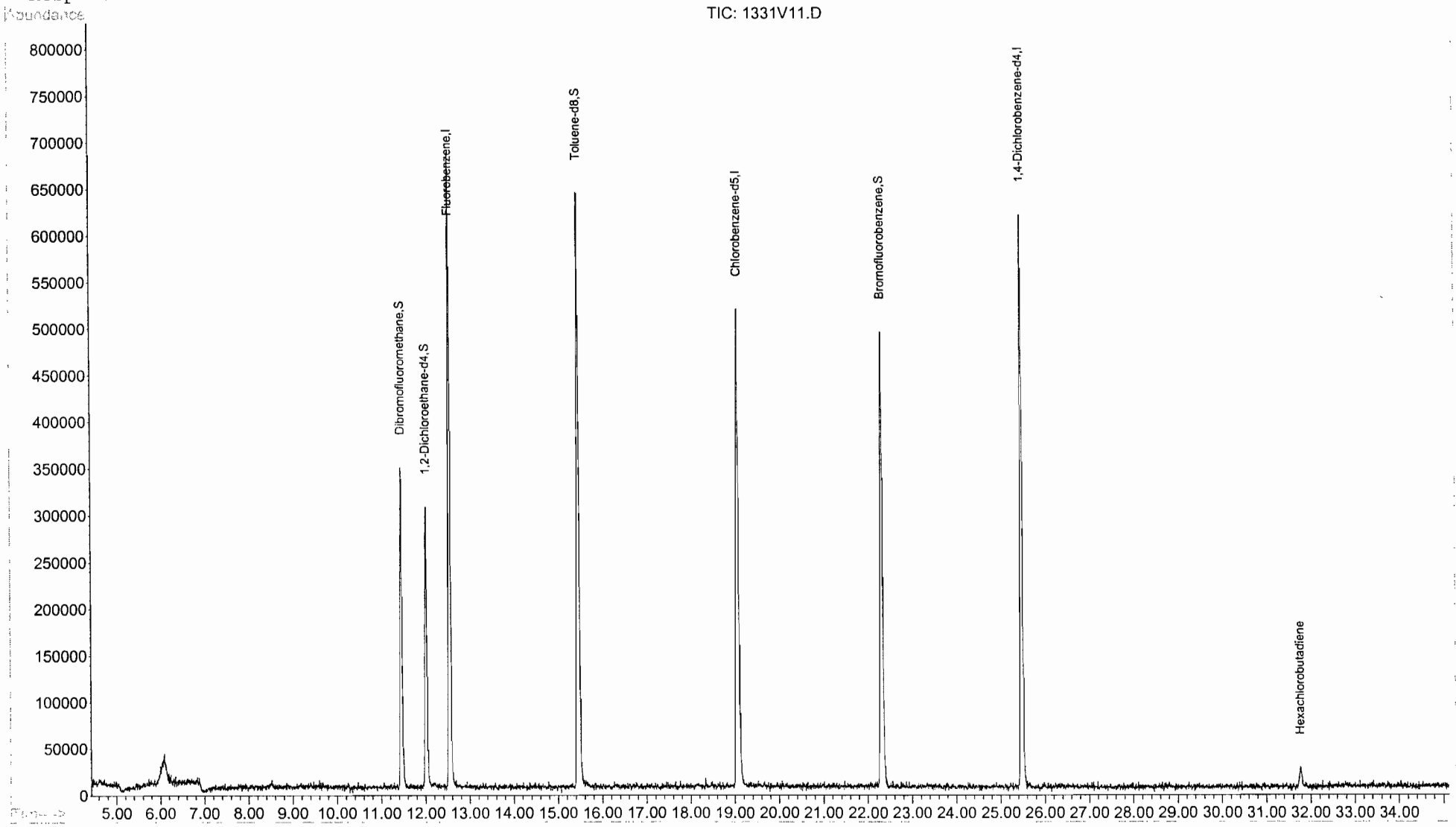
Target Compounds						Qvalue
76) Hexachlorobutadiene	31.76	225	11565m	3.35	ug/l	

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V11.D
Acq On : 26 Nov 2008 3:26 pm
Sample : 2008044641-1 , 08D , IDNR OA1
Misc : 5ul V-1908B + 5ml
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:40 2008

Vial: 9
Operator: JN
Inst : 7001
Multiplr: 1.00
Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V12.D Vial: 10
Acq On : 26 Nov 2008 4:08 pm Operator: JN
Sample : 2008044642-1 , 13S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:40 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

