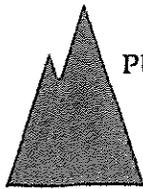


1513,45,008

AK0023213



PUBLIC WORKS DEPARTMENT  
CITY/BOROUGH OF JUNEAU  
★ ALASKA'S CAPITAL CITY

June 27, 2006

Mr. Brian Nickel, Environmental Engineer  
US EPA Region 10  
Office of Water and Watersheds  
NPDES Permits Unit

JUL 5

**Reference: City and Borough of Juneau  
Juneau-Douglas Wastewater Treatment Plant  
NPDES Permit Application-AK-002321-3**

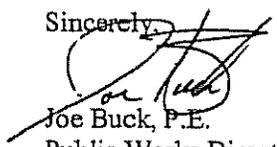
Dear Mr. Nickel:

The NPDES permit for the Juneau Douglas Wastewater Treatment Plant expires December 26, 2006. We would like to begin the permit renewal process. Therefore, the following items are attached:

- EPA form 2A: This completed form was developed using the PASS software;
- EPA form 2S: This form was also generated using the PASS program

Please feel free to give Scott Jeffers a call at 586-0393 if you have any questions during your review process. We look forward to working with you to assure that our permit is in place as soon as possible.

Sincerely,

  
Joe Buck, P.E.

Public Works Director

Cc: Liam Carnahan  
Scott Jeffers  
Catherine Carlson

LCIS 08/15/07 J

FACILITY NAME AND PERMIT NUMBER:

This permit application was electronically generated by P.A.S.S.

Form Approved 1/14/99  
OMB Number 2040-0086

Form  
**2A**  
NPDES

## NPDES FORM 2A APPLICATION OVERVIEW

### APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

### BASIC APPLICATION INFORMATION:

- A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.
- B. **Additional Application Information for Applicants with a Design Flow  $\geq$  0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.
- C. **Certification.** All applicants must complete Part C (Certification).

### SUPPLEMENTAL APPLICATION INFORMATION:

- D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):
  - 1. Has a design flow rate greater than or equal to 1 mgd,
  - 2. Is required to have a pretreatment program (or has one in place), or
  - 3. Is otherwise required by the permitting authority to provide the information.
- E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):
  - 1. Has a design flow rate greater than or equal to 1 mgd,
  - 2. Is required to have a pretreatment program (or has one in place), or
  - 3. Is otherwise required by the permitting authority to provide the information.
- F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:
  - 1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
  - 2. Any other industrial user that:
    - a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
    - b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
    - c. Is designated as an SIU by the control authority.
- G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

**ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)**

FACILITY NAME AND PERMIT NUMBER:

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BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.

A.1 Facility Information.

Facility name Juneau-Douglas Wastewater Treatment Plant
Mailing Address 5433 Shaune Drive Juneau, AK 99801
Contact Person Joe Buck
Title Public Works Director
Telephone Number 9075865254
Facility Address 1540 Thane Road Juneau, AK 99801 (not P.O. Box)

A.2 Applicant Information. If the applicant is different from the above, provide the following:

Applicant name City and Borough of Juneau
Mailing Address 5433 Shaune Drive Juneau, AK 99801
Contact Person Scott Jeffers
Title Wastewater Utility Superintendent
Telephone Number 9075860393

Is the applicant the owner or operator (or both) of the treatment works

X owner X operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant

facility X applicant

A.3 Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

Table with 4 columns: Permit Type, Permit Number, Permit Type, Permit Number. Row 1: NPDES, AK-002321-3, Other, 0211-BA-000 Solid W.

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Table with 4 columns: Name, Population Served, Type of Collection System, Ownership. Row 1: Juneau-Douglas Service Area, 8,749, Combined, City and Borough

FACILITY NAME AND PERMIT NUMBER:

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Form Approved 1/14/99 OMB Number 2040-0086

Total Population Served 8,749

A.5. Indian Country.

a. Is the treatment works located in Indian Country?

Yes No X

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

Yes No X

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

Table with 4 columns: Design flow rate, Two Years Ago, Last Year, This Year. Values include 2.760 mgd, 1.448, 1.348, 1.526 mgd.

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

X Separate sanitary sewer 85%
X Combined storm and sanitary sewer 15%

A.8. Discharges and Other Disposal Methods.

a. Does the treatment works discharge effluent to waters of the U.S.? X Yes No

If yes, list how many of each of the following types of discharge points the treatment works uses:

- i. Discharges of treated effluent 1
ii. Discharges of untreated or partially treated effluent 0
iii. Combined sewer overflow points 3
iv. Constructed emergency overflows (prior to the headworks) 0
v. Other 0

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? X Yes No

If yes, provide the following for each surface impoundment:

Location: Ash Pond immediately adjacent to JDWWTP
Annual average daily volume discharged to surface impoundment(s) 0.07 mgd
Is discharge continuous or X intermittent

c. Does the treatment works land-apply treated wastewater? Yes No X

If yes, provide the following for each land application site:

**JUNEAU-DOUGLAS WASTEWATER TREATMENT PLANT**  
**NPDES PERMIT APPLICATION AK-002321-3**  
**CITY AND BOROUGH OF JUNEAU JUNE 2006**

SUPPLEMENT TO SECTION A.6, FORM 2A, PART A

**JUNEAU DOUGLAS WWTP FLOWS**  
**SBR(MGD)**

	2004-2005		2003-2004		2002-2003	
	Q(mt avg)	Q max/mt	Q(mt avg)	Q max/mt	Q(mt avg)	Q max/mt
<i>June</i>	0.98	1.35	1.10	1.81	1.12	2.44
<i>July</i>	1.14	3.27	1.17	2.37	1.22	2.26
<i>August</i>	1.04	1.63	1.28	2.55	2.11	3.64
<i>September</i>	1.62	4.72	2.13	5.54	1.60	2.64
<i>October</i>	1.52	3.37	1.34	3.53	1.94	5.75
<i>November</i>	1.79	4.19	1.51	3.62	1.64	3.84
<i>December</i>	1.85	4.05	1.76	3.97	1.62	3.10
<i>January</i>	1.13	1.95	1.56	3.06	1.56	4.15
<i>February</i>	1.70	3.71	1.62	4.20	1.29	2.48
<i>March</i>	1.35	2.37	1.61	3.15	1.23	1.77
<i>April</i>	1.17	2.43	1.25	2.73	1.09	1.93
<i>May</i>	0.89	1.16	1.01	1.68	1.08	1.79
<i>total</i>	<i>16.18</i>	<i>34.21</i>	<i>17.34</i>	<i>38.21</i>	<i>17.51</i>	<i>35.79</i>
<i>average</i>	<b>1.3481</b>	<b>2.8508</b>	<b>1.4448</b>	<b>3.1843</b>	<b>1.4588</b>	<b>2.9823</b>

source of data CBJ - J-D WWTP monthly EPA Report

**JUNEAU-DOUGLAS WASTEWATER TREATMENT PLANT  
 NPDES PERMIT APPLICATION AK-002321-3  
 CITY AND BOROUGH OF JUNEAU JUNE 2006**

---

**SUPPLEMENT TO FORM 2A, PART A, SECTION A.6**

	Q(mt avg)	Q max/mt
<b>2005-2006</b>		
<b>June</b>	1.0373	2.043
<b>July</b>	1.364	3.264
<b>August</b>	1.411	2.426
<b>September</b>	2.007	5.028
<b>October</b>	1.6883	3.937
<b>November</b>	1.9068	5.088
<b>December</b>	1.4942	3.321
<b>January</b>	1.1781	1.919
<b>February</b>	1.2081	2.404
<b>March</b>	1.0208	1.563
<b>April</b>	1.206	2.212
<b>May</b>	1.266	2.505
<b>total</b>	<b>16.79</b>	<b>35.71</b>
<b>average</b>	<b>1.5261</b>	<b>3.2464</b>

*source of data CBJ - JDWWTP monthly EPA Report*

FACILITY NAME AND PERMIT NUMBER: \_\_\_\_\_

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Location: \_\_\_\_\_

Number of acres: \_\_\_\_\_

Annual average daily volume applied to si \_\_\_\_\_ mgd

Is discharge \_\_\_\_\_ continuous or \_\_\_\_\_ intermittent

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? \_\_\_\_\_ Yes \_\_\_\_\_ X No

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

\_\_\_\_\_

If transport is by a party other than the applicant, provide:

Transporter name: \_\_\_\_\_

Mailing address: \_\_\_\_\_

Contact person: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone number: \_\_\_\_\_

For each treatment works that receives this discharge, provide the following:

Name: \_\_\_\_\_

Mailing address: \_\_\_\_\_

Contact person: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone number: \_\_\_\_\_

If known, provide the NPDES permit number of the treatment works that receives this discharge. \_\_\_\_\_

Provide the average daily flow rate from the treatment works into the receiving facility. \_\_\_\_\_

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? \_\_\_\_\_ Yes \_\_\_\_\_ X No

If yes, provide the following for each disposal method:

FACILITY NAME AND PERMIT NUMBER:

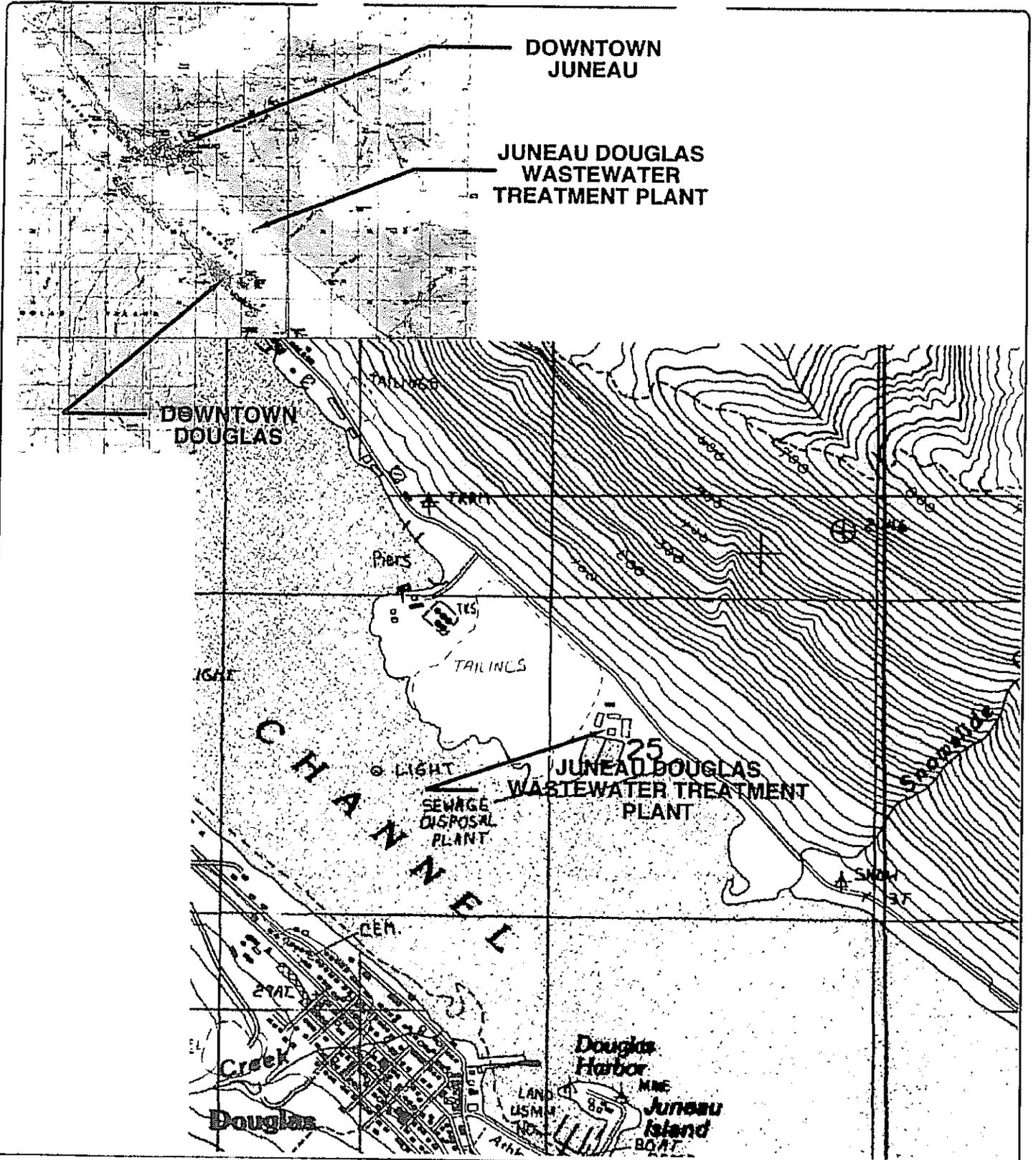
This permit application was electronically generated by P.A.S.S.

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OMB Number 2040-0086

Description of method (including location and size of site(s) if applicable):

Annual daily volume disposed of by this method:

Is disposal through this method \_\_\_\_\_ continuous or \_\_\_\_\_ intermittent



June 2006

NOT TO SCALE

EA 2 ENGINEERING ANALYSIS —  
 APPLICATIONS  
 Gary Hayden, P.E.  
 (907) 790-1291

P.O. Box 210076  
 Fairbanks, Alaska 99701  
 Fax (907) 790-2644  
 hydro@engr.com

Juneau Douglas  
 Wastewater Treatment Plant  
 NPDES PERMIT APPLICATION  
 AK- 002321-3

LOCATION & TOPO MAP

FACILITY NAME AND PERMIT NUMBER:

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Form Approved 1/14/99 OMB Number 2040-0086

WASTEWATER DISCHARGES:

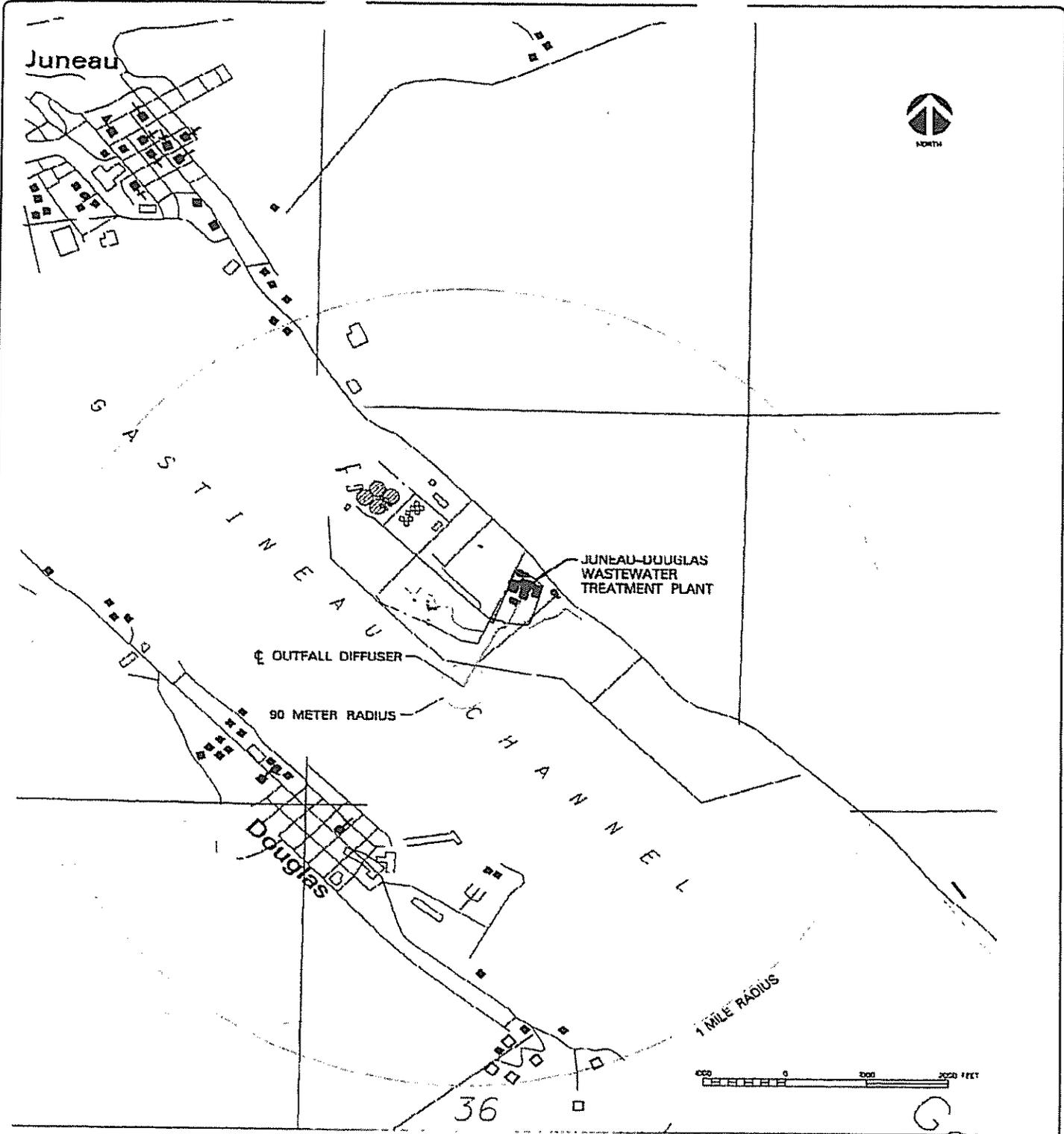
If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. If you answered "no" to question A.8.a., go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9 Description of Outfall.

- a. Outfall number 001
b. Location Juneau 99801
City and Borough of Juneau AK
58°17'2" N 134°23'13" W
c. Distance from shore 300 ft.
d. Depth below surface 30 ft.
e. Average daily flow rate 1.43 mgd
f. Does this outfall have either an intermittent or a periodic discharge? no
g. Is outfall equipped with a diffuser? yes

A.10 Description of Receiving Waters.

- a. Name of receiving water Gastineau Channel of Lynn Canal
b. Name of watershed (if known) Gastineau Channel
c. Name of State Management/River Basin (if known):
d. Critical low flow of receiving stream (if applicable):
e. Total hardness of receiving stream at critical low flow (if applicable) mg/l of CaCO3



June 2006

Source for drawing was Carson Dorn Inc. for CBJ 2001 NPDES application

**NOT TO SCALE**

EA 2 ENGINEERING ANALYSIS —  
 APPLICATIONS  
 Cary Hayden, P.E.  
 (907) 790-7291

P.O. Box 210076 Anchorage, Alaska 99521  
 Fax: (907) 790-2664 hayden@caryhayden.com

**Juneau Douglas  
 Wastewater Treatment Plant  
 NPDES PERMIT APPLICATION  
 AK- 002321-3**

**OUTFALL DIFFUSER  
 LOCATION**

FACILITY NAME AND PERMIT NUMBER:

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Form Approved 1/14/99  
OMB Number 2040-0086

**A.11 Description of Treatment.**

a. What levels of treatment are provided? Check all that apply.

\_\_\_\_\_ Primary                            X       Secondary

\_\_\_\_\_ Advanced                      \_\_\_\_\_ Other. Describe: \_\_\_\_\_

b. Indicated the following removal rates (as applicable):

Design BOD <sub>5</sub> removal or Design CBO <sub>D</sub> removal	85.0	%
Design SS removal	85.0	%
Design P removal		%
Design N removal		%
Other		%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

~~Ultraviolet light disinfection~~

If disinfection is by chlorination, is dechlorination used for this outfall?                      \_\_\_\_\_ Yes                      \_\_\_\_\_ No

d. Does the treatment plan have post aeration?                      \_\_\_\_\_ Yes                            X       No

**A.12. Effluent Testing Information.** All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum) <u>6.0-6.5</u>	6.10	s.u.			
pH (Maximum)	6.70	s.u.			
Flow Rate	2.40	MGD	1.14	MGD	90
Temperature (Winter)	12.5	C	10.6	C	30
Temperature (Summer)	11.6	C	11.0	C	28

\*For pH please report a minimum and a maximum daily value

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		

**CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.**

BIOCHEMICAL OXYGEN DEMAND (Report one)	BOD-5	8.10	mg/l	7.93	mg/l	3	Std Met 405-1
	CBOD-5						
FECAL COLIFORM		148.00	MPN	15.64	MPN	9	Std Met 9222D
TOTAL SUSPENDED SOLIDS (TSS)		30.80	mg/l	11.30	mg/l	88	Std Met 160.2

**JUNEAU-DOUGLAS WASTEWATER TREATMENT PLANT  
 NPDES PERMIT APPLICATION AK-002321-3  
 CITY AND BOROUGH OF JUNEAU JUNE 2006**

**SUPPLEMENT TO FORM 2A, PART A, SECTION A.12**

	April		March		Feb		2006
	<i>max</i>	<i>average daily</i>	<i>max</i>	<i>average daily</i>	<i>max</i>	<i>average daily</i>	<i>average for 3 months average daily</i>
pH - min.	6.2	6.2	6.2	6.4	6.1	6.3	6.300
pH - max	6.5	6.2	6.7	6.4	6.6	6.3	6.300
Flow rate	2.212	1.206	1.563	1.0208	2.44	1.2081	1.145
Temp winter					12.5	10.6	
Temp summer	11.6						
BOD	5.7	5.7	8.1	8.1	10	10	7.933
CBOD							
Fecal col	148	36	28	8.92	5	2	15.640
TSS	30.8	13.2	21.60	9.8	24	10.9	11.300

*source of data CBJ - JDWWTP monthly EPA Report*



**SUPPLEMENT TO  
Form 2A, Section 12  
(page 7)**

**ADEC Letter**

**JUNEAU-DOUGLAS WWTP  
AK-002321-3**

# STATE OF ALASKA /

## DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF WATER

WASTEWATER DISCHARGE PROGRAM

FRANK H. MURKOWSKI, GOVERNOR

410 Willoughby Avenue, Ste 303

PO Box 111800

Juneau, AK 99811-1800

PHONE: (907) 465-5366

FAX: (907) 465-5274

<http://www.state.ak.us/dec>

June 26, 2006

Catherine Carlson, Supervisor J-D Treatment Plant  
City & Borough of Juneau  
155 South Seward St.  
Juneau, AK 99801

Re: Reduction of fecal coliform bacteria monitoring of the Juneau-Douglas  
WWTF Mixing Zone as outlined in the 401 certification of NPDES permit AK-  
0023213.

Dear Ms. Carlson:

I have reviewed the results you submitted for the fecal coliform bacteria (FC) testing performed by the Juneau-Douglas wastewater treatment facility at the edge of the authorized mixing zone. Item #8 of the 401 certification signed November 2, 2001 by ADEC allows a reduction in monitoring frequency at the outside edge of the mixing zone "The monitoring may be decreased after two years if the results indicate that discharge has not caused the State of Alaska Water Quality Standards to be exceeded outside of the mixing zone." The most stringent water quality standard for fecal coliform that must be complied with is "Based on a 5-tube decimal dilution test, the fecal coliform median MPN may not exceed 14 FC/100 ml, and not more than 10% of the samples may exceed a fecal coliform median MPN of 43 FC/100 ml." You have reported the analysis from 25 samples collected from the period of August 13, 2003 to April 12, 2006. There has only been once exceedance of the 43 FC/100 ml limit, 75 FC/100 ml on September 7, 2005, and one exceedance of the 14 FC/100 ml limit, 15 FC/100 on October 5, 2005, during this time period.

Based upon the information reviewed, ADEC approves a reduction of the minimum monitoring frequency for FC at the edge of the Juneau-Douglas WWTF mixing zone to the following:

2 samples on different calendar months during the period between July and October, 1 sample between November and June for a total of three samples per year.

Permit AK-0023213 I.C.5.a (page 10) requires both EPA and ADEC approval of a reduction in the monitoring frequency for ambient fecal coliform monitoring. A copy of this letter is being forwarded to EPA. You must receive approval from both agencies before reducing your monitoring frequency.

You can contact me at (907)465-5366, or by e-mail at Shawn\_Stokes@dec.state.ak.us, if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Shawn Stokes", with a long horizontal flourish extending to the right.

Shawn Stokes  
Environmental Program Specialist III

Cc: David Domingo, EPA/Seattle  
Joe Buck, CBJ Public Works Director  
Scott Jeffers, CBJ Wastewater Utility Superintendent  
Tim Wingerter, ADEC/Fairbanks

FACILITY NAME AND PERMIT NUMBER:

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OMB Number 2040-0086

**END OF PART A.  
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A  
YOU MUST COMPLETE**

FACILITY NAME AND PERMIT NUMBER:

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Form Approved 1/14/99 OMB Number 2040-0086

**BASIC APPLICATION INFORMATION**

**PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).**

All applicants with a design flow rate greater than or equal to 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

800,000 gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

Continuing long term program of replacement of older collector systems during street rebuilding.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

- a. The area surrounding the treatment plant, including all unit processes.
- b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- c. Each well where wastewater from the treatment plant is injected underground.
- d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
- f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g., chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor. \_\_\_\_\_ Yes  No

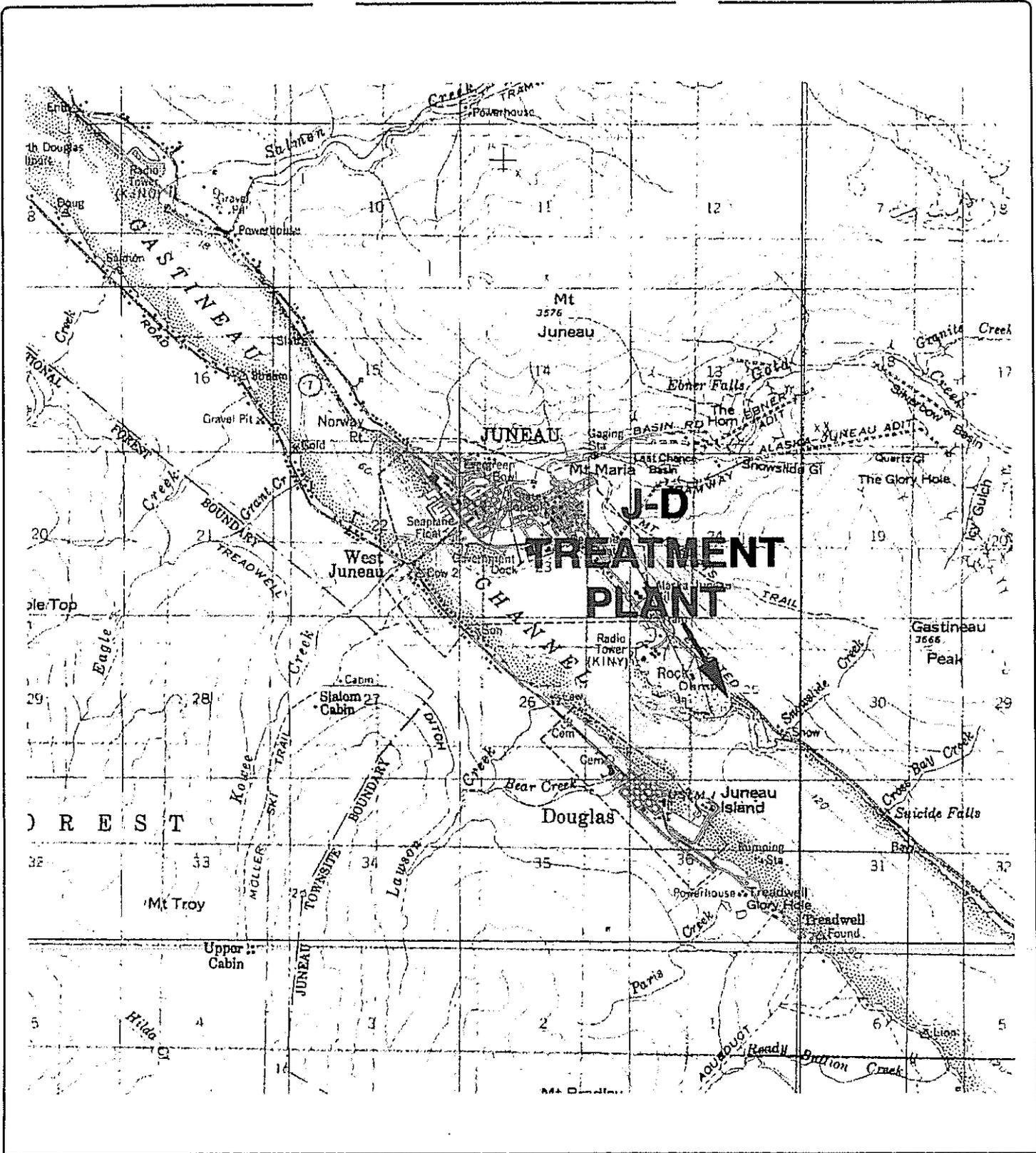
If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Responsibilities of Contractor: \_\_\_\_\_



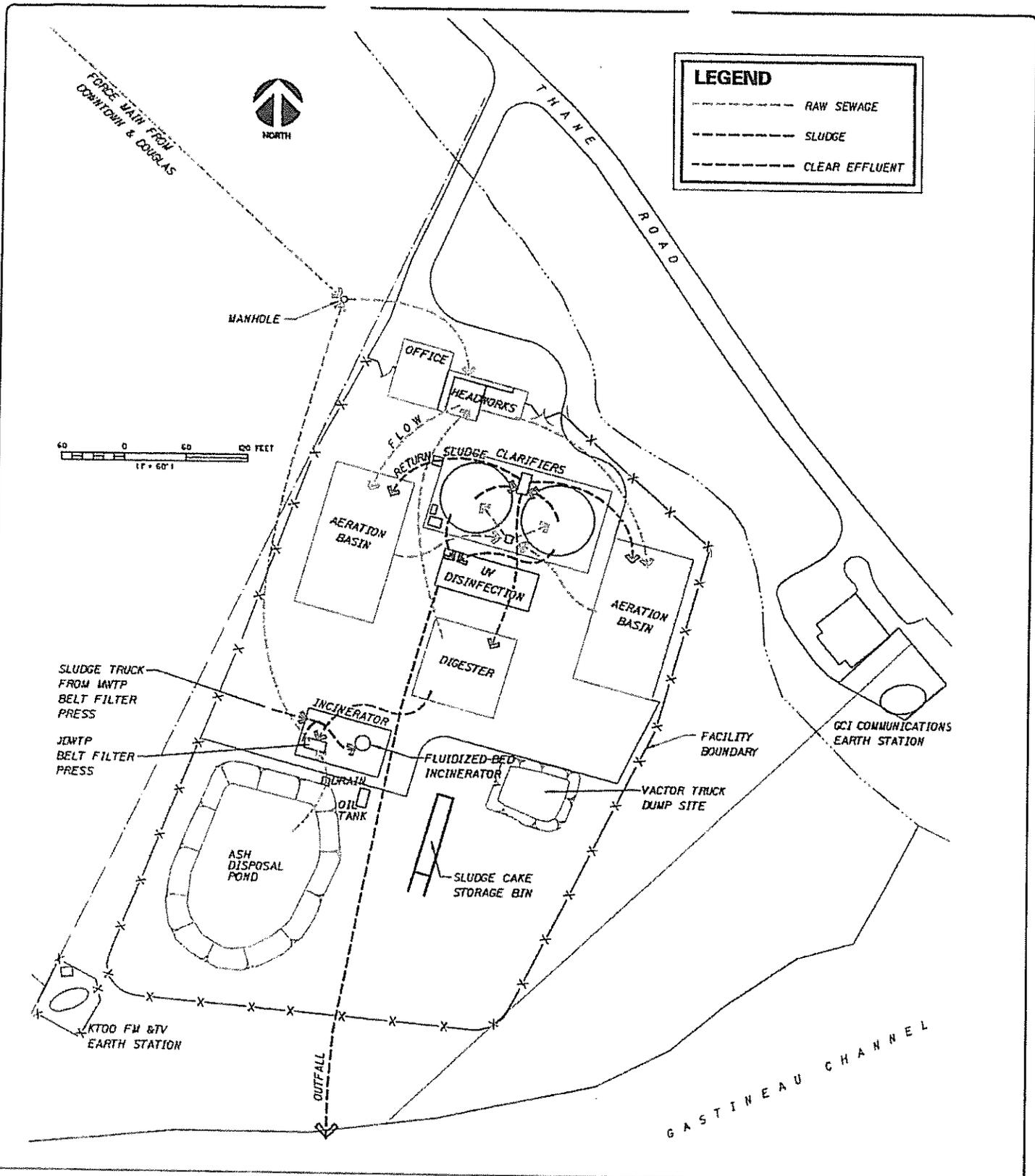
June 2006

NOT TO SCALE

EA 2 ENGINEERING ANALYSIS — APPLICATIONS  
 Cary Hayden, P.E.  
 (907) 755-7297  
 P.O. Box 210076 Anchorage, Alaska 99521  
 (907) 755-2844 caryh@kgsurvey.com

**Juneau Douglas  
 Wastewater Treatment Plant  
 NPDES PERMIT APPLICATION  
 AK- 002321-3**

**TOPO MAP**



June 2006

Source for drawing was Carson Dorn Inc. for CBJ 2005 JDTP Facility Plan

NOT TO SCALE

EA 2 ENGINEERING ANALYSIS —  
 APPLICATIONS  
 Cary Hayden, P.E.  
 (907) 784-7291

P.O. Box 210076 Anchorage, Alaska 99501  
 Fax (907) 790-2664 hayden@cjbear.com

**Juneau Douglas**  
**Wastewater Treatment Plant**  
**NPDES PERMIT APPLICATION**  
**AK- 002321-3**

**PROCESS FLOW**



**JUNEAU-DOUGLAS WASTEWATER TREATMENT PLANT  
PROCESS FLOW<sup>1</sup>  
NPDES PERMIT APPLICATION  
AK-002321-3**

*Supplement to question Form 2A, Section B.3  
June 2006*

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The JDWWTP treatment process is an activated sludge biological treatment process that is characterized by a suspension of aerobic microorganisms in wastewater. This mixture of microorganisms and wastewater is called the mixed liquor with mixing taking place in aerated basins that provide oxygen for microorganism respiration and reproduction. The microorganisms are used to convert soluble and colloidal organics to carbon dioxide and water as well as cell bodies.

The mixed liquor from the aeration basins is transferred to clarifiers for liquid/solids separation. The major portion of the microorganisms settling out in the clarifiers are returned (return activated sludge) to the aeration basins to be mixed with incoming wastewater, while the excess sludge (waste sludge) is sent to the sludge handling facilities for disposal.

Clarified effluent from the clarifiers is routed to the ultraviolet light disinfection system for inactivation of bacteria and viruses and then discharge to Gastineau Channel via a 30" diameter outfall line.

Waste sludge is pumped from the clarifiers to the aerobic digester for storage and some additional gravity thickening. From the digester the waste sludge is pumped to the belt filter press in the incinerator building where it is dewatered and then pumped to the fluidized bed sludge incinerator to be burned. Ash from the incinerator is pumped to a settling pond behind the incinerator building.

**Headworks**

*Grit Chamber* – 18 foot square (324 square feet) grit chamber; grit is swept into a grit trough by the rake arm on a drive mechanism, then grit is conveyed up an inclined ramp by a continuous chain and flight mechanism while being washed. The grit drops into a hopper for manual disposal.

*Bar Rack/comminutor* – the operators may route influent through manually cleaned bar screen to remove large debris or to the comminutor to grind the debris.

**Aeration Basins**

The plant has two 790,250 gallon aeration basins with two 30 HP low speed mechanical surface aerators to provide oxygen and mixing; the basins have structural steel covers to prevent wind blown sediment from entering the basins; they also have metal walkways to the aerators; the detention time is approximately 13.7 hours.

---

<sup>1</sup> City and Borough of Juneau Juneau Douglas Wastewater Treatment Plant Facility Plan, January 21, 2005, prepared by Carson Dorn, Inc.

### **Clarifiers**

The mixed liquor goes to two 65 foot diameters circular clarifiers to allow settling; depth approximately 10 feet; there is a sweep arm with draw off tubes for settled solids to be pumped to the aeration basins; sweep arms have a scraper for picking up solids that go to the aerobic digester and incineration; average overflow rate is 416 gpd/sf.

### **Ultraviolet Light Disinfection System**

The UV system was constructed in 2000 and has two banks of UV lights; each bank has 15 modules of 8 lamps; each bank is designed to treat an average flow of 3.5 MGD; automatic controls turn on the second bank of lamps in the event of high flows.

### **Sludge Digester**

A covered digester basin with a volume of 520,000 gallons with a steel cover serves as an aerated storage area before going into the dewatering process.

### **Sludge Incinerator and Belt Filter Press**

*Belt Filter Press* – sludge is pumped from the aerobic digester to the belt filter press; solids in the sludge is about 1.0 to 1.5% solids and the press dewateres the sludge to about 16 to 18 % solids; the press is used about 2 to 3 times per week.

*Incinerator* – The dewatered sludge from the belt filter press drops into a live bottom bin that feeds a reciprocating piston pump. The pumps send the dewatered sludge to the incinerator; the incinerator is a fluidized sand bed heated to over 1,300 degree F; ash and scrubber water is pumped to a settling pond behind the building; the incinerator operates about 14.2 hours per day.

**Ash pond** – the ash pond has been used for 14 years and has a design life of 20 years. For 2005 the discharge to this pond was approximately 2.8 million gallons.

**Sludge Storage vault** – used to store sludge during periods when the incinerator is not operational.

**CBJ Vacuum truck dump site** – adjacent to the ash pond; used at the site to receive the contents of the CBJ vacuum truck; the liquid flows to the treatment plant and is treated; there is no discharge from this pit.

**Back up power supply** – There are two back up emergency generators. One runs the UV system and the other supplies power to the secondary system except the aerators.

FACILITY NAME AND PERMIT NUMBER:

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Form Approved 1/14/99 OMB Number 2040-0086

B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate response to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

001

b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

Yes No X

c. If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM/DD/YYYY	Actual Completion MM/DD/YYYY
- Begin construction		
- End construction		
- Begin discharge		
- Attain operational level		

e. Have appropriate permits/clearance concerning other Federal/State requirements been obtained? Yes No

Describe briefly: SEE ATTACHED PAGES

**JUNEAU-DOUGLAS WASTEWATER TREATMENT PLANT  
CAPITAL IMPROVEMENT PROGRAM  
NPDES PERMIT APPLICATION  
AK-002321-3**

*Supplement to question B.5 Form 2A  
June 2006*

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The CBJ Utility department has a continuing Capital Improvement Program for the collection system and the JDWWTP. Recent and planned projects include:

- ◆ Clarifier rehabilitation and structural repair
- ◆ Improvements to the aerators and walkways in the aerator buildings
- ◆ Upgrade to aerator for the digester
- ◆ Work on the diversion structure N-1 1.2, station C at the intersection of Marine Way and South Seward Street



FACILITY NAME AND PERMIT NUMBER:

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OMB Number 2040-0085

**B.6. EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY).**

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number 001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		

**CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.**

Ammonia (as N)

Chlorine (Total Residual, TRC)

Dissolved Oxygen

Total Kjeldahl Nitrogen (TKN)

see continuation page

Nitrate plus Nitrite Nitrogen

Oil and Grease

Phosphorus (Total)

Total dissolved Solids (TDS)

**END OF PART B:**

**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.**

JUNEAU-DOUGLAS WASTEWATER TREATMENT FACILITY  
Juneau, Alaska

April 2006

EPA REPORT

DAY	DATE	WEATHER				INFLUENT						EFFLUENT							
		TEMP °F	RAIN FALL INCHES	HIGH TIDE FEET	J-D TITL EFFL MGD	S.S. mg/L	S.S. LBS	B.O.D. mg/L	B.O.D. LBS	TEMP °C	pH	D.O. mg/L	S.S. mg/L	S.S. LBS	B.O.D. mg/L	B.O.D. LBS	FECAL Coliform /100 ml	Ammonia as N mg/l /180 days	Ammonia as N lbs/day /180 days
SUN	2	41	0.01	18.0	0.9910	324	2678			11.6	6.4	6.6	9.6	79.34					
MON	3	39	0.00	16.4	0.8080	558	3760			10.9	6.4	6.4	13.6	106.16					
TUE	4	38	0.13	14.8	0.9360	420	3279			11.1	6.2	6.2	12.2	88.62			10.0		
WED	5	41	0.00	13.2	0.8710	208	1511			11.6	6.0	5.7	14.0	110.34					
THU	6	39	0.19	12.3	0.9450	264	2081			11.0	6.0	5.8							
FRI	7	42	0.01	12.5	0.8840														
SAT	8	41	0.01	13.5	0.8910														
SUN	9	40	0.13	13.9	1.0760	292	2620			11.5	6.0	5.8	13.6	122.04					
MON	10	40	0.04	14.7	0.9230	284	2186			11.6	6.0	5.7	13.6	84.68					
TUE	11	38	0.07	15.5	0.9950	270	2241			11.6	6.0	7.2	11.4	142.99			11.0		
WED	12	35	0.25	16.3	1.5040	208	2609			11.3	6.3	6.9	14.8	169.72					
THU	13	38	0.41	16.8	1.3750	188	2156			10.4	6.1	6.3							
FRI	14	37	0.01	17.2	1.0500														
SAT	15	36	0.00	17.2	0.9550														
SUN	16	38	0.03	17.1	0.9590	324	2591						8.0	63.98					
MON	17	39	0.37	16.7	1.3970	232	2703			10.5	6.4	6.8	7.6	88.55					
TUE	18	36	0.37	16.1	1.1080	146	1349			10.2	6.2	6.4	7.6	70.23					
WED	19	37	0.05	15.3	1.1120	196	1818			10.1	6.2	6.7	12.6	116.85			148.0		
THU	20	39	0.10	14.3	0.9620	198	1589			10.8	6.2	6.2	30.8	247.11					
FRI	21	42	0.00	13.6	0.9990					11.4	6.4	5.6							
SAT	22	40	1.01	13.8	2.2120														
SUN	23	41	0.47	15.4	1.8510	116	1791						15.2	234.65					
MON	24	41	0.50	17.0	1.9520	120	1954			11.0	6.5	7.0	17.2	280.01					
TUE	25	40	0.03	16.2	1.3220	182	2007	143	1575	10.0	6.2	6.6	12.4	136.72	5.7	63			
WED	26	40	0.03	18.3	1.3150	236	2588			11.1	6.3	5.7	13.2	144.77			98.0		
THU	27	43	0.53	19.2	1.6330	248	3378			11.2	6.3	6.1	14.4	196.12					
FRI	28	39	0.13	19.5	1.2050					11.0	6.4	6.0							
SAT	29	38	0.16	19.2	1.5470														
TOTAL			5.04		33.7680														
MAXIMUM		43	1.01	19.5	2.2120	558	3760	143	1575	11.6	6.5	7.2	30.8	280.01	5.75	63	148	N/A	N/A
MINIMUM		35	0.00	12.3	0.8080	116	1349	143	1575	10.0	6.0	5.6	7.6	63.98	5.75	63	10	N/A	N/A
AVERAGE		39	0.180	15.9	1.2060	251	2344	143	1575	11.0	6.2	6.3	13.2	133.49	5.75	63	36	N/A	N/A

Weekly	TSS			BOD			Weekly Coliform Geo. Mean
	mg/l	lbs	mg/l	mg/l	lbs	lbs	
WEEK1	12	92					10
WEEK2	13	126					11
WEEK3	13	117					148
WEEK4	14	198	6	6	63	63	98
MAX	14	198	6	6	63	63	148

Weekly	TSS	BOD	Coliform
Aver.	mg/l	mg/l	Geo. Mean
WEEK1	12	92	10
WEEK2	13	126	11
WEEK3	13	117	148
WEEK4	14	198	98
MAX	14	198	148

% REMOVAL	
B.O.D.	96
S.S.	95

Copper	N/A	ug/L
NH3	N/A	mg/L
NH3	N/A	lbs

JUNEAU DOUGLAS WASTEWATER TREATMENT PLANT  
NPDES PERMIT APPLICATION AK-002331-3  
CITY AND BOROUGH OF JUNEAU JUNE 2006

SUPPLEMENT TO SECTION B.6, FORM 2A, PART A

FACILITY NAME AND PERMIT NUMBER:

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Form Approved 1/14/99  
OMB Number 2040-0086

### BASIC APPLICATION INFORMATION

#### PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to Instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

X  Basic Application Information Packet

Supplemental Application Information packet:

X  Part D (Expanded Effluent Testing Data)

X  Part E (Toxicity Testing: Biomonitoring Data)

Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

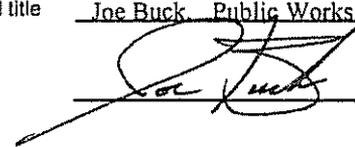
X  Part G (Combined Sewer Systems)

#### ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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 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.

Name and official title  Joe Buck, Public Works Director

Signature



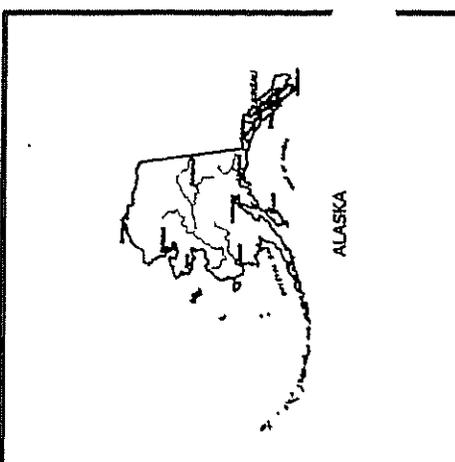
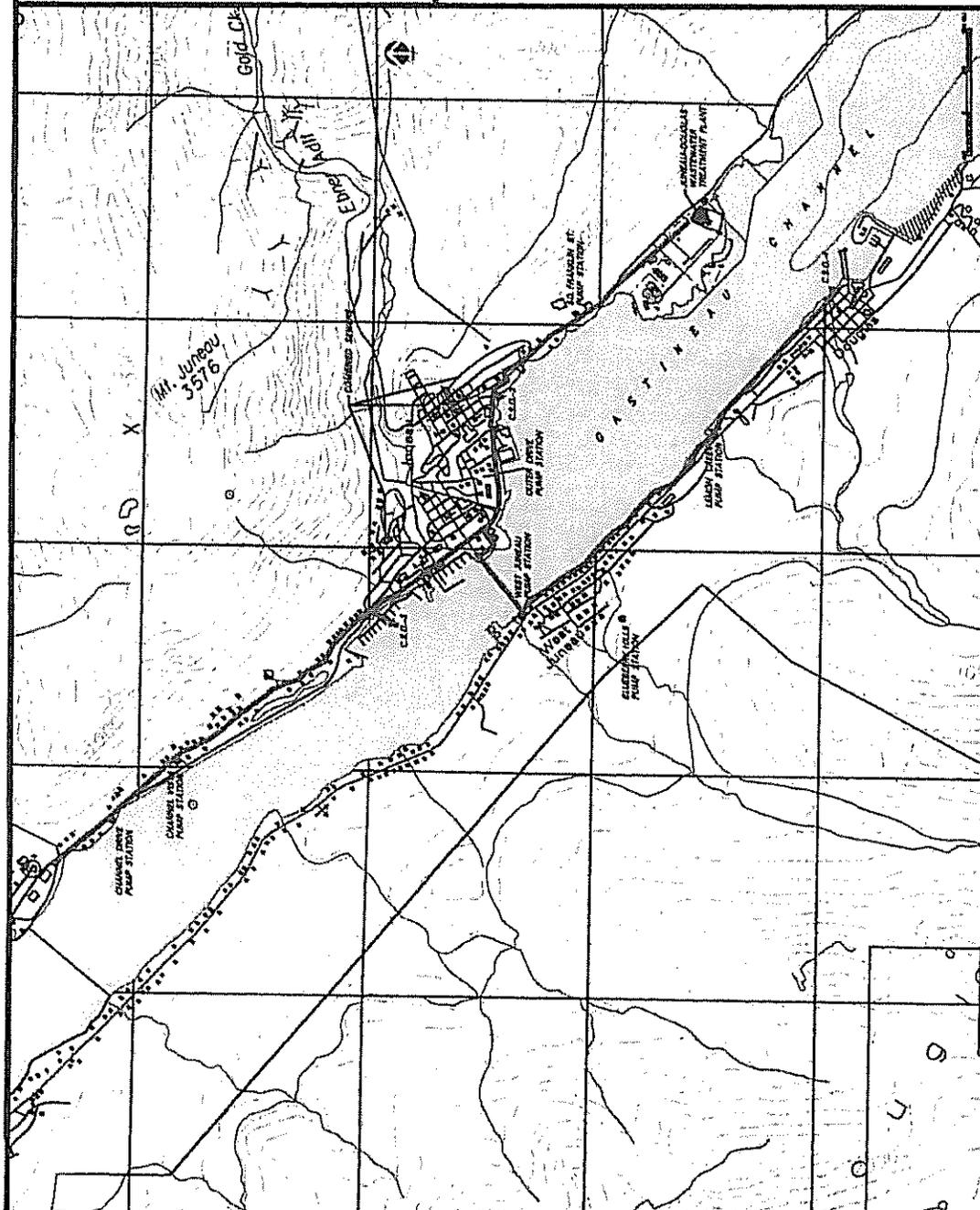
Telephone number  9075865254

Date signed

6/28/06

Upon request of the permitting authority you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

**SEND COMPLETE FORMS TO:**

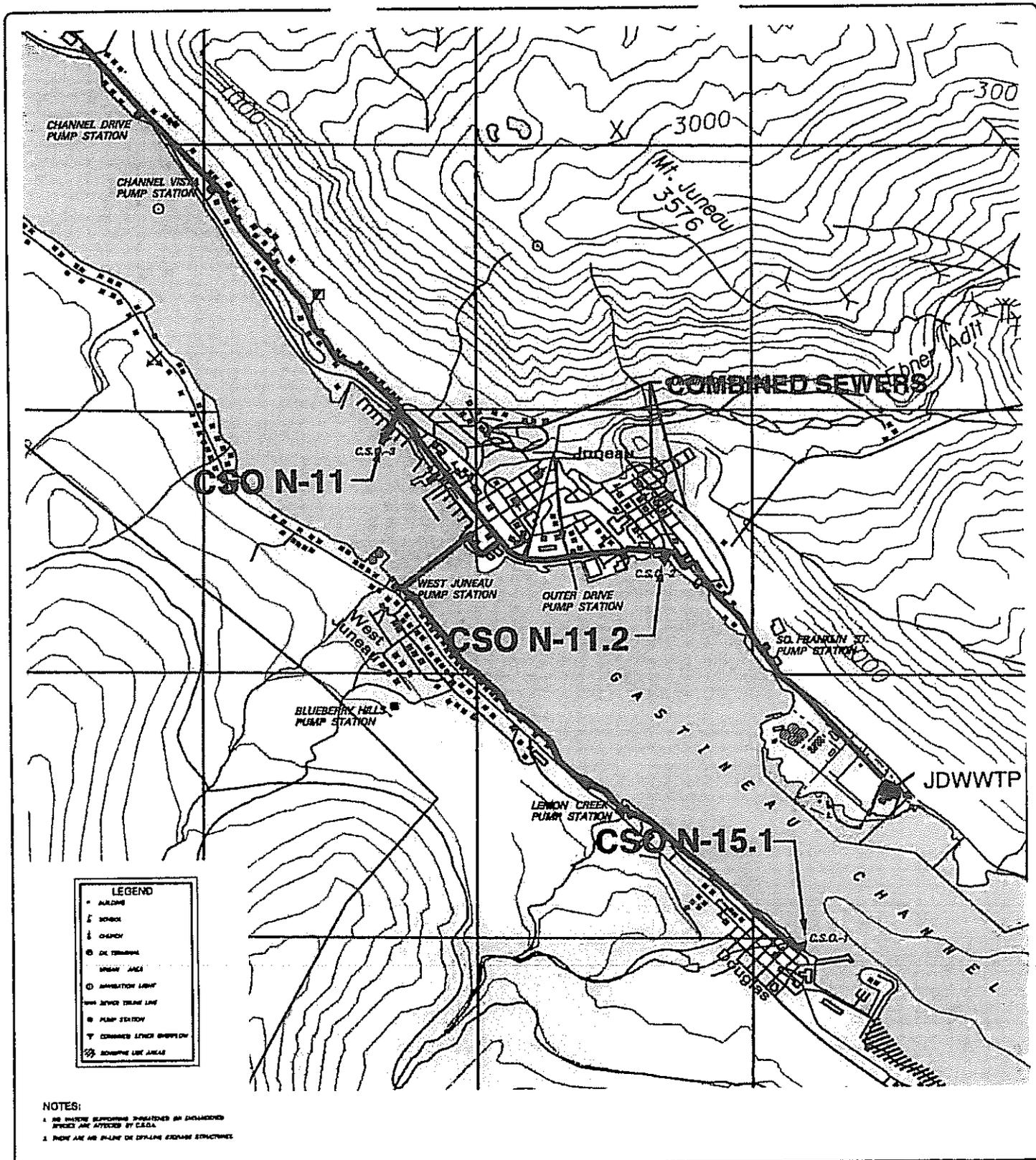


ALASKA

LEGEND	
[Symbol]	BUILDING
[Symbol]	POWER
[Symbol]	CORNER
[Symbol]	CR TRENCH
[Symbol]	LINEAR AREA
[Symbol]	IMMEDIATE LIGHT
[Symbol]	SEWER TRUNK LINE
[Symbol]	PUMP STATION
[Symbol]	CHUNKED SEWER OVERFLOW
[Symbol]	SEWER USE AREA

NOTES:  
 1. NO MATERIALS SHOWN ON INCORPORATED  
 2. STOPS ARE SHOWN BY CIRCLES  
 3. THERE ARE NO IN-LINE OR OFF-LINE STORAGE STRUCTURES

DATE	1	SHEET NO.	41
PROJECT	J-D WASTEWATER TREATMENT PLANT SYSTEM MAP AND DIAGRAM		
DESIGNER	Carson Dom Inc.	CITY AND BOROUGH OF JUNEAU SEWER SYSTEM MENDENHALL EVALUATION	 1000 10th Street Anchorage, Alaska 99501
DATE	03/01/08		
SCALE	AS SHOWN	 CITY OF JUNEAU JUNEAU, ALASKA	10' = 1"
DATE	03/01/08		
SCALE	AS SHOWN	10' = 1"	10' = 1"
DATE	03/01/08		



June 2006 Source for drawing was Carson Dom Inc. for CBJ 5/26/06 Sewer System Mendenhall Evaluatin **NOT TO SCALE**

**EA 2** ENGINEERING ANALYSIS —  
**APPLICATIONS**  
 Cary Hayden, P.E.  
 (907) 324-7291

P.O. Box 110076  
 Fair (907) 790-3444

Anchorage, Alaska 99521  
 caryhayden@eaac.com

**Juneau-Douglas**  
**Wastewater Treatment Plant**  
**NPDES PERMIT APPLICATION**  
**AK- 002321-3**

**COMBINED SEWERS**

FACILITY NAME AND PERMIT NUMBER: \_\_\_\_\_

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Form Approved 1/14/99  
OMB Number 2040-0086

# SUPPLEMENTAL APPLICATION INFORMATION

## PART G. COMBINED SEWER SYSTEMS

If the treatment works has a combined sewer system, complete Part G.

- G.1. System Map. Provide a map indicating the following: (may be included with Basic Application Information)
- a. All CSO discharge points.
  - b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).
  - c. Waters that support threatened and endangered species potentially affected by CSOs.
- G.2. System Design. Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:
- a. Locations of major sewer trunk lines, both combined and separate sanitary.
  - b. Locations of points where separate sanitary sewers feed into the combined sewer system.
  - c. Locations of in-line and off-line storage structures.
  - d. Locations of flow-regulating devices.
  - e. Locations of pump stations.

### CSO OUTFALLS:

Complete questions G.3 through G.6 once for each CSO discharge point.

G.3. Description of Outfall.

a. Outfall number N-11 (High School)

b. Location Juneau 99801  
(City or town, if applicable) (Zip Code)

CBJ AK  
(County) (State)

58°18'20.662" N 134°25'47.625" W  
(Latitude) (Longitude)

c. Distance from shore (if applicable) 75 ft.

d. Depth below surface (if applicable) 9 ft.

e. Which of the following were monitored during the last year for this CSO?

       Rainfall        X CSO pollutant concentrations        X CSO frequency

       CSO flow volume        X Receiving water quality

f. How many storm events were monitored during the last year?        0

G.4. CSO Events.

a. Give the number of CSO events in the last year.

       0 events (        X ) actual or (        ) approx.

FACILITY NAME AND PERMIT NUMBER:

This permit application was electronically generated by P.A.S.S.

Form Approved 1/14/99  
OMB Number 2040-0086

b. Give the average duration per CSO event.

0 hours (  ) actual or (  ) approx.

c. Give the average volume per CSO event.

0.00 million gallons (  ) actual or (  ) approx.

d. Give the minimum rainfall that caused a CSO event in the last year.

0.00 inches of rainfall

**G.5. Description of Receiving Waters.**

a. Name of receiving water: Gastineau Channel

b. Name of watershed/river/stream system \_\_\_\_\_

United States Soil Conservation Service 14-digit watershed code (if known): \_\_\_\_\_

c. Name of State Management/River Basin: \_\_\_\_\_

United States Geological Survey 8-digit hydrologic cataloguing unit code (if known): \_\_\_\_\_

**G.6. CSO Operations.**

Describe any known water quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

**G.3. Description of Outfall.**

- a. Outfall number N-11.2 (City Hall)
- b. Location Juneau 99801  
(City or town, if applicable) (Zip Code)  
CBJ AK  
(County) (State)  
58° 17' 58.37" N 134° 24' 23.95" W  
(Latitude) (Longitude)
- c. Distance from shore (if applicable) 75 ft.
- d. Depth below surface (if applicable) 7 ft.
- e. Which of the following were monitored during the last year for this CSO?  
 Rainfall       CSO pollutant concentrations       CSO frequency  
 CSO flow volume       Receiving water quality
- f. How many storm events were monitored during the last year? 1

**G.4. CSO Events.**

- a. Give the number of CSO events in the last year.  
1 events (  ) actual or (  ) approx.
- b. Give the average duration per CSO event.  
58 hours (  ) actual or (  ) approx.
- c. Give the average volume per CSO event.  
0.76 million gallons (  ) actual or (  ) approx.
- d. Give the minimum rainfall that caused a CSO event in the last year.  
0.50 inches of rainfall

**G.5. Description of Receiving Waters.**

- a. Name of receiving water: Gastineau Channel
- b. Name of watershed/river/stream system \_\_\_\_\_  
United States Soil Conservation Service 14-digit watershed code (if known): \_\_\_\_\_
- c. Name of State Management/River Basin: \_\_\_\_\_  
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): \_\_\_\_\_

**G.6. CSO Operations.**

FACILITY NAME AND PERMIT NUMBER:

This permit application was electronically generated by P.A.S.S.

Form Approved 1/14/99  
OMB Number 2040-0086

Describe any known water quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

FACILITY NAME AND PERMIT NUMBER: \_\_\_\_\_

This permit application was electronically generated by P.A.S.S.

Form Approved 1/14/99  
OMB Number 2040-0086

G.3. Description of Outfall.

a. Outfall number N-15.1 (Douglas)

b. Location Juneau 99801  
(City or town, if applicable) (Zip Code)

CBJ AK  
(County) (State)

58° 16' 37.9" N 58° 16' 37.9" W  
(Latitude) (Longitude)

c. Distance from shore (if applicable) 200 ft.

d. Depth below surface (if applicable) 5 ft.

e. Which of the following were monitored during the last year for this CSO?

       Rainfall   X   CSO pollutant concentrations   X   CSO frequency

       CSO flow volume   X   Receiving water quality

f. How many storm events were monitored during the last year? 0

G.4. CSO Events.

a. Give the number of CSO events in the last year.

0 events (   X   ) actual or (        ) approx.

b. Give the average duration per CSO event.

0 hours (   X   ) actual or (        ) approx.

c. Give the average volume per CSO event.

0.00 million gallons (   X   ) actual or (        ) approx.

d. Give the minimum rainfall that caused a CSO event in the last year.

0.00 inches of rainfall

G.5. Description of Receiving Waters.

a. Name of receiving water: Gastineau Channel

b. Name of watershed/river/stream system \_\_\_\_\_

United States Soil Conservation Service 14-digit watershed code (if known): \_\_\_\_\_

c. Name of State Management/River Basin: \_\_\_\_\_

United States Geological Survey 8-digit hydrologic cataloguing unit code (if known): \_\_\_\_\_

G.6. CSO Operations.

FACILITY NAME AND PERMIT NUMBER:

This permit applica. .n was  
electronically generated by P.A.S.S.

Form Approved 1/14/99  
OMB Number 2040-0086

Describe any known water quality impacts on the receiving water caused by this CSO (e.g. permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

**END OF PART G.  
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A  
YOU MUST COMPLETE**

**APPENDIX  
PART D  
EXPENDED EFFLUENT  
TESTING DATA**

**JUNEAU-DOUGLAS WWTP  
AK-002321-3**



Analytica Alaska, Inc. - Juneau  
5438 Shaune Drive  
Juneau, AK 99801  
Phone: 907-780-6668

---

3/22/2006

CBJ Juneau Douglas WWTP  
1540 Thane Rd.  
Juneau, AK 99801  
Attn: Catherine Carlson

Work Order #: J0603012  
Date: 3/22/2006  
Work ID: Priority Pollutants  
Date Received: 3/2/2006

**JDTP Priority Pollutants Sample Identification**

<u>Lab Sample Number</u>	<u>Client Description</u>	<u>Lab Sample Number</u>	<u>Client Description</u>
J0603012-01	J-D Final Effluent (24hr Compsit	J0603012-02	Trip Blanks

Enclosed are the analytical results, in summary format, for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues.

Sincerely,



Robin Jung  
Project Manager

## Case Narrative

*Analytica Alaska Southeast  
Work Order: J0603012*

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 4, December 1996.

Standard Methods for the Examination of Water and Wastewater, 19th Edition, 1995.

### SAMPLE RECEIPT:

Two (2) sample were received at a temperature of 6.3°C at Analytica-Juneau on 3/2/2006 12:05:00 PM. The samples were received in good condition and in order per chain of custody.

The samples were transferred for various analyses at Analytica Environmental Laboratories (AEL); 12189 Pennsylvania St. Thornton, CO 80241 where they were received at a temperature of 4.7°C in good condition and in order per chain of custody on 3/8/2006.

### REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: 130.2 - Hardness, Total Titrimetric, EDTA - (Hd) - Aqueous

Test Method: 200.8 - Metals by ICP/MS - Total/TR - Aqueous

Test Method: 245.1 - Mercury by CVAA - Total Recoverable Hg - Aqueous

Test Method: 420.1 - Phenolics Manual 4-AAP with Distillation - Phenols - Aqueous

Test Method: SM4500-CNE - Cyanide, Colorimetric Method - Total CN - Aqueous

Test Method: SW8260B - VOCs by GC/MS - Aqueous

### HOLDING TIMES:

Holding times were met for this Test

### SAMPLE PREPARATION ISSUES AND OBSERVATIONS:

There were no unusual observations.

### INSTRUMENT PERFORMANCE CHECKS:

Instrument checks were within method criteria.

### INITIAL CALIBRATIONS:

Initial calibrations were within method criteria.

### OPENING CONTINUING CALIBRATIONS:

A couple of the targets show %D values greater than 20% in the opening CCV shown below. The CCC's and the SPCC's are in

## Case Narrative

Analytica Alaska Southeast

Work Order: J0603012

(continued)

control. The average %D in the CCV is less than 15%. Thus this CCV meets criteria.

RunDate	Data File	Analyte	Recovery	LCL	UCL
3/9/2006 5:55:00 PM	06030802.D	Bromoform		125.80	120
3/9/2006 5:55:00 PM	06030802.D	Methylene Chloride		72.980	120

### CLOSING CONTINUING CALIBRATIONS:

The closing CCV, as is typical, has more analytes out of the 20% window than does the opening CCV. SW-846 does not require that closing CCVs meet criteria for internal standard analytical methods such as these. The calibration standard information is included to indicate the degree of analytical system degradation caused by the analysis of the samples. There are no negative consequences for data usability.

RunDate	Data File	Analyte	Recovery	LCL	UCL
3/9/2006 11:44:00 PM	06030813.D	1,2,3-Trichlorobenzene		53.880	120
3/9/2006 11:44:00 PM	06030813.D	1,2-Dibromo-3-Chloropropane		65.380	120
3/9/2006 11:44:00 PM	06030813.D	2,2-Dichloropropane		78.980	120
3/9/2006 11:44:00 PM	06030813.D	2-Hexanone		70.680	120
3/9/2006 11:44:00 PM	06030813.D	4-Isopropyltoluene		124.80	120
3/9/2006 11:44:00 PM	06030813.D	4-Methyl-2-Pentanone		75.280	120
3/9/2006 11:44:00 PM	06030813.D	Acetone		73.180	120
3/9/2006 11:44:00 PM	06030813.D	Acrylonitrile		77.580	120
3/9/2006 11:44:00 PM	06030813.D	Methylene Chloride		72.880	120
3/9/2006 11:44:00 PM	06030813.D	Naphthalene		61.380	120
3/9/2006 11:44:00 PM	06030813.D	tert-Butylbenzene		120.80	120
3/9/2006 11:44:00 PM	06030813.D	trans-1,4-Dichloro-2 Buten		78.580	120
3/9/2006 11:44:00 PM	06030813.D	Vinyl Acetate		64.780	120

### INTERNAL STANDARD AREAS:

There were no Internal Standard outliers.

### SURROGATE RECOVERIES:

There were no surrogate outliers.

### METHOD BLANK OUTLIERS:

There are no method blank outliers.

### LCS OUTLIERS:

The LCS shown below has one of the targets slightly outside of control windows.

Type	BatchNumber	Analyte	Recovery	LCL	UCL	Status
LCS	T060313015	trans-1,2-Dichloroethene	75.976	123		Complete

### MS/MSD and DUP OUTLIERS:

There are no MS/MSD or DUP outliers.

Test Method: SW8270C - Semivolatile Organics by GC/MS - Std - Aqueous

### HOLDING TIMES:

Holding times were met for this Test

### SAMPLE PREPARATION ISSUES AND OBSERVATIONS:

Insufficient sample was provided to perform a matrix spike and matrix spike duplicate. The laboratory prepared an LCS/LCSD

## Case Narrative

Analytica Alaska Southeast

Work Order: J0603012

(continued)

3/14/2006 6:47:00 PM	06031411.D	Dibenzofuran	138. 80 120
3/14/2006 6:47:00 PM	06031411.D	Diethylphthalate	167. 80 120
3/14/2006 6:47:00 PM	06031411.D	Dimethylphthalate	123. 80 120
3/14/2006 6:47:00 PM	06031411.D	Fluoranthene	-C 165. 80 120
3/14/2006 6:47:00 PM	06031411.D	Fluorene	154. 80 120
3/14/2006 6:47:00 PM	06031411.D	Hexachlorobenzene	120. 80 120
3/14/2006 6:47:00 PM	06031411.D	Hexachlorobutadiene	-C 147. 80 120
3/14/2006 6:47:00 PM	06031411.D	Hexachlorocyclopentadiene	143. 80 120
3/14/2006 6:47:00 PM	06031411.D	Hexachloroethane	169. 80 120
3/14/2006 6:47:00 PM	06031411.D	N-Nitroso-Di-N-Propylamine	130. 80 120
3/14/2006 6:47:00 PM	06031411.D	N-Nitrosodiphenylamine	-C 67.3 80 120
3/14/2006 6:47:00 PM	06031411.D	Naphthalene	134. 80 120
3/14/2006 6:47:00 PM	06031411.D	Pentachlorophenol	-C 148. 80 120
3/14/2006 6:47:00 PM	06031411.D	Phenanthrene	136. 80 120

### INTERNAL STANDARD AREAS:

There were no Internal Standard outliers.

### SURROGATE RECOVERIES:

The sample shown below has one surrogate outside of control windows. This result was confirmed by reanalysis. Data is not qualified if only one base-neutral or one acid surrogate is outside of control windows as long as the recovery is greater than ten percent. These samples meet this criteria. The LCS, and method blank do not show this effect and this is considered likely to be due to sample matrix.

Sample	LabID	Surrogate	Recovery	LCL	UCL	Status
J-D Final Efflu	J0603012-01C	D14-Terphenyl	12.	33	141	Complete
J-D Final Efflu	J0603012-01C	D14-Terphenyl	12.	33	141	Run

### METHOD BLANK OUTLIERS:

There are no method blank outliers.

### LCS OUTLIERS:

The LCS and LCSD shown below have a few of the targets outside of control windows.

Type	BatchNumber	Analyte	Recovery	LCL	UCL	Status
LCS	T060309015	Phenol	59.0	60	140	Complete
LCS	T060309015	Bis(2-chloroisopropyl) ether	57.1	60	140	Complete
LCS	T060309015	Benzoic Acid	139.	5	110	Complete
LCS	T060309015	4-Nitrophenol	179.	14	122	Complete
LCS	T060309015	4-Nitroaniline	118.	46	100	Complete
LCSD	T060309015	Phenol	56.6	60	140	Complete
LCSD	T060309015	Bis(2-chloroisopropyl) ether	57.8	60	140	Complete
LCSD	T060309015	Hexachloroethane	57.0	60	140	Complete
LCSD	T060309015	Benzoic Acid	133.	5	110	Complete
LCSD	T060309015	4-Nitrophenol	159.	14	122	Complete
LCSD	T060309015	4-Nitroaniline	127.	46	100	Complete
LCSD	T060309015	Bis(2-ethylhexyl)phthalate	125.	56	125	Complete
LCSD	T060309015	Di-n-Octylphthalate	150.	60	140	Complete

# Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Compsite)**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
1,1,1,2-Tetrachloroethane	<0.17	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1,1-Trichloroethane	<0.33	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1,2,2-Tetrachloroethane	<0.15	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1,2-Trichloroethane	<0.21	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethane	<0.21	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethene	<0.29	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1-Dichloropropene	<0.17	2.5	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichlorobenzene	<0.25	2.8	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichloropropane	<0.46	2.5	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,4-Trichlorobenzene	<0.27	2.7	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,4-Trimethylbenzene	<0.21	2.7	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dibromo-3-Chloropropane	<0.20	10	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dibromooethane	<0.13	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dichlorobenzene	<0.17	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dichloroethane	<0.20	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dichloropropane	<0.24	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,3,5-Trimethylbenzene	<0.20	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,3-Dichlorobenzene	<0.17	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,3-Dichloropropane	<0.17	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,4-Dichlorobenzene	0.16	2.0	ug/L	3/9/06 21:08	J	mbi	SW8260B - VOCs by GC/MS
2,2-Dichloropropane	<0.25	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Butanone	<0.55	50	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Chloroethyl Vinyl Ether	<0.23	10	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Chlorotoluene	<0.19	2.1	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Hexanone	<0.26	20	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
4-Chlorotoluene	<0.15	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
4-Isopropyltoluene	<0.11	2.8	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
4-Methyl-2-Pentanone	<0.13	20	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Acetone	<0.73	50	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Acrylonitrile	<0.50	10	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Benzene	<0.15	1.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromobenzene	<0.22	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromochloromethane	<0.34	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromodichloromethane	<0.16	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromoform	<0.15	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromomethane	<0.62	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Carbon Disulfide	<0.24	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Carbon Tetrachloride	<0.22	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chlorobenzene	<0.099	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chloroethane	<0.53	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chloroform	0.40	2.0	ug/L	3/9/06 21:08	J	mbi	SW8260B - VOCs by GC/MS
Chloromethane	<0.14	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Cis-1,2-Dichloroethene	<0.33	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Compsite)**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

<u>Analyte</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Analysis Date</u>	<u>Flags</u>	<u>Analyst</u>	<u>Method</u>
Cis-1,3-Dichloropropene	<0.13	2.3	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Dibromochloromethane	<0.24	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Dibromomethane	<0.21	2.2	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Dichlorodifluoromethane	<0.16	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Ethylbenzene	<0.082	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Hexachlorobutadiene	<0.50	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Iodomethane	<0.33	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Isopropylbenzene	<0.19	2.6	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
m&p Xylenes	<0.27	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Methylene Chloride	<0.35	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
n-Butylbenzene	<0.25	2.7	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
n-Propylbenzene	<0.17	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Naphthalene	<0.16	2.7	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
O-Xylene	<0.14	2.3	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
sec-Butylbenzene	<0.33	2.2	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Styrene	0.26	2.3	ug/L	3/9/06 21:08	J	mbi	SW8260B - VOCs by GC/MS
tert-Butyl Methyl Ether	<0.23	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
tert-Butylbenzene	<0.24	3.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Tetrachloroethene	<0.28	2.4	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Toluene	<0.085	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
trans-1,2-Dichloroethene	<0.48	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
trans-1,3-Dichloropropene	<0.29	2.1	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
trans-1,4-Dichloro-2 Buten	<0.45	10	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Trichloroethene	<0.16	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Trichlorofluoromethane	<0.23	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Trichlorotrifluoroethane	<0.28	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Vinyl Acetate	<0.21	5.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
Vinyl Chloride	<0.36	2.0	ug/L	3/9/06 21:08	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,4-Trichlorobenzene	<0.57	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
1,2-Dichlorobenzene	<0.62	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
1,3-Dichlorobenzene	<0.52	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4,5-Trichlorophenol	<0.53	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4,6-Trichlorophenol	<0.34	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dichlorophenol	<0.42	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dimethylphenol	<1.3	26	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dinitrophenol	<28	110	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dinitrotoluene	<0.35	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Compsite)**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

Analyte	Result	POL	Units	Analysis Date	Flags	Analyst	Method
2,6-Dinitrotoluene	<0.40	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Chloronaphthalene	<0.46	11	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Chlorophenol	<0.38	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Methylnaphthalene	<0.57	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Methylphenol	<0.55	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Nitroaniline	<0.31	110	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Nitrophenol	<0.34	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
3&4-Methylphenol	<0.61	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
3,3'-Dichlorobenzidine	<0.52	21	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
3-Nitroaniline	<0.76	53	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4,6-Dinitro-2-Methylphenol	<0.084	26	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Bromophenyl-Phenylether	<0.45	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chloro-3-Methylphenol	<0.41	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chloroaniline	<0.68	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chlorophenyl methylsulfone	<0.48	21	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chlorophenyl-Phenylether	<0.52	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Nitroaniline	<0.33	53	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Nitrophenol	<0.31	110	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Accenaphthene	<0.47	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Acenaphthylene	<0.54	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Anthracene	<0.46	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzdine	<5.9	210	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(a)anthracene	<0.35	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(a)pyrene	<0.27	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Compsite)**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

Analyte	Result	POL	Units	Analysis Date	Flags	Analyst	Method
Benzo(b)fluoranthene	<0.30	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(g,h,i)perylene	<0.41	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(k)fluoranthene	<0.40	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzoic Acid	<0.31	140	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzyl Alcohol	<0.40	11	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis (2-Chloroethoxy) Methane	<0.50	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis (2-chloroisopropyl) ether	<0.48	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis(2-Chloroethyl) Ether	<1.1	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis(2-ethylhexyl)phthalate	<0.49	2.6	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Butylbenzylphthalate	<0.55	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Chrysene	<0.21	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Di-n-Butylphthalate	<1.1	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Di-n-Octylphthalate	<0.54	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dibenzo(a,h)anthracene	<0.35	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dibenzofuran	<0.51	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Diethylphthalate	<0.41	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dimethylphthalate	<0.38	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Fluoranthene	<0.53	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Fluorene	<0.50	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorobenzene	<0.43	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorobutadiene	<0.58	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorocyclopentadiene	<0.29	11	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachloroethane	<0.48	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Indeno(1,2,3-cd)pyrene	<0.24	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std

Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Compsite)**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

Analyte	Result	POL	Units	Analysis Date	Flags	Analyst	Method
Isophorone	<0.43	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
N-Nitroso-Di-N-Propylamine	<0.44	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
N-Nitrosodiphenylamine	<0.93	11	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Naphthalene	<0.65	11	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Nitrobenzene	<0.50	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Pentachlorophenol	<0.26	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenanthrene	<0.46	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenol	<0.33	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Pyrene	<0.42	5.3	ug/L	3/14/06 16:23	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenols, Total Recoverable	<0.061	0.061	mg/L	3/16/06 11:55		k wheele	420.1 - Phenolics Manual 4-AAP with Distillation - Phenols
Hardness, Total	1,040	50	mg/L	3/7/06 14:30		lc	130.2 - Hardness, Total Titrimetric, EDTA - (Hd)
Cyanide	<0.0040	0.0040	mg/L	3/8/06 11:17		k wheele	SM4500-CNE - Cyanide, Colorimetric Method - Total CN
Antimony	<1.0	1.0	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Arsenic	15.3	1.5	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Beryllium	<1.5	1.5	ug/L	3/16/06 13:56		MC	200.8 - Metals by ICP/MS - Total/TR
Cadmium	<2.0	2.0	ug/L	3/16/06 13:56		MC	200.8 - Metals by ICP/MS - Total/TR
Chromium	7.43	1.5	ug/L	3/16/06 13:56		MC	200.8 - Metals by ICP/MS - Total/TR
Copper	32.6	1.0	ug/L	3/16/06 13:56		MC	200.8 - Metals by ICP/MS - Total/TR
Lead	<1.0	1.0	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Nickel	5.73	1.5	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Selenium	64.0	5.0	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Silver	<1.0	1.0	ug/L	3/16/06 13:56		MC	200.8 - Metals by ICP/MS - Total/TR
Thallium	<0.50	0.50	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Zinc	66.2	2.5	ug/L	3/15/06 17:24		MCG	200.8 - Metals by ICP/MS - Total/TR
Mercury	<0.00020	0.00020	mg/L	3/8/06 15:00		LJK	245.1 - Mercury by CVAA - Total Recoverable Hg

# Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **Trip Blanks**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

Analyte	Result	POL	Units	Analysis Date	Flags	Analyst	Method
1,1,1,2-Tetrachloroethane	<0.17	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1,1-Trichloroethane	<0.33	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1,2,2-Tetrachloroethane	<0.15	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1,2-Trichloroethane	<0.21	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethane	<0.21	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethene	<0.29	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,1-Dichloropropene	<0.17	2.5	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichlorobenzene	<0.25	2.8	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichloropropane	<0.46	2.5	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,4-Trichlorobenzene	<0.27	2.7	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2,4-Trimethylbenzene	<0.21	2.7	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dibromo-3-Chloropropane	<0.20	10	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dibromoethane	<0.13	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dichlorobenzene	<0.17	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dichloroethane	<0.20	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,2-Dichloropropane	<0.24	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,3,5-Trimethylbenzene	<0.20	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,3-Dichlorobenzene	<0.17	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,3-Dichloropropane	<0.17	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
1,4-Dichlorobenzene	<0.15	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
2,2-Dichloropropane	<0.25	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Butanone	<0.55	50	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Chloroethyl Vinyl Ether	<0.23	10	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Chlorotoluene	<0.19	2.1	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
2-Hexanone	<0.26	20	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
4-Chlorotoluene	<0.15	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
4-Isopropyltoluene	<0.11	2.8	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
4-Methyl-2-Pentanone	<0.13	20	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Acetone	3.7	50	ug/L	3/9/06 20:37	J	mbi	SW8260B - VOCs by GC/MS
Acrylonitrile	<0.50	10	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Benzene	<0.15	1.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromobenzene	<0.22	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromochloromethane	<0.34	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromodichloromethane	<0.16	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromoform	<0.15	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Bromomethane	<0.62	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Carbon Disulfide	<0.24	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Carbon Tetrachloride	<0.22	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chlorobenzene	<0.099	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chloroethane	<0.53	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chloroform	<0.30	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Chloromethane	<0.14	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Cis-1,2-Dichloroethene	<0.33	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0603012  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **Trip Blanks**

Matrix: Aqueous

Collection Date: 3/1/2006 7:30:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
Cis-1,3-Dichloropropene	<0.13	2.3	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Dibromochloromethane	<0.24	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Dibromomethane	<0.21	2.2	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Dichlorodifluoromethane	<0.16	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Ethylbenzene	<0.082	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Hexachlorobutadiene	<0.50	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Iodomethane	<0.33	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Isopropylbenzene	<0.19	2.6	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
m&p Xylenes	<0.27	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Methylene Chloride	<0.35	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
n-Butylbenzene	<0.25	2.7	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
n-Propylbenzene	<0.17	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Naphthalene	<0.16	2.7	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
O-Xylene	<0.14	2.3	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
sec-Butylbenzene	<0.33	2.2	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Styrene	<0.16	2.3	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
tert-Butyl Methyl Ether	<0.23	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
tert-Butylbenzene	<0.24	3.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Tetrachloroethene	<0.28	2.4	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Toluene	0.23	2.0	ug/L	3/9/06 20:37	J	mbi	SW8260B - VOCs by GC/MS
trans-1,2-Dichloroethene	<0.48	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
trans-1,3-Dichloropropene	<0.29	2.1	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
trans-1,4-Dichloro-2 Buten	<0.45	10	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Trichloroethene	<0.16	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Trichlorofluoromethane	<0.23	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Trichlorotrifluoroethane	<0.28	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Vinyl Acetate	<0.21	5.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS
Vinyl Chloride	<0.36	2.0	ug/L	3/9/06 20:37	TO MDL	mbi	SW8260B - VOCs by GC/MS



Analytica Alaska Southeast  
 5438 Shaune Dr.  
 Juneau, Ak. 99801  
 (907)780-6668 fax (907)780-6670

CHAIN OF CUSTODY/TRANSMITTAL  
 RECORD  
 page \_\_\_\_ of \_\_\_\_

**JUNEAU DOUGLAS WASTEWATER TREATMENT PLANT**

PROJECT NAME: JUNEAU DOUGLAS WASTEWATER TREATMENT PLANT  
 COMPANY NAME: City & Borough of Juneau  
 ADDRESS: 1540 Thane Rd. Juneau, AK 99801  
 PHONE#: 586-5329 FAX: 463-2612  
 SAMPLED BY: Dale Yorky  
 REPORT TO: Catherine Carlsson  
 P.O. NUMBER: J0603012

Date	Time	Sample #	SITE DESCRIPTION IDENTIFIER	MATRIX	PRIORITY POLLUTANTS	ANALYSIS REQUIRED	LAB #	COMMENTS
3-1-06	0730	# 1-8	J-D Final Effluent (24hr Composite)	Aqueous	X			Report to include WORK ID # as: J0603012
		#	J-D Final Effluent (24hr Composite)	Aqueous				Permit No: AK-002221-3
		#	J-D Final Effluent (24hr Composite)	Aqueous				CLIENT PROJECT # as:
		#	J-D Final Effluent (24hr Composite)	Aqueous				PRIORITY POLLUTANTS
RELINQUISHED BY: (signature) <i>[Signature]</i> DATE 3/2/06 RECEIVED BY: (signature) <i>[Signature]</i> DATE 3/2/06 CUSTODY SEAL INTACT? YES RELINQUISHED BY: (print) Jeff Axmann TIME 1205 RECEIVED BY: (signature) <i>[Signature]</i> DATE 12/16 CUSTODY SEAL INTACT? YES RELINQUISHED BY: (signature) <i>[Signature]</i> DATE 3/2/06 RECEIVED BY: (signature) <i>[Signature]</i> DATE 12/16 CUSTODY SEAL INTACT? YES RELINQUISHED BY: (print) TIME DATE RECEIVED BY: (signature) DATE CUSTODY SEAL INTACT? YES RELINQUISHED BY: (print) TIME DATE RECEIVED BY: (signature) DATE CUSTODY SEAL INTACT? YES								

**SPECIAL INSTRUCTIONS:**  
 Please e-mail reports to: catherine\_carlsson@ci.juneau.ak.us and copy jdip\_lab@ci.juneau.ak.us Thank you

**Priority Pollutants**  
 200.8 - Metals by ICOMS-Total/TR  
 130.2 - Hardness, Total Titrimetric, EDTA0(Hd)  
 245.1 - Mercury by CVAA - Total Recoverable Hg  
 SW8270C - Semivolatile Organics by GC/MS-Std  
 SW8260B - VOCs by GC/MS note- VOC TRIP BLANK

420.1 - Phenolics Manual  
 4-AAP with Distillation- Phenols  
 note- BNA SM4500-CNE- Cyanide, Colometric Method- Total CN

COMMENTS: *Temp 6.30C*  
*Item 6466/2 in Trip Blank*

\*COMMENTS should include condition of samples or fill upon receipt, temperature, shipping method, etc.



# Cooler Receipt Form

Client: CBJ Juneau Douglas WWTP Client Code: 011480  
Project: Priority Pollutants

Order #: J0603012

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 3/2/2006  
Cooler opened by: RJ

Signature: *RJ*

- 1. Was airbill Attached? N/A      Airbill #:      Carrier Name: Client
- 2. Custody Seals? Yes      How many? 1      Location: cooler      Seal Name: DY
- 3. Seals Intact? Yes
- 4. COC Attached? Yes      Properly Completed? Yes      Signed by AEL employee? Yes
- 5. Project Identification from custody paper: Priority Pollutants
- 6. Preservative: BlueGel      Temperature: 6.3

Designated person Initial here to acknowledge receipt:

*RJ*      Date: 3/4/06

COMMENTS: Under custody

B. Log-In Phase:

Samples Log-In Date: 3/2/2006

Log-In By: RV *RV*

- 1. Packing Type: Other
- 2. Were samples in separate bags? N/A
- 3. Were containers intact? Yes      Labels agree with COC? Yes
- 4. Number of bottles received: 10      Number of samples received: 1
- 5. Correct containers used? Yes      Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? N/A
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No      Who was called? \_\_\_\_\_ By whom? \_\_\_\_\_ Date: \_\_\_\_\_

COMMENTS:



Analytica Alaska, Inc. - Juneau  
5438 Shaune Drive  
Juneau, AK 99801  
Phone: 907-780-6668

2/7/2006

CBJ Juneau Douglas WWTP  
1540 Thane Rd.  
Juneau, AK 99801  
Attn: Catherine Carlson

Work Order #: J0601082  
Date: 2/7/2006  
Work ID: Priority Pollutants  
Date Received: 1/19/2006

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
J0601082-01	J-D Final Effluent (24hr Composi	J0601082-02	Trip Blank

Enclosed are the analytical results, in summary format, for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues.

Sincerely,



Robin Jung  
Project Manager

## Case Narrative

Analytica Alaska Southeast  
Work Order: J0601082

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 4, December 1996.

Standard Methods for the Examination of Water and Wastewater, 19th Edition, 1995.

### SAMPLE RECEIPT:

There was 1 sample received on 1/19/2006 10:33:00 AM. Sample was received at a temperature of 8.4°C in cooler 1 at Analytica-Juneau. Sample was received in good condition and in order per chain of custody.

The samples were transferred for various analyses at Analytica Environmental Laboratories (AEL); 12189 Pennsylvania St. Thornton, CO 80241 where they were received at a temperature of 0.3°C in good condition and in order per chain of custody on 1/25/2006.

### REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: 245.1 - Mercury by CVAA - Total Recoverable Hg - Aqueous

Test Method: 420.1 - Phenolics Manual 4-AAP with Distillation - Phenols - Aqueous

Test Method: SM4500-CNE - Cyanide, Colorimetric Method - Total CN - Aqueous

Test Method: 200.8 - Metals by ICP/MS - Total/TR - Aqueous

HOLDING TIMES: Holding times were met for this Test

SAMPLE PREPARATION ISSUES AND OBSERVATIONS: There were no unusual observations.

INSTRUMENT PERFORMANCE CHECKS: Instrument checks were within method criteria.

INITIAL CALIBRATIONS: Initial calibrations were within method criteria.

OPENING CONTINUING CALIBRATIONS: Opening continuing calibrations were within method criteria.

CLOSING CONTINUING CALIBRATIONS: The closing CCV shown below has one of the targets outside of control windows. This is a high recovery and is not detected in associated samples.

RunDate	Data File	Analyte	Recovery	LCL	UCL
1/26/2006 12:26:05 PM	export0126	Beryllium	117.	90	110

## Case Narrative

Analytica Alaska Southeast

Work Order: J0601082

(continued)

METHOD BLANK OUTLIERS: There are no method blank outliers.

LCS OUTLIERS: There are no LCS outliers.

MS/MSD and DUP OUTLIERS: There are no MS/MSD or DUP outliers.

Test Method: SW8260B - VOCs by GC/MS - Aqueous

HOLDING TIMES: Holding times were met for this Test

SAMPLE PREPARATION ISSUES AND OBSERVATIONS: There were no unusual observations.

INSTRUMENT PERFORMANCE CHECKS: Instrument checks were within method criteria.

INITIAL CALIBRATIONS: Initial calibrations were within method criteria.

OPENING CONTINUING CALIBRATIONS: A few of the targets show %D values greater than 20% in the opening CCV shown below. The CCC's and the SPCC's are in control. The average %D in the CCV is less than 15%. Thus this CCV meets criteria.

RunDate	Data File	Analyte	Recovery	LCL	UCL
1/25/2006 1:47:00 PM	06012502.D	Chloroethane		127.	80 120
1/25/2006 1:47:00 PM	06012502.D	Methylene Chloride		76.6	80 120
1/25/2006 1:47:00 PM	06012502.D	Styrene		125.	80 120
1/25/2006 1:47:00 PM	06012502.D	Trichlorofluoromethane		120.	80 120
1/25/2006 1:47:00 PM	06012502.D	Trichlorotrifluoroethane		124.	80 120

CLOSING CONTINUING CALIBRATIONS: The closing CCV, as is typical, has more analytes out of the 20% window than does the opening CCV. SW-846 does not require that closing CCVs meet criteria for internal standard analytical methods such as these. The calibration standard information is included to indicate the degree of analytical system degradation caused by the analysis of the samples. There are no negative consequences for data usability.

RunDate	Data File	Analyte	Recovery	LCL	UCL
1/26/2006 1:01:00 AM	06012523.D	1,2,3-Trichlorobenzene		62.1	80 120
1/26/2006 1:01:00 AM	06012523.D	1,2,4-Trichlorobenzene		77.7	80 120
1/26/2006 1:01:00 AM	06012523.D	1,2-Dibromo-3-Chloropropane		68.7	80 120
1/26/2006 1:01:00 AM	06012523.D	2-Hexanone		75.7	80 120
1/26/2006 1:01:00 AM	06012523.D	Dichlorodifluoromethane		42.1	80 120
1/26/2006 1:01:00 AM	06012523.D	Methylene Chloride		74.9	80 120
1/26/2006 1:01:00 AM	06012523.D	n-Propylbenzene		122.	80 120

INTERNAL STANDARD AREAS: There were no Internal Standard outliers.

SURROGATE RECOVERIES: There were no surrogate outliers.

METHOD BLANK OUTLIERS: Methylene chloride was detected below the PQL in the method blank indicated below. Any detections of this target in associated samples are flagged with a B to indicate that they are due to laboratory background, unless the sample result is 10X or more the method blank level.

MB Batch	Analyte	Result	PQL	MDL
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## Case Narrative

*Analytica Alaska Southeast*

*Work Order: J0601082*

*(continued)*

MB Batch	Analyte	Result	PQL	MDL
T060126004	Methylene Chloride	0.740	5	0.352

LCS OUTLIERS: The LCS and LCSD shown below have one of the targets outside of control windows.

Type	BatchNumber	Analyte	Recovery	LCL	UCL	Status
LCS	T060126004	Dichlorodifluoromethane	53.6	60	140	Complete
LCSD	T060126004	Dichlorodifluoromethane	52.6	60	140	Complete

MS/MSD and DUP OUTLIERS: There are no MS/MSD or DUP outliers.

Test Method: SW8270C - Semivolatile Organics by GC/MS - Std - Aqueous

HOLDING TIMES: Holding times were met for this Test

SAMPLE PREPARATION ISSUES AND OBSERVATIONS: Insufficient sample was provided to perform a matrix spike and matrix spike duplicate. The laboratory prepared an LCS/LCSD to demonstrate method accuracy and precision.

INSTRUMENT PERFORMANCE CHECKS: Instrument checks were within method criteria.

INITIAL CALIBRATIONS: Initial calibrations were within method criteria.

OPENING CONTINUING CALIBRATIONS: A few of the targets show %D values greater than 20% in the opening CCV shown below. The CCC's and the SPCC's are in control. The average %D in the CCV is less than 15%. Thus this CCV meets criteria.

RunDate	Data File	Analyte	Recovery	LCL	UCL
1/31/2006 3:52:00 PM	06013102.D	Benzoic Acid	78.4	80	120
1/31/2006 3:52:00 PM	06013102.D	D14-Terphenyl	76.3	80	120
1/31/2006 3:52:00 PM	06013102.D	Pyrene	73.5	80	120

CLOSING CONTINUING CALIBRATIONS: SW-846 does not require that closing CCVs meet criteria for internal standard analytical methods such as these. The calibration standard information is included to indicate the degree of analytical system degradation caused by the analysis of the samples. There are no negative consequences for data usability.

RunDate	Data File	Analyte	Recovery	LCL	UCL
1/31/2006 11:32:00 PM	06013115.D	Benzidine	70.5	80	120
1/31/2006 11:32:00 PM	06013115.D	Hexachlorocyclopentadiene	127.	80	120

INTERNAL STANDARD AREAS: There were no Internal Standard outliers.

SURROGATE RECOVERIES: The sample shown below has one surrogate outside of control windows. This result was confirmed by reanalysis. Data is not qualified if only one base-neutral or one acid surrogate is outside of control windows as long as the recovery is greater than ten percent. These samples meet this criteria. The LCS, and method blank do not show this effect and this is considered likely to be due to sample matrix.

Sample	LabID	Surrogate	Recovery	LCL	UCL
J-D Final Efflu	J0601082-01C	D14-Terphenyl	17	33	141 Complete
J-D Final Efflu	J0601082-01C	D14-Terphenyl	18.	33	141 Rrun

METHOD BLANK OUTLIERS: There are no method blank outliers.

## Case Narrative

*Analytica Alaska Southeast*

*Work Order: J0601082*

*(continued)*

METHOD BLANK OUTLIERS: There are no method blank outliers.

LCS OUTLIERS: The LCS and LCSD shown below have a few of the targets outside of control windows.

Type	BatchNumber	Analyte	Recovery	LCL	UCL	Status
LCS	T060126012	Phenol	57.0	60	140	Complete
LCS	T060126012	Hexachloroethane	40.7	60	140	Complete
LCS	T060126012	Hexachlorobutadiene	48	60	140	Complete
LCSD	T060126012	Phenol	59.4	60	140	Complete
LCSD	T060126012	Hexachloroethane	39.0	60	140	Complete
LCSD	T060126012	4-Chloroaniline	21.1	30	170	Complete
LCSD	T060126012	Hexachlorobutadiene	46.4	60	140	Complete
LCSD	T060126012	Benzidine	11	30	170	Complete
LCSD	T060126012	3,3'-Dichlorobenzidine	22.9	30	170	Complete
LCSD	T060126012	Di-n-Octylphthalate	58.4	60	140	Complete

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Composite)**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
1,1,1,2-Tetrachloroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,1,1-Trichloroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,1,2,2-Tetrachloroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,1,2-Trichloroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,1-Dichloropropene	<2.5	2.5	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichlorobenzene	<2.8	2.8	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichloropropane	<2.5	2.5	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2,4-Trichlorobenzene	<2.7	2.7	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2,4-Trimethylbenzene	<2.7	2.7	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2-Dibromo-3-Chloropropane	<10	10	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2-Dibromoethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2-Dichlorobenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2-Dichloroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2-Dichloropropane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,3,5-Trimethylbenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,3-Dichlorobenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,3-Dichloropropane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,4-Dichlorobenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
2,2-Dichloropropane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
2-Butanone	<50	50	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
2-Chloroethyl Vinyl Ether	<10	10	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
2-Chlorotoluene	<2.1	2.1	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
2-Hexanone	<20	20	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
4-Chlorotoluene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
4-Isopropyltoluene	<2.8	2.8	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
4-Methyl-2-Pentanone	<20	20	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Acetone	<50	50	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Acrylonitrile	<10	10	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Benzene	<1.0	1.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Bromobenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Bromochloromethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Bromodichloromethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Bromoform	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Bromomethane	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Carbon Disulfide	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Carbon Tetrachloride	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Chlorobenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Chloroethane	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Chloroform	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Chloromethane	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Cis-1,2-Dichloroethene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS

# Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Composite)**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
Cis-1,3-Dichloropropene	<2.3	2.3	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Dibromochloromethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Dibromomethane	<2.2	2.2	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Dichlorodifluoromethane	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Ethylbenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Hexachlorobutadiene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Iodomethane	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Isopropylbenzene	<2.6	2.6	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
m&p Xylenes	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Methylene Chloride	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
n-Butylbenzene	<2.7	2.7	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
n-Propylbenzene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Naphthalene	<2.7	2.7	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
O-Xylene	<2.3	2.3	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
sec-Butylbenzene	<2.2	2.2	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Styrene	<2.3	2.3	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
tert-Butyl Methyl Ether	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
tert-Butylbenzene	<3.0	3.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Tetrachloroethene	<2.4	2.4	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Toluene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
trans-1,2-Dichloroethene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
trans-1,3-Dichloropropene	<2.1	2.1	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
trans-1,4-Dichloro-2 Buten	<10	10	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Trichloroethene	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Trichlorofluoromethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Trichlorotrifluoroethane	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Vinyl Acetate	<5.0	5.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
Vinyl Chloride	<2.0	2.0	ug/L	1/25/06 17:03		mbi	SW8260B - VOCs by GC/MS
1,2,4-Trichlorobenzene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
1,2-Dichlorobenzene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
1,3-Dichlorobenzene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4,5-Trichlorophenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4,6-Trichlorophenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dichlorophenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dimethylphenol	<25	25	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dinitrophenol	<100	100	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dinitrotoluene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBI Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Composite)**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

<u>Analyte</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Analysis Date</u>	<u>Flags</u>	<u>Analyst</u>	<u>Method</u>
2,6-Dinitrotoluene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Chloronaphthalene	<10	10	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Chlorophenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Methylnaphthalene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Methylphenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Nitroaniline	<100	100	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Nitrophenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
3&4-Methylphenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
3,3'-Dichlorobenzidine	<20	20	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
3-Nitroaniline	<50	50	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4,6-Dinitro-2-Methylphenol	<25	25	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Bromophenyl-Phenylether	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chloro-3-Methylphenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chloroaniline	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chlorophenyl methylsulfone	<20	20	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chlorophenyl-Phenylether	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Nitroaniline	<50	50	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Nitrophenol	<100	100	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Acenaphthene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Accnaphthylene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Anthracene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzidine	<200	200	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(a)anthracene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(a)pyrene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Composite)**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
Benzo(b)fluoranthene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(g,h,i)perylene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(k)fluoranthene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzoic Acid	<130	130	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzyl Alcohol	<10	10	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis (2-Chloroethoxy) Methane	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis (2-chloroisopropyl) ether	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis(2-Chloroethyl) Ether	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis(2-ethylhexyl)phthalate	<2.5	2.5	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Butylbenzylphthalate	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Chrysene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Di-n-Butylphthalate	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Di-n-Octylphthalate	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dibenzo(a,h)anthracene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dibenzofuran	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Diethylphthalate	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dimethylphthalate	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Fluoranthene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Fluorene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorobenzene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorobutadiene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorocyclopentadiene	<10	10	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachloroethane	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Indeno(1,2,3-cd)pyrene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std

# Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24hr Composite)**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
Isophorone	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
N-Nitroso-Di-N-Propylamine	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
N-Nitrosodiphenylamine	<10	10	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Naphthalene	<10	10	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Nitrobenzene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Pentachlorophenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenanthrene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenol	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Pyrene	<5.0	5.0	ug/L	1/31/06 21:13		jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenols, Total Recoverable	<0.061	0.061	mg/L	1/31/06 17:12	k wheele		420.1 - Phenolics Manual 4-AAP with Distillation - Phenols
Hardness, Total	885	50	mg/L	1/31/06 11:00	lc		130.2 - Hardness, Total Titrimetric, EDTA - (Hd)
Cyanide	<0.0040	0.0040	mg/L	1/26/06 17:28	k wheele		SM4500-CNE - Cyanide, Colorimetric Method - Total CN
Antimony	0.367	0.10	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Arsenic	17.5	0.15	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Beryllium	<0.15	0.15	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Cadmium	<0.20	0.20	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Chromium	3.79	0.15	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Copper	29.1	0.10	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Lead	0.433	0.10	ug/L	1/26/06 13:41		KS	200.8 - Metals by ICP/MS - Total/TR
Nickel	5.95	0.15	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Selenium	61.3	0.50	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Silver	0.350	0.10	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Thallium	<0.050	0.050	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Zinc	82.7	0.25	ug/L	1/26/06 12:12		KSB	200.8 - Metals by ICP/MS - Total/TR
Mercury	<0.00020	0.00020	mg/L	1/30/06 16:10		LJK	245.1 - Mercury by CVAA - Total Recoverable Hg

# Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **Trip Blank**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

Analyte	Result	POL	Units	Analysis Date	Flags	Analyst	Method
1,1,1,2-Tetrachloroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,1,1-Trichloroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,1,2,2-Tetrachloroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,1,2-Trichloroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,1-Dichloroethene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,1-Dichloropropene	<2.5	2.5	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichlorobenzene	<2.8	2.8	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2,3-Trichloropropane	<2.5	2.5	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2,4-Trichlorobenzene	<2.7	2.7	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2,4-Trimethylbenzene	<2.7	2.7	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2-Dibromo-3-Chloropropane	<10	10	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2-Dibromoethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2-Dichlorobenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2-Dichloroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,2-Dichloropropane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,3,5-Trimethylbenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,3-Dichlorobenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,3-Dichloropropane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
1,4-Dichlorobenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
2,2-Dichloropropane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
2-Butanone	<50	50	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
2-Chloroethyl Vinyl Ether	<10	10	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
2-Chlorotoluene	<2.1	2.1	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
2-Hexanone	<20	20	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
4-Chlorotoluene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
4-Isopropyltoluene	<2.8	2.8	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
4-Methyl-2-Pentanone	<20	20	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Acetone	<50	50	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Acrylonitrile	<10	10	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Benzene	<1.0	1.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Bromobenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Bromochloromethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Bromodichloromethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Bromoform	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Bromomethane	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Carbon Disulfide	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Carbon Tetrachloride	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Chlorobenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Chloroethane	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Chloroform	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Chloromethane	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Cis-1,2-Dichloroethene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS

# Summary of Detected Analytes

Analytica Alaska Southeast

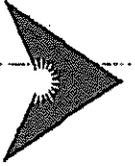
Workorder (SDG): J0601082  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **Trip Blank**

Matrix: Aqueous

Collection Date: 1/19/2006 6:15:00AM

<u>Analyte</u>	<u>Result</u>	<u>POI</u>	<u>Units</u>	<u>Analysis Date</u>	<u>Flags</u>	<u>Analyst</u>	<u>Method</u>
Cis-1,3-Dichloropropene	<2.3	2.3	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Dibromochloromethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Dibromomethane	<2.2	2.2	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Dichlorodifluoromethane	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Ethylbenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Hexachlorobutadiene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Iodomethane	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Isopropylbenzene	<2.6	2.6	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
m&p Xylenes	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Methylene Chloride	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
n-Butylbenzene	<2.7	2.7	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
n-Propylbenzene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Naphthalene	<2.7	2.7	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
O-Xylene	<2.3	2.3	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
sec-Butylbenzene	<2.2	2.2	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Styrene	<2.3	2.3	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
tert-Butyl Methyl Ether	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
tert-Butylbenzene	<3.0	3.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Tetrachloroethene	<2.4	2.4	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Toluene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
trans-1,2-Dichloroethene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
trans-1,3-Dichloropropene	<2.1	2.1	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
trans-1,4-Dichloro-2 Buten	<10	10	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Trichloroethene	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Trichlorofluoromethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Trichlorotrifluoroethane	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Vinyl Acetate	<5.0	5.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS
Vinyl Chloride	<2.0	2.0	ug/L	1/25/06 16:30		mbi	SW8260B - VOCs by GC/MS



Analytica Alaska Southeast  
 5438 Shaune Dr.  
 Juneau, Ak. 99801  
 (907)780-6668 fax (907)780-6670

CHAIN OF CUSTODY/TRANSMITTAL  
 RECORD  
 page 1 of 1

**JUNEAU DOUGLAS WASTEWATER TREATMENT PLANT**

PROJECT NAME:	City & Borough of Juneau	PHONE#: 586-5329	FAX: 463-2612
COMPANY NAME:	1540 Thane Rd. Juneau, AK 99801	SAMPLED BY: N	
ADDRESS:			

Date	Time	Sample #	SITE DESCRIPTION IDENTIFIER	MATRIX	PRIORITY POLLUTANTS	LAB #	COMMENTS
1/19/06	0615	# 1-8	J-D Final Effluent (24hr Composite)	Aqueous	X		Report to include
		#	J-D Final Effluent (24hr Composite)	Aqueous			WORK ID # as :
		#	J-D Final Effluent (24hr Composite)	Aqueous			JDWWTP
		#	J-D Final Effluent (24hr Composite)	Aqueous			Permit No: AK-002321-3
							CLIENT PROJECT # as :
							PRIORITY POLLUTANTS
							No bubbles in both
							trip blanks, RLW

RELINQUISHED BY: (signature) <i>Shawn A. Sewell</i>	DATE 1/19/06	RECEIVED BY: (signature) <i>Alan Keoren</i>	DATE 1/19/06	CUSTODY SEAL INTACT? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	COMMENTS 8.4pp
RELINQUISHED BY: (print) Shawn A. Sewell	TIME 10:33	RECEIVED BY: (print) Alan Keoren	TIME 10:33	CUSTODY SEAL INTACT? YES <input type="checkbox"/> NO <input type="checkbox"/>	
RELINQUISHED BY: (signature)	DATE	RECEIVED BY: (signature)	DATE	CUSTODY SEAL INTACT? YES <input type="checkbox"/> NO <input type="checkbox"/>	
RELINQUISHED BY: (print)	TIME	RECEIVED BY: (print)	TIME	CUSTODY SEAL INTACT? YES <input type="checkbox"/> NO <input type="checkbox"/>	

**SPECIAL INSTRUCTIONS:**

Please e-mail reports to:  
 catherine\_carlson@ci.juneau.ak.us  
 and copy jftp\_lab@ci.juneau.ak.us  
 Thank you

**Priority Pollutants**

200.8 -Metals by ICOMS-Total/TR  
 130.2 - Hardness, Total Titrimetric, EDTA0(Hd)  
 245.1 - Mercury by CVAA - Total Recoverable Hg  
 SW8270C - Semivolatile Organics by GC/MS- Std  
 SW8260B - VOCs by GC/MS note- VOC  
 TRIP BLANK

420.1 - Phenolics Manual  
 4-AAP with Distillation-  
 Phenols  
 note- BNA SM4500-CNE- Cyanide,  
 Colorimetric Method-  
 Total CN

\*COMMENTS should include condition of samples or kit upon receipt, temperature, shipping method, etc.





Analytica Alaska, Inc. - Juneau  
5438 Shaune Drive  
Juneau, AK 99801  
Phone: 907-780-6668

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9/27/2005

CBJ Juneau Douglas WWTP  
1540 Thane Rd.  
Juneau, AK 99801  
Attn: Catherine Carlson

Work Order #: J0508069  
Date: 9/27/2005  
Work ID: Priority Pollutants  
Date Received: 8/4/2005

**Sample Identification**

<u>Lab Sample Number</u>	<u>Client Description</u>	<u>Lab Sample Number</u>	<u>Client Description</u>
J0508069-01	J-D Final Effluent (24 hr Compos		

Enclosed are the analytical results, in summary format, for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues.

Sincerely,

Sally Wanstall  
Manager

## Case Narrative

Analytica Alaska Southeast

Work Order: J0508069

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Methods for the Determination of Metals in Environmental Samples, EPA/600/R-94/111, May 1994.

Methods for Chemical Analysis of Water and Wastes, USEPA 600/4-79-020, March 1983.

### SAMPLE RECEIPT:

There was 1 sample received on 8/4/2005 12:20:00 PM.

Samples were received at a temperature of 7.1 deg C. in cooler 1 at Analytica-Juneau.

The cooler was opened on 8/4/2005.

Sample was received in good condition and in order per chain of custody.

The sample was transferred for analysis at Analytica International Inc (AI); 3330 Industrial Avenue, Fairbanks, AK 99701 where it was received on 8/9/2005 at a temperature of 1°C in good condition and in order per chain of custody.

Sample fractions were transferred for various analyses at Analytica Environmental Laboratories (AEL); 12189 Pennsylvania St. Thornton, CO 80241 where they were received in two coolers at temperatures of 1.7°C and 2.6°C in good condition and in order per chain of custody.

### REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below, organized by test:

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: 130.2 - Hardness, Total Titrimetric, EDTA - (Hd) - Waste Water

Test Method: 200.8 - Metals by ICP/MS - Total/TR - Waste Water

Test Method: 245.1 - Mercury by CVAA - Total Recoverable Hg - Waste Water

Test Method: 420.1 - Phenolics Manual 4-AAP with Distillation - Phenols - Waste Water

Test Method: SM4500-CNE - Cyanide, Colorimetric Method - Total CN - Waste Water

Test Method: SW8270C - Semivolatile Organics by GC/MS - Std - Waste Water

#### HOLDING TIMES:

Holding times were met for this Test

#### SAMPLE PREPARATION ISSUES AND OBSERVATIONS:

Insufficient sample was provided to perform a matrix spike and matrix spike duplicate. The laboratory prepared an LCS/LCSD to demonstrate method accuracy and precision.

#### INSTRUMENT PERFORMANCE CHECKS:

Instrument checks were within method criteria.

#### INITIAL CALIBRATIONS:

Initial calibrations were within method criteria.

#### OPENING CONTINUING CALIBRATIONS:

A few of the targets show %D values greater than 20% in the opening CCV shown below. The CCC's and the SPCC's are in control. The average %D in the CCV is less than 15%. Thus this CCV meets criteria.

RunDate	Data File	Analyte	Recovery	LCL	UCL
8/18/2005 3:01:00 PM	05081802.D	Hexachlorocyclopentadiene	75.4	80	120

## Case Narrative

Analytica Alaska Southeast

Work Order: J0508069

(continued)

### CLOSING CONTINUING CALIBRATIONS:

Closing continuing calibrations were within method criteria or not applicable.

### INTERNAL STANDARD AREAS:

There were no Internal Standard outliers.

### SURROGATE RECOVERIES:

The sample shown below has two surrogates outside of control windows. This result was confirmed by reanalysis. The LCS, and method blank do not show this effect and this is considered likely to be due to sample matrix.

Sample	LabID	Surrogate	Recovery	LCL	UCL	
J-D Final Efflu	J0508069-01A	2-Fluorobiphenyl	35.	43	116	Complete
J-D Final Efflu	J0508069-01A	D14-Terphenyl	19.	33	141	Complete
J-D Final Efflu	J0508069-01A	D14-Terphenyl	25.	33	141	Rrun
J-D Final Efflu	J0508069-01A	2-Fluorobiphenyl	38.	43	116	Rrun

### METHOD BLANK OUTLIERS:

There are no method blank outliers.

### LCS OUTLIERS:

The LCS and LCSD shown below have a few of the targets outside of control windows.

Type	BatchNumber	Analyte	Recovery	LCL	UCL	Status
LCS	T050812012	Benzidine	8.80	30	170	Complete
LCS	T050812012	Bis(2-Chloroethyl) Ether	37.8	38	124	Complete
LCS	T050812012	Hexachloroethane	57.9	60	140	Complete
LCS	T050812012	Benzoic Acid	2.39	5	110	Complete
LCS	T050812012	Hexachlorocyclopentadiene	16.6	30	170	Complete
LCS	T050812012	2,4-Dinitrophenol	47.8	53	109	Complete
LCSD	T050812012	Benzoic Acid	1.80	5	110	Complete
LCSD	T050812012	Hexachlorocyclopentadiene	18.8	30	170	Complete
LCSD	T050812012	2,4-Dinitrophenol	42.1	53	109	Complete
LCSD	T050812012	Benzidine	11.3	30	170	Complete

This is a subcontracted test and has been represented to us as having met criteria.

The sample was subcontracted to Severn Trent Laboratories, Inc. (5755 8th St. East, Tacoma, WA 98424) for VOC analysis.

Results are in the attached report from STL.

Test Method: SW8260B - VOCs by GC/MS - Std - Waste Water

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0508069  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24 hr Composite)**

Matrix: Waste Water

Collection Date: 8/4/2005 6:10:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
1,2,4-Trichlorobenzene	<0.57	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
1,2-Dichlorobenzene	<0.62	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
1,3-Dichlorobenzene	<0.52	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4,5-Trichlorophenol	<0.53	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4,6-Trichlorophenol	<0.34	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dichlorophenol	<0.42	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dimethylphenol	<1.3	26	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dinitrophenol	<28	110	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,4-Dinitrotoluene	<0.35	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2,6-Dinitrotoluene	<0.40	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Chloronaphthalene	<0.46	11	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Chlorophenol	<0.38	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Methylnaphthalene	<0.57	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Methylphenol	<0.55	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Nitroaniline	<0.31	110	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
2-Nitrophenol	<0.34	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
3&4-Methylphenol	<0.61	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
3,3'-Dichlorobenzidine	<0.52	21	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
3-Nitroaniline	<0.76	53	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4,6-Dinitro-2-Methylphenol	<0.084	26	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Bromophenyl-Phenylether	<0.45	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chloro-3-Methylphenol	<0.41	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chloroaniline	<0.68	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Chlorophenyl methylsulfone	<0.48	21	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std

## Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0508069  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24 hr Composite)**

Matrix: Waste Water

Collection Date: 8/4/2005 6:10:00AM

<u>Analyte</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Analysis Date</u>	<u>Flags</u>	<u>Analyst</u>	<u>Method</u>
4-Chlorophenyl-Phenylether	<0.52	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Nitroaniline	<0.33	53	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
4-Nitrophenol	<0.31	110	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Acenaphthene	<0.47	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Acenaphthylene	<0.54	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Anthracene	<0.46	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzidine	<5.9	210	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(a)anthracene	<0.35	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(a)pyrene	<0.27	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(b)fluoranthene	<0.30	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(g,h,i)perylene	<0.41	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzo(k)fluoranthene	<0.40	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzoic Acid	2.6	140	ug/L	8/18/05 22:20	J	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Benzyl Alcohol	2.6	11	ug/L	8/18/05 22:20	J	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis (2-Chloroethoxy) Methane	<0.50	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis (2-chloroisopropyl) ether	<0.48	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis(2-Chloroethyl) Ether	<1.1	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Bis(2-ethylhexyl)phthalate	<0.49	2.6	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Butylbenzylphthalate	<0.55	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Chrysene	<0.21	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Di-n-Butylphthalate	<1.1	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Di-n-Octylphthalate	<0.54	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dibenzo(a,h)anthracene	<0.35	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dibenzofuran	<0.51	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std

# Summary of Detected Analytes

Analytica Alaska Southeast

Workorder (SDG): J0508069  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24 hr Composite)**

Matrix: Waste Water

Collection Date: 8/4/2005 6:10:00AM

Analyte	Result	PQL	Units	Analysis Date	Flags	Analyst	Method
Diethylphthalate	<0.41	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Dimethylphthalate	<0.38	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Fluoranthene	<0.53	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Fluorene	<0.50	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorobenzene	<0.43	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorobutadiene	<0.58	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachlorocyclopentadiene	<0.29	11	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Hexachloroethane	<0.48	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Indeno(1,2,3-cd)pyrene	<0.24	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Isophorone	<0.43	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
N-Nitroso-Di-N-Propylamine	<0.44	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
N-Nitrosodiphenylamine	<0.93	11	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Naphthalene	<0.65	11	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Nitrobenzene	<0.50	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Pentachlorophenol	<0.26	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenanthrene	<0.46	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenol	<0.33	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Pyrene	<0.42	5.3	ug/L	8/18/05 22:20	TO MDL	jk	SW8270C - Semivolatile Organics by GC/MS - Std
Phenols, Total Recoverable	<0.061	0.061	mg/L	8/18/05 10:26		K Stone	420.1 - Phenolics Manual 4-AAP with Distillation - Phenols
Hardness, Total	275	50	mg/L	8/11/05 12:40		WC	130.2 - Hardness, Total Titrimetric, EDTA - (Hd)
Cyanide	<0.0040	0.0040	mg/L	8/12/05 10:49		K Stone	SM4500-CNE - Cyanide, Colorimetric Method - Total CN
Antimony	<2.5	2.5	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Arsenic	3.19	2.5	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Beryllium	<1.0	1.0	ug/L	8/25/05 17:55		dm	200.8 - Metals by ICP/MS - Total/TR
Cadmium	<1.0	1.0	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Chromium	<2.5	2.5	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Copper	11.6	2.5	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR

**Summary of Detected Analytes**

Analytica Alaska Southeast

Workorder (SDG): J0508069  
 Project: Priority Pollutants  
 Client: CBJ Juneau Douglas WWTP  
 Client Project Number: 1

Client Sample Name: **J-D Final Effluent (24 hr Composite)**

Matrix: Waste Water

Collection Date: 8/4/2005 6:10:00AM

<u>Analyte</u>	<u>Result</u>	<u>PQL</u>	<u>Units</u>	<u>Analysis Date</u>	<u>Flags</u>	<u>Analyst</u>	<u>Method</u>
Lead	1.90	1.0	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Nickel	3.69	1.0	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Selenium	10.2	2.5	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Silver	<1.0	1.0	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Thallium	<1.0	1.0	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Zinc	52.0	10	ug/L	8/17/05 2:39		dmc	200.8 - Metals by ICP/MS - Total/TR
Mercury	<0.00020	0.00020	mg/L	8/15/05 15:41		IJK	245.1 - Mercury by CVAA - Total Recoverable Hg
See attached subcontract report for results for VOCs				8/19/2005		STL	SW8260B - VOCs by GC/MS - WW Priority Pollutants



# STL

STL Seattle  
5755 8<sup>th</sup> Street East  
Tacoma, WA 98424

Tel: 253 922 2310  
Fax: 253 922 5047  
[www.stl-inc.com](http://www.stl-inc.com)

## TRANSMITTAL MEMORANDUM

DATE: September 2, 2005

TO: Amy Moore  
Analytica Environmental Laboratories  
12189 Pennsylvania Street  
Thornton, CO 80241

PROJECT:

REPORT NUMBER: 129330

TOTAL NUMBER OF PAGES: 11

Enclosed are the test results for two samples received at STL Seattle on August 12, 2005.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Terri Torres  
Project Manager

---

STL Seattle is a part of Severn Trent Laboratories, Inc.

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# STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
129330-2	J0508069	08-04-05 06:10	Liquid

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# STL Seattle

Client Name:	Analytica Environmental Laboratories
Client ID:	J0508069
Lab ID:	129330-02
Date Received:	8/12/2005
Date Prepared:	8/19/2005
Date Analyzed:	8/19/2005
% Solids	-
Dilution Factor	1

## Volatile Organics by USEPA Method 5035\8260B

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	99.4		80	120
Fluorobenzene	94.7		80	120
Toluene-D8	97.4		80	120
Ethylbenzene-d10	98.8		80	120
Bromofluorobenzene	93.6		80	120
Trifluorololuene	110		80	120

Analyte	Result (ug/L)	RL	Flags
Dichlorodifluoromethane	ND	1	
• Chloromethane	ND	1	
• Vinyl chloride	ND	1	
• Bromomethane	ND	1	
• Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
• 1,1-Dichloroethene	ND	1	
• Methylene chloride	ND	1	
• trans-1,2-Dichloroethene	ND	1	
• 1,1-Dichloroethane	ND	1	
2,2-Dichloropropane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Bromochloromethane	ND	1	
• Chloroform	ND	1	
• 1,1,1-Trichloroethane	ND	1	
• Carbon Tetrachloride	ND	1	
1,1-Dichloropropene	ND	1	
• Benzene	ND	1	
• 1,2-Dichloroethane	ND	1	
• Trichloroethene	ND	1	
• 1,2-Dichloropropane	ND	1	
Dibromomethane	ND	1	
• Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
• Toluene	ND	1	
trans-1,3-Dichloropropene	ND	1	

# STL Seattle

Volatile Organics by USEPA Method 5035\8260B data for 129330-02 continued...

Analyte	Result (ug/L)	RL	Flags
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	ND	1	
1,3-Dichloropropane	ND	1	
Dibromochloromethane	ND	1	
1,2-Dibromoethane	ND	1	
Chlorobenzene	ND	1	
Ethylbenzene	ND	1	
1,1,1,2-Tetrachloroethane	ND	1	
m,p-Xylene	ND	2	
o-Xylene	ND	1	
Styrene	ND	1	
Bromoform	ND	1	
Isopropylbenzene	ND	1	
Bromobenzene	ND	1	
n-Propylbenzene	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,2,3-Trichloropropane	ND	1	
2-Chlorotoluene	ND	1	
1,3,5-Trimethylbenzene	ND	1	
4-Chlorotoluene	ND	1	
t-Butylbenzene	ND	1	
1,2,4-Trimethylbenzene	ND	1	
sec-Butylbenzene	ND	1	
1,3-Dichlorobenzene	ND	1	
4-Isopropyltoluene	ND	1	
1,4-Dichlorobenzene	ND	1	
n-Butylbenzene	ND	1	
1,2-Dichlorobenzene	ND	1	
1,2-Dibromo-3-chloropropane	ND	1	
1,2,4-Trichlorobenzene	ND	1	
1,2,3-Trichlorobenzene	ND	1	
Hexachlorobutadiene	ND	1	
Naphthalene	ND	1	

# STL Seattle

## Blank Spike/Blank Spike Duplicate Report

Lab ID: VOA1497  
Date Prepared: 8/19/2005  
Date Analyzed: 8/19/2005  
QC Batch ID: VOA1497

### Volatile Organics by USEPA Method 5035\8260B

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
1,1-Dichloroethene	0	5	4.5	89.9	4.52	90.3	0.44	
Benzene	0	5	4.79	95.8	4.72	94.4	-1.5	
Trichloroethene	0	5	4.99	99.7	4.88	97.6	-2.1	
Toluene	0	5	4.94	98.8	4.77	95.5	-3.4	
Chlorobenzene	0	5	4.86	97.1	4.73	94.7	-2.5	

# STL Seattle

Lab ID: Method Blank - VOA1497  
 Date Received: -  
 Date Prepared: 8/19/2005  
 Date Analyzed: 8/19/2005  
 % Solids: -  
 Dilution Factor: 1

## Volatile Organics by USEPA Method 5035\8260B

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	96.3		80	120
Fluorobenzene	95.1		80	120
Toluene-D8	99.2		80	120
Ethylbenzene-d10	98.3		80	120
Bromofluorobenzene	94.7		80	120
Trifluorotoluene	110		80	120

Analyte	Result (ug/L)	RL	Flags
Dichlorodifluoromethane	ND	1	
Chloromethane	ND	1	
Vinyl chloride	ND	1	
Bromomethane	ND	1	
Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
Methylene chloride	ND	1	
Methyl tert-butyl ether	ND	1	
trans-1,2-Dichloroethene	ND	1	
1,1-Dichloroethane	ND	1	
2,2-Dichloropropane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Bromochloromethane	ND	1	
Chloroform	ND	1	
1,1,1-Trichloroethane	ND	1	
Carbon Tetrachloride	ND	1	
1,1-Dichloropropene	ND	1	
Benzene	ND	1	
1,2-Dichloroethane	ND	1	
Trichloroethene	ND	1	
1,2-Dichloropropane	ND	1	
Dibromomethane	ND	1	
Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
Toluene	ND	1	

# STL Seattle

Volatile Organics by USEPA Method 5035\8260B data for VOA1497 continued...

Analyte	Result (ug/L)	RL	Flags
trans-1,3-Dichloropropene	ND	1	
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	ND	1	
1,3-Dichloropropane	ND	1	
Dibromochloromethane	ND	1	
1,2-Dibromoethane	ND	1	
Chlorobenzene	ND	1	
Ethylbenzene	ND	1	
1,1,1,2-Tetrachloroethane	ND	1	
m,p-Xylene	ND	2	
o-Xylene	ND	1	
Styrene	ND	1	
Bromoform	ND	1	
Isopropylbenzene	ND	1	
Bromobenzene	ND	1	
n-Propylbenzene	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,2,3-Trichloropropane	ND	1	
2-Chlorotoluene	ND	1	
1,3,5-Trimethylbenzene	ND	1	
4-Chlorotoluene	ND	1	
t-Butylbenzene	ND	1	
1,2,4-Trimethylbenzene	ND	1	
sec-Butylbenzene	ND	1	
1,3-Dichlorobenzene	ND	1	
4-Isopropyltoluene	ND	1	
1,4-Dichlorobenzene	ND	1	
n-Butylbenzene	ND	1	
1,2-Dichlorobenzene	ND	1	
1,2-Dibromo-3-chloropropane	ND	1	
1,2,4-Trichlorobