

[Return to Navigator](#)

Analytical Report Cover Page

Sample Summary

Laboratory Test Results

QC Data

Shipping and Receiving Documents

There are 15 pages in this document.

STL Chicago

SEVERN TRENT LABORATORIES
ANALYTICAL REPORT

JOB NUMBER: 212015

Prepared For:

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

Project: Hg Offloads

Attention: Adrienne Byrnes

Date: 09/17/2002

Linda S. Mackley

Signature

9/17/02

Date

Name: Linda S. Mackley

Title: Project Manager

E-Mail: lmackley@stl-inc.com

STL Chicago
2417 Bond Street
University Park, IL 60466

PHONE: (708) 534-5200
FAX.: (708) 534-5211

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SAMPLE INFORMATION

Date: 09/17/2002

Job Number.: 212015
Customer...: Severn Trent Laboratories
Attn.....: Adrienne Byrnes

Project Number.....: 20002587
Customer Project ID....: 209727
Project Description....: Hg Offloads

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
212015-1	209727-7	Soil	08/20/2002	14:34	09/13/2002	08:00
212015-2	209727-18	Soil	08/20/2002	14:56	09/13/2002	08:00
212015-3	209727-19	Soil	08/20/2002	14:58	09/13/2002	08:00
212015-4	209727-20	Soil	08/20/2002	15:00	09/13/2002	08:00
212015-5	209727-21	Soil	08/20/2002	12:00	09/13/2002	08:00
212015-6	209727-22	Soil	08/20/2002	12:00	09/13/2002	08:00

LABORATORY TEST RESULTS												
Job Number: 212015			Date:09/17/2002									
CUSTOMER: Severn Trent Laboratories			PROJECT: 209727									
Customer Sample ID: 209727-7 Date Sampled.....: 08/20/2002 Time Sampled.....: 14:34 Sample Matrix.....: Soil			Laboratory Sample ID: 212015-1 Date Received.....: 09/13/2002 Time Received.....: 08:00									
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MOI	RL	DILUTION	UNITS	BATCH	DE	DATE/TIME	TEC
Method	% Solids Determination											
	% Solids, Solid	87.9			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Moisture, Solid	12.1			0.10	0.10	1	%	62870		09/16/02 2104	clb
7471A	Mercury (CVAA) Solids Mercury, Solid*	2200			31	190	5	ug/Kg	62737		09/15/02 1601	gok

* In Description = Dry Wgt.

Job Number: 212015

LABORATORY TEST RESULTS

Date: 09/17/2002

CUSTOMER: Severn Trent Laboratories

PROJECT: 209727

ATTN: Adrienne Byrnes

Customer Sample ID: 209727-18
Date Sampled.....: 08/20/2002
Time Sampled.....: 14:56
Sample Matrix.....: Soil

Laboratory Sample ID: 212015-2
Date Received.....: 09/13/2002
Time Received.....: 08:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	NDI	RI	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
Method	% Solids Determination	87.5			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Solids, Solid	12.5			0.10	0.10	1	%	62870		09/16/02 2104	clb
7471A	Mercury (CVAA) Solids	32	B		6.2	38	1	ug/Kg	62737		09/15/02 1534	gok
	Mercury, Solid*											

* In Description = Dry Wgt.

Job Number: 212015

LABORATORY TEST RESULTS

Date: 09/17/2002

CUSTOMER: Severn Trent Laboratories

PROJECT: 209727

ATTN: Adrienne Byrnes

Customer Sample ID: 209727-19
Date Sampled.....: 08/20/2002
Time Sampled.....: 14:58
Sample Matrix.....: Soil

Laboratory Sample ID: 212015-3
Date Received.....: 09/13/2002
Time Received.....: 08:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MOL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
Method	% Solids Determination	87.7			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Solids, Solid	12.3			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Moisture, Solid											
7471A	Mercury (CVAA) Solids	34	B		6.2	38	1	ug/Kg	62737		09/15/02 1540	gok
	Mercury, Solid*											

* In Description = Dry Wgt.

LABORATORY TEST RESULTS												
Job Number: 212015						Date:09/17/2002						
CUSTOMER: Severn Trent Laboratories						PROJECT: 209727			ATTN: Adrienne Byrnes			
Customer Sample ID: 209727-20 Date Sampled.....: 08/20/2002 Time Sampled.....: 15:00 Sample Matrix.....: Soil						Laboratory Sample ID: 212015-4 Date Received.....: 09/13/2002 Time Received.....: 08:00						
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MOE	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
Method	% Solids Determination	88.7			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Solids, Solid	11.3			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Moisture, Solid											
7471A	Mercury (CVAA) Solids Mercury, Solid*	91			6.1	37	1	ug/Kg	62737		09/15/02 1543	gok

* In Description = Dry Wgt.