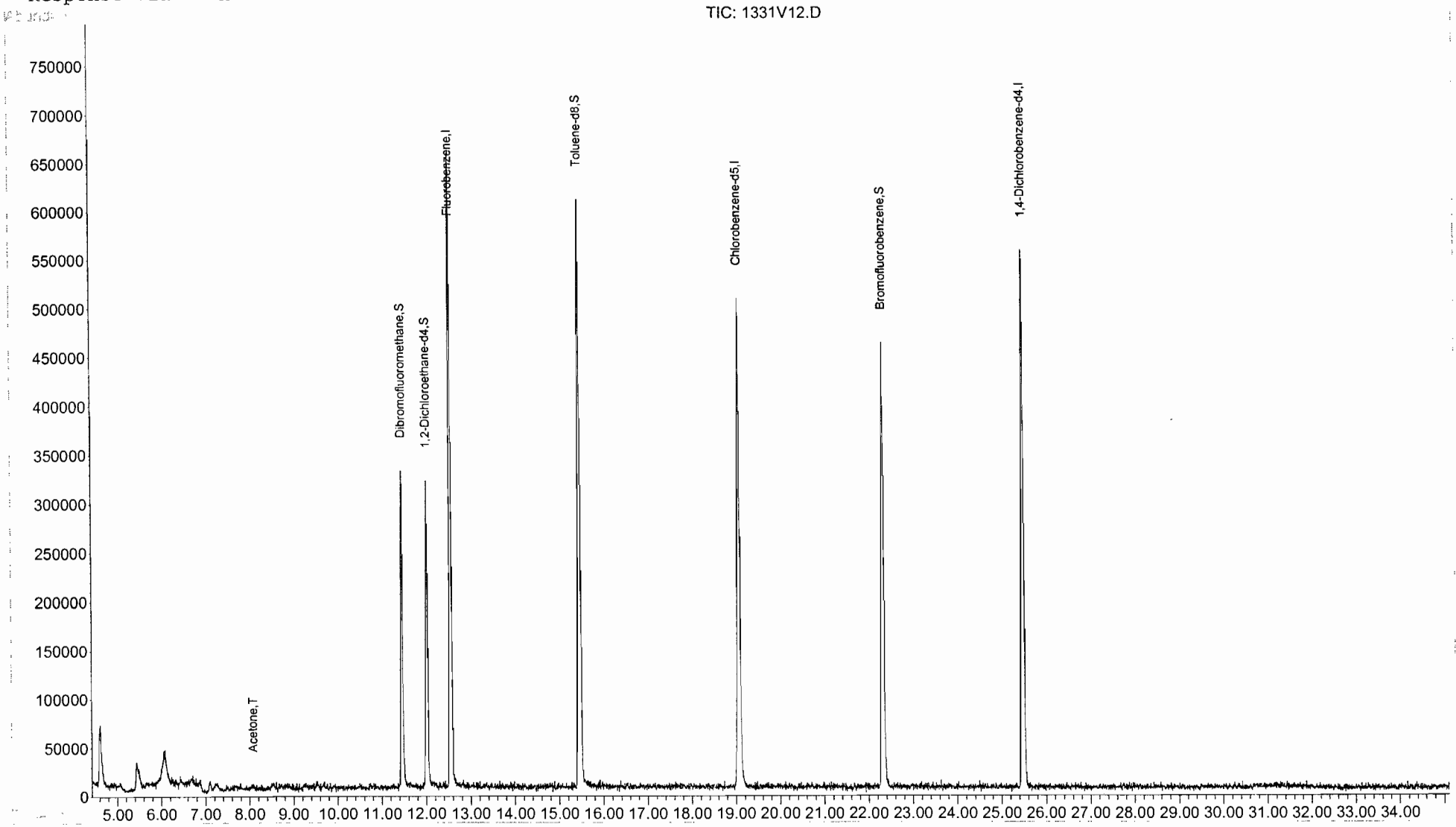
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	883333	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.07	117	588534	50.00	ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.48	152	324515	50.00	ug/l	0.01
System Monitoring Compounds						
22) Dibromofluoromethane	11.45	113	287178	50.37	ug/l	0.00
Spiked Amount 50.000	Range 85 - 113		Recovery = 100.74%			
23) 1,2-Dichloroethane-d4	12.02	65	324186	51.49	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 102.98%			
42) Toluene-d8	15.47	98	793414	51.49	ug/l	0.03
Spiked Amount 50.000	Range 89 - 110		Recovery = 102.98%			
53) Bromofluorobenzene	22.32	95	319548m	45.08	ug/l	0.03
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.16%			
Target Compounds						Qvalue
(10) Acetone	8.07	43	6054	3.49	ug/l	98

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V12.D
Acq On : 26 Nov 2008 4:08 pm
Sample : 2008044642-1 , 13S , IDNR OA1
Misc : 5ul V-1908B + 5ml
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:40 2008

Vial: 10
Operator: JN
Inst : 7001
Multiplr: 1.00
Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V13.D Vial: 11
Acq On : 26 Nov 2008 4:50 pm Operator: JN
Sample : 2008044643-1 , 13D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:40 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	842630	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.07	117	576762	50.00	ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.48	152	322980	50.00	ug/l	0.02

System Monitoring Compounds

22) Dibromofluoromethane	11.46	113	276358	50.81	ug/l	0.01
Spiked Amount 50.000	Range 85 - 113		Recovery = 101.62%			
23) 1,2-Dichloroethane-d4	12.02	65	310120	51.63	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 103.26%			
42) Toluene-d8	15.46	98	767255	50.81	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 101.62%			
53) Bromofluorobenzene	22.32	95	314184	45.23	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.46%			

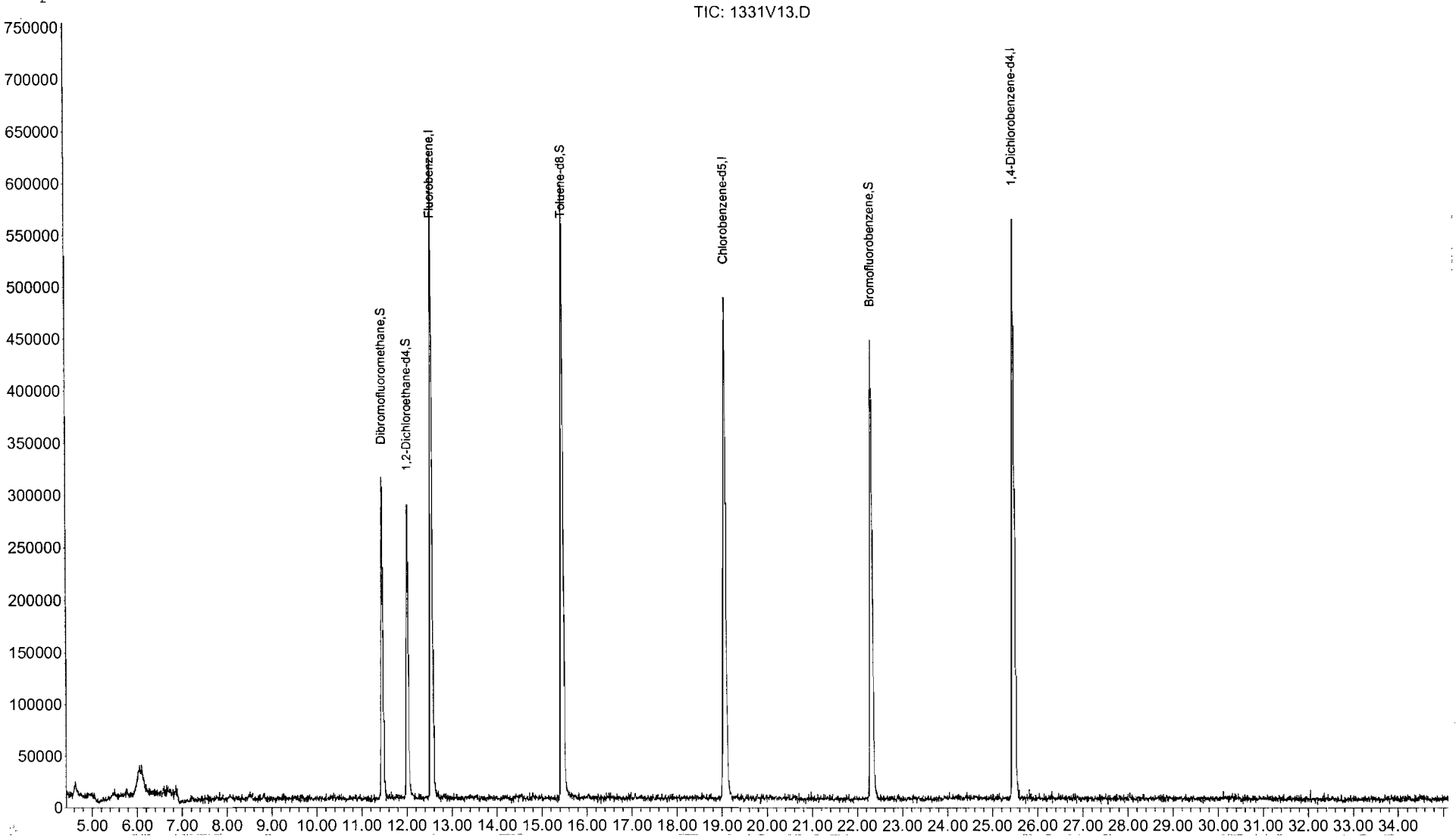
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\08_331\1331V13.D Vial: 11
Acq On : 26 Nov 2008 4:50 pm Operator: JN
Sample : 2008044643-1 , 13D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:40 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V14.D Vial: 13
Acq On : 26 Nov 2008 5:32 pm Operator: JN
Sample : 2008044644-1 , 4D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:42 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	822274	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.07	117	553098	50.00	ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.49	152	307810	50.00	ug/l	0.02

