



RECEIVED

July 7, 1998

Mr. Joe Hickey Department of Ecology 3190 SE 160th Street Bellevue, WA JUL 7 1998

DEPT OF ECOLOGY

RE: Jay's Cleaners, 2350 24th Avenue East, Seattle, Washington.

Dear Mr. Hickey:

Enclosed please find the Interim Field Report for the above referenced site. Should you have any questions about this report or any other issue, I can be reached at 425-355-2826.

Sincerely,

Glacier Environmental Services, Inc.,

Curt Lightle Project Supervisor

DEPARTMENT OF ECOLOGY NWRO/TCP TANKS UNIT	
INTERIM CLEANUP REPORT SITE CHARACTERIZATON FINAL CLEANUP REPORT OTHER	
AFFECTED MEDIA: SOIL OTHER GW INSPECTOR (INIT.) DATE 5-26-	NA XIG

# INTERIM REPORT GROUNDWATER TREATMENT SYSTEM JAY'S CLEANERS 2350 24TH AVE EAST SEATTLE, WA

June 28, 1998 Project # 98015

Prepared for:
Washington State Department of Ecology
Northwest Region

Prepared by:
Glacier Environmental Services, Inc
12521 Evergreen Drive
Mukilteo, Washington 98275

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### 1.0 SUMMARY

This report is intended to summarize work performed at Jay's Cleaners, 2350 24th Avenue East, Seattle, WA, from April 1995 to May 1998 by Glacier Environmental Services, Inc. (Glacier). The system consists of two liquid phase 55 gallon carbon units connected in series. Groundwater is pumped (approximately 5 gpm) from a recovery well located on site to the treatment system. Once the contaminated water is treated, it is then discharged into the City of Seattle sewer system (see Attachment A for Discharge Permit).

### 2.0 CARBON SYSTEM EFFLUENT SAMPLING

Twice yearly, an effluent sample is collected from the treatment system and analyzed to assure compliance with maximum contaminant concentration limits (per City of Seattle). To date, all sample results have been below the maximum concentration and are presented in Table 1 (see Attachment B for lab data sheets). An annual discharge report is submitted to the City which summarizes these sample results and the amount of water discharged into the sewer (see Attachment C for annual reports). The City has been satisfied with these reports to date.

**TABLE - 1 EFFLUENT SAMPLE RESULTS** 

Date Sampled	Benzene (MC-,13 ppm)	Tolulene (MC-1.5 ppm)	Xylene (MC-NA)	Ethylbenzene (MC-1.4 ppm)	Non-polar FOG (WTPH-418.1) (MC-100 ppm)
July 5, 1995	ND	ND	ND	ND	ND
February 22, 1996	.055 ppm	ND	ND	ND	ND
May 29,1996	ND	ND	ND	ND	ND
September 18, 1996	ND	ND	ND	ND	ND
July 11,1997	ND	ND	ND	ND	ND
December 30, 1997	ND	ND	ND	ND	17.2 ppm

MC - Maximum Concentration for discharge into the City sewer system.

### 3.0 CARBON SYSTEM INFLUENT SAMPLING

Table - 2 summarizes influent sample results. Influent samples are collected to help determine the change-out rate of the carbon units and to indicate cleanup progress. The most recent sampling event occurred on February 22, 1998. Results of this event were the lowest since the current system began operations.

**TABLE - 2 INFLUENT SAMPLE RESULTS** 

Date Sampled	Benzene	Tolulene	Xylene	Ethylbenzene	Non-polar FOG (WTPH-418.1)
April 20, 1995	5.5 ppm	3.7 ppm	2.9 ppm	.36 ppm	7.3 ppm
May 29, 1996	6.8 ppm	3.6 ppm	3.0 ppm	.48 ppm	NA
February 22, 1998	3.53 ppm	2.08 ppm	2.04 ppm	.381 ppm	NA

### 4.0 WELL MONITORING

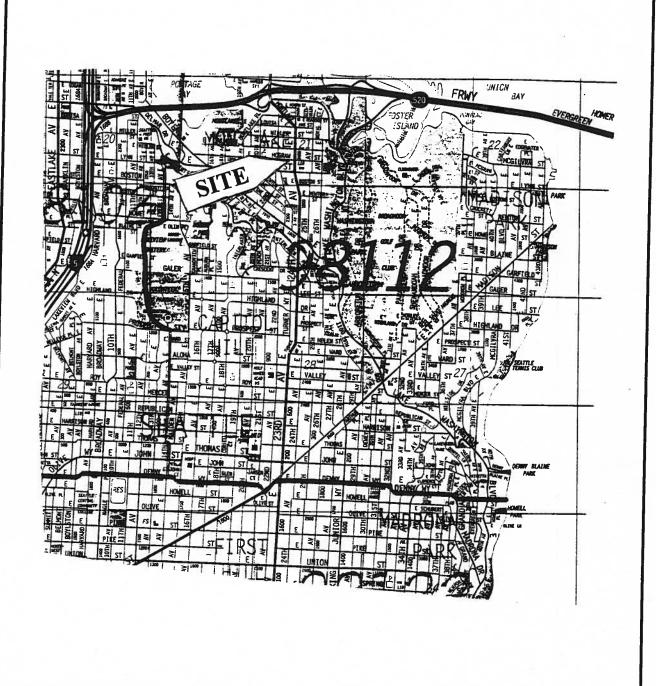
The downgradient wells (MW-4, MW-8, MW-9, MW-15, see drawing) have been checked monthly for free product. Glacier has noted that the amount of free product has been steadily decreasing during this period and has discontinued well bailing of free product. On April 14, 1998, Glacier checked all 16 of the monitoring wells for free product. Although no product was observed in any of the wells, a distinct petroleum odor does was detected from several of them.

### 5.0 VAPOR EXTRACTION SYSTEM

The site vapor extraction system was shut down in 1997. Readings were taken using a Photionization Detector and a Combustible Gas Indicator from the exhaust stack. No significant hydrocarbons were detected with either of these instruments for two consecutive months. Therefore, the system was shut down.

### 6.0 CONCLUSION

As indicated by the decreased concentrations of BTEX components in the influent samples, and the absense of free products in the monoitoring wells, Groundwater cleanup appears to be progressing satisfactorily. We recommend continued operation of the system for an additional 6 months (end of the year) and than resampling of the influent groundwater. If sample results continue to decrease, than sampling of all the wells should be considered to determine whether the groundwater contamination remains widespread or is now isolated to the area around the recovery well. It is possible that contaminated soil in the immediate vicinity of the recovery well and the closest monitoring wells is impacting relatively clean groundwater as it is drawn through the contaminated soil.

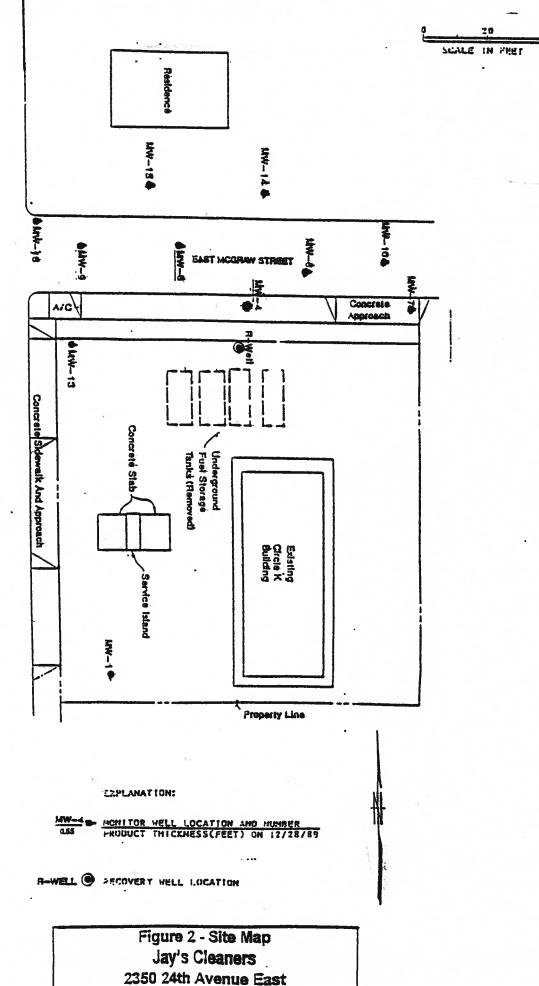


# GLACIER ENVIRONMENTAL SERVICES, INC.

12521 Evergreen Drive, Suite A Mukilteo, WA 98275 Prepared By: Date:

CL 6-29-98 FIGURE 1 -Site Vicinity Map

Jay's Cleaners 2350 24th Avenue East Seattle, Washington



24114

WENUE

2350 24th Avenue East Seattle, WA

# Attachment A

# KING COUNTY DEPARTMENT OF METROPOLITAN SERVICES

### MAJOR DISCHARGE AUTHORIZATION

NUMBER 192

FOR

Jin's Enterprises

MAILING ADDRESS :

2350 - 24th Avenue East

Seattle, WA 98112

PHYSICAL ADDRESS: 2350 - 24th Avenue East

Seattle, Washington

PHONE:

(206) 355-2826 CONTACT: Duane Maki, Glacier Environmental

(206) 522-9767

Jin Choung, Jin's Enterprises

INDUSTRY TYPE: Former Gasoline Service Station

SIC:

5171

EPA I.D.: Not Applicable

DISCHARGE TO: WEST POINT TREATMENT PLANT

\*Note: This authorization is valid only for the specific process and dates shown below:

DISCHARGE PROCESS: Ground water remediation project for leaking underground storage tanks

· MAXIMUM VOLUME:

11,500 GPD

EFFECTIVE DATE:

March 20, 1994

EXPIRATION DATE:

March 20, 1999



For information concerning this Metro Discharge Authorization please contact Patricia Magnuson, Industrial Waste Investigator at 689-3019.

### 24-HOUR EMERGENCY NOTIFICATION

WEST POINT TREATMENT PLANT: 689-3801

DEPARTMENT OF ECOLOGY: 649-7000

(For Your Use)

LOCAL FIRE DEPARTMENT:

24-HR. CORPORATE CONTACTS:

METRO MAJOR DISCHARGE AUTHORIZATION NUMBER 192 PAGE 2

### SPECIAL CONDITIONS

Jin's Enterprises shall contact Ms. Lynn Edgar of the City of Seattle (684-0833) and arrange for payment of sewer fees for all discharges to the sanitary sewer.

