CHEMCENTRAL/Seattle 6644 S. 196th Street, T-102, Kent, WA 98032 Tel: 425-251-8500 Fax: 425-251-6099

January 10, 2001

Ms. Hillary Holt
Environmental Programs
King County Industrial Waste
Suite 200
130 Nickerson Street
Seattle, WA 98109-1658

Re: Annual Self-Monitoring Report
King County Industrial Waste Discharge Authorization Number 217-02

Dear Ms. Holt:

Attached is the Annual Self-Monitoring Report for the Groundwater Extraction System that discharges from the CHEMCENTRAL/Seattle facility in Kent in accordance with the requirements of the Discharge Authorization Number 217-02.

CHEMCENTRAL's consultant, Hart Crowser, Inc., performed the monthly sampling and prepared the report.

If you should have any questions, please feel free to contact Dave Heffner at Hart Crowser at 206-324-9530 or myself at 425-251-8500.

Sincerely,

Terry D. Wells
General Manager

Attachment:
Annual Wastewater Discharge Self-Monitoring Report

Cc: (w/Attachment) CHEMCENTRAL Corp, Attn: Mr. Robert Garner
City of Kent, Attn: Mr. Gary Gill, City Engineer (2)
WA State Department of Ecology, Attn: Mr. Doug Knutson

ANNUAL WASTEWATER DISCHARGE SELF-MONITORING REPORT
CHEMCENTRAL/SEATTLE FACILITY
KENT, WASHINGTON

This report presents the results of self-monitoring conducted during 2000 under King County Industrial Waste (KCIW) Discharge Authorization 217-02, of the groundwater extraction system effluent at the CHEMCENTRAL/Seattle facility in Kent, Washington. This discharge authorization became effective May 2, 2000. The previous discharge authorization (DA No. 217) required that self-monitoring reports be submitted quarterly rather than annually. Therefore, monitoring conducted during January through March 2000 was documented in our Wastewater Discharge Self-Monitoring Report dated April 7, 2000. This report documents monitoring conducted during the remainder of the year (April through December 2000).

Shallow groundwater at the site contains low concentrations of organic chemicals (ketones, aromatics, and chlorinated organics). Groundwater infiltrates into five collection trenches, which are installed to depths of 8 to 10 feet. Collected water is pumped to an above-ground piping manifold by pumps installed in each of eight trench sumps. From the piping manifold, the water discharges to the sanitary sewer. [Note: Under previous discharge authorizations, treatment in an on-site air stripper was required prior to sewer discharge. The current authorization allows extracted groundwater to be discharged directly to sewer without treatment.]

Self-monitoring requirements of the current discharge authorization include the following:

- Measure effluent pH and record discharge volume on a monthly basis;
- Collect an effluent sample and analyze for benzene, toluene, and ethylbenzene on a monthly basis;
- Observe and report, if present, the following operating criteria: oil sheen, unusual color, visible turbidity, and odor of solvent, gasoline, or hydrogen sulfide;
- Sample, analyze, and report hydrogen sulfide, settleable solids, and explosivity if operating criteria are exceeded; and
- Submit an annual self-monitoring report that summarizes discharge volumes, sampling results, and observations.

DISCHARGE RATES AND VOLUMES

Discharge rates based on periodic totalizer readings are entered on the monthly Waste Discharge Self-Monitoring Reports for April through December 2000 (attached). Monthly averaged discharge rates and volumes are summarized in Table 1.

For the period April through December 2000, the totalizer recorded a total discharge volume of approximately 197,000 gallons, which corresponds to an average discharge rate of approximately 720 gallons per day. This discharge rate is small compared to previous years. The main reason for the difference is that previous discharge authorizations allowed surface water from the tank farm enclosure and SPCC area to be pumped to the air stripper and discharged to sewer along with extracted groundwater. The new discharge authorization (which became effective on May 2, 2000) does not allow sewer discharge of surface water from these (or any other) areas. In addition, there were apparent piping flow restrictions caused by large suspended solids (e.g., leaf debris), and a potential issue associated with the new flowmeter's flow sensor. A new flowmeter/totalizer (Vortex Model No. 5938-1-15) was installed on January 8, 2000, after the old unit failed in December 1999. (The new unit determines water flow rate based on pressure differences measured across a stationary flow sensor.) Following a dramatic decline in measured discharge flow rates during June/July 2000, an inspection identified two potential causes:

1) A check valve in the main discharge line was found to be badly clogged, clearly impeding water flow; and

2) The new flow meter's flow sensor was found to be coated with a dark brown scummy material (possibly biological growth).

The check valve was removed, and the flow sensor was cleaned with a soft wet cloth. Upon restarting the system, flow rates increased dramatically. The problem was primarily attributed to the badly clogged check valve. It was not clear whether the material coating the flow sensor contributed significantly to the measured flow rate decline (i.e., by causing the sensor to detect lower-than-actual flow rates).

Another large decline in measured discharge flow rate was observed during October through December 2000. The flow sensor was found to be thinly coated with a brown scummy material on December 17, 2000, and was cleaned again. Upon inspection 2 weeks later, a plug of leaf debris was found wedged

against the upstream side of the flow sensor, and the measured flow rate had declined still further. This plug was not present at the flow sensor on December 17, but may have been constricting water flow further upstream in the piping. It was again unclear whether the material coating the flow sensor had any impact on measured flow rates.

We will continue to evaluate system flow. In 2001, we plan to inspect and clean the flow sensor on a monthly basis.

EFFLUENT SAMPLE ANALYTICAL RESULTS AND OBSERVATIONS

Effluent samples were collected from the groundwater extraction system discharge line on a monthly basis to observe discharge parameters and analyze for constituents with KCIW discharge limits. Samples were submitted to Analytical Resources, Inc. (ARI) for analysis using EPA Method 602. Analytical results for benzene, toluene, and ethylbenzene are summarized in Table 2. Appendix A contains the analytical laboratory certificates. All analytical results for this period were below the respective KCIW discharge limits.

