



Centre Analytical Laboratories, Inc.

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Analytical Report

Fluorochemical Characterization of Water Samples

Cottage Grove Potable Water Evaluation (E01-0812)

Centre Analytical Laboratory Report No. 023-014LL

Testing Laboratory

Centre Analytical Laboratory, Inc.
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3M Environmental Laboratory Contact

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**Exhibit
1785**

State of Minnesota v. 3M Co.,
Court File No. 27-CV-10-28862

3MA00853349

1785.0001

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1 Introduction

Results are reported for the analysis of a series of potable water samples received by Centre Analytical Laboratories, Inc. (Centre) from the 3M Environmental Laboratory. The samples were collected from Cottage Grove, Minnesota. The Centre study number assigned to the project is 023-014.

Specific fluorochemical characterization by liquid chromatography / tandem mass spectrometry (LC/MS/MS) was requested for all samples. A total of 20 samples were received for analysis.

The samples were prepared and analyzed by LC/MS/MS for the following list of fluorochemicals:

- Table 1: Target Analysis

Compound Name	Acronym
Perfluorooctane Sulfonate	PFOS
Perfluorohexane Sulfonate	PFHS
Perfluorobutane Sulfonate	PFBS
Perfluorooctanoate	PFOA
Perfluorohexanoate	PHAA

2 Sample Receipt

The samples were submitted in individual plastic containers and were not preserved. Samples were collected 6/01/01. Samples were received on 6/7/01. Chain-of-custody information is presented in Attachment C.

3 Holding Times

The analytical method used was validated against a maximum holding time of 14 days in water samples. Stability after this time period has not been validated. However, it should be noted that field fortifications in water and other matrices have shown acceptable recoveries at 100 and 1000 ng/L for periods longer than 14 days.

4 Methods - Analytical and Preparatory

4.1 LC/MS/MS

4.1.1 Sample Preparation for LC/MS/MS Analysis

Water samples were initially treated with 200 uL of 250 mg/L sodium thiosulfate solution to remove residual chlorine. Solid phase extraction (SPE) was used to prepare the samples for LC/MS/MS analysis. A forty-milliliter portion of sample was transferred to a C₁₈ SPE cartridge. The cartridge was eluted with 100% methanol. A 5 mL portion of methanol was collected for

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analysis by LC/MS/MS. This treatment resulted in an eight-fold concentration of the samples prior to analysis.

4.1.2 Sample Analysis by LC/MS/MS

In HPLC, an aliquot of extract is injected and passed through a liquid-phase chromatographic column. Based on the affinity of the analyte for the stationary phase in the column relative to the liquid mobile phase, the analyte is retained for a characteristic amount of time. Following HPLC separation, ES/MS provides a rapid and accurate means for analyzing a wide range of organic compounds, including fluorochemicals. Electrospray is generally operated at relatively mild temperatures; molecules are ionized, fragmented, and detected. Ions characteristic of known fluorochemicals are observed and quantitated against standards.

A Hewlett-Packard HP1100 HPLC system coupled to a Micromass Ultima MS/MS was used to analyze the sample extracts. Analysis was performed using selected reaction monitoring (SRM). Samples were extracted on 6/12/01 and 6/13/01. Samples were analyzed by MS/MS between 6/12/01 and 6/15/01. The HPLC and MS/MS methods used for analysis and instrument parameters can be found in Attachments D.

5 Analysis

5.1 Calibration

A 7-point calibration curve was analyzed at the beginning and end of the analytical sequence for the compounds of interest. The calibration points were prepared at 0, 25, 50, 100, 250, 500, and 1000 ng/L (ppt). The instrument response versus the concentration was plotted for each point. Using linear regression with 1/x weighting, the slope, y-intercept and correlation coefficient (r) and coefficient of determination (r^2) were determined. A calibration curve is acceptable if $r \geq 0.985$ ($r^2 \geq 0.970$).

Calibration standards for MS/MS analysis were prepared using the same SPE procedure used for samples.

Calibration check standards were analyzed periodically (every three to five sample injections) throughout the analysis sequence. Compliance is obtained if the standard analyte concentrations are within $\pm 20\%$ of the actual value.

For the results reported here, calibration criteria were met.