All wastewater self monitoring reports must be signed by an authorized representative [as defined below] of the user and contain the following certification statement:

"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."

The term Authorized Representative is defined in 40 CFR Part 403.12(1). The definition is summarized as follows in subsection 3A4 of King County Ordinance 11034:

(1) A principal executive officer of at least the level of vice president, if the industrial user is a corporation;

(2) A general partner or proprietor if the Industrial User is a partnership or proprietorship, respectively;

(3) A director or highest official appointed or designated or oversee the operation and performance of the industry if the Industrial User is a government agency;

(4) A duly authorized representative of the individual designated above if such representative is responsible for the overall operation of the facilities from which the indirect discharge originates.

The delegation of authority to act as the duly authorized representative must be communicated to Metro in writing.

### Discharge Limitations

Constituent	Maximum Concentration, ppm
Benzene	0.13 ·
Toluene	1.5
Ethylbenzene	1.4
Nonpolar Fats, Oil & Grease (nonpolar FOG)	100

### Operating Criteria

There shall be no pronounced odor of solvent or gasoline. There shall be no pronounced oil sheen or unusual color. a)

b)

There shall be no pronounced hydrogen sulfide (rotten egg) C) odor.

There shall be no visibly pronounced turbidity, the d) discharge must remain translucent.

Metro will expect operators on site to pay close attention to these operating criteria whenever discharge to the sanitary sewer is occurring. If any of the discharge limits or operating criteria are exceeded, you must stop discharging and notify the Metro Industrial Waste Section at 689-3000.

### Monitoring Requirements

The following monitoring requirements shall be met for this discharge authorization:

		_ •
Parameter ·	Frequency	Sample Type/Method
Flow	Monthly Total (also expressed as average gallons/day)	Meter or pump (gallons)
Hydrogen Sulfide	Only if operating criteria are excaeded	Meter
Settleable Solids	Only if operating criteria are exceeded	Grab/Imhoff Cone
Explosivity	Only if operating criteria are exceeded	Meter
Nonpolar FOG	Twice yearly (once between Jan. & June and once between July & Dec.)	Grab/Standard Method 5520F
Benzene, toluene, ethylbenzene	Twice yearly thereafter(once between Jan. & June and once between July & Dec.)	Grab/EPA Method 602

An annual self-monitoring report shall be filed with Metro by the 15th of December each year. This annual report must include the total monthly volumes of water discharged to the sewer as well as the analytical results of the twice yearly testing. If no discharge takes place during any monitoring period, it shall be noted on the annual report.

If a violation of any discharge limits or operating criteria are detected in monitoring, you shall notify the Metro Industrial Waste Section immediately upon receipt of analytical data.

The suggested analytical method for the contaminant indicators benzene, ethylbenzene and toluene is EPA Method 602 in Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA-600/4-82-057, July 1982). The required analytical method for the contaminant indicator of nonpolar FOG is Method 5520F (with a partition-gravimetric extraction procedure) in the 1989 Standard Methods for the Examination of Water and Wastes (17th edition).

### GENERAL DISCHARGE LIMITATIONS

### Corrosive Substances

Lower Limit

Minimum pH 5.0 Average pH 5.5

The lower pH limit is violated whenever any single sample or any instantaneous recording is less than pH 5.0 or when a composite sample consisting of at least four consecutive samples taken at intervals of 15 minutes or greater is less than 5.5 or when any recording of 15 minutes or more averages less than 5.5.

### Upper Limit

Process rinsewater discharges pH 12.0

Discharges of more than 50 gallons per day of caustic solutions equivalent to more than 5% NaOH by weight or greater than pH 12.0 are prohibited unless authorized by permit and subject to special conditions to protect worker safety, the collection system, and treatment works.

### High Temperature

The industrial user shall not discharge material with a temperature in excess of 65 C (150 F).

### Fats. Oils and Greases (FOG)

Polar FOG = FOG of animal and/or vegetable origin. Dischargers of polar FOG shall minimize free floating polar FOG. Dischargers of Polar FOG shall not result in significant accumulations which either alone or in combination with other wastes are capable of obstructing flow or interfere with the operation or performance of sewer works or treatment facilities. Dischargers may not add emulsifying agents exclusively for the purposes of emulsifying free floating FOG. Companies which discharge free floating polar FOG may be required to complete, for Metro's review and approval, a FOG control plan.

Nonpolar FOG = FOG of mineral/petroleum origins. The industrial user shall not discharge wastes that contain in excess of 100 milligrams per liter (mg/l) of nonpolar fats, oils and greases (FOG).

### Flammable or Explosive Materials

No person shall discharge and pollutant, as defined in 40 CFR 401.11, that creates a fire or explosion hazard in any sewer or treatment works, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21.

METRO MAJOR DISCHARGE AUTHORIZATION NUMBER 192 PAGE 6

At no time shall two successive readings on an explosion hazard meter, at the point of discharge into the system (or at any point in the system), be more than five percent (5) nor any single reading be more than ten percent (10%) of the Lower Explosive Limit (LEL) of the meter.

Pollutants subject to this prohibition include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides, and any other substances that Metro, a fire department, the State, or EPA have notified the user are a fire hazard or a hazard to the system.

### Settleable Solids

Settleable solids

7.0 ml/L

### Organic Compounds

No person shall discharge any organic pollutants that result in the presence of toxic gases, vapors, or fumes within a public or private sewer or treatment works in a quantity that may cause acute worker health and safety problems.

Organic pollutants subject to this restriction include, but are not limited to:

Any organic pollutants compound listed in 40 CFR Section 433.11 (a). (Total Toxic Organics (TTO) definition).

Acetone, 2-butanone (MEK), 4-methyl-2-pentanone (MIBK), xylenes. .

### Hydrogen Sulfide

Atmospheric hydrogen sulfide 10.0 ppm (As measured at a monitoring manhole designated by Metro)

Soluble sulfide limits may be established on a case-by-case basis depending upon volume of discharge and conditions in the receiving sewer, including oxygen content and existing sulfide concentrations.

### Restricted Substances

The industrial user shall not discharge waste which exceed the following limitations:

Instantane	ous Maxim	um (mg/L) ·	
Chromium Copper	4.0 0.6 5.0 8.0 4.0	Mercury Nickel Silver Zinc Cyanide	0.2 5.0 3.0 10.0 3.0
Daily Aver	age (mg/L	)	
	1.0	Mercury	0.1
Cadmium	0.5	Nickel	2.5
Chromium	2.75	Silver	1.0
Copper	. 0.E	Zinc	5.0
Lead	2.0	Cyanide	2.0

The instantaneous maximum is violated whenever the concentration of any sample, including a grab within a series used to calculate daily average concentrations, exceeds the limitation.

### GENERAL CONDITIONS

- 1. All requirements and ordinances of King County Ordinance No. 11034 pertaining to the discharge of wastes into the municipal sewer system are hereby made a condition of this Discharge Authorization.
- 2. Any facility changes which will result in a change in the character or volume of the pollutants discharged to the municipal sewer system must be reported to your Metro representative. Any facility changes that will cause the violation of the effluent limitations specified herein will not be allowed.
- 3. In the event the industrial user is unable to comply with any of the conditions of this Discharge Authorization because of breakdown of equipment or facilities, an accident caused by human error, negligence, or any other cause, such as an act of nature the company shall:
  - (a) take immediate action to stop, contain and clean up the unauthorized discharges and correct the problem.
  - (b) immediately notify the Metro so steps can be taken to prevent damage to the sewerage system.
  - (c) submit a written report describing the breakdown, the actual quantity and quality of resulting waste discharged, corrective action taken, and the steps taken to prevent recurrence.

Compliance with these requirements does not relieve the industrial user from responsibility to maintain continuous compliance with the conditions of the Discharge Authorization or the resulting liability for failure to comply.

- 4. The industrial user shall, at all reasonable times, allow authorized representatives of the Metro to enter that portion of the premises where an effluent source or disposal system is located or in which any records are required to be kept under the terms and conditions of this Discharge Authorization.
- 5. Nothing in the Discharge Authorization shall be construed as excusing the industrial user from compliance with any applicable federal, state or local statutes, ordinances, or regulations.
- 6. This Discharge Authorization does not constitute authority for discharge into waters of the state. Any such discharge is subject to regulation and enforcement action by the Department of Ecology.

- 7. All requirements and ordinances of the Environmental Protection Agency and Department of Ecology pertaining to hazardous and toxic wastes, disposal facilities, and discharge of wastes into the municipal sewer system, are hereby made a condition of the Discharge Authorization.
- 8. This authorization does not authorize discharge after its expiration date. If the industrial user wishes to continue its discharge after the expiration date an application must be filed for reissuance of this discharge authorization at least 180 days prior to the expiration date. If the industrial user submits its reapplication in the time specified herein, the industrial user shall be deemed to have an effective waste discharge authorization until Metro issues or denies the new waste discharge authorization. If the industrial user fails to file its reapplication in the time period specified herein, the industrial user will be deemed to be discharging without a discharge authorization.