The monthly measurements of pH were within the limits of the discharge authorization (i.e., between 5 and 12 pH units), and are recorded on the Waste Discharge Self-Monitoring Reports (attached). The effluent samples did not exhibit any oil sheen, unusual color, significant turbidity, or odor of solvent, gasoline, or hydrogen sulfide. A reddish-brown to slight yellow tint was observed in most of the samples. This slight coloration is attributed to iron oxidation and associated biological growth.

This report was prepared according to the standard of care of our profession. No other warranty, express or implied, is made.

Sincerely,

HART CROWSER, INC.

David A. Heffner

DAVID A. HEFFNER, P.E.
Associate Engineer

F:\docs\jobs\233529\CCkciwrep.doc

Attachments:
Table 1 - Summary of Monthly Averaged Discharge Rates and Volumes
Table 2 - Analytical Results of Monthly Wastewater Effluent Sampling for Constituents with KCIW Discharge Limits
Waste Discharge Self-Monitoring Reports for April through December 2000
Appendix A - Sample Analytical Data Quality and Laboratory Certificates Analytical Resources, Inc.

Table 1 - Summary of Monthly Averaged Discharge Rates and Volumes

Month (2000)	Average Discharge Rate in gpd	Volume Discharged in gallons
January	5,022	155,668
February	5,674	164,550
March	987	30,605
April	437	13,108
May	1,171	36,290
June	901	27,032
July	47	1,446
August	1,649	51,117
September	1,381	41,424
October	683	21,170
November	134	4,020
December	39	1,214
April - December 2000 (Note 2)	716	196,821
January - December 2000	1,496	547,644

Notes:

1) Discharge volumes for January through April 2000 include surface water pumped from the tank farm enclosure and SPCC area. Pumping from these areas was discontinued in May, in accordance with the new discharge authorization that became effective May 2, 2000.

2) April through December is the portion of 2000 covered by this report. Monitoring results for January through March 2000 were previously reported in our quarterly report dated April 7, 2000.

233529/CCtable1.xls

Table 2 - Analytical Results of Monthly Wastewater Effluent Sampling for Constituents with KCIW Discharge Limits

	Concentration in mg/L								
Constituent	KCIW Discharge Limit	6/1/2000 Sample	6/16/2000 Sample	7/18/2000 Sample	8/17/2000 Sample	9/18/2000 Sample	10/16/2000 Sample	11/15/2000 Sample	12/17/2000 Sample
Benzene	0.13	0.01	0.001 U	0.0082	0.0067	0.0069	0.0062	0.0052	0.0068
Toluene	1.5	0.48	0.60	0.081	0.037	0.0055	0.001 U	0.001 U	0.001 U
Ethylbenzene	1.4	0.06	0.04	0.0087	0.024	0.015	0.012	0.0073	0.0048

U Not detected at indicated detection limit.

Notes:

1) This table reports analytical results for sampling performed under Discharge Authorization 217-02, which became effective on May 2, 2000. Analytical results for sampling performed in 2000 under the previous discharge authorization are documented in CHEMCENTRAL's Quarterly Self-Monitoring Report dated April 7, 2000.

2) The constituents were analyzed using EPA Method 602. Laboratory certificates are provided in Appendix A.

King County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

Mail to: County Industrial W
130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month April 2000 No. of Employees (per day) Average ____ Maximum ____

Sample Site No. ____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓Check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				561	
2																					
3																					
4																					
5																					
6																					Totalizer reading recorded.
7																				447	
8																					
9																					
10																					
11																					
12																					
13	G	7.1																			Samples collected to observe
14																				389	discharge parameters.
15																					
16																					
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
Monthly Minimum																				389	
Monthly Maximum																				561	
Average																				437	Total Monthly Flow (Gallons) 13,108

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

Please circle all permit violations

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K Coi
Department of Natural Resources

Waste Discharge Self-Monitoring Report

150 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month May 20 00 No. of Employees (per day) Average ____ Maximum ____

Sample Site No. ____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				389	
2																					DA 217-02 Effective Date.
3																					
4																					System shutdown due to flow blockage.
5																				0	
6																					
7																					
8																					
9																					
10																					System Maintenance:
11																					• Removed flow blockage.
12																					• Replaced sump pumps
13																					• Removed air stripper from service
14																					
15																					
16																					
17																					System re-start.
18																				2,481	
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31	G	6.5																			Samples collected to observe discharge parameters.
Monthly Minimum																				0	
Monthly Maximum																				2,481	
Average																				1,171	Total Monthly Flow (Gallons) 36,290

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

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King County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

Fax to: ...ount ...irial V
130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month June 2000 No. of Employees (per day) Average ____ Maximum ____

Sample Site No. ____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				2,037	
2																					
3																					
4																					
5																					
6																					
7																					
8																				↓	Totalizer reading recorded.
9																				1,341	
10																					
11																					
12																					
13																					
14																					
15																					
16	G	6.6																		↓	Samples collected to observe discharge parameters.
17																				0.6	
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																				↓	
31																					
Monthly Minimum																				0.6	
Monthly Maximum																				2,037	
Average																				901	Total Monthly Flow (Gallons) 27,032

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

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King County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

Mail to: County Industrial W
130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month July 20 00 No. of Employees (per day) Average _____ Maximum _____

Sample Site No. _____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				0.6	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					
18	G	6.8																			Samples collected to observe discharge parameters.
19																				0	
20																					
21																					
22																					
23																					
24																					
25																					
26																					Flow sensor cleaned.
27																				287	
28																					
29																					
30																					
31																					
Monthly Minimum																				0	
Monthly Maximum																				287	
Average																				47	Total Monthly Flow (Gallons) 1,446