5.2 Blanks

Extraction blanks were prepared and analyzed with every extraction batch of samples. The extraction blanks should not have any target analytes present at or above the concentration of the low-level calibration standard. For these samples, the extraction blanks were compliant.

Instrument blanks in the form of clean methanol solvent were also analyzed after every high-level calibration standard, and after known high-level samples. Again, the blanks should not have any target analytes present at or above the low-level calibration standard. For the samples presented here the instrument blanks are compliant.

5.3 Surrogates

Surrogate spikes are not a component of the LC/MS/MS analytical method.

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5.4 Matrix Spikes

Matrix spikes were prepared for every field sample at concentrations of 500 ng/L for each component of interest. Sample PW#5 contained fluorochemical residuals at levels considerably higher than the spiking amount. Matrix spike recoveries are given in Attachment B.

Field spikes were also prepared for all water samples. Field spikes were prepared at concentrations of approximately 1000 and 10000 ng/L for each field sample. In addition, field blank spikes were submitted. Field spike recoveries are given in Attachment B.

5.5 Duplicates

All field samples were analyzed in duplicate. In addition, field duplicates were also collected. Results are given along with the sample results in Attachment A.

5.6 Laboratory Control Samples

Milliq water was spiked with all compound of interest at 25 and 250 ng/L. All compounds showed recoveries between 70 and 130% in each laboratory control sample, with the exception of PHAA in the 25 ng/L spike extracted on 6/13/01.

5.7 Sample Related Comments

There are no other sample related comments associated with this sample set.

6 Data Summary

Please see Attachment A for a detailed listing of the analytical results.

7 Data/Sample Retention

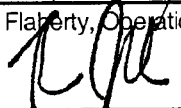
Samples are disposed of one month after the report is issued unless otherwise specified. All electronic data is archived on retrievable media and hard copy reports are stored in data folders maintained by Centre.

8 Attachments

- 8.1 Attachment A: Results
- 8.2 Attachment B: Matrix Spike Recoveries (Field and Laboratory Spikes)
- 8.3 Attachment C: Chain of Custody
- 8.4 Attachment D: LC/MS/MS Raw Analytical Data

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9 Signatures

 John M. Flaherty, Operations Manager	 Kevin J Lloyd, Vice President
6/19/01	19 JUNE 2001
Date	Date

Other Lab Members Contributing to Data

Karen Smith



Centre Analytical Laboratories, Inc.

3048 Research Drive, State College PA 16801 814-231-8032 FAX 814-231-1253

Analytical Results Cottage Grove Potable Water Evaluation

3M Sample Identification	PFOS (ng/L)	PFOA (ng/L)	PFHS (ng/L)	PHAA (ng/L)	PFBS (ng/L)
PW#2	NQ	491	NQ	144	NQ
PW#2 (laboratory duplicate)	NQ	473	NQ	131	NQ
PW#2 (field duplicate)	27.7	577	NQ	134	NQ
PW#3	ND	600	NQ	165	NQ
PW#3 (laboratory duplicate)	ND	561	26.9	181	NQ
PS#3 (field duplicate)	ND	554	NQ	170	NQ
PW#4	51.1	1170	49.7	261	33.2
PW#4 (laboratory duplicate)	52.9	1110	49.0	276	32.4
PW#4 (field duplicate)	54.4	1180	45.0	209	29.6
PW#5	10100	42500	2510	9160	7470
PW#5 (laboratory duplicate)	9000	45700	2990	9470	10100
PW#5 (field duplicate)	12700	56400	3410	10800	10400
Field Blank Control #1	ND	ND	ND	ND	ND
Field Blank Control #2	NQ	ND	ND	ND	ND
Low Level Field Spike Control	832	821	887	812	777
Mid Level Field Spike Control	8340	7160	7750	6670	6700

Limit of Detection (LOD) for the procedure is approximately 2.5 ng/L for PFOS, PHAA and PFHS and 7.5 ng/L for PFOA and PFBS

Limit of Quantitation (LOQ) for the procedure is 25 ng/L for all compounds

ND - Compound not detected

NQ - Compound detected at a level between the LOD and LOQ. Result is not quantifiable.

ND < LOD < NQ < LOQ

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Please refer to the reverse side for our standard terms and conditions.