Investigator:	Go July	Fre	PAT MAGNESON
	3/21/94	·	

magnuson/mdjjin94

# **Attachment B**



18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992 East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290 9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

lacier Environmental Project Name: V Glacier Environmental

12521 Evergreen Drive, #A Mukilteo, WA 98275

Attention: David DeScusa NCA Project #: B504330 Reported: Apr 27, 1995

WSDOE, Former Circle K

Client Project #:

#92-015

Received:

Apr 20, 1995

### **PROJECT SUMMARY PAGE**

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled	MAY - 3 1995
B504330-01	92-015-BTEX	Water	4/20/95	GLACIER - MUYTUTEO
B504330-02	92-015-FOG	Water	4/20/95	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

**Project Manager** 

504330.GLA <1>



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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Glacier Environmental Client Project ID: WSDOE, Former Circle K Sampled: Apr 2 12521 Evergreen Drive, #A Mukilteo, WA 98275 Attention: David DeSousa

Sample Matrix:

Apr 20, 1995

Analysis Method: First Sample #:

Water **EPA 602** B504330-01 Received: Analyzed: April 25-26, 1995

Apr 20, 1995

Reported: 

Apr 27, 1995

### **BTEX DISTINCTION**

Sample Number	Sample Description	<b>Benzene</b> μg/L (ppb)	<b>Toluene</b> μg/L (ppb)	Ethyl Benzene µg/L (ppb)	<b>Xylenes</b> μg/L (ppb)	Surrogate Recovery %
B504330-01	92-015-BTEX	5500	3700	360	2900	85
BLK	Method Blank	, N.D.	N.D.	N.D.	N.D.	76

Reporting Limits:	0.50	0.50	0.50	1.0

4-Bromofluorobenzene surrogate recovery control limits are 59 - 144 %. Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell

**Project Manager** 



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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132

B. Christlieb

12521 Evergreen Drive, #A Mukilteo, WA 98275 Attention: David DeSousa

Glacier Environmental Client Project ID: WSDOE, Former Circle K Analyst:

Sample Matrix: Water Analysis Method: EPA 602

Units: µg/L (ppb)

Analyzed:

Apr 25, 1995

QC Sample #: B504319-03 

Reported:

Apr 27, 1995

### MATRIX SPIKE QUALITY CONTROL DATA REPORT

NALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	8 2 3	
Sample Result:	N.D.	N.D.	N.D.	N.D.		
Spike Conc. Added:	10.0	10.0	10.0	30.0		+
Spike Result:	10.1	9.1	9.0	25.8		
Spike % Recovery:	101%	91%	90%	86%		
Spike Dup. Result:	10.5	9.4	9.2	25.6		
Spike Duplicate % Recovery:	105%	94%	92%	85%		
Upper Control Limit %:	115	116	122	122		
Lower Control Limit %:	82	81	85	85		
Relative % Difference:	3.9	3.2	2.2	0.78		= *
Maximum RPD:	16	16	. 16	17		
IORTH CREEK AN	ALYTICAL Inc.	% Recovery:		Result - Sample Result Spike Conc. Added	x 100	

Spike Result - Spike Dup. Result (Spike Result + Spike Dup. Result) / 2 x 100

Project Manager

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Glacier Environmental 12521 Evergreen Drive, #A Mukilteo, WA 98275 Attention: David DeSousa

Client Project ID: Sample Matrix: Analysis Method:

First Sample #:

WSDOE, Former Circle K Sampled: Water

Total FOG: 413.2; Non-Polar: 418.1 B504330-2

Apr 20, 1995 Apr 20, 1995 Received:

Extracted: Analyzed: Apr 21, 1995 Apr 21, 1995

Reported: Apr 27, 1995 

### **FATS OIL & GREASE**

Sample Number	Sample Description	Total FOG Result mg/L (ppm)	Non-Polar Result mg/L (ppm)	Polar Result mg/L (ppm)
B504330-2	92-015-FOG	8.7	7.3	1.4
BLK042795	Method Blank	N.D.	N.D.	N.D.

Reporting Limit:

1.0

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc

Shahndh Stowell Project Manager

504330.GLA <4>



**ACCURACY ASSESSMENT** 

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Glacier Environmental 12521 Evergreen Drive, #A Mukilteo, WA 98275 Attention: David DeSousa

cier Environmental Client Project ID: WSDOE, Former Circle K Analyst:

Sample Matrix: Water

Analysis Method: EPA 418.1

Units: mg/L (ppm)

T. Rubalcava

Extracted: Analyzed:

PRECISION ASSESSMENT

Apr 21, 1995 Apr 21, 1995

Reported: Apr 27, 1995 

### HYDROCARBON QUALITY CONTROL DATA REPORT

Laboratory Control Sample		Sample Duplicate		
TRPH		TRPH		
Spike Conc. Added:	4.2	Sample Number: B504330-02		
Spike Result:	4.0	Original Result: 7.3		
% Recovery:	95	Duplicate Result: 7.7		
Upper Control Limit %:	136	Relative Relative Percent Difference values are not % Difference: reported at sample concentration levels less than ten times the Detection Limits.		
Lower Control	54	Maximum RPD: 28		

NORTH CREEK ANALYTICAL Inc. Shannon Stowell **Project Manager** 

Spike Result

x 100

Spike Concentration Added

Relative % Difference:

Original Result - Duplicate Result (Original Result + Duplicate Result) / 2 x 100

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Glacier Environmental 12521 Evergreen Drive, #A Mukilteo, WA 98275 Attention: David DeSousa

acier Environmental Client Project ID: WSDOE, Former Circle K Analyst: T. Rubalcava

Sample Matrix: Water

Analysis Method: EPA 413.2 (I.R.)

Units: mg/L (ppm)

Extracted: Analyzed: Apr 21, 1995 Apr 21, 1995

Reported: Apr 27, 1995 

### HYDROCARBON QUALITY CONTROL DATA REPORT

**ACCURACY ASSESSMENT Laboratory Control Sample** 

Oil and Grease PRECISION ASSESSMENT **Sample Duplicate** 

Oil and Grease

Spike Conc.

Added: 4.2 Sample

Number: B504330-02

**Spike** 

Result: 4.0 **Original** Result:

8.7

Recovery: 95 **Duplicate** Result:

8.0

**Upper Control** 

Limit %:

136

Relative % Difference:

**Lower Control** 

Limit %:

54

Maximum

RPD:

28

Spike Result Spike Concentration Added x 100

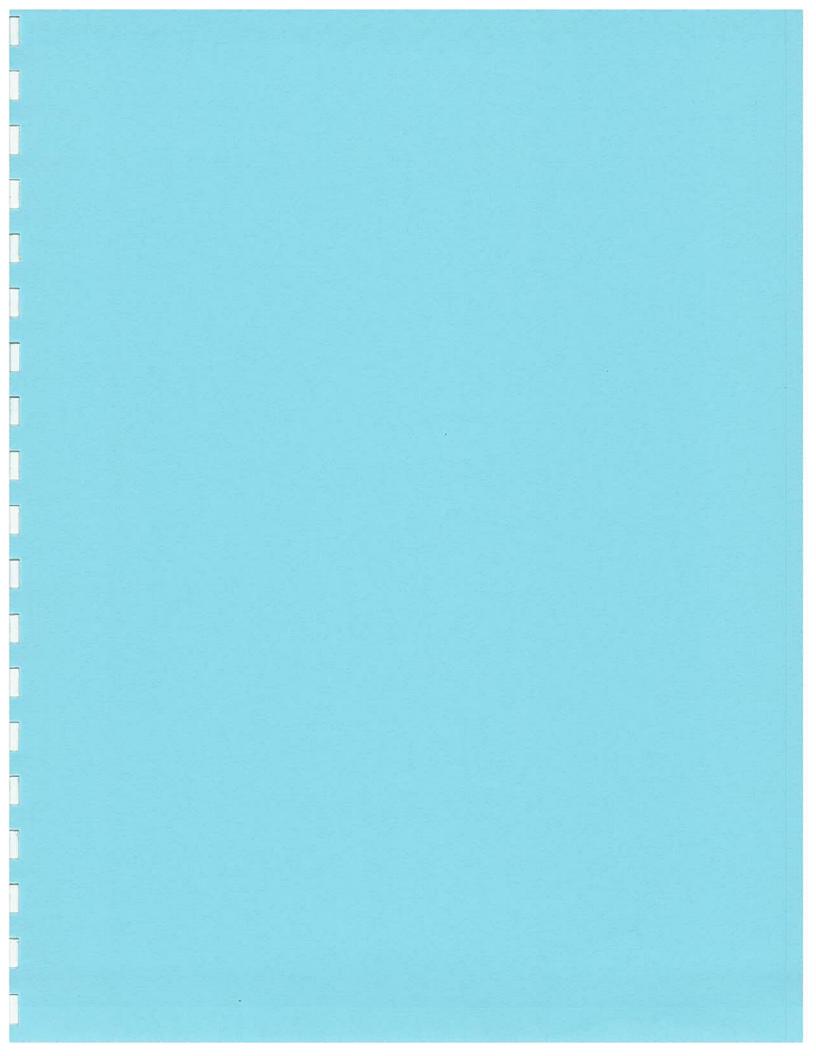
Original Result - Duplicate Result

x 100

Shannon Stowell **Project Manager**  Relative % Difference:

(Original Result + Duplicate Result) / 2

504330.GLA <5>





CERTIFICATE OF ANALYSIS HER ALL CONTROL OF THE STATE OF T

CLIENT: GLACIER ENVIRONMENTAL SERVICES

DATE:

7/5/95

12521 EVERGREEN DR., SUITE A

CCIL JOB #:

506060

MUKILTEO, WA 98275

CCIL SAMPLE #:

4

DATE RECEIVED:

1

WDOE ACCREDITATION #:

6/27/95 C142

CLIENT CONTACT: MIKE HOLZSCHUH

CLIENT PROJECT ID:

CIRCLE K DOE 92-015

CLIENT SAMPLE ID:

EFF-1 6/23/95 1230

# DATA RESULTS (CORRESPONDED LA PROPERTIE DE LA PORTIE DE L

ANALYTE	METHOD	RESULTS*	units**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS By
BENZENE	EPA-8020	ND(<1)	UG/L	5 UG/L	6/27/95	KLP
TOLUENE	EPA-8020	ND(<1)	UG/L	40 UG/L	6/27/95	KLP
ETHYLBENZENE	EPA-8020	ND(<1)	UG/L	30 UG/L	6/27/95	KLP
XYLENES	EPA-8020	ND(<3)	UG/L	20 UG/L	6/27/95	KLP

APPROVED BY: \_\_\_

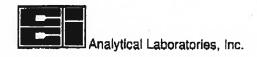
3229 Pine St. Everett, WA 98201 206 258-4548 FAX 206 259-6289 Seattle 206 292-9059 Page 1

700/2002

<sup>&</sup>quot; "NO" INDICATES ANALYTE NOT DETECTED ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.