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

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K County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

Mail to: County Industrial Waste
130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle
Month August 20 00
No. of Employees (per day) Average _____ Maximum _____
Sample Site No. _____
Permit/DA No. DA 217-02
All units mg/l unless otherwise noted
Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				287	Clogged check valve removed.
2																				1,963	
3																					
4																					
5																					
6																					
7																					
8																				↓	Totalizer reading recorded.
9																				1,713	
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17	G	6.9																		↓	Samples collected to observe
18																				1,548	discharge parameters.
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																				↓	
Monthly Minimum																				287	
Monthly Maximum																				1,963	
Average																				1,649	Total Monthly Flow (Gallons) 51,117

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent _____ Date _____

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King County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

Fax to: [illegible] County [illegible] Industrial [illegible]
130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month September 20 00 No. of Employees (per day) Average ______ Maximum ______

Sample Site No. ______ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				1,548	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					
18	G	6.9																			Samples collected to observe
19																				1,130	discharge paramaters.
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
Monthly Minimum																				1,130	
Monthly Maximum																				1,548	
Average																				1,381	Total Monthly Flow (Gallons) 41,424

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent ______ Date ______

Please circle all permit violations

K... Co...
Department of Natural Resources

Waste Discharge Self-Mo... ...ri... Report

...ickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month October 2000 No. of Employees (per day) Average ____ Maximum ____

Sample Site No. ____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				1,130	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16	G	6.8																			Samples collected to observe discharge parameters. Flow sensor checked; no need to clean.
17																				206	
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
Monthly Minimum																				206	
Monthly Maximum																				1,130	
Average																				683	Total Monthly Flow (Gallons) 21,170

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

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King County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

ax to: Count trial \
130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month November 2000 No. of Employees (per day) Average _____ Maximum _____

Sample Site No. _____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				206	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15	G	6.2																			Samples collected to observe
16																				62	discharge parameters.
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
Monthly Minimum																				62	
Monthly Maximum																				206	
Average																				134	Total Monthly Flow (Gallons) 4,020

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

Please circle all permit violations

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King County
Department of Natural Resources

Waste Discharge Self-Monitoring Report

130 Nickerson St., Suite 200
Seattle, WA 98109-1658
Phone (206) 263-3000 / FAX (206) 263-3001

Company Name CHEMCENTRAL/Seattle Month December 2000 No. of Employees (per day) Average _____ Maximum _____

Sample Site No. _____ Permit/DA No. DA 217-02 All units mg/l unless otherwise noted Industry Type Chemical Distribution

Sample Date (circle)	Sample Type C (composite) or G (grab)	pH Min	pH Max	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Mercury, Hg	Nickel, Ni	Silver, Ag	Zinc, Zn	Cyanide, CN,A	Cyanide, CN,T	Fats, Oils and Grease (FOG)	Total Toxic Organics (TTO)	Other Parameters			✓check maximum	Flow (GPD) Industrial	Notes (Indicate Batch Discharges)
1																				62	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17	G	6.9																			Samples collected to observe
18																				11	discharge parameters; flow
19																					sensor cleaned.
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
Monthly Minimum																				11	Leaf debris removed from
Monthly Maximum																				62	upstream side of flow sensor.
Average																				39	Total Monthly Flow (Gallons) 12,214

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent Date

Please circle all permit violations

1330 (Rev. 1/00)

APPENDIX A
SAMPLE ANALYTICAL DATA QUALITY AND LABORATORY CERTIFICATES ANALYTICAL RESOURCES, INC.

APPENDIX A
SAMPLE ANALYTICAL DATA QUALITY AND LABORATORY CERTIFICATES ANALYTICAL RESOURCES, INC.

Wastewater Sample Analytical Data Quality Review

Eight water samples were collected between June 1 and December 17, 2000. The samples were submitted to Analytical Resources, Inc. of Seattle, Washington for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) (EPA Method 602). The following quality assurance/quality control parameters were evaluated:

- Holding times;
- Method blanks;
- Surrogate recoveries;
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries;
- Laboratory duplicate relative percent differences (RPDs);
- Reporting limits.

BTEX. All required holding times were met. No method blank contamination was detected. Surrogate recoveries were within control limits. LCS/LCSD recoveries and LCS/LCSD RPDs were within control limits. Reporting limits were acceptable. The data are acceptable for use as reported.

F:\docs\jobs\233529\CCkciwrep.doc

Analytical Resources, Incorporated
Analytical Chemists and Consultants

June 14, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central
ARI Job: BS08

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted five water samples in good condition on June 1, 2000. There were no discrepancies between the COC and the sample containers' labels.

The samples were analyzed for volatile organic compounds referencing US EPA method 8260 and BTEX compounds referencing US EPA method 602 as requested.

There were no analytical complications noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: BS08

MLF/mlf

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Page 1 of 1

Turn Around Requested: 6/ STD

Report to:	Proj Name: ChemCentral
Company: HC	Proj Number: 2335-24
Address:	Sampler: JHL
Phone:	Shipping Method:
Fax:	AirBill:

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	602 BTEX RT. 6/	8260	Notes/Comments
ES-1	6/1/00	930	H2O	3	X		
HC-1C	"	1130	"	"		X	
HC-8	"	1200	"	"		X	
HC-6D	"	1215	"	"		X	
HC-12	"	1300	"	#1		X	- ONE VIAL 1/2 FULL ONE VIAL EMPTY ONE VIAL FULL
TRIP BLANK							

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: Jane Lee	Printed name:	Printed name:	
Company: HC	Company:	Company:	
Date: 6/1/00 Time: 1330	Date: Time:	Date: Time:	

Received by:	Received by:	Received by:	
Printed name: Zach Stinnett	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers:
Date: 6/1/00 Time: 1330	Date: Time:	Date: Time:	Cooler Temp(s):
			COC Seals Intact?
			Bottles Intact?

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: BS08MB
LIMS ID: 00-8601
Matrix: Water

QC Report No: BS08-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: NA
Date Received: NA

Data Release Authorized: CH
Reported: 06/13/00 6/13/00

Date analyzed: 06/07/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	98.7%
Bromobenzene	101%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: BS08A
LIMS ID: 00-8601
Matrix: Water

QC Report No: BS08-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: 06/01/00
Date Received: 06/01/00

Data Release Authorized: CH
Reported: 06/13/00 6/13/00

Date analyzed: 06/07/00

Volume Purged: 5.0 mL
Dilution: 1:10

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	10
108-88-3	Toluene	480
100-41-4	Ethylbenzene	60
	m,p-Xylene	370
95-47-6	o-Xylene	92

BETX 8020 Surrogate Recovery

Trifluorotoluene	93.5%
Bromobenzene	106%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BS08LCS
LIMS ID: 00-8601
Matrix: Water

QC Report No: BS08-Hart Crowser
Project: Chem Central
2335-24

Data Release Authorized: CH
Reported: 06/13/00 6/13/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 06/07/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	25.2	25.0	101%	
Toluene	27.6	25.0	110%	
Ethylbenzene	28.6	25.0	114%	
m,p-Xylene	57.6	50.0	115%	
o-Xylene	28.7	25.0	115%	
LCDuplicate				
Benzene	27.9	25.0	112%	10.2%
Toluene	28.7	25.0	115%	3.9%
Ethylbenzene	29.5	25.0	118%	3.1%
m,p-Xylene	59.9	50.0	120%	3.9%
o-Xylene	29.7	25.0	119%	3.4%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	107%	93.8%
Bromobenzene	113%	97.0%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: BS08

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-8601MB	060700MB	Method Blank	99%	101%	0
00-8601LC	060700LC	Lab Control	107%	113%	0
00-8601LCD	BS08LCD	LCDuplicate	94%	97%	0
00-8601	BS08A	ES-1	94%	106%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(60-130)	(60-130)
(BB) = Bromobenzene	(60-130)	(60-130)

ADVISORY LIMITS

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

Analytical Resources, Incorporated
Analytical Chemists and Consultants

June 26, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central 2335-24
ARI Job: BT69

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample in good condition on June 16, 2000. There were no discrepancies between the COC and the sample containers' labels.

The sample was analyzed BTEX compounds referencing US EPA method 602 as requested.

There were no analytical complications noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: BT69

MLF/mlf

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Page 1 of 1

Turn Around Requested: _____ 7-15

Report to:	Proj Name: Chemcentral	Analyses Requested	Notes/Comments
Company: HC	Proj Number: 2335-24		BTEX 8260
Address:	Sampler: JHL		
Phone:	Shipping Method: HD		
Fax:	AirBill:		

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	602 (BTEX)
ES-1	6/16/00	915	H2O	3	X

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: Jae Lee	Printed name:	Printed name:	
Company: itc	Company:	Company:	
Date: 6/16/00 Time: 950	Date: Time:	Date: Time:	

Received by:	Received by:	Received by:	
Printed name:	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers:
Date: 6/16/00 Time: 950	Date: Time:	Date: Time:	Cooler Temp(s):
			COC Seals Intact?
			Bottles Intact?

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: BT69MB
LIMS ID: 00-9685
Matrix: Water

QC Report No: BT69-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: NA
Date Received: NA

Data Release Authorized: CLT
Reported: 06/24/00 6/24/00

Date analyzed: 06/22/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	101%
Bromobenzene	97.5%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
B Found in associated method blank.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: BT69A
LIMS ID: 00-9685
Matrix: Water

QC Report No: BT69-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: 06/16/00
Date Received: 06/16/00

Data Release Authorized: CH
Reported: 06/24/00 6/24/00

Date analyzed: 06/22/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	600 E
100-41-4	Ethylbenzene	40
	m,p-Xylene	220 E
95-47-6	o-Xylene	73

BETX 8020 Surrogate Recovery

Trifluorotoluene	103%
Bromobenzene	98.3%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
B Found in associated method blank.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1
DILUTION

Lab Sample ID: BT69A
LIMS ID: 00-9685
Matrix: Water

QC Report No: BT69-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: 06/16/00
Date Received: 06/16/00

Data Release Authorized: CH
Reported: 06/24/00 6/24/00

Date analyzed: 06/22/00

Volume Purged: 5.0 mL
Dilution: 1:40

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	40 U
108-88-3	Toluene	600
100-41-4	Ethylbenzene	44
	m,p-Xylene	220
95-47-6	o-Xylene	74

BETX 8020 Surrogate Recovery

Trifluorotoluene	95.6%
Bromobenzene	92.3%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BT69LCS
LIMS ID: 00-9685
Matrix: Water

QC Report No: BT69-Hart Crowser
Project: Chem Central
2335-24

Data Release Authorized: CH
Reported: 06/24/00 6/27/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 06/22/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	23.9	25.0	95.6%	
Toluene	23.4	25.0	93.6%	
Ethylbenzene	23.3	25.0	93.2%	
m,p-Xylene	47.5	50.0	95.0%	
o-Xylene	23.1	25.0	92.4%	
LCDuplicate				
Benzene	22.9	25.0	91.6%	4.3%
Toluene	23.0	25.0	92.0%	1.7%
Ethylbenzene	23.2	25.0	92.8%	0.4%
m,p-Xylene	47.4	50.0	94.8%	0.2%
o-Xylene	23.1	25.0	92.4%	0.0%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	105%	103%
Bromobenzene	101%	101%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

July 28, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central 2335-24
ARI Job: BW56

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample in good condition on July 18, 2000. There were no discrepancies between the COC and the sample containers' labels.

The sample was analyzed BTEX compounds referencing US EPA method 602 and ARI SOPs as requested.

There were no analytical complications noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: BT69

MLF/mlf

B.D

Chain of Custody Record & Laboratory Analysis Request

Page 1 of 1

Turn Around Requested: STD

Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Report to: HC	Proj Name: Chemcentral	Analyses Requested										Notes/Comments
Company:	Proj Number: 2335-24											
Address:	Sampler: JLL											
Phone:	Shipping Method:											
Fax:	AirBill:											
Sample ID	Sample Date / Sample Time / Sample Matrix / No Containers	602 BTEX										
ES-1	7/18/00 930 H2O 3	X										

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: Jae Lee	Printed name:	Printed name:	
Company: HC	Company:	Company:	
Date: 7/18/00 Time: 1005	Date: Time:	Date: Time:	
Received by:	Received by:	Received by:	
Printed name:	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers:
Date: 7/18/00 Time: 1505	Date: Time:	Date: Time:	Cooler Temp(s):
			COC Seals Intact?
			Bottles Intact?

BW56
011664

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: BW56A
LIMS ID: 00-11664
Matrix: Water

QC Report No: BW56-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: 07/18/00
Date Received: 07/18/00

Data Release Authorized: CH 1/21/a
Reported: 07/24/00

Date analyzed: 07/19/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	8.2
108-88-3	Toluene	81
100-41-4	Ethylbenzene	8.7
	m,p-Xylene	85
95-47-6	o-Xylene	14

BETX 8020 Surrogate Recovery

Trifluorotoluene	105%
Bromobenzene	100%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: BW56MB
LIMS ID: 00-11664
Matrix: Water

QC Report No: BW56-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: NA
Date Received: NA

Data Release Authorized: C/T 7/24/00
Reported: 07/24/00

Date analyzed: 07/19/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	95.7%
Bromobenzene	97.5%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BW56LCS
LIMS ID: 00-11664
Matrix: Water

QC Report No: BW56-Hart Crowser
Project: Chem Central
2335-24

Data Release Authorized: CH
Reported: 07/24/00 7/27/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 07/19/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	24.0	25.0	96.0%	
Toluene	25.6	25.0	102%	
Ethylbenzene	25.9	25.0	104%	
m,p-Xylene	51.2	50.0	102%	
o-Xylene	25.4	25.0	102%	
LCDuplicate				
Benzene	22.4	25.0	89.6%	6.9%
Toluene	24.9	25.0	99.6%	2.8%
Ethylbenzene	24.4	25.0	97.6%	6.0%
m,p-Xylene	49.3	50.0	98.6%	3.8%
o-Xylene	24.0	25.0	96.0%	5.7%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	97.3%	94.0%
Bromobenzene	102%	99.4%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: BW56

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-11664MB	071900MB	Method Blank	96%	98%	0
00-11664LC	071900LC	Lab Control	97%	102%	0
00-11664LCDBW56LCD		LCDuplicate	94%	99%	0
00-11664	BW56A	ES-1	105%	100%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(60-130)	(60-130)
(BB) = Bromobenzene	(60-130)	(60-130)

ADVISORY LIMITS

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II BETX

Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 31, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central
ARI Job: CA30

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted five water samples in good condition on August 18, 2000. There were no discrepancies between the COC and the sample containers' labels.

The samples were analyzed for volatile organic compounds referencing US EPA method 8260 and BTEX compounds referencing US EPA method 602 as requested.

No analytical complications were noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: CA30

MLF/mlf

CA 30 00-14101 00 14101

Chain of Custody Record & Laboratory Analysis Request

Page 1 of 1

Turn Around Requested: STD

Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Report to:	HC
Company:	
Address:	
Phone:	
Proj Name:	Chemcentral
Proj Number:	2325-24
Sampler:	JHL
Shipping Method:	hand-D
AirBill:	

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Analyses Requested: 602 BTEX	Analyses Requested: 8260 VOA	Notes/Comments
ES-1	8/17/00	955	H2O	3	X		Cooler Temp 4.2 °C
HC-6D	↓	1230	↓	↓		X	
HC-8		1100				X	
HC-10		1130				X	
TB						X	

Relinquished: (Signature)	Printed name:	Company:	Date:	Time:
Jae Lee	Jae Lee	HC	8/18/00	932
Relinquished: (Signature)	Printed name:	Company:	Date:	Time:
Relinquished: (Signature)	Printed name:	Company:	Date:	Time:

Received by:	Printed name:	Company:	Date:	Time:
Jan Felkins	Jan Felkins	ARI	8/18/00	09:32
Received by:	Printed name:	Company:	Date:	Time:
Received by:	Printed name:	Company:	Date:	Time:

Special Instructions/Notes

Number of Coolers:
Cooler Temp(s):
COC Seals Intact?
Bottles Intact?

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: CA30MB
LIMS ID: 00-14101
Matrix: Water

QC Report No: CA30-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: NA
Date Received: NA

Data Release Authorized: clr
Reported: 08/29/00 8/29/00

Date analyzed: 08/22/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	111%
Bromobenzene	99.3%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: CA30A
LIMS ID: 00-14101
Matrix: Water

QC Report No: CA30-Hart Crowser
Project: Chem Central
2335-24
Date Sampled: 08/17/00
Date Received: 08/18/00

Data Release Authorized: CH
Reported: 08/29/00 8/24/a

Date analyzed: 08/22/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	6.7
108-88-3	Toluene	37
100-41-4	Ethylbenzene	24
	m,p-Xylene	82
95-47-6	o-Xylene	30

BETX 8020 Surrogate Recovery

Trifluorotoluene	114%
Bromobenzene	103%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: CA30LCS
LIMS ID: 00-14101
Matrix: Water

QC Report No: CA30-Hart Crowser
Project: Chem Central
2335-24

Data Release Authorized: CLT
Reported: 08/29/00 8/29/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 08/22/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	25.0	25.0	100%	
Toluene	26.5	25.0	106%	
Ethylbenzene	26.6	25.0	106%	
m,p-Xylene	53.3	50.0	107%	
o-Xylene	26.0	25.0	104%	
LCDuplicate				
Benzene	25.8	25.0	103%	3.1%
Toluene	26.2	25.0	105%	1.1%
Ethylbenzene	27.0	25.0	108%	1.5%
m,p-Xylene	54.2	50.0	108%	1.7%
o-Xylene	26.2	25.0	105%	0.8%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	104%	101%
Bromobenzene	99.0%	99.0%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: CA30

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-14101MB	082200MB	Method Blank	111%	99%	0
00-14101LC	082200LC	Lab Control	104%	99%	0
00-14101LCD	CA30LCD	LCDuplicate	101%	99%	0
00-14101	CA30A	ES-1	114%	103%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(77-116)
(BB) = Bromobenzene	(80-108)	(85-120)

Limits Updated - 12/01/99

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

Analytical Resources, Incorporated
Analytical Chemists and Consultants

September 29, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central
ARI Job: CE29

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample in good condition on September 18, 2000. There were no discrepancies between the COC and the sample containers' labels.

The sample was analyzed for BTEX compounds referencing US EPA method 602, as requested.

No analytical complications were noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: CE29

MLF/sl

00-17114 CE29

Chain of Custody Record & Laboratory Analysis Request

Page 1 of 1 Cold

Turn Around Requested: STD

Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Report to: Hart Crowser	Proj Name: Chemcentral	Analyses Requested										Notes/Comments
Company:	Proj Number: 2335-29	602 BTEX										
Address:	Sampler: JHL											
Phone:	Shipping Method: HD											
Fax:	AirBill:											
Sample ID	Sample Date / Sample Time / Sample Matrix / No Containers											
ES-1	9/18/00 / 850 / H2O / 3	X										

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: Jac Lee	Printed name:	Printed name:	
Company: HC	Company:	Company:	
Date: 9/18/00 Time: 935	Date: Time:	Date: Time:	
Received by:	Received by:	Received by:	
Printed name:	Printed name:	Printed name:	
Company:	Company:	Company:	Number of Coolers:
Date: 9/19/00 Time: 935	Date: Time:	Date: Time:	Cooler Temp(s):
			COC Seals Intact?
			Bottles Intact?

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: CE29MB
LIMS ID: 00-17114
Matrix: Water

QC Report No: CE29-Hart Crowser
Project: Chem Central
2335-29
Date Sampled: NA
Date Received: NA

Data Release Authorized: CH
Reported: 09/28/00 9/28/00

Date analyzed: 09/22/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	94.8%

Data Qualifiers

- U Indicates compound was analyzed for, but not detected at the given detection limit.
- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- B Found in associated method blank.
- Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: CE29A
LIMS ID: 00-17114
Matrix: Water

QC Report No: CE29-Hart Crowser
Project: Chem Central
2335-29
Date Sampled: 09/18/00
Date Received: 09/18/00

Data Release Authorized: CH
Reported: 09/28/00 9/28/-

Date analyzed: 09/23/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	6.9
108-88-3	Toluene	5.5
100-41-4	Ethylbenzene	15
	m,p-Xylene	56
95-47-6	o-Xylene	17

BETX 8020 Surrogate Recovery

Trifluorotoluene	99.4%
Bromobenzene	93.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
B Found in associated method blank.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: CE29LCS
LIMS ID: 00-17114
Matrix: Water

QC Report No: CE29-Hart Crowser
Project: Chem Central
2335-29

Data Release Authorized: CH
Reported: 09/28/00 9/22/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 09/22/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	24.7	25.0	98.8%	
Toluene	24.4	25.0	97.6%	
Ethylbenzene	23.4	25.0	93.6%	
m,p-Xylene	46.0	50.0	92.0%	
o-Xylene	23.3	25.0	93.2%	
LCDuplicate				
Benzene	25.5	25.0	102%	3.2%
Toluene	24.6	25.0	98.4%	0.8%
Ethylbenzene	24.1	25.0	96.4%	2.9%
m,p-Xylene	47.4	50.0	94.8%	3.0%
o-Xylene	23.9	25.0	95.6%	2.5%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	107%	107%
Bromobenzene	97.0%	101%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: CE29

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-17114MB	092200MB	Method Blank	102%	95%	0
00-17114LC	092200LC	Lab Control	107%	97%	0
00-17114LCDCE29LCD		LCDuplicate	107%	101%	0
00-17114	CE29A	ES-1	99%	93%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(77-116)
(BB) = Bromobenzene	(80-108)	(85-120)

Limits Updated - 12/01/99

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II BETX

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 27, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central
ARI Job: CI16

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample in good condition on October 16, 2000. There were no discrepancies between the COC and the sample containers' labels.

The sample was analyzed for BTEX compounds referencing US EPA method 602, as requested.

No analytical complications were noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: CI16

MLF/sl

5.0°C OU 19591 CI16

Chain of Custody Record & Laboratory Analysis Request

Page 1 of 1

Turn Around Requested: _____

Analytical Resources, Incorporated
Analytical Chemists and Consultants
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax)

Report to: Dave Hetherington	Proj Name: ChemCentral	Analyses Requested	Notes/Comments
Company: HC	Proj Number: 2335-29	602 BTEX	
Address:	Sampler: JHL		
Phone:	Shipping Method: HD		
Fax:	AirBill:		

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	602 BTEX									
ES-1	10/16/00	845	H2O	3	X									

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: Jae Lee	Printed name:	Printed name:	
Company: HC	Company:	Company:	
Date: 10/16/00 Time: 1000	Date: Time:	Date: Time:	
Received by:	Received by:	Received by:	
Printed name: Carrie McDonough	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers:
Date: 10/16/00 Time: 1000	Date: Time:	Date: Time:	Cooler Temp(s):
			COC Seals Intact?
			Bottles Intact?

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: CI16MB
LIMS ID: 00-19591
Matrix: Water

QC Report No: CI16-Hart Crowser
Project: Chem Central
2335-29
Date Sampled: NA
Date Received: NA

Data Release Authorized: clr
Reported: 10/26/00 10/26/00

Date analyzed: 10/20/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	104%
Bromobenzene	104%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: CI16A
LIMS ID: 00-19591
Matrix: Water

QC Report No: CI16-Hart Crowser
Project: Chem Central
2335-29
Date Sampled: 10/16/00
Date Received: 10/16/00

Data Release Authorized: CW
Reported: 10/26/00 10/24/.

Date analyzed: 10/20/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	**Benzene**	6.2
108-88-3	Toluene	1.0 U
100-41-4	**Ethylbenzene**	12
	m,p-Xylene	44
95-47-6	**o-Xylene**	12

BETX 8020 Surrogate Recovery

Trifluorotoluene	103%
Bromobenzene	102%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: CI16LCS
LIMS ID: 00-19591
Matrix: Water

QC Report No: CI16-Hart Crowser
Project: Chem Central
2335-29

Data Release Authorized: CH 10/26/0
Reported: 10/26/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 10/20/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	21.0	25.0	84.0%	
Toluene	27.2	25.0	109%	
Ethylbenzene	25.2	25.0	101%	
m,p-Xylene	49.4	50.0	98.8%	
o-Xylene	25.3	25.0	101%	
LCDuplicate				
Benzene	26.1	25.0	104%	21.7%
Toluene	26.9	25.0	108%	1.1%
Ethylbenzene	25.6	25.0	102%	1.6%
m,p-Xylene	50.0	50.0	100%	1.2%
o-Xylene	26.1	25.0	104%	3.1%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	111%	106%
Bromobenzene	108%	109%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: CI16

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-19591MB	102000MB	Method Blank	104%	104%	0
00-19591LC	102000LC	Lab Control	111%	108%	0
00-19591LCD	CI16LCD	LCDuplicate	106%	109%	0
00-19591	CI16A	ES-1	103%	102%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(77-116)	(80-120)
(BB) = Bromobenzene	(85-120)	(80-108)

Limits Updated - 12/01/99

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II BETX

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 29, 2000

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: J-2335-29 Chem Central
ARI Job: CL57

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted ten water samples in good condition on November 15, 2000. A sample with ID of **HC-9D** was listed on the chain-of-custody. No vials with this ID were received. But three vials labeled **HC-8D** were received, but not listed on the COC. The client confirmed the correct ID to be **HC-8D** and the sample was logged in for analysis under this ID.

The samples were analyzed for volatile organic compounds referencing US EPA method 8260 and BTEX compounds referencing US EPA method 602 as requested.

No analytical complications were noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: CL57

MLF/mlf

Sample Custody Record

Samples Shipped to: ARI

HARTCROWSER
Seattle, Washington 98102-3699
Phone: 206-324-9530 FAX: 206-328-5581

JOB J-2335-29 LAB NUMBER

PROJECT NAME Chem Central

HART CROWSER CONTACT Dave Heffner

SAMPLED BY: J. Bromley

REQUESTED ANALYSIS: 8260, 602 BTEX

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	HC-4D		11/15/00		Water	3	
	HC-4					3	
	HC-2					3	
	HC-3					3	
	HC-6D					3	
	HC-9					3	
	HC-10					3	
	HC-8					3	
*	HC-9D					3	* LABELS READ HC-8D (2)"
	ES-1					3	
	Trip blank					2	

32 TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: John Bromley	11/15/00	SIGNATURE: Carrie McDougall	11/15/00
PRINT NAME: John Bromley	TIME: 1705	PRINT NAME: Carrie McDougall	TIME: 1705
COMPANY: HC		COMPANY: ARI	
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐ YES ☐ NO ☐ N/A
GOOD CONDITION: ☐ YES ☐ NO
TEMPERATURE:
SHIPMENT METHOD: ☐ HAND ☐ COURIER ☐ OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☒ STANDARD
☐ 72 HOURS OTHER _____

White and Yellow Copies to Lab — Pink to Project Manager — Lab to Return White Copy to Hart Crowser — Gold to Sample Custodian

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: CL57MB
LIMS ID: 00-21926
Matrix: Water

QC Report No: CL57-Hart Crowser
Project: Chem Central
J-2335-29
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 11/28/00 11/28/00

Date analyzed: 11/22/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	94.5%
Bromobenzene	96.1%

Data Qualifiers

- U Indicates compound was analyzed for, but not detected at the given detection limit.
- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- B Found in associated method blank.
- Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: ES-1

Lab Sample ID: CL57K
LIMS ID: 00-21926
Matrix: Water

QC Report No: CL57-Hart Crowser
Project: Chem Central
J-2335-29
Date Sampled: 11/15/00
Date Received: 11/15/00

Data Release Authorized:
Reported: 11/28/00 CK 11/28/00

Date analyzed: 11/23/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	5.2
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	7.3
	m,p-Xylene	35
95-47-6	o-Xylene	11

BETX 8020 Surrogate Recovery

Trifluorotoluene	98.6%
Bromobenzene	90.6%

Data Qualifiers

- U Indicates compound was analyzed for, but not detected at the given detection limit.
- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- B Found in associated method blank.
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- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: CL57LCS
LIMS ID: 00-21926
Matrix: Water

QC Report No: CL57-Hart Crowser
Project: Chem Central
J-2335-29

Data Release Authorized:
Reported: 11/28/00 CL 11/28/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 11/22/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	26.2	25.0	105%	
Toluene	26.0	25.0	104%	
Ethylbenzene	25.3	25.0	101%	
m,p-Xylene	50.2	50.0	100%	
o-Xylene	25.1	25.0	100%	
LCDuplicate				
Benzene	22.8	25.0	91.2%	13.9%
Toluene	26.1	25.0	104%	0.4%
Ethylbenzene	25.3	25.0	101%	0.0%
m,p-Xylene	50.3	50.0	101%	0.2%
o-Xylene	25.2	25.0	101%	0.4%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	98.5%	99.2%
Bromobenzene	101%	102%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: CL57

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-21926MB	112200MB	Method Blank	94%	96%	0
00-21926LC	112200LC	Lab Control	98%	101%	0
00-21926LCDCL57LCD		LCDuplicate	99%	102%	0
00-21926	CL57K	ES-1	99%	91%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(77-116)	(80-120)
(BB) = Bromobenzene	(85-120)	(80-108)

Limits Updated - 12/01/99

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II BETX

Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 4, 2001

Dave Heffner
Hart Crowser, Inc.
1910 Fairview Ave. East
Seattle, WA 98102

RE: Client Project: Chem Central
ARI Job: CP19

Dear Dave:

Please find enclosed the original chain-of-custody (COC) record and the final results for a sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample in good condition on December 19, 2001. There were no discrepancies between the COC and the sample containers' labels.

The sample was analyzed for BTEX compounds referencing US EPA method 602, as requested.

No analytical complications were noted.

A copy of this report and the supporting data will remain on file with ARI. Please feel free to contact me at your convenience if you have any questions.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
206-389-6155

Enclosures
cc: File: CP19

MLF/mlf

CP. 1 0-.5 VII 04

Sample Custody Record

Samples Shipped to: ARI

HARTCROWSER

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Phone: 206-324-9530 FAX: 206-328-5581

JOB J-2335-29 LAB NUMBER

PROJECT NAME Chemcentral

HART CROWSER CONTACT J. Bramley / D. Heffner

SAMPLED BY: JPB

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: BTEX (Method 602)	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	HC-EF-18/17		12/17/00		Water		3	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: John Bramley	12/19/00	SIGNATURE: [illegible]	12/19/00
PRINT NAME: John Bramley	TIME: 674 7	PRINT NAME: [illegible]	TIME: 747
COMPANY: HC		COMPANY: ARI	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

3 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☐ STANDARD
☐ 72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank

Lab Sample ID: CP19MB
LIMS ID: 00-24539
Matrix: Water

QC Report No: CP19-Hart Crowser
Project: Chem Central
J-2335-29
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 12/21/00 CR 12/21/00

Date analyzed: 12/20/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U

BETX 8020 Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	108%

Data Qualifiers

- U Indicates compound was analyzed for, but not detected at the given detection limit.
- J Indicates an estimated value when that result is less than the calculated detection limit.
- E Indicates a value above the linear range of the detector. Dilution Required
- S Indicates no value reported due to saturation of the detector.
- D Indicates the surrogate was diluted out.
- B Found in associated method blank.
- Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
- NA Indicates compound was not analyzed.
- NR Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Sample No: HC-EFF-12/17

Lab Sample ID: CP19A
LIMS ID: 00-24539
Matrix: Water

QC Report No: CP19-Hart Crowser
Project: Chem Central
J-2335-29
Date Sampled: 12/17/00
Date Received: 12/19/00

Data Release Authorized:
Reported: 12/21/00 CR 12/21/00

Date analyzed: 12/20/00

Volume Purged: 5.0 mL
Dilution: 1:1

Reported in ppb (ug/L)

CAS Number	Analyte	Value
71-43-2	Benzene	6.8
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	4.8
	m,p-Xylene	28
95-47-6	o-Xylene	6.7

BETX 8020 Surrogate Recovery

Trifluorotoluene	110%
Bromobenzene	111%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
B	Found in associated method blank.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.

ORGANICS ANALYSIS DATA SHEET
BETX by EPA Method 602M

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: CP19LCS
LIMS ID: 00-24539
Matrix: Water

QC Report No: CP19-Hart Crowser
Project: Chem Central
J-2335-29

Data Release Authorized:
Reported: 12/21/00 CR 12/21/00

LCS/LCSDUPLICATE ANALYSIS

Date Analyzed: 12/20/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% REC	% RPD
Lab Control Sample				
Benzene	28.2	25.0	113%	
Toluene	25.6	25.0	102%	
Ethylbenzene	25.1	25.0	100%	
m,p-Xylene	50.7	50.0	101%	
o-Xylene	24.9	25.0	99.6%	
LCDuplicate				
Benzene	25.4	25.0	102%	10.4%
Toluene	24.9	25.0	99.6%	2.8%
Ethylbenzene	24.7	25.0	98.8%	1.6%
m,p-Xylene	50.0	50.0	100%	1.4%
o-Xylene	24.9	25.0	99.6%	0.0%

BETX SURROGATE REC	LCS	LCSD
Trifluorotoluene	112%	106%
Bromobenzene	111%	109%

Values reported in parts per billion (ug/L)

BETX SPIKE CONTROL LIMITS

Percent Recovery 75-130%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: CP19

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
00-24539MB	122000MB	Method Blank	102%	108%	0
00-24539LC	122000LC	Lab Control	112%	111%	0
00-24539LCD	CP19LCD	LCDuplicate	106%	109%	0
00-24539	CP19A	HC-EFF-12/17	110%	111%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(60-130)	(60-130)
(BB) = Bromobenzene	(60-130)	(60-130)

ADVISORY LIMITS

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II BETX