System Monitoring Compounds

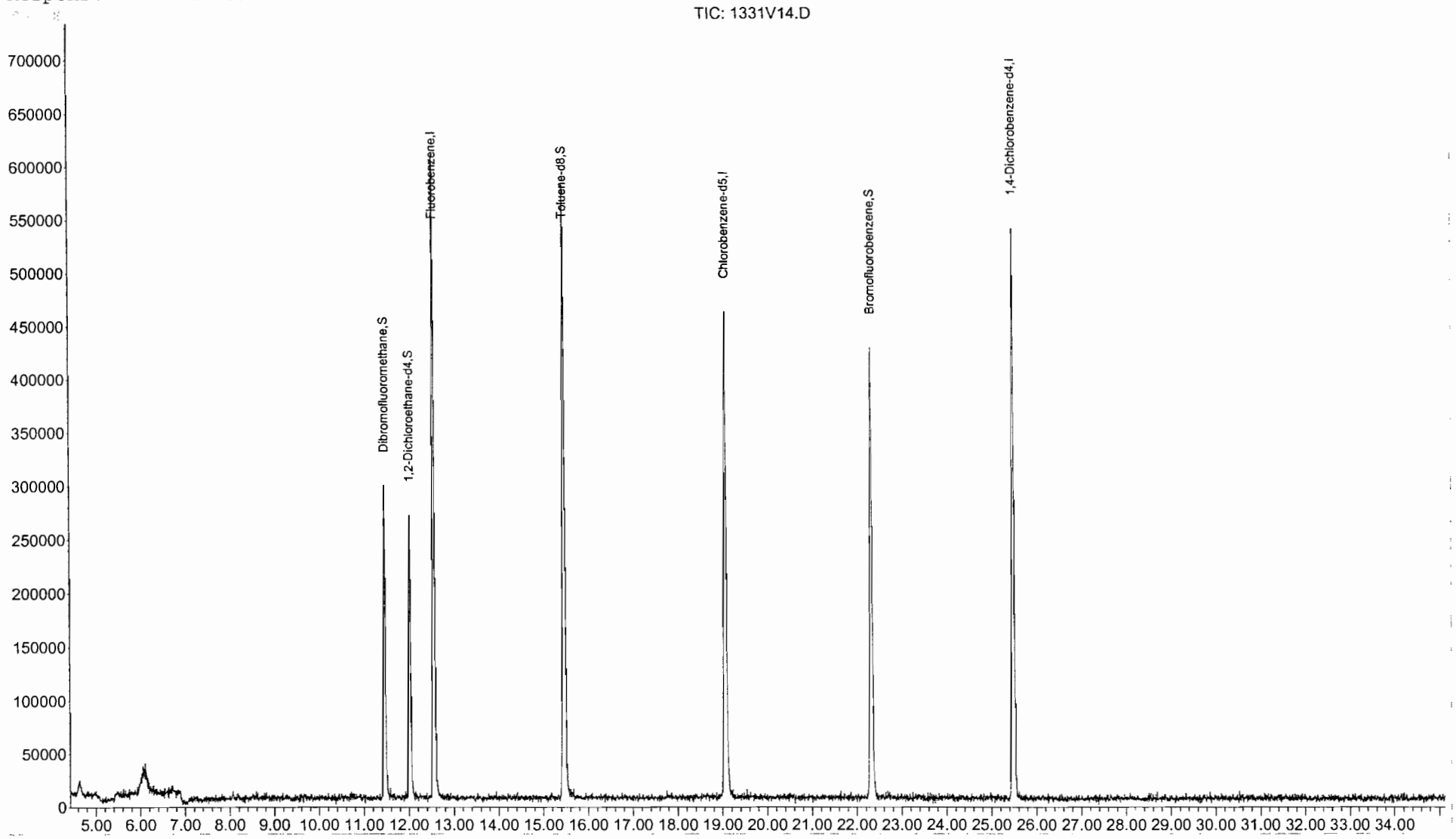
22) Dibromofluoromethane	11.46	113	262034	49.37	ug/l	0.02
Spiked Amount 50.000	Range 85 - 113		Recovery = 98.74%			
23) 1,2-Dichloroethane-d4	12.02	65	305550	52.13	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 104.26%			
42) Toluene-d8	15.46	98	751988	51.93	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 103.86%			
53) Bromofluorobenzene	22.33	95	301079m	45.20	ug/l	0.03
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.40%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V14.D Vial: 13
Acq On : 26 Nov 2008 5:32 pm Operator: JN
Sample : 2008044644-1 , 4D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:42 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V15.D Vial: 14
Acq On : 26 Nov 2008 6:14 pm Operator: JN
Sample : 2008044645-1 , 7D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:42 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