Attachment B: LC/MS/MS Laboratory Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	24.1	486	92.4	PASS
PFOA	491	979	97.6	PASS
PFHS	18.2	460	88.4	PASS
PHAA	144	615	94.2	PASS
PFBS	7.78	504	99.2	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Laboratory Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	0	510	102.0	PASS
PFOA	600	1000	80.0	PASS
PFHS	19.7	491	94.3	PASS
PHAA	165	609	88.8	PASS
PFBS	14.0	504	98.0	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Laboratory Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	51.1	622	114.2	PASS
PFOA	1170	1790	124.0	PASS
PFHS	49.7	626	115.3	PASS
PHAA	261	884	124.6	PASS
PFBS	33.2	633	120.0	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Laboratory Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	10100	10500	80.0	PASS
PFOA	42500	46600	820.0	FAIL
PFHS	2510	3480	194.0	FAIL
PHAA	9160	9230	14.0	FAIL
PFBS	7470	9780	462.0	FAIL

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

Sample concentration exceeds the spiking level by greater than 10X

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	24.1	790	76.6	PASS
PFOA	491	1370	87.9	PASS
PFHS	18.2	804	78.6	PASS
PHAA	144	941	79.7	PASS
PFBS	7.78	705	69.7	FAIL

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	24.1	10200	101.8	PASS
PFOA	491	8860	83.7	PASS
PFHS	18.2	8320	83.0	PASS
PHAA	144	7530	73.9	PASS
PFBS	7.78	6710	67.0	FAIL

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	0	1080	108.0	PASS
PFOA	600	1450	85.0	PASS
PFHS	19.7	957	93.7	PASS
PHAA	165	1020	85.5	PASS
PFBS	14.0	838	82.4	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	0	9180	91.8	PASS
PFOA	600	8100	75.0	PASS
PFHS	19.7	7150	71.3	PASS
PHAA	165	7090	69.3	FAIL
PFBS	14.0	6560	65.5	FAIL

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	51.1	947	89.6	PASS
PFOA	1170	2480	131.0	FAIL
PFHS	49.7	1100	105.0	PASS
PHAA	261	1150	88.9	PASS
PFBS	33.2	884	85.1	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	51.1	10700	106.5	PASS
PFOA	1170	13200	120.3	PASS
PFHS	49.7	10900	108.5	PASS
PHAA	261	9590	93.3	PASS
PFBS	33.2	8520	84.9	PASS

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	10100	11900	180.0	FAIL
PFOA	42500	47100	460.0	FAIL
PFHS	2510	4390	188.0	FAIL
PHAA	9160	12100	294.0	FAIL
PFBS	7470	10900	343.0	FAIL

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

Sample concentration exceeds the spiking level by greater than 10X

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Attachment B: LC/MS/MS Field Matrix Spike Recovery

Sample ID:

Spiked Amount (ng/L):

	Sample Concentration (ng/L)	Matrix Spike Result (ng/L)	Matrix Spike Result (% Recovery)	Criteria (Pass / Fail)
PFOS	10100	21700	116.0	PASS
PFOA	42500	62100	196.0	FAIL
PFHS	2510	15100	125.9	PASS
PHAA	9160	21300	121.4	PASS
PFBS	7470	20700	132.3	FAIL

Lower Recovery Limit:

Upper Recovery Limit:

Note: Sample results less than 25 ng/L are reported as NQ in the results section as they are below the limit of quantitation. Results are given in this table for recovery calculations only.

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Sample Login Report

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Study Number: 023-014

CAL ID	Client Sample ID	Received	Matrix	Submitted By	Logged in By/Date	Initial Loc.	Condition of Samples	Comments
0108170	E01-0812-25297	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108171	E01-0812-25298	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108172	E01-0812-25299	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108173	E01-0812-25300	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108174	E01-0812-25301	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108175	E01-0812-25302	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108176	E01-0812-25303	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108177	E01-0812-25304	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108178	E01-0812-25305	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108179	E01-0812-25306	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108180	E01-0812-25307	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108181	E01-0812-25308	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108182	E01-0812-25309	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108183	E01-0812-25310	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108184	E01-0812-25311	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108185	E01-0812-25312	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108186	E01-0812-25313	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108187	E01-0812-25314	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.

Verified By/Date: R.K. 6-7-01

Printed 6/7/2001

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Centre Analytical Laboratories

Sample Login Report

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Study Number: **023-014**

CAL ID	Client Sample ID	Received	Matrix	Submitted By	Logged in By/Date	Initial Loc.	Condition of Samples	Comments
0108188	E01-0812-25315	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.
0108189	E01-0812-25316	6-6-01 10:30	GROUND WATER	Karen Smith	RICK K 6-7-01	COOLER 6	C-WET ICE-A	Stored in COOLER 6 until Log-In.

Verified By/Date: R.K. 6-7-01

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Printed 6/7/2001

3M Environmental Laboratory

Form 39778 - PVO

Shipping Address:
3M Bldg. 2-3E-09
535 Bush Avenue
St. Paul, MN 55105

Telephone:
Sample Receiving: (651) 778-4948
Alternate: (651) 778-6753
FAX: (651) 778-6176

Chain of Custody / Request for Laboratory Analytical 3723

3M Env. Lab Project #
For Internal Use Only

E01-0812

Project ID/Project Name		GG POTABLE WATER EVALUATION	
Template #	Final Report Due Date	6/18/01	
Project Lead	Internal Due Date		
Dept. # (main)	Class/Job/Project #		
Contact Name		MARK GAETZ	
Company	Date Available	6/6	
Mailing Address	Date Due	6/14	
City, State, Zip	Contract Lab		
Telephone #		(651) 778-7600	
FAX #		(651) 778-7203	

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, reporting units, etc.)

SPECIFICALLY LOOKING FOR :
C4/C6/C8 CARBOXYLIC ACIDS
C4/C6/C8 SULPHONIC ACIDS

Special Instructions and/or Specific Regulatory Requirements: (Method, limit of detection, reporting units, etc.)										Analysis Requested: Complete below. Attach any associated information.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Item #	Client Sample Identification	3M LIMS#	Date Sampled	Time Sampled	Matrix/ Media	Preservatives:				Total Number of Containers																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Collected by (print): P.R. BOOK		Collector's signature: O.R. Book / May.	
Item #	Relinquished by/Affiliation	Time	Date
1-10	O.R. Book / med	12:30	06/01/01
1-10	Mark Gaetz	13:00	06/01/01
1-10	Richard A Jones	12:00	6/5/01
			6/7/01 Lm

Sample Condition Upon Receipt:		Comments:	
Temperature: °C	O Acceptable O Other:		
Other Associated CoCs:			

3M Environmental Laboratory

Form 38778 - PW0

Shipping Address:
3M Bldg 2-3E-09
935 Rust Avenue
St. Paul, MN 55106

Telephone:
Sample Receiving: (651) 778-4948
Alternate: (651) 778-8753
FAX: (651) 778-6176

Chain of Custody / Request for Laboratory Analytical 3724

3M Env. Lab Project #
For Internal Use Only



E01-0812

Contact Name MARK GAETZ		Date Available 6/6			
Company 3M		Date Due 6/14			
Mailing Address BLDG # 42-2E-27		Contract Lab 3M			
City, State, Zip ST. PAUL, MN. 55133					
Telephone # (651) 778-7600		FAX # (651) 778-7203			

Special Instructions and/or Specific Regulatory Requirements: (method, limit of detection, reporting units, etc.)					
SPECIFICALLY LOOKING FOR: C4/C6/C8 CARBOXYLIC ACIDS C4/C6/C8 SULPHONIC ACIDS					

Item #	Client Sample Identification	3M LIMS#	Date Sampled	Time Sampled	Matrix/Media	Preservatives:				Total Number of Containers	Analysis Requested: Complete below. Attach any associated information. (Enter an 'X' in the box below to indicate request)	
						HNO ₃	H ₂ SO ₄	VOCs	None			Other
1.	PN#4 LOWLEVEL FIELD SPIKE	25307	06/01/01	07:30	H ₂ O						1	X
2.	PN#4 MID LEVEL FIELD SPIKE	108		"								
3.	PN#5 SAMPLE	09		07:40								
4.	PN#5 SAMPLE DUP	10										
5.	PN#5 LOWLEVEL FIELD SPIKE	11										
6.	PN#5 MIDLEVEL FIELD SPIKE	12										
7.	FIELD BLANK CONTROL SAMPLE #01	13										
8.	FIELD BLANK CONTROL SAMPLE #02	14										
9.	LOWLEVEL FIELD SPIKE CONTROL SAM.	15		09:45								
10.	MIDLEVEL FIELD SPIKE CONTROL SAM.	16		09:15								

Collector's signature: P.R. Book / my		Shipped Via: car		Received by/Affiliation: Mark A. Gaetz		Time: 12:30 06/01/01	
Date: 06/01/01		Date: 06/01/01		Date: 06/01/01		Date: 06/01/01	
Time: 12:00		Time: 13:00		Time: 12:00		Time: 10:30	
Date: 06/01/01		Date: 06/01/01		Date: 06/01/01		Date: 06/01/01	

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other:		Comments:	
Temperature: 10°C		Copies to: JKL, KRL	
Other Associated CoCs: 3723			

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Last Page - Originator

Original - Accompanying Samples

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6/4/2001

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3M ENVIRONMENTAL LABORATORY CONTRACT LABORATORY WORK ORDER BY SAMPLE

Project: E01-0812

Contract Lab(s): CENTRE

Requester: Gaetz, Mark A
Department: 452100
Project Number:
Date Received: 6/4/01
Project Description: CG Potable Water Evaluation

Project Due Date: 6/18/01
Project Lead: James K. Lundberg
Phone Number: 651-778-5631
Email Address: jklundberg@mmm.com

Comments: Specifically looking for: C4/C6/C8 Carboxylic Acids and C4/C6/C8 Sulphonic Acids.

Ship Date: 6/5/01

3M Sample Number	Sampled Date	Sample Description	Analysis Due Date
E01-0812-25297	6/1/01	PW#2 Sample	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25298	6/1/01	PW#2 Sample Dup	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25299	6/1/01	PW#2 Low Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25300	6/1/01	PW#2 Mid Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25301	6/1/01	PW#3 Sample	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25302	6/1/01	PW#3 Sample Dup	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25303	6/1/01	PW#3 Low Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25304	6/1/01	PW#3 Mid Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25305	6/1/01	PW#4 Sample	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25306	6/1/01	PW#4 Sample Dup	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25307	6/1/01	PW#4 Low Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25308	6/1/01	PW#4 Mid Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25309	6/1/01	PW#5 Sample	

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6/4/2001

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3M ENVIRONMENTAL LABORATORY CONTRACT LABORATORY WORK ORDER BY SAMPLE

Project: E01-0812

Contract Lab(s): CENTRE

Ship Date: 6/5/01

3M Sample Number	Sampled Date	Sample Description	Analysis Due Date
E01-0812-25309	6/1/01	PW#5 Sample	
(cont.)			
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25310	6/1/01	PW#5 Sample Dup	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25311	6/1/01	PW#5 Low Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25312	6/1/01	PW#5 Mid Level Field Spike	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25313	6/1/01	Field Blank Control Sample #01	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25314	6/1/01	Field Blank Control Sample #02	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25315	6/1/01	Low Level Field Spike Control Sample	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01
E01-0812-25316	6/1/01	Mid Level Field Spike Control Sample	
<u>Analysis Code</u>	<u>Analytical Method</u>	<u>Components</u>	
LCMS_SCAN	LCMS Scan	LCMS Scan	6/14/01

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Centre Analytical Laboratories, Inc.

3048 Research Drive

State College, PA 16801

www.centrelab.com

Phone: (814) 231-8032

Fax: (814) 231-1253 or (814) 231-1580

Sample "Condition Upon Receipt" Form

Sponsor Protocol # EO1-0812

Centre Study # 023-014

Date & Time Received 6/6/01 1030

Condition of Samples C-Wet Ice-A

Temporary Storage Location C-6

Initials & Date LNO 6/6/01

Waybill # Fed Ex 8276 4360 7866

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FedEx.	PRIORITY OVERNIGHT	WED
emp# 400917 05JUN01		Deliver By:
TRK# 8276 4360 7866	FORM 0215	06JUN01 AA
168 01 -PA-US	NK	PIT SCEA
		