Job Number: 212015

LABORATORY TEST RESULTS

Date: 09/17/2002

CUSTOMER: Severn Trent Laboratories

PROJECT: 209727

ATTN: Adrienne Byrnes

Customer Sample ID: 209727-21
Date Sampled.....: 08/20/2002
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 212015-5
Date Received.....: 09/13/2002
Time Received.....: 08:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RC	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
Method	% Solids Determination											
	% Solids, Solid	81.8			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Moisture, Solid	18.2			0.10	0.10	1	%	62870		09/16/02 2104	clb
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	46			6.6	40	1	ug/Kg	62737		09/15/02 1545	gok

* In Description = Dry Wgt.

LABORATORY TEST RESULTS				Date: 09/17/2002								
Job Number: 212015				Date: 09/17/2002								
CUSTOMER: Severn Trent Laboratories				PROJECT: 209727				ATTN: Adrienne Byrnes				
Customer Sample ID: 209727-22 Date Sampled.....: 08/20/2002 Time Sampled.....: 12:00 Sample Matrix.....: Soil				Laboratory Sample ID: 212015-6 Date Received.....: 09/13/2002 Time Received.....: 08:00								
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MOL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
Method	% Solids Determination	87.9			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Solids, Solid	12.1			0.10	0.10	1	%	62870		09/16/02 2104	clb
	% Moisture, Solid											
7471A	Mercury (CVAA) Solids Mercury, Solid*	30	B		6.1	38	1	ug/Kg	62737		09/15/02 1547	gok

* In Description = Dry Wgt.

LABORATORY CHRONICLE

Job number: 212015

Date: 09/17/2002

CUSTOMER: Severn Trent Laboratories

PROJECT: 209727

ATTN: Adrienne Byrnes

Lab ID: 212015-1	Client ID: 209727-7	Date Recvd: 09/13/2002	Sample Date: 08/20/2002		
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)
Method	% Solids Determination	1	62870		
7471A	Mercury (CVAA) Solids	1	62737	62715	
7470/7471	SW846 Digestion (Hg)	1	62715		
					DATE/TIME ANALYZED
					09/16/2002 2104
					09/15/2002 1601
					09/15/2002 1225
					DILUTION
					5
Lab ID: 212015-2	Client ID: 209727-18	Date Recvd: 09/13/2002	Sample Date: 08/20/2002		
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)
Method	% Solids Determination	1	62870		
7471A	Mercury (CVAA) Solids	1	62737	62715	
7470/7471	SW846 Digestion (Hg)	1	62715		
					DATE/TIME ANALYZED
					09/16/2002 2104
					09/15/2002 1534
					09/15/2002 1225
					DILUTION
Lab ID: 212015-3	Client ID: 209727-19	Date Recvd: 09/13/2002	Sample Date: 08/20/2002		
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)
Method	% Solids Determination	1	62870		
7471A	Mercury (CVAA) Solids	1	62737	62715	
7470/7471	SW846 Digestion (Hg)	1	62715		
					DATE/TIME ANALYZED
					09/16/2002 2104
					09/15/2002 1540
					09/15/2002 1225
					DILUTION
Lab ID: 212015-4	Client ID: 209727-20	Date Recvd: 09/13/2002	Sample Date: 08/20/2002		
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)
Method	% Solids Determination	1	62870		
7471A	Mercury (CVAA) Solids	1	62737	62715	
7470/7471	SW846 Digestion (Hg)	1	62715		
					DATE/TIME ANALYZED
					09/16/2002 2104
					09/15/2002 1543
					09/15/2002 1225
					DILUTION
Lab ID: 212015-5	Client ID: 209727-21	Date Recvd: 09/13/2002	Sample Date: 08/20/2002		
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)
Method	% Solids Determination	1	62870		
7471A	Mercury (CVAA) Solids	1	62737	62715	
7470/7471	SW846 Digestion (Hg)	1	62715		
					DATE/TIME ANALYZED
					09/16/2002 2104
					09/15/2002 1545
					09/15/2002 1225
					DILUTION
Lab ID: 212015-6	Client ID: 209727-22	Date Recvd: 09/13/2002	Sample Date: 08/20/2002		
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)
Method	% Solids Determination	1	62870		
7471A	Mercury (CVAA) Solids	1	62737	62715	
7470/7471	SW846 Digestion (Hg)	1	62715		
					DATE/TIME ANALYZED
					09/16/2002 2104
					09/15/2002 1547
					09/15/2002 1225
					DILUTION