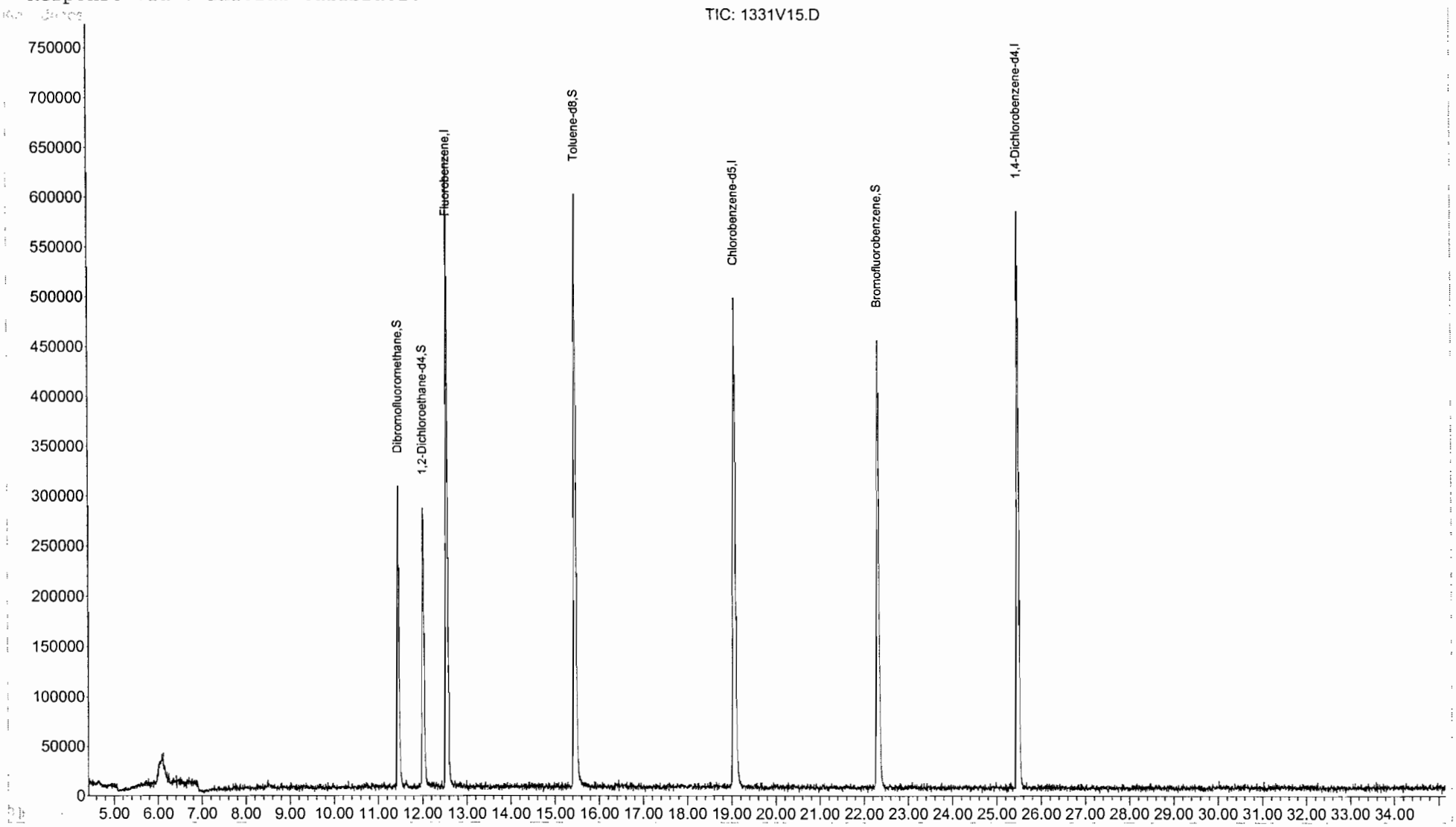
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	848771	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.07	117	592090	50.00	ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.48	152	333102	50.00	ug/l	0.01
System Monitoring Compounds						
22) Dibromofluoromethane	11.46	113	273475	49.92	ug/l	0.02
Spiked Amount 50.000	Range 85 - 113		Recovery = 99.84%			
23) 1,2-Dichloroethane-d4	12.01	65	315308	52.12	ug/l	0.01
Spiked Amount 50.000	Range 83 - 132		Recovery = 104.24%			
42) Toluene-d8	15.46	98	773885	49.92	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 99.84%			
53) Bromofluorobenzene	22.32	95	326875m	45.84	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 91.68%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V15.D Vial: 14
Acq On : 26 Nov 2008 6:14 pm Operator: JN
Sample : 2008044645-1 , 7D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:42 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V16.D Vial: 15
Acq On : 26 Nov 2008 6:55 pm Operator: JN
Sample : 2008044646-1 , 7S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
IS Integration Params: RTEINT.P
Quant Time: Dec 1 8:43 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.55	96	816914	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.08	117	546358m	50.00	ug/l	0.03
55) 1,4-Dichlorobenzene-d4	25.48	152	294341	50.00	ug/l	0.01
System Monitoring Compounds						
22) Dibromofluoromethane	11.46	113	260972	49.49	ug/l	0.02
Spiked Amount 50.000	Range 85 - 113		Recovery = 98.98%			
23) 1,2-Dichloroethane-d4	12.01	65	299200	51.38	ug/l	0.01
Spiked Amount 50.000	Range 83 - 132		Recovery = 102.76%			
42) Toluene-d8	15.47	98	733697	51.29	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 102.58%			
53) Bromofluorobenzene	22.32	95	296847m	45.11	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.22%			

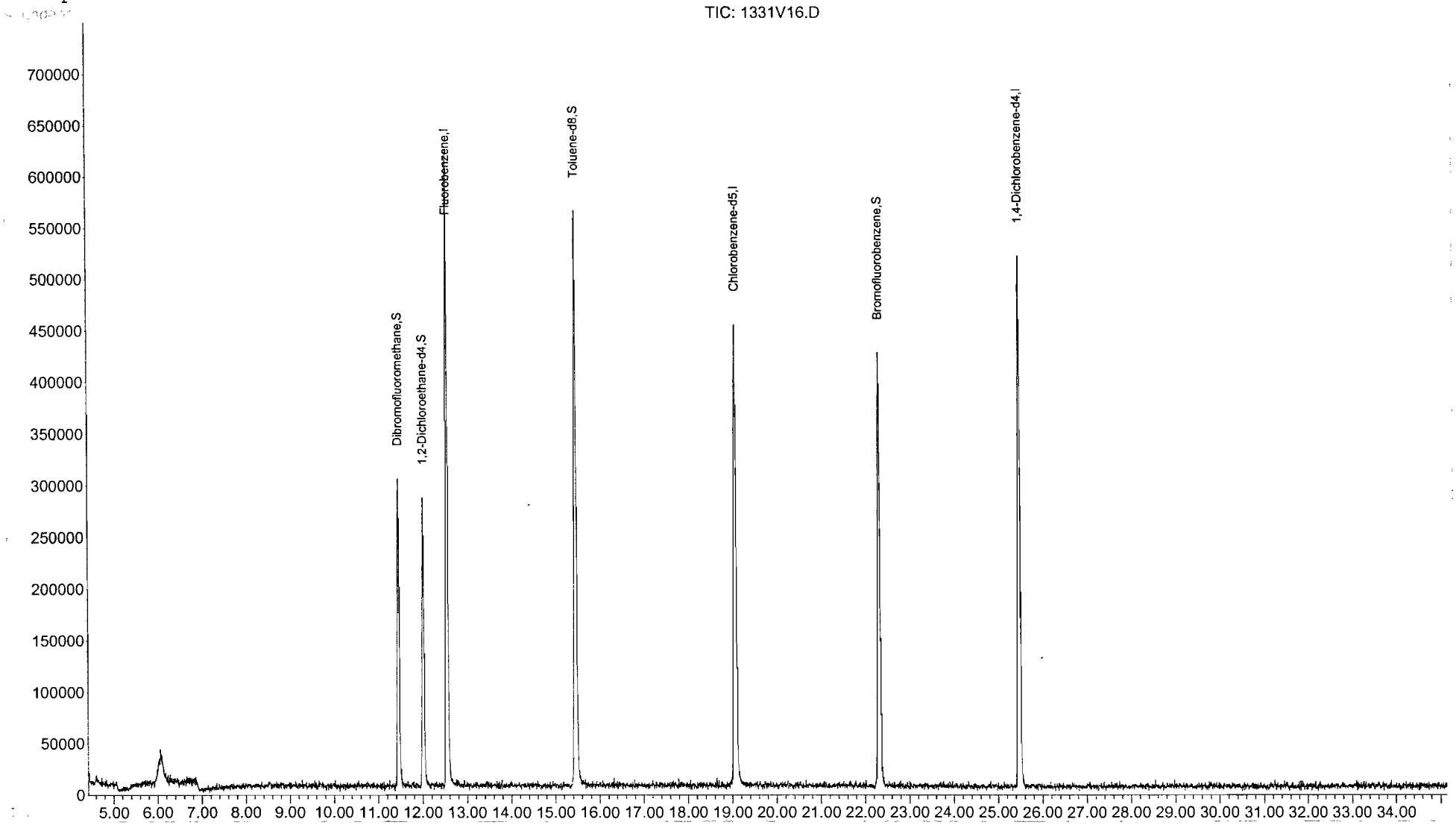
Target Compounds Qvalue

#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\08_331\1331V16.D Vial: 15
Acq On : 26 Nov 2008 6:55 pm Operator: JN
Sample : 2008044646-1 , 7S , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:43 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331V17.D Vial: 16
Acq On : 26 Nov 2008 7:37 pm Operator: JN
Sample : 2008044647-1 , 9D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:43 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

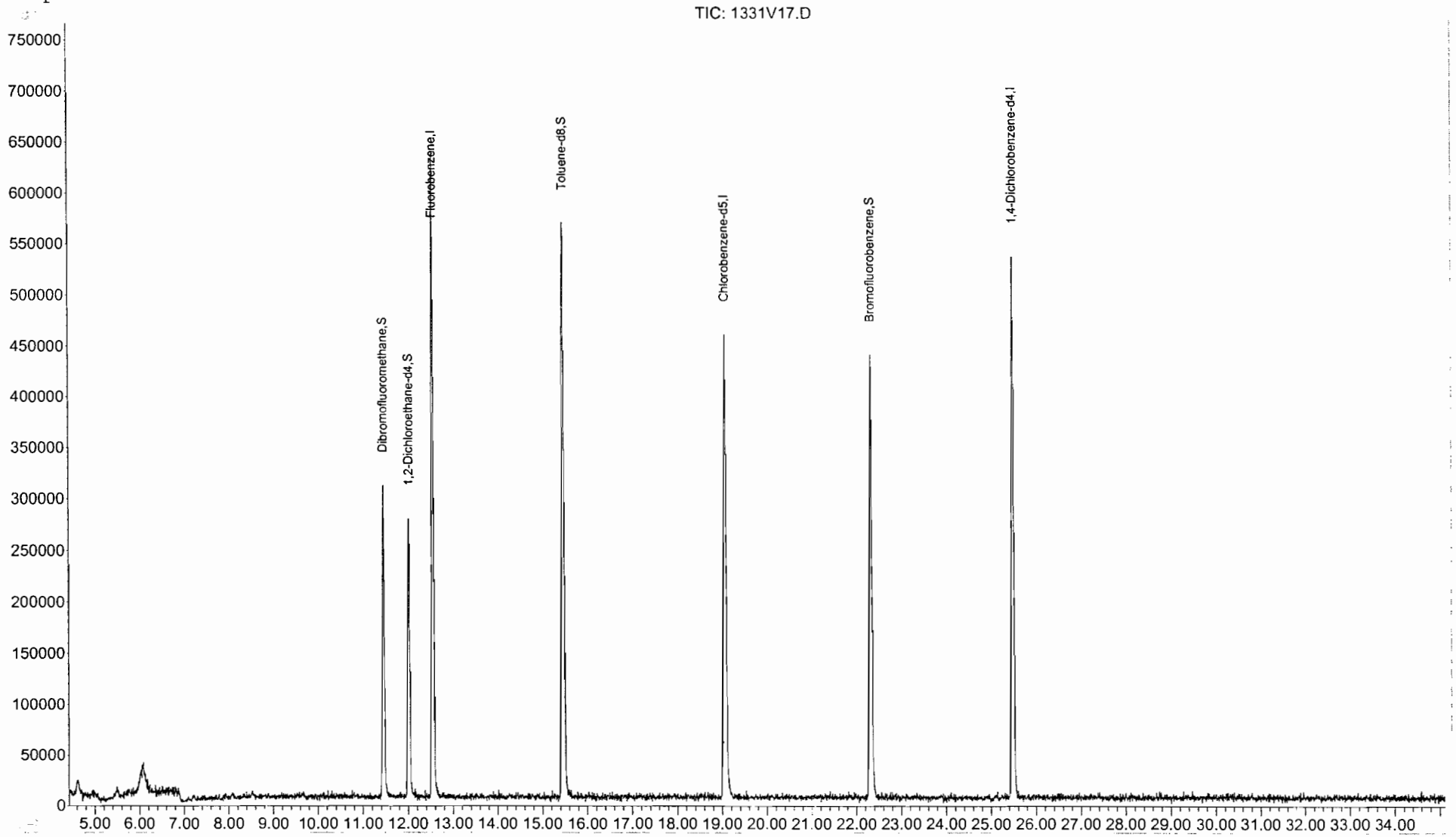
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	12.55	96	808964	50.00 ug/l	0.02
41) Chlorobenzene-d5	19.07	117	549280	50.00 ug/l	0.02
55) 1,4-Dichlorobenzene-d4	25.48	152	305794	50.00 ug/l	0.01
System Monitoring Compounds					
22) Dibromofluoromethane	11.46	113	268374	51.40 ug/l	0.01
Spiked Amount 50.000	Range 85 - 113		Recovery = 102.80%		
23) 1,2-Dichloroethane-d4	12.02	65	297990	51.68 ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 103.36%		
42) Toluene-d8	15.46	98	732114	50.91 ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 101.82%		
53) Bromofluorobenzene	22.32	95	299105m	45.21 ug/l	0.03
Spiked Amount 50.000	Range 90 - 113		Recovery = 90.42%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331V17.D Vial: 16
Acq On : 26 Nov 2008 7:37 pm Operator: JN
Sample : 2008044647-1 , 9D , IDNR OA1 Inst : 7001
Misc : 5ul V-1908B + 5ml Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Dec 1 8:43 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331S02.D Vial: 9
Acq On : 26 Nov 2008 9:09 am Operator: JN
Sample : VSTD050 , ContCal , 8260 Inst : 7001
Misc : 5ul V-1908B + 5ul V-1909A + 5ml ofw Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 9:52 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Tue Nov 25 09:39:03 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.53	96	1115047	50.00	ug/l	0.02
41) Chlorobenzene-d5	19.05	117	769231	50.00	ug/l	0.03
55) 1,4-Dichlorobenzene-d4	25.47	152	502456	50.00	ug/l	0.02
System Monitoring Compounds						
22) Dibromofluoromethane	11.44	113	353214	49.08	ug/l	0.02
Spiked Amount 50.000	Range 85 - 113		Recovery = 98.16%			
23) 1,2-Dichloroethane-d4	12.00	65	368872	46.41	ug/l	0.02
Spiked Amount 50.000	Range 83 - 132		Recovery = 92.82%			
42) Toluene-d8	15.44	98	989285	49.12	ug/l	0.02
Spiked Amount 50.000	Range 89 - 110		Recovery = 98.24%			
53) Bromofluorobenzene	22.30	95	439670	47.46	ug/l	0.02
Spiked Amount 50.000	Range 90 - 113		Recovery = 94.92%			

Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.71	85	499890	91.55	ug/l	96
3) Chloromethane	5.26	50	472615m	50.76	ug/l	
4) Vinyl Chloride	5.51	62	351315m	63.79	ug/l	
5) Bromomethane	6.29	94	142413m	78.30	ug/l	
6) Chloroethane	6.51	64	178136	60.14	ug/l	75
7) Trichlorofluoromethane	7.06	101	538965	64.27	ug/l #	57
8) 1,1-Dichloroethene	8.02	96	266565	58.34	ug/l #	85
9) Carbon Disulfide	8.48	76	912482	56.82	ug/l	100
10) Acetone	8.05	43	103864	47.39	ug/l	56
11) Iodomethane	8.32	142	389335m	55.51	ug/l	
12) Methylene Chloride	8.81	84	303000m	50.75	ug/l	
13) Acrylonitrile	9.15	53	105936	45.92	ug/l	87
14) Methyl-t-butyl ether	9.22	73	746040	55.00	ug/l	90
15) trans-1,2-Dichloroethene	9.26	96	301206	54.57	ug/l #	88
16) cis-1,2-Dichloroethene	10.76	96	339049	52.37	ug/l #	85
17) Vinyl Acetate	9.88	43	671262	50.61	ug/l	98
18) 1,1-Dichloroethane	9.91	63	550079	51.78	ug/l	100
19) 2,2-Dichloropropane	10.80	77	406488	62.05	ug/l	88
20) Bromochloromethane	11.13	128	185157	53.82	ug/l	95
21) Chloroform	11.20	83	571628	51.41	ug/l	99
24) 1,2-Dichloroethane	12.12	62	487022	50.07	ug/l	97
25) 2-Butanone	10.71	43	150240	45.97	ug/l	99
26) 1,1-Dichloropropene	11.80	75	437872	52.89	ug/l #	80
27) 1,1,1-Trichloroethane	11.57	97	474851	55.69	ug/l	99
28) Carbon Tetrachloride	11.84	117	375667	55.27	ug/l	99
29) Benzene	12.15	78	1063007	52.59	ug/l	75
30) Trichloroethene	13.15	130	330631	52.88	ug/l	96
31) 1,2-Dichloropropane	13.55	63	317155	50.64	ug/l	98
32) Bromodichloromethane	13.99	83	428638	52.47	ug/l	100
33) Dibromomethane	13.78	174	279050	53.95	ug/l	91
34) CEVE	14.39	63	62199	104.54	ug/l #	74
35) Cis-1,3-Dichloropropene	14.82	75	470724	51.98	ug/l	99
36) Trans-1,3-Dichloropropene	15.94	75	451751	52.31	ug/l	100
37) 1,1,2-Trichloroethane	16.42	97	280090	52.26	ug/l	99
38) 1,3-Dichloropropane	16.86	76	474874	50.68	ug/l #	81
39) Dibromochloromethane	17.47	129	368115	54.28	ug/l	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\08_331\1331S02.D Vial: 9
Acq On : 26 Nov 2008 9:09 am Operator: JN
Sample : VSTD050 , ContCal , 8260 Inst : 7001
Misc : 5ul V-1908B + 5ul V-1909A + 5ml ofw Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 9:52 2008 Quant Results File: WTR_8260.RES

Quant Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Tue Nov 25 09:39:03 2008
Response via : Initial Calibration
DataAcq Meth : WTR_8260

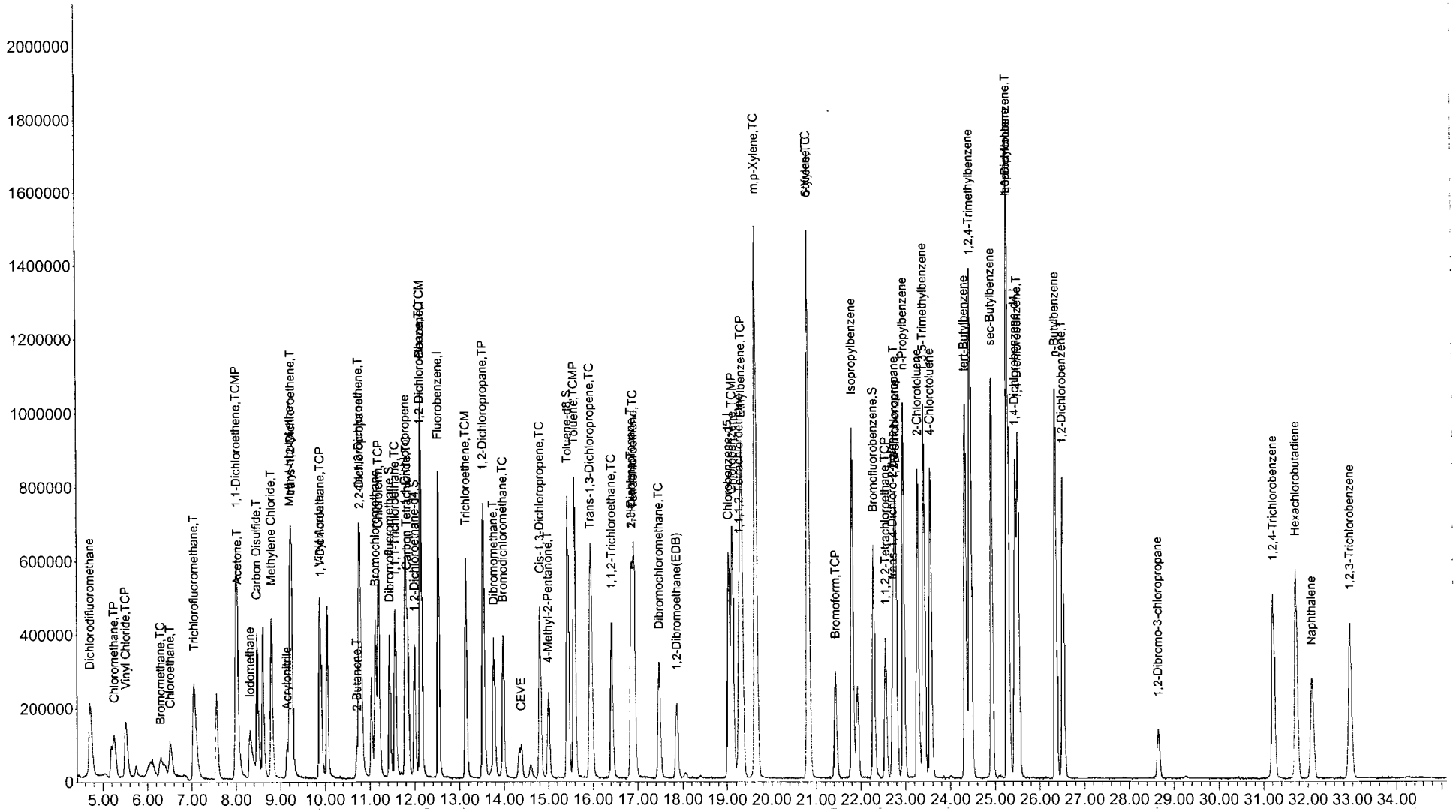
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
40)	Bromoform	21.44	173	298076	54.56 ug/l	#	43
43)	4-Methyl-2-Pentanone	15.00	43	306472m	46.15 ug/l		
44)	Toluene	15.59	91	1196041	53.67 ug/l		98
45)	Tetrachloroethene	16.92	164	301327	55.72 ug/l		99
46)	2-Hexanone	16.87	43	207461	46.59 ug/l		80
47)	Chlorobenzene	19.14	112	817786	53.16 ug/l		100
48)	Ethylbenzene	19.34	106	375117	52.92 ug/l		96
49)	1,1,1,2-Tetrachloroethane	19.28	131	311833m	55.57 ug/l		
50)	m,p-Xylene	19.64	106	924032	107.34 ug/l	#	13
51)	o-Xylene	20.82	106	447131	52.91 ug/l		94
52)	Styrene	20.84	104	786795	53.68 ug/l		85
54)	1,1,2,2-Tetrachloroethane	22.56	83	401118	50.18 ug/l		96
56)	trans-1,4-Dichloro-2-buten	22.72	124	27890	53.46 ug/l	#	1
57)	1,2,3-Trichloropropane	22.76	110	111685	52.10 ug/l	#	76
58)	Bromobenzene	22.80	156	407165	53.89 ug/l		98
59)	n-Propylbenzene	22.97	91	1685736	55.55 ug/l		99
60)	Isopropylbenzene	21.82	105	1309106	55.65 ug/l		98
61)	2-Chlorotoluene	23.28	91	1027307	53.68 ug/l		96
62)	4-Chlorotoluene	23.56	91	1056211	53.12 ug/l		94
63)	1,3,5-Trimethylbenzene	23.42	105	1159888	54.29 ug/l		96
64)	1,2,4-Trimethylbenzene	24.47	105	1162739	55.39 ug/l		96
65)	tert-Butylbenzene	24.35	119	1000566	58.26 ug/l		91
66)	Isopropyltoluene	25.29	119	1290744	59.47 ug/l		95
67)	sec-Butylbenzene	24.93	105	1527850	57.00 ug/l		92
68)	1,2-Dibromoethane(EDB)	17.88	107	312704	53.03 ug/l		97
69)	1,3-Dichlorobenzene	25.31	146	777265	57.48 ug/l		98
70)	1,4-Dichlorobenzene	25.53	146	775686	55.05 ug/l		99
71)	1,2-Dichlorobenzene	26.53	146	753205	55.51 ug/l		98
72)	n-Butylbenzene	26.37	91	1241914	56.27 ug/l		98
73)	1,2-Dibromo-3-chloropropan	28.66	157	89162	53.96 ug/l		92
74)	1,2,4-Trichlorobenzene	31.24	180	456031m	54.19 ug/l		
75)	Naphthalene	32.09	128	639493	47.10 ug/l		84
76)	Hexachlorobutadiene	31.75	225	307486m	62.75 ug/l		
77)	1,2,3-Trichlorobenzene	32.96	180	412779m	52.02 ug/l		

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\08_331\1331S02.D Vial: 9
Acq On : 26 Nov 2008 9:09 am Operator: JN
Sample : VSTD050 , ContCal , 8260 Inst : 7001
Misc : 5ul V-1908B + 5ul V-1909A + 5ml ofw Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Nov 26 9:52 2008 Quant Results File: WTR_8260.RES

Method : C:\HPCHEM\1\METHODS\WTR_8260.M (RTE Integrator)
Title : GC/MS TCL 8260 5ml volatiles for water samples.
Last Update : Wed Nov 26 09:52:17 2008
Response via : Initial Calibration

TIC: 1331S02.D



Hygienic Laboratory

The University of Iowa

CHAIN-OF-CUSTODY

Contact Name	Phone	Purchase Order #
Dan Cook	515-281-4171	WQUST UST/LUST
Company	**Fax**	**Project Name and/or Number**
IDNR Contaminated Sites	515-281-8895	Elliott SWP
Address		**Collector's Phone #**
502 E 9th st		515-281-4171
City	**State / Zip**	**Print Collector's Name**
Des Moines	IA 50319	Dan Cook
		Collector's Signature
		D Cook

Sample ID/Description	Date	Time	Sample Matrix W	S	Other	BTEX+MtBE by DA-1	TEH by DA-2	Comments/UHL Sample Number
1. SWP-04D	11/20/08	10:20	X			X	X	
2. SWP-07D	11/20/08	9:30	X			X	X	
3. SWP-07S	11/20/08	10:00	X			X	X	
4. SWP-09D	11/20/08	8:30	X			X	X	
5.								
6.								
7.								
8.								

ELIS 2008044644 AK 1 2008-11-25 13:39

ELIS 2008044645 AK 2

ELIS 2008044646 AK 3

ELIS 2008044647 AK 4 2008-11-25 13:39

Relinquished by	Date	Time
D Cook	11-25-2008	1337

Relinquished by	Date	Time	Comments

Sample receiving custodian	Date	Time	Sample Receipt Comments
Robert Ecker RKE	11-25-08 11-26-08	1337 0730	4-#18, 4 sets of #45 Rec'd 1-18, 3-45 Each IC @ 7C

102 Oakdale Campus, #H101 OH
Iowa City, Iowa 52242-5002
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http://www.uhl.uiowa.edu

2220 S. Ankeny Blvd.
Ankeny, Iowa 50023
515-725-1600 Fax: 515-725-1642

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Blue - Client Copy

61945/1-07

Hygienic Laboratory

The University of Iowa

CHAIN-OF-CUSTODY

Contact Name	Phone	Purchase Order #
Dan Cook	515-281-4171	UST / LUST (WQUST)
Company	**Fax**	**Project Name and/or Number**
IDNR Contaminated Sites	515-281-8875	Elliott SWP
Address		**Collector's Phone #**
502 E 9th st		515-281-4171
City	**State / Zip**	**Print Collector's Name**
Des Moines	IA 50319	Dan Cook
		Collector's Signature

Sample ID/Description	Date	Time	Sample Matrix W	S	Other	BTEX+MtBE by OA-1	TEH by OA-2
1. SWP-05S	11/19/08	12:45				X	X
2. SWP-05D	11/19/08	12:20				X	X
3. SWP-06S	11/19/08	3:55				X	X
4. SWP-06D	11/19/08	3:35				X	X
5. SWP-08S	11/19/08	10:55				X	X
6. SWP-08D	11/19/08	10:30				X	X
7. SWP-13S	11/19/08	11:50				X	X
8. SWP-13D	11/19/08	11:30				X	X

Analysis Requested

ELIS 2008044636 AK 1
ELIS 2008044637 AK 2
ELIS 2008044638 AK 3
ELIS 2008044639 AK 4
2008-11-25 13:39
ELIS 2008044640 AK 5
ELIS 2008044641 AK 6
ELIS 2008044642 AK 7
ELIS 2008044643 AK 8
2008-11-25 13:39

Relinquished by	Date	Time	Comments
[signature]	11-25-2008	1337	
Relinquished by	**Date**	**Time**	
Sample receiving custodian	**Date**	**Time**	**Sample Receipt Comments**
Robin Echer MLH	11-25-08 11-26-08	1337 0730	8-#18, 8-seals #45 Rec'd 1-18, 3-45 Ech IC @ 7°C

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