<sup>&</sup>quot; UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

<sup>\*\*\*</sup> ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA



# THE STATE OF ANALYSIS AND THE STATE OF ANALYSIS AND THE STATE OF ANALYSIS AND THE STATE OF THE S

CLIENT: GLACIER ENVIRONMENTAL SERVICES

DATE:

7/5/95

12521 EVERGREEN DR., SUITE A

CCIL JOB #:

508080

MUKILTEO, WA 98275

CCIL SAMPLE #:

DATE RECEIVED:

2

WDOE ACCREDITATION #:

6/27/95 C142

CLIENT CONTACT: MIKE HOLZSCHUH

CLIENT PROJECT ID:

CIRCLE K DOE 92-015

CLIENT SAMPLE ID:

EFF-1 6/23/95 1230

WTPH-418.1 ND(<1000)

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BY

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METHOD

RESULTS\* UNITS"

UG/L

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LEVEL\*\*\*

7/5/95

SJB

APPROVED BY: ( )

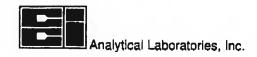
3229 Pine St. Everett, WA 98201 206 258-4548 FAX 206 259-6289 Seattle 206 292-9059

Page 1

<sup>\* &</sup>quot;NO" INDICATES ANALYTE NOT DETECTED ABOVE REPORTING LIMIT, REPORTING LIMIT IS GIVEN IN PARENTHESES

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CLIENT: GLACIER ENVIRONMENTAL SERVICES

DATE:

7/5/95

12521 EVERGREEN DR., SUITE A

CCIL JOB #

506060

MUKILTEO, WA 98275

DATE RECEIVED:

6/27/95

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: MIKE HOLZSCHUH

CLIENT PROJECT ID:

CIRCLE K DOE 92-015

# CONTROLIRESULTS CONTROLIRESULT CONTROLIRESULTS CONTROLIRESULTS CONTROLIRESULTS CONTROLIRESULTS CONTROLIRESULTS CONTROLIRESULTS CONTROLIRESULT CONTROLIRESULTS CONTROLIRESULT CONTROLIRESULT CONTROLIRESULT CONTROLIRESULT CONT

### **SURROGATE RECOVERY**

CCIL SAMPLE ID

**ANALYTE** 

SUR ID

% RECV

508080-1

EPA-8020

THI

APPROVED BY:\_\_\_\_

3229 Pine St. Everett, WA 98201 206 258-4548 FAX 206 259-6289 Seattle 206 292-9059 Page 1

7	



MAR 0 1 1996
GLACIER - MUKILTEO

February 28, 1996

Curt Lightle
Glacier Environmental Services
12521 Evergreen Dr.
Mukilteo, WA 98275

Re:

Analytical Data for Project 92-015 Laboratory Reference No. 9602-065

Dear Curt:

Enclosed are the results of the analyses, and associated quality control data, of samples submitted on February 22, 1996.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

Karl P. Hornyik Project Chemist

**Enclosures** 

Date of Report: February 28, 1996 Samples Submitted: February 22, 1996

Lab Traveler: 02-065 Project: 92-015

### **EPA 602 & WTPH-G**

Date Extracted: 2-22-96
Date Analyzed: 2-22-96

Matrix: Water
Units: ug/L (ppb)

Lab ID	02-065-1	
Client ID	Eff-2G	Method PQL
Dilution Factor	1	
Benzene	5.5	1.00
Toluene	ND	1.00
Ethyl Benzene	ND	1.00
m,p-Xylene	ND	1.00
o-Xylene	ND	1.00
TPH-Gas	ND	100
4-BFB		
Surrogate Recovery	87%	

Note: Sample PQL(practical quantitation limit)= Method PQL x dilution factor

Date of Report: February 28, 1996 Samples Submitted: February 22, 1996 Lab Traveler: 02-065

Project: 92-015

### **EPA 602 & WTPH-G QUALITY CONTROL**

Date Extracted:

2-22-96

Date Analyzed:

2-22-96

Matrix: Water Units: ug/L (ppb)

Lab ID	MB0222W1	02-061-1	02-061-1	
	Blank	Original	Duplicate	RPD
Dilution Factor	1	- 1 <sub>0</sub>	1	
*				
Benzene	ND	ND	ND	NA
Toluene	ND	ND	ND	NA
			ta la 8	
Ethyl Benzene	ND	ND	ND	NA
	5 " " =			
m,p-Xylene	ND	ND	ND	NA
o-Xylene	ND	ND	ND	NA
TPH-Gas	ND .	ND	ND	NA
				. 18 J.
4-BFB	Fa			
Surrogate Recovery	83%	86%	87%	*

Date of Report: February 28, 1996 Samples Submitted: February 22, 1996 Lab Traveler: 02-065

Project: 92-015

### **EPA 602 & WTPH-G QUALITY CONTROL**

Date Extracted:

2-22-96

Date Analyzed:

2-22-96

Matrix: Water Units: ug/L (ppb)

Lab ID	02-061-1	20	02-061-1		
spiked @ 50 ppb	MS	Percent	MSD	Percent	
Dilution Factor	1	Recovery	1	Recovery .	RPD
Benzene	50.8	102%	49.9	100%	1.8
Toluene	48.6	97%	47.8	96%	1.7
Ethyl Benzene	48.5	97%	47.9	96%	1.2
m,p-Xylene	50.3	101%	49.7	99%	1.2
o-Xylene	47.7	95%	46.9	94%	<b>1.7</b>
4-BFB	W 45				
Surrogate Recovery	92%		85%		

Date of Report: February 28, 1996 Samples Submitted: February 22, 1996 Lab Traveler: 02-065

Project: 92-015

### **WTPH 418.1**

Date Extracted: 02-23-96 Date Analyzed: 02-23-96

Matrix: Water Units: mg/L (ppm)

Client ID	Lab ID	Dilution Factor	Total Petroleum Hydrocarbons	Flags	PQL
EFF - 2F	02-065-2	0.10	ND	9	0.50

Date of Report: February 28, 1996 Samples Submitted: February 22, 1996

Lab Traveler: 02-065 Project: 92-015

# WTPH 418.1 METHOD BLANK QUALITY CONTROL

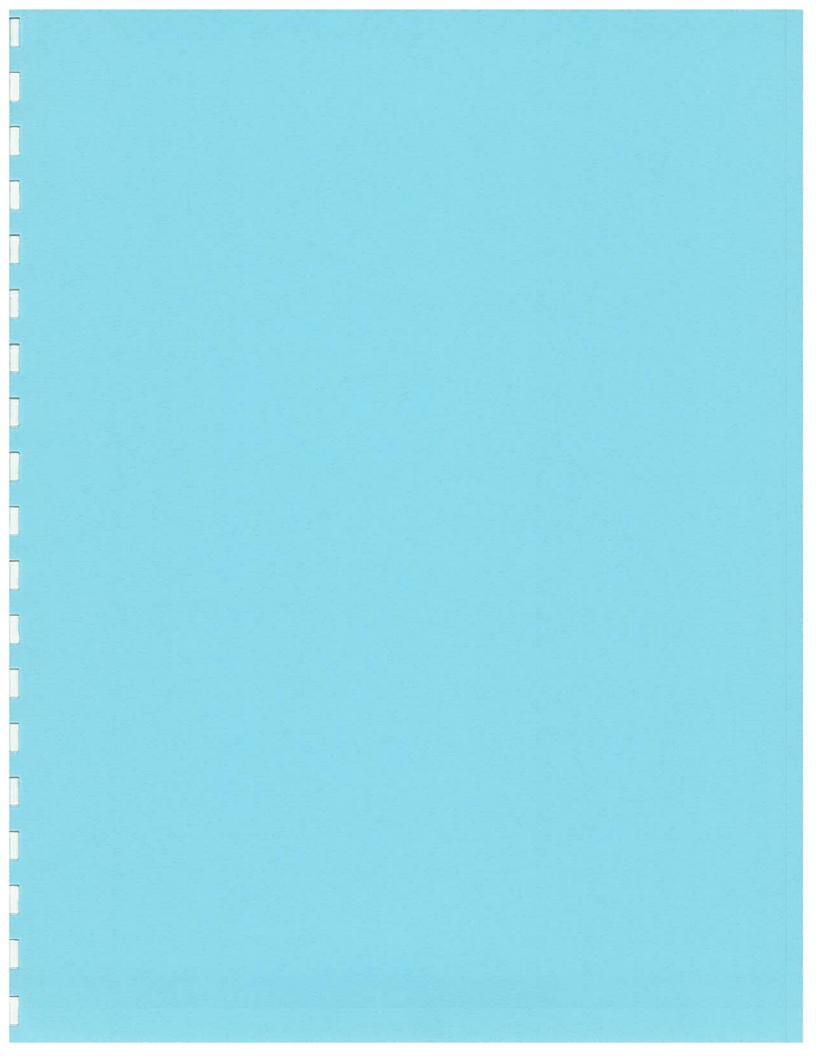
Date Extracted: 2-23-96 Date Analyzed: 2-23-96

Matrix: Water Units: mg/L (ppm)

Lab ID: MB0223W1

		Dilution Factor	Total Petroleum Hydrocarbons	Flags	PQL
Method Blank	- 4	0.10	ND		0.50

Insufficient sample quantity for duplicate analysis.





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GLACIER - MUKILTE

#### **CERTIFICATE OF ANALYSIS**

CLIENT: GLACIER ENVIRONMENTAL

12521 EVERGREEN DR, SUITE A

MUKILTEO, WA 98275

DATE:

5/29/96

CCIL JOB #:

605049

CCIL SAMPLE #:

DATE RECEIVED:

5/20/96

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: STEVE MILES

**CLIENT PROJECT ID:** 

CIRCLE K DOE 92015

CLIENT SAMPLE ID:

INF-3 5/17/96

DATA	RESUL	rs.

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
BENZENE	EPA-8020	6800	UG/L	5 UG/L	5/24/96	SAS
TOLUENE	EPA-8020	3600	UG/L	40 UG/L	5/24/96	SAS
ETHYLBENZENE	EPA-8020	480	UG/L	30 UG/L	5/24/96	SAS
XYLENES	EPA-8020	3000	UG/L	20 UG/L	5/24/96	SAS

- \* "ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES
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APPROVED BY: \_\_\_\_\_\_



JUN - 4 1996

GLACIER - MUTTER

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CLIENT: GLACIER ENVIRONMENTAL

12521 EVERGREEN DR, SUITE A

MUKILTEO, WA 98275

DATE:

5/29/96

CCIL JOB #:

605049

CCIL SAMPLE #:

2

DATE RECEIVED:

5/20/96

WDOE ACCREDITATION #:

C142

**CLIENT CONTACT: STEVE MILES** 

CLIENT PROJECT ID:

CIRCLE K DOE 92015

CLIENT SAMPLE ID:

EFF-3 5/17/96

E	)A	TA	R	ES	UL	T	S

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
BENZENE	EPA-8020	ND(<1)	UG/L	5 UG/L	5/24/96	SAS
TOLUENE	EPA-8020	ND(<1)	UG/L	40 UG/L	5/24/96	SAS
ETHYLBENZENE	EPA-8020	ND(<1)	UG/L	30 UG/L	5/24/96	SAS
XYLENES	EPA-8020	ND(<3)	UG/L	20 UG/L	5/24/96	SAS

APPROVED BY:

<sup>\* &</sup>quot;ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

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GLACIER - Martine I

**CERTIFICATE OF ANALYSIS** 

CLIENT: GLACIER ENVIRONMENTAL

12521 EVERGREEN DR, SUITE A

MUKILTEO, WA 98275

DATE:

5/29/96

CCIL JOB #:

605049

DATE RECEIVED:

5/20/96

WDOE ACCREDITATION #:

C142

**CLIENT CONTACT: STEVE MILES** 

**CLIENT PROJECT ID:** 

CIRCLE K DOE 92015

#### QUALITY CONTROL RESULTS

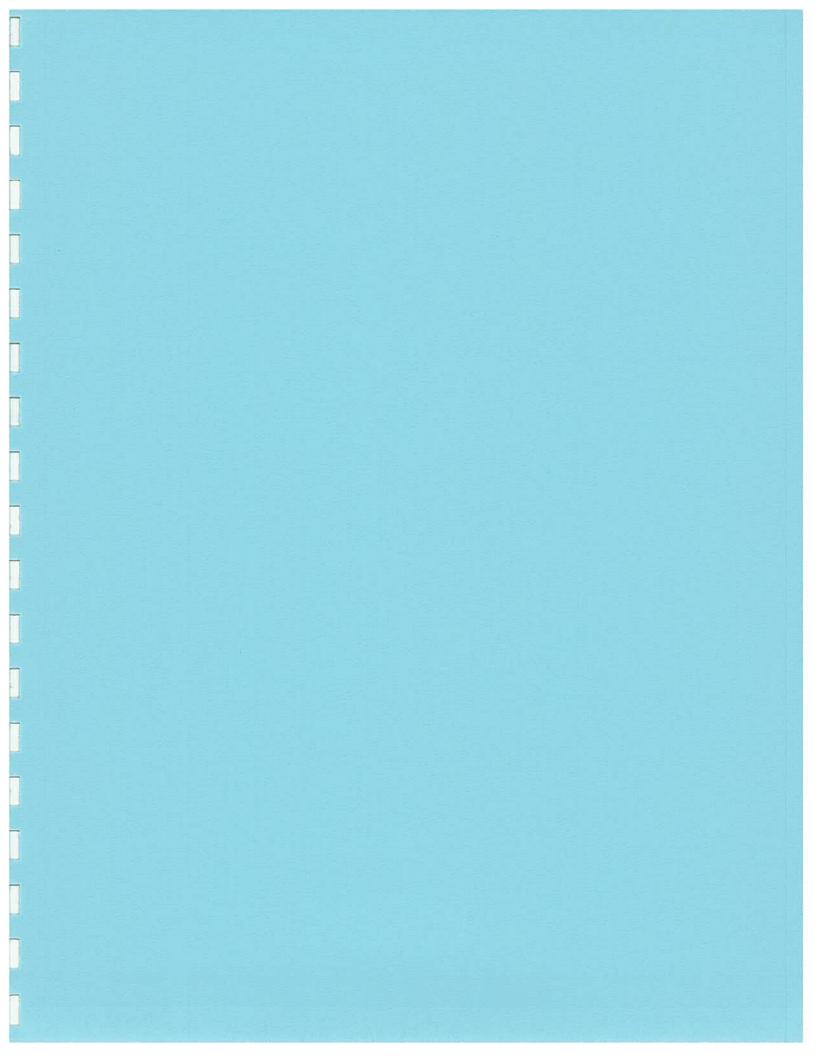
#### **SURROGATE RECOVERY**

 CCIL SAMPLE ID
 ANALYTE
 SUR ID
 % RECV

 605049-01
 EPA-8020
 TFT
 98

 605049-02
 EPA-8020
 TFT
 119

APPROVED BY:



#### Offices:



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290 PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

ilacier Environmental 2521 Evergreen Dr., Ste A Mukilteo, WA 98275

Project: Circle K - DOE Number: 92015

Project Number: 92015
Project Manager: Curt Lightle

Sampled: 9/18/96 Received: 9/18/96 Reported: 9/24/96

## ANALYTICAL REPORT FOR SAMPLES:

Sample Description			
EFF-3	Laboratory Sample Number	Sample Matrix	Date Sampled
ar r,7	B609292-01	Water	9/18/96

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document.

This analytical report must be reproduced in its entirety.

Jagk R Cooper, Project Manager



Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275

Project: Circle K - DOE Project Number: 92015

Project Manager: Curt Lightle

Sampled: 9/18/96 Received: 9/18/96

Reported: 9/24/96

#### Gasoline Hydrocarbons (Tolucne to Dodecane) and BTEX by WTPH-G and EPA 8020A

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
FFR 2								
EFF-3			B6092	92-01			Water	
Gasoline Range Hydrocarbons	0960516	9/20/96	9/20/96		50.0	ND	ug/l (ppb)	
Benzene	H	19	*		0.500	ND	. G. G. S. A.	
Toluene	н	10	*		0.500	ND	19	
Ethylbenzene	н	19			0.500	ND	•	
Xylenes (total)	*	III	•		1.00	ND	tr .	
_Surrogate: 4-BFB (FID)	19	N	n	50.0-150		85.0	96	
Surrogate: 4-BFB (PID)	n	*	*	53.0-136		81.3	*	

North Creek Analytical, Inc.

\*Refer to end of report for text of notes.

Jask R Cooper, Project Manager

Page 2 of 6



#### Offices:

BOTHELL # (206) 481-9200 # FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Glacicr Environmental 12521 Evergreen Dr., Ste A Mukiltoo, WA 98275

Project: Circle K - DOE

Project Number: 92015 Project Manager: Curt Lightic

Sampled: 9/18/96 Received: 9/18/96 Reported: 9/24/96

#### Heavy Oil Range Hydrocarbons by WTPH-418.1

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
EFF-3 Petroleum Oil Hydrocarbons	0960448	9/19/96	<u>B6092</u> 9/19/96	92-01 WTPH-418.1	1.00	ND	Water mg/l (ppm)	

North Creek Analytical, Inc.

\*Refer to end of report for text of notes.

Jack R Cooper, Project Manager

Page 3 of 6



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275

Project: Circle K - DOE

Project Number: 92015 Project Manager: Curt Lightle

Sampled: 9/18/96 Received: 9/18/96 Reported: 9/24/96

Gasoline Hydrocarbons (Foluenerio Dedecane) and BTEX by WIPH Gand EPA 3020 A Quality Control

Ļ	Date	Spike	Sample	QC	R	eporting Limit	Recov.	RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit		Notes*
Batch: 0960516	Date Prepa	red: 9/20/9	96							
Blank	0960516-BI		-		Water					
Gasoline Range Hydrocarbons	9/20/96			ND	ug/l (ppb)	50.0				
Benzene	10			ND	H .	0,500				
Toluene	17			ND	44	0.500				
Ethylbenzene				ND	•	0.500				
Kylenes (total)	10			ND	10	1.00				
Surrogate: 4-BFB (FID)		16.0		12.8		50.0-150	80.0	• • •		••
Surrogate: 4-BFB (PID)	"	16.0		12.8	*	53.0-136	80.0			
<u> Blank Spiku</u>	0960516-BS	11			Water					
Gasoline Range Hydrocarbons	9/20/96	500		500	ug/l (ppb)	63.0-127	100			
Surrogale: 4-BFB (FID)	*	16.0		17.8	H	50.0-150	111			••
Duplicate	0960516-DI	JP1 Be	5091 <u>59-01</u>		Water					
Gasoline Range Hydrocarbons	9/20/96		מא	ND	ug/l (ppb)			45.0		
iurrogale: 4-BFB (FID)	#	16.0		14.1	"	50.0-150	88.1			
Matrix Spike	0960516-M	<u>SI Be</u>	i09205-01		Water					
Benzene	9/20/96	10.0	84.2	94.0	ug/l (ppb)	62.0-126	98.0			
Coluene	10	10.0	ND	8.78		72.0-120	87.8			
Sthylbenzene	19	10.0	ND	9.00		69.0-129	90.0	•		
Xylenes (total)	)0	30.0	מא	28.1	ti	73.0-126	93.7			
Surrogate: 4-BFB (PID)	,,	16.0		14.2		53.0-136	88.7	- N -		
Vatrix Spike Dup	0960516-M	SD1 Be	09205-01		Water					
Benzene	9/20/96	10.0	84.2	93.0	ug/l (ppb)	62.0-126	88.0	13.5	10.8	
oluene	10	10.0	ND	8.92		72.0-120	89.2	8.70	1.58	
Ithylbenzene	н	10.0	ND	8.96	10	69.0-129	89.6	13.6	0.445	
Xylenes (total)	n	30.0	ND	28.6	*	73.0-126	95.3	16.3	1.69	
Surrogate: 4-BFB (PID)	, h,	16.0		13.8		53.0-136	86.3	• • • • • • • • • • • • • • • • • • • •		

North Creek Analytical, Inc.

\*Refer to end of report for text of notes.

Jack R Cooper, Project Manager

Page 4 of 6



#### omces:

BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275

Project: Circle K - DOE

Sampled: 9/18/96

Project Manager: Curt Lightle

Project Number: 92015

Received: 9/18/96 Reported: 9/24/96

Heavy Oll Range Hydrocarbons by WTPH 418.7

Ameluta	Date	Spike Level	Sample	QC Result	_	rting Limit		RPD	RPD	
Analyte	Analyzed	176461	Result	KCSUIT	Onus Re	cov. Limits	<u>%</u>	Limit	%	Notes*
Batch: 0960448	Date Prepa	red: 9/19/	96							
Blank	0960448-81	KI			Water					
Petroleum Oil Hydrocarbons	9/19/96			ND	mg/i (ppm)	1.00				
Blank Spike	0960448-B5	<u>81</u>			Water					
Petroleum Oil Hydrocarbons	9/19/96	5.00		3.61	mg/l (ppm)	68.0-117	72.2			
Blank Spike Dup	0960448-BS	<u>iD1</u>			Water					
Petroleum Oil Hydrocarbons	9/19/96	5.00		3.61	mg/l (ppm)	68.0-117	72.2	53.0	0	
<u>Duplicate</u>	0960448-D1	UP1 B	609292-01		Water					1
Petroleum Oil Hydrocarbons	9/19/96		ND	ND	mg/l (ppm)			53.0		

North Creek Analytical, Inc.

\*Refer to end of report for text of notes.

Jack R Cooper, Project Manager

Page 5 of 6



#### Offices:

BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290 PORTLAND = (503) 643-9200 = FAX 644-2202

Correspondence to: 18939 - 120th Ave. NE, #101, Bothell, WA 98011

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275

Project: Circle K - DOE Project Number: 92015

Sampled: 9/18/96 Received: 9/18/96

Project Manager: Curt Lightle

Reported: 9/24/96

Notes

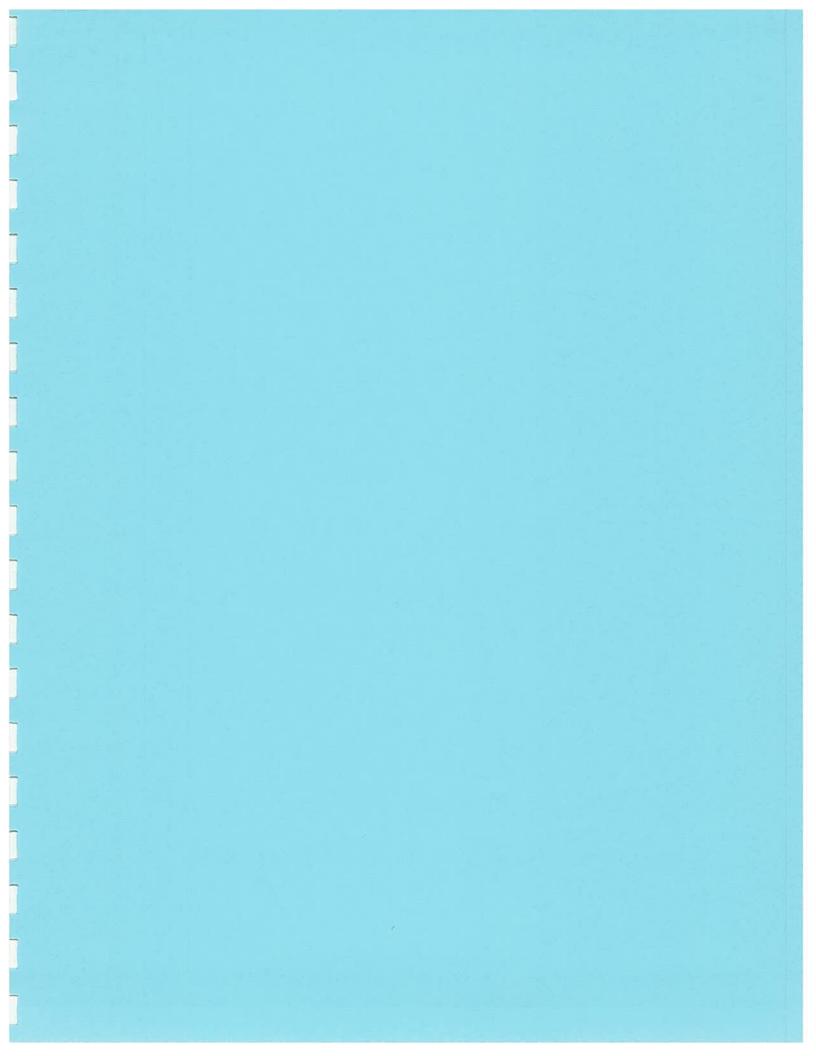
Note

RPD values are not reported at sample concentrations less than 10 times the reporting limit.

North Creek Analytical, Inc.

Jack R Cooper, Project Manager

Page 6 of 6





Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Not Provided

Project Number: 92015

Project Manager: Phil Stelflug

Sampled: 7/11/97

Received: 7/14/97 Reported: 7/22/97 14:26

#### ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
EFF-6	B707280-01	Water	7/11/97
EFF-6V	B707280-02	Water	7/11/97

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JUL 2 3 1997

GLACIER - MUKILTEO

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document.

This analytical report must be reproduced in its entirety.

Kirk Gendron Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

Page 1 of 6



Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Not Provided

Project Number: 92015

Project Manager: Phil Stelflug

Sampled: 7/11/97

Received: 7/14/97 Reported: 7/22/97 14:26

#### Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
EFF-6V			B70728	<u>80-02</u>			Water	
Gasoline Range Hydrocarbons	0770630	7/21/97	7/21/97		50.0	ND	ug/l	
Benzene	n		10		0.500	ND	н	
Toluene	11	**	10		0.500	ND	11	
Ethylbenzene	**	**	10		0.500	ND	11	
Xylenes (total)	**	**	**		1.00	ND	#	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		81.3	%	
Surrogate: 4-BFB (PID)	"	n	"	50.0-150		83.1	"	

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.

Kirk Gendron, Project Manager



Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Not Provided

Project Number: 92015
Project Manager: Phil Stelflug

Sampled: 7/11/97

Received: 7/14/97 Reported: 7/22/97 14:26

Heavy Oil Range Hydrocarbons by WTPH-418.1 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
EFF-6 Petroleum Oil Hydrocarbons	0770483	7/16/97	<u>B70728</u> 7/16/97	80-01 WTPH-418.1	1.00	ND	Water mg/l	

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.





Glacier Environmental Project: Not Provided Sampled: 7/11/97
12521 Evergreen Dr., Ste A Project Number: 92015 Received: 7/14/97

Mukilteo, WA 98275 Project Manager: Phil Stelflug Reported: 7/22/97 14:26

# Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control North Creek Analytical - Bothell

	Date	Spike	Sample	QC		Reporting Limit		RPD	RPD	
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	%	Notes
Batch: 0770630	Date Prepa	red: 7/21/9	97		Extract	tion Method: EP	A 5030			
Blank	0770630-BI	<u>.K1</u>								
Gasoline Range Hydrocarbons	7/21/97			ND	ug/l	50.0				
Benzene	11			ND	19	0.500				
Toluene	19			ND	11	0.500				
Ethylbenzene	11			ND	**	0.500				
Xylenes (total)	H III			ND	11	1.00				
Surrogate: 4-BFB (FID)	"	48.0		43.8	"	50.0-150	91.2			
Surrogate: 4-BFB (PID)	"	48.0		60.6	"	50.0-150	126			
LCS	0770630-BS	<u> </u>								
Gasoline Range Hydrocarbons	7/21/97	500		465	ug/l	80.0-120	93.0			
Surrogate: 4-BFB (FID)	"	48.0		47.4	"	50.0-150	98.8	4		
Duplicate	0770630-DI	JP1 <u>B</u> *	707290-08							
Gasoline Range Hydrocarbons	7/21/97		6350	6180	ug/l			25.0	2.71	
Surrogate: 4-BFB (FID)	"	48.0		35.7	"	50.0-150	74.4			
<u>Duplicate</u>	0770630-DU	J <b>P2 B</b> *	707218-06							
Gasoline Range Hydrocarbons	7/21/97		ND	ND	ug/l			25.0		
Surrogate: 4-BFB (FID)	"	48.0	· · · · · · · ·	35.0	"	50.0-150	72.9			
Matrix Spike	0770630-M	<u>S1</u> <u>B'</u>	707280-02							
Benzene	7/21/97	10.0	ND	10.9	ug/l	70.0-130	109			
Toluene	**	10.0	ND	10.9	**	70.0-130	109			
Ethylbenzene		10.0	ND	10.7	**	70.0-130	107			
Xylenes (total)	11	30.0	ND	31.2	**	70.0-130	104			
Surrogate: 4-BFB (PID)	"	48.0		37.2	"	50.0-150	77.5			
Matrix Spike Dup	0770630-M	SD1 B	707280-02							
Benzene	7/21/97	10.0	ND	11.2	ug/l	70.0-130	112	15.0	2.71	
Toluene	"	10.0	ND	11.4	**	70.0-130	114	15.0	4.48	
Ethylbenzene	**	10.0	ND	10.7	**	70.0-130	107	15.0	0	
Xylenes (total)	**	30.0	ND	31.6	**	70.0-130	105	15.0	0.957	
Surrogate: 4-BFB (PID)	"	48.0		37.3	"	50.0-150	77.7			

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.

Kirk Gendrou, Project Manager



Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Not Provided

Project Number: 92015
Project Manager: Phil Stelflug

Sampled: 7/11/97

Received: 7/14/97

Reported: 7/22/97 14:26

#### Heavy Oil Range Hydrocarbons by WTPH-418.1/Quality Control North Creek Analytical - Bothell

	Analyte		Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov.	RPD Limit	RPD %	Notes*
	Batch: 0770483 Blank	Date Prepared		_			tion Method: TPI	ł 418.1			
1	Petroleum Oil Hydrocarbons	7/16/97			ND	mg/l	1.00				
	LCS Petroleum Oil Hydrocarbons	0770483-BS1 7/16/97	5.00		4.52	mg/l	62.0-121	90.4			
No.	LCS Dup Petroleum Oil Hydrocarbons	0770483-BSD 7/16/97	<u>1</u> 5.00		4.22	mg/l	62.0-121	84.4	57.0	6.86	
	<u>Duplicate</u> Petroleum Oil Hydrocarbons	<b>0770483-DUP</b> 7/16/97	<u>1 B70</u>	7287-01 ND	ND	mg/l			57.0		

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.





Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275

Project: Not Provided

Project Number: 92015

Project Manager: Phil Stelflug

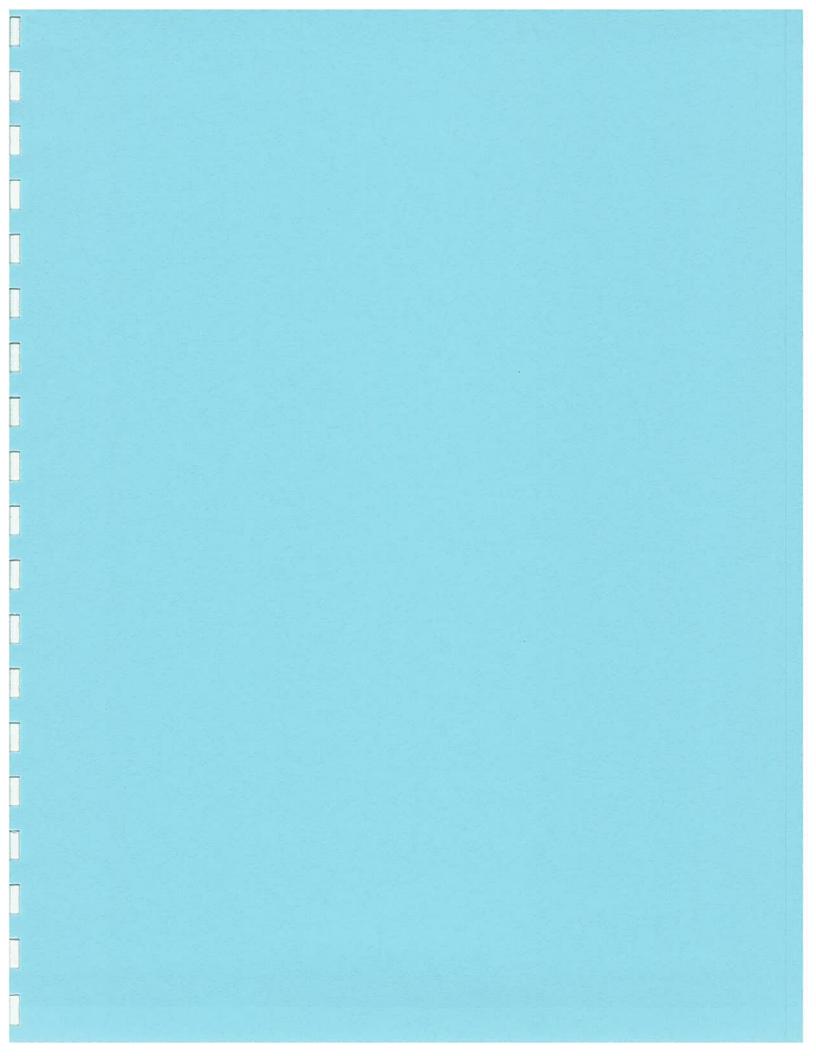
Sampled: 7/11/97

Received: 7/14/97

Reported: 7/22/97 14:26

	Notes and Definitions												
And in case of the last	#	Note											
	DET	Analyte DETECTED											
Section 1	ND	Analyte NOT DETECTED at or above the reporting limit											
7	NR	Not Reported											
-	dry	Sample results reported on a dry weight basis											
-	Recov.	Recovery											
	RPD	Relative Percent Difference											
-													
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7													

North Creek Analytical, Inc.





Glacier Environmental 12521 Evergreen Dr., Ste A Mukilten, WA 98275 Project: Circle K - DOE

Project Number: 92015

Project Manager: Curt Lightle

Sampled: 12/30/97

Received: 1/2/98

Reported: 1/9/98 13:43

#### ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
EFF 123097	B801012-01	Water	12/30/97

North Greek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document.

This analytical report must be reproduced in its entirety.

Kirk Gendron, Project Manager

18839 120th Avenue N.E., Suits 101, Bothell, WA 98011-9508 East 11115 Montgomery, Suits B, Spokene, WA 99208-4776 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

Page 1 of 6

Olscier Environmental
12521 Evergreen Dr., Ste A
Mukilteo, WA 98275

Project Number: 92015
Project Manager: Curt Lightle

Sampled: 12/30/97 Received: 1/2/98

Reported: 1/9/98 13:43

### Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A North Creek Analytical - Bothell

Analyto	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
EFF 123097  Casoline Range Hydrocarbons  Benzene  Toluene  Ethylbenzene  Xylenes (total)	0180054	1/5/98	H8010 1/5/98		50.0 0.500 0.500 0.500 1.00	ND ND ND ND ND	Water ug/l	
Surrogate: 4-BFB (FID) Surrogate: 4-BFB (PID)	н	**	W	50.0-150 50.0-150		81.7	70 #	

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.

Kirk Gendrod, Project Manager

Page 2 of 6

Glacie	Envir	nn	enta	i	
12521	Evergr	מט:	Dr.,	Ste	A
Ankilt	eo WA	98	275		

Project: Circle K - DOE
Project Number: 92015
Project Manager: Curt Lightle

Sampled: 12/30/97 Received: 1/2/98

Reported: 1/9/98 13:43

### Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
EFF 123097 Petroleum Oil Hydrocarbons	0[80113	1/7/98	<u>B8010</u> 1/7/98	12-01 EPA 418.1	1.00	17.2	Water mg/l	

North Greek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.

Kirk Gendron, Project Manager

Page 3 of 6

Glacier Environmental Project: Circle K - DOE

12521 Evergreen Dr., Ste A Project Number: 92015

Mukilteo, WA 98275 Project Manager: Curt Lightle

Sampled: 12/30/97 Received: 1/2/98 Reported: 1/9/98 13:43

Date Spike Sample QC Reporting Limit Recov. RPD Analyte Analyzed Level Result Result Units Recov. Limits Limit % Notes\* Batch: 0180054 Date Prepared: 1/5/98 Extraction Method: EPA 5030 (P/T) Blank 0180054-BLK1 Gasoline Range Hydrocarbons 1/5/98 ND ug/l 50.0 Benzene ND 0.500 Toluene ND 0.500 Ethylbenzene ND 0.500 Xylenes (total) ND 1.00 Surrogate: 4-BFB (FID) 48.0 38.9 50.0-150 81.0 Surrogate: 4-BFB (PID) 48.0 39.3 50.0-150 81.9 LCS 0180054-BS1 Gasoline Range Hydrocarbons 500 1/5/98 ug/l 75.0-125 109 Surroyate: 4-BFB (FID) 48.0 50.0-150 86.0 Duplicate 0180054-DUP1 B801017-01 Gasoline Range Hydrocarbons 1/6/98 560 536 ug/l 25.0 Surrogate: 4-Bl'B (FID) 41.9 50.0-150 48.0 87. Ï B801005-15 Matrix Spike 0180054-MS1 1/5/98 10.0 Benzene ND 9.59 70.0-130 ug/l 95.9 Toluene 10.0 ND 9.32 70.0-130 93.2 Ethylbenzene 10.0 ND 9.02 70.0-130 98.2 Xylenes (total) 30.0 ND 26.3 70.0-130 87.7 Surrogate: 4-BFB (PID) 48.0 39.3 50.0-150 81.9 B801005-15 Matrix Spike Dup 0180054-MSD1 Benzene 70.0-130 1/5/98 10.0 ND 9.48 ug/i 94.8 15.0 1.15 Toluene ND 9.16 10.0 70.0-130 91.6 15.0 1.73 Ethylbenzene 10.0 ND 8.89 70.0-130 88.9 15.0 1.45 Xylencs (total) 30.0 ND 25.7 70.0-130 85.7 15.0 2.31

39.0

48.0

North Creek Analytical, Inc.

Surrogate: 4-BFB (PID)

\*Rofer to end of report for text of notes and definitions.

81.3

50.0-150

Kirk Gendren, Project Manager

Page 4 of 6

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Circle K - DOE
Project Number: 92015
Project Manager: Curt Lightle

Sampled: 12/30/97 Received: 1/2/98 Reported: 1/9/98 13:43

		A Secretary		A141. (1.174)					State of the state	
Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	KPD Limit	RPD %	Notes*
Batch: 0180113	Date Prepa	red: 1/7/98	l .		Extrac	tion Method: TP	H 418.1			
Blank Petroleum Oil Hydrocarbons	0180113-B	LKI		ND	mg/l	1.00				
LCS Patroleum Oil Hydrocarbons	<u>0180113-B</u> 1/7/98	5.00		3.80	mg/i	61.0-121	76.0			
LCS Dup Petrolcum Oil Hydrocarbons	<u>0180113-8</u> 1/7/98	<u>ISD1</u> 5.00		3.80	mg/i	61.0-121	76.0	57.0	C	
<u>Duplicate</u> Petroleum Oil Hydrocarbons	<u>0180113-</u> F 1/7/98	MP1 B	801043 <u>-02</u> ND	ND	mg/l			57.0		

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

\*Refer to end of report for text of notes and definitions.