QUALITY CONTROL RESULTS

Job Number.: 212015

Report Date.: 09/17/2002

CUSTOMER: Severn Trent Laboratories

PROJECT: 209727

ATTN: Adrienne Byrnes

Text Method.....: Method
Method Description.: % Solids Determination
Parameter.....: % Moisture

Batch.....: 62870
Equipment Code.....:

Analyst...: clb
Test Code.: %MOIST

QC	Lab ID	Reagent	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc. F	*	Limits	Date	Time
MB	62870-001		%	100.0000							09/16/2002	2104

Text Method.....: Method
Method Description.: % Solids Determination
Parameter.....: % Solids

Batch.....: 62870
Equipment Code.....:

Analyst...: clb
Test Code.: %SOLID

QC	Lab ID	Reagent	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc. F	*	Limits	Date	Time
MB	62870-001		%	0.1000 U							09/16/2002	2104
MD	212015-2		%	87.30000			87.50000	0.2		R 20.0	09/16/2002	2104

Text Method.....: 7471A
Method Description.: Mercury (CVAA) Solids
Parameter.....: Mercury

Batch.....: 62737
Equipment Code.....: HG4.

Analyst...: gok
Test Code.: HG

QC	Lab ID	Reagent	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc. F	*	Limits	Date	Time
MB	62715 -007		ug/Kg	5.40 U							09/15/2002	1440
LCS	62715 -008	M02ESTK010	ug/Kg	349.11		333.30	5.40 U	105	%	80-120	09/15/2002	1442
MD	212015-2		ug/Kg	28.56 B			31.64 B	3.08	A	37.71	09/15/2002	1536
MS	212015-2	M01JSTK012	ug/Kg	237.46		190.50	31.64 B	125	%	75-125	09/15/2002	1538

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 09/17/2002

REPORT COMMENTS

- 1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.
- 2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.
- 3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.
- 4) The test results for the noted analytical method(s) meet the requirements of NELAP. Lab Cert. 10# 100201
- 5) Arizona Environmental Laboratory License number AZ0603.
- 6) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviations (any number of which may appear in the report)

Inorganic Qualifiers (Q-Column)

- U Analyte was not detected at or above the stated limit.
- < Not detected at or above the reporting limit.
- J Result is less than the RL, but greater than or equal to the method detection limit.
- B Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
- S Result was determined by the Method of Standard Additions.
- F AFCEE: Result is less than the RL, but greater than or equal to the method detection limit.

Inorganic Flags (Flag Column)

- ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed the upper or lower control limits.
- * LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
- + MSA correlation coefficient is less than 0.995.
- 4 MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
- E SD: Serial dilution exceeds the control limits.
- H MB, EB1, EB2, EB3: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
- N MS, MSD: Spike recovery exceeds the upper or lower control limits.
- W AS(GFAA) Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

- U Analyte was not detected at or above the stated limit.
- ND Compound not detected.
- J Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
- Q Result was qualitatively confirmed, but not quantified.
- C Pesticide identification was confirmed by GC/MS.
- Y The chromatographic response resembles a typical fuel pattern.
- Z The chromatographic response does not resemble a typical fuel pattern.
- E Result exceeded calibration range, secondary dilution required.
- F AFCEE: Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)

Organic Flags (Flags Column)

- B MB: Batch QC is greater than reporting limit.
- * LCS, LCD, ELC, ELD, CV, MS, MSD, Surrogate: Batch QC exceeds the upper or lower control limits.
- + EB1, EB2, EB3, MLE: Batch QC is greater than reporting limit
- A Concentration exceeds the instrument calibration range
- 4 Concentration is below the method Reporting Limit (RL)
- B Compound was found in the blank and sample.
- D Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
- H Alternate peak selection upon analytical review
- I Indicates the presence of an interference, recovery is not calculated.
- M Manually integrated compound.

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 09/17/2002

P The lower of the two values is reported when the % difference between the results of two GC columns is greater than 25%.