Page 5 of 6

Glacier Environmental Project: Circle K - DOE Sampled: 12/30/97

[2521 Evergreen Dr., Sto A Project Number: 92015 Received: 1/2/98

[Mukilteo, WA 98275 Project Manager: Curt Lightle Reported: 1/9/98 13:43

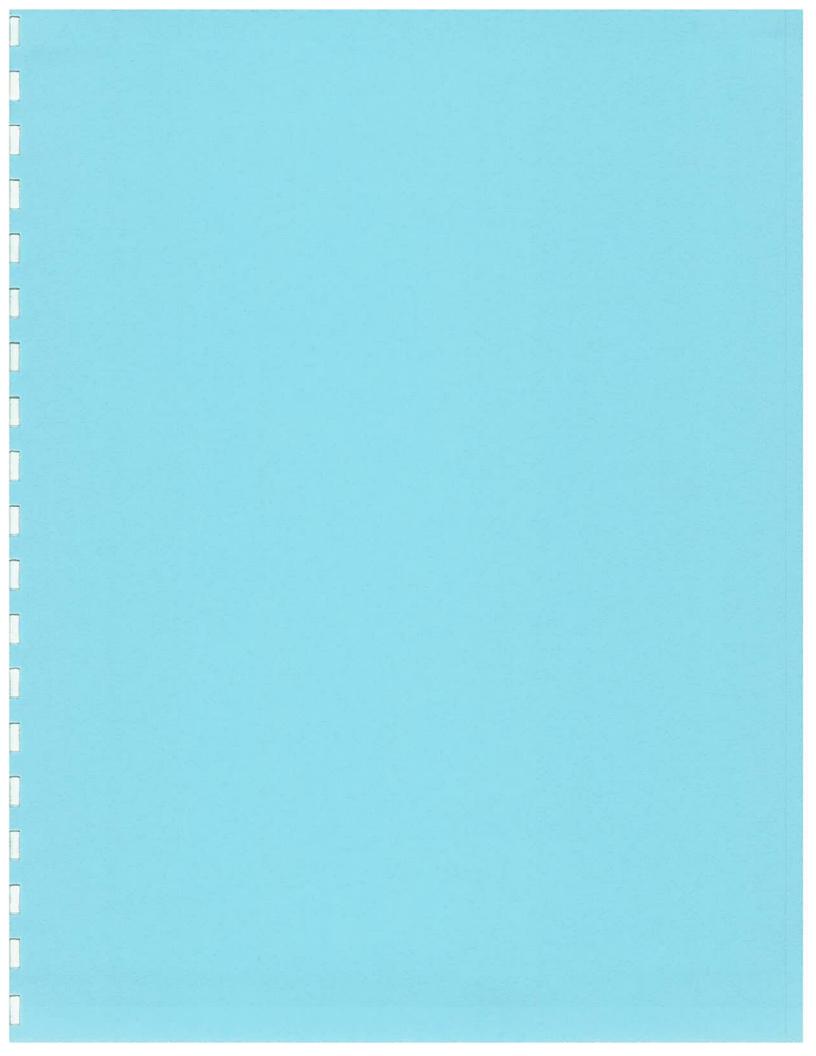
#### Notes and Definitions

!	Note	1 2
DEL	Analyte DETECTED	
D	Analyte NOT DETECTED at or above the reporting limit	
NK	Not Reported	
dry	Sample results reported on a dry weight basis	
Recov.	Recovery	
RPD	Relative Percent Difference	

North Creek Analysical, Inc.

Kirk Gendron, Project Manager

Page 6 of 6





BOTHELL = (425) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 906-9200 = FAX 906-9210

Glacier Environmental 12521 Evergreen Dr., Ste A Project: Circle K - DOE

Sampled: 2/10/98 Received: 2/13/98

Mukilteo, WA 98275

Project Manager: Curt Lightle

Project Number: 92015

Reported: 2/17/98 12:22

#### **ANALYTICAL REPORT FOR SAMPLES:**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
INF-21098	B802262-01	Water	2/10/98

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North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Kirk Gendrom Project Manager



BOTHELL = (425) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 906-9200 = FAX 906-9210

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Circle K - DOE

Project Number: 92015

Project Manager: Curt Lightle

Sampled: 2/10/98

Received: 2/13/98

Reported: 2/17/98 12:22

#### Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A North Creek Analytical - Bothell

	Batch	Date	Date	Surrogate	Reporting			
Analyte	Number	Prepared	Analyzed	Limits	Limit	Result	Units	Notes*
INF-21098			B8022	<u> 52-01</u>			Water	
Gasoline Range Hydrocarbons	0280399	2/16/98	2/17/98		2500	16600	ug/l	
Benzene	11	"	**		25.0	3530	11	
Toluene	n	11	н		25.0	2080	н	
Ethylbenzene	11"				25.0	381	11	
Xylenes (total)	**	**	"		50.0	2040	н	
Surrogate: 4-BFB (FID)		"	"	50.0-150		89.6	%	
Surrogate: 4-BFB (PID)	n	**	"	50.0-150		94.8	"	

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.

Kirk Gendrah, Project Manager



BOTHELL **=** (425) 481-9200 **=** FAX 485-2992 SPOKANE **=** (509) 924-9200 **=** FAX 924-9290

PORTLAND = (503) 906-9200 = FAX 906-9210

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Circle K - DOE

Project Number: 92015
Project Manager: Curt Lightle

Sampled: 2/10/98 Received: 2/13/98 Reported: 2/17/98 12:22

# Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control North Creek Analytical - Bothell

	Date	Spike	Sample	QC		Reporting Limit	Recov.	RPD	RPD
Analyte	Analyzed	Level	Result	Result	Units	Recov. Limits	%	Limit	% Notes
Batch: 0280399	Date Prepar	ed: 2/16/9	98		Extrac	tion Method: EPA	A 5030 (I	P/T)	
Blank	0280399-BL	<u>K1</u>							
Gasoline Range Hydrocarbons	2/16/98			ND	ug/l	50.0			
Benzene	н			ND	11	0.500			
Toluene	11			ND	**	0.500			
Ethylbenzene	**			ND	11	0.500			
Xylenes (total)	**			ND	"	1.00			
Surrogate: 4-BFB (FID)	"	48.0		45.0	"	50.0-150	93.8		
Surrogate: 4-BFB (PID)	"	48.0		45.8	n	50.0-150	95.4		
LCS	0280399-BS	1							
Gasoline Range Hydrocarbons	2/16/98	500		550	ug/l	75.0-125	110		
Surrogate: 4-BFB (FID)	"	48.0	00	47.3	"	50.0-150	98.5		
Duplicate	0280399-DU	P1 B8	302262-01						
Gasoline Range Hydrocarbons	2/16/98		16600	18800	ug/l			25.0	12.4
Surrogate: 4-BFB (FID)	n .	48.0		45.1	"	50.0-150	94.0		
Duplicate	0280399-DU	P2 B8	802197-06						
Gasoline Range Hydrocarbons	2/17/98		311	266	ug/l			25.0	15.6
Surrogate: 4-BFB (FID)	"	48.0		44.7	"	50.0-150	93.1		
Matrix Spike	0280399-MS	<u> 81</u> <u> </u>	302197-07						
Benzene	2/16/98	10.0	ND	10.6	ug/l	70.0-130	106		
Toluene	29	10.0	ND	10.4	H	70.0-130	104		
Ethylbenzene	11	10.0	ND	10.3	**	70.0-130	103		
Xylenes (total)	11	30.0	ND	30.9	**	70.0-130	103		
Surrogate: 4-BFB (PID)	"	48.0		45.7	"	50.0-150	95.2		
Matrix Spike Dup	0280399-MS	SD1 B8	302197-07						
Benzene	2/16/98	10.0	ND	10.9	ug/l	70.0-130	109	15.0	2.79
Toluene	и	10.0	ND	10.8	"	70.0-130	108	15.0	3.77
Ethylbenzene	и	10.0	ND	10.4	11	70.0-130	104	15.0	0.966
Xylenes (total)	н	30.0	ND	30.6	11	70.0-130	102	15.0	0.976
Surrogate: 4-BFB (PID)	**	48.0		45.2	"	50.0-150	94.2		

North Creek Analytical, Inc.

\*Refer to end of report for text of notes and definitions.

Kirk Gendron, Project Manager



BOTHELL = (425) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 906-9200 = FAX 906-9210

Glacier Environmental 12521 Evergreen Dr., Ste A Mukilteo, WA 98275 Project: Circle K - DOE
Project Number: 92015

Project Manager: Curt Lightle

Sampled: 2/10/98 Received: 2/13/98

Reported: 2/17/98 12:22

#### **Notes and Definitions**

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

### **Attachment C**



January 8, 1998

Peggy Rice King County Industrial Waste 130 Nickerson St., Ste 200 Seattle, Washington 98109

Re: Annual Discharge Report for Jin's Enterprises, 2350 24th Avenue East, Seattle, Washington.

Dear Peggy,

During the last year, 1997, approximately 83,374 gallons of water were discharged under permit authorization# 192. Total gallons discharged expressed as a daily average is 228 gallons/day.

On July 11, 1997 effluent samples were collected and analyzed for BETX and non-polar fats, oils and grease (FOG). The results of these analyses were non-detect. On December 30, 1997 effluent samples were collected and analyzed for BETX and non-polar Fog. Results for gasoline and BTEX were non-detect, and the result for non-polar FOG was 17.2 ppm (100 ppm discharge limit). All laboratory data and chain of custody documents are included in this report.

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 a qualified personnel properly gathers and evaluates 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.

Respectfully Submitted,

Curtis Lightle

Glacier Environmental Services, Inc.



January 8, 1997

Peggy Rice King County Industrial Waste 130 Nickerson St., Ste 200 Seattle, Washington 98109

Re: Annual Discharge Report for Jin's Enterprises, 2350 24th Avenue East, Seattle, Washington.

Dear Peggy,

During the last year, 1996, approximately 66,080 gallons of water were discharged under permit authorization# 192. Total gallons discharged expressed as a daily average is 367 gallons/day.

On October 10, 1996 effuent samples were collected and analyzed for BETX and non-polar fats, oils and grease. The results of these analyses were non-detect. The system has been shut down since November 1996, however, we expect to resume discharge sometime during the month of Febuary. Upon resumption of discharge, additional samples shall be collected and analyzed for non-polar fog and BETX. These results along with a total monthly disharge report for this period will be immediately reported to your office.

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 a qualified personnel properly gathers and evaluates 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.

Respectfully Submitted,

Curtis Lightle



January 10, 1995

Patricia Magnuson Industrial Waste Investigator METRO 130 Nickerson st., Suite 200 Seattle, WA 98109-1658

RE:

Continuation of Discharge Authorization (DA) for petroleum remediation services at Jin's Enterprises 2350-24th Avenue East Seattle, Washington 98122.

#### Dear Patricia:

During the last year, 1994, approximately 10,000 gallons of treated water were discharged under permit authorization # 192. On June 6, 1994 effluent samples where collected and analyzed for BTEX and Nonpolar FOG. Analytical results where Non-detect for these parameters.

The remediation system has been shut down since June 7, 1994 due to construction by Jin Choung. We would like to begin discharging again and request additional authorization in accord with your requirements. The only change in operation has been the moderate relocation of the groundwater treatment system.

Sincerely,

Jin Choung
President Jin's Enterprises

Duane Maki

Glacier Environmental Services, Inc.