Abbreviations

AS	Post Digestion Spike (GFAA Samples - See Note 1 below)
Batch	Designation given to identify a specific extraction, digestion, preparation set, or analysis set
CAP	Capillary Column CCB Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Confirmation analysis of original
C1	Confirmation analysis of A1 or D1
C2	Confirmation analysis of A2 or D2
C3	Confirmation analysis of A3 or D3
CRA	Low Level Standard Check - GFAA; Mercury
CRI	Low Level Standard Check - ICP
CV	Calibration Verification Standard
Dil Fac	Dilution Factor - Secondary dilution analysis
D1	Dilution 1
D2	Dilution 2
D3	Dilution 3
DLFac	Detection Limit Factor
DSH	Distilled Standard - High Level
DSL	Distilled Standard - Low Level
DSM	Distilled Standard - Medium Level
EB1	Extraction Blank 1
EB2	Extraction Blank 2
EB3	D1 Blank
ELC	Method Extracted LCS
ELD	Method Extracted LCD
ICAL	Initial calibration
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
ISA	Interference Check Sample A - ICAP
ISB	Interference Check Sample B - ICAP
Job No.	The first six digits of the sample ID which refers to a specific client, project and sample group
	Lab ID An 8 number unique Laboratory Identification
LCD	Laboratory Control Standard Duplicate
LCS	Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
MB	Method Blank or (PB) Preparation Blank
MD	Method Duplicate
MDL	Method Detection Limit
MLE	Medium Level Extraction Blank
MRL	Method Reporting Limit Standard
MSA	Method of Standard Additions
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not Detected
PREPF	Preparation factor used by the Laboratory's Information Management System (LIMS)
PDS	Post Digestion Spike (ICAP)
RA	Re-analysis of original
A1	Re-analysis of D1
A2	Re-analysis of D2
A3	Re-analysis of D3
RD	Re-extraction of dilution
RE	Re-extraction of original
RC	Re-extraction Confirmation
RL	Reporting Limit
RPD	Relative Percent Difference of duplicate (unrounded) analyses
RRF	Relative Response Factor

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 09/17/2002

R1	Retention Time
RTW	Retention Time Window Sample ID A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB	Seeded Control Blank
SD	Serial Dilution (Calculated when sample concentration exceeds 50 times the MDL)
UCB	Unseeded Control Blank
SSV	Second Source Verification Standard
SLCS	Solid Laboratory Control Standard(LCS)
PHC	pH Calibration Check LCSP pH Laboratory Control Sample
LCDP	pH Laboratory Control Sample Duplicate
MDPH	pH Sample Duplicate
MDFP	Flashpoint Sample Duplicate
LCFP	Flashpoint LCS
G1	Gelex Check Standard Range 0-1
G2	Gelex Check Standard Range 1-10
G3	Gelex Check Standard Range 10-100
G4	Gelex Check Standard Range 100-1000

Note 1: The Post Spike Designation on Batch QC for GFAA is designated with an "S" added to the current abbreviation used. EX. LCS S=LCS Post Spike (GFAA); MSS=MS Post Spike (GFAA)

Note 2: The MD calculates an absolute difference (A) when the sample concentration is less than 5 times the reporting limit. The control limit is represented as +/- the RL.

SEVERN

TRENT

SERVICES

STL Valparaíso

2400 Cumberland Drive

Valparaíso, IN 46383

Phone: 219-464-2389

Fax: 219-462-2953

Report To:

Bill To:

212015 08110

Contact: ADRIENNE BYRNES

Company: _____

Address: _____

Phone: _____

Fax: _____

E-Mail: _____

Contact: _____

Company: _____

Address: _____

Phone: _____

Fax: _____

E-Mail: _____

Shaded Areas: For Internal Use Only _____ of _____

Package System

Yes ☒ No ☐

Received on Ice

Yes ☒ No ☐

Temperature °C of Cooler

4.8

Within Hold Time

Yes ☒ No ☐

pH Check OK

Yes ☒ No ☐

Sample Labels and COC Agree

Yes ☒ No ☐

COC not present

Additional Analyses / Remarks

Samples Sealed

Yes ☒ No ☐

Samples Intact

Yes ☒ No ☐

Pressure Indicated

Yes ☒ No ☐Bis C₂ Check OKYes ☒ No ☐

COC not present

Additional Analyses / Remarks

Sampler Name: _____

Signature: _____

Project Name: _____

Project Number: _____

Project Location: _____

Date Required: _____

Lab PM: _____

Hard Copy: _____

Fax: _____

Laboratory ID: _____

Client Sample ID: _____

Sampling Date: _____

Sampling Time: _____

Matrix: _____

Comp/Grab: _____

MERCURY (7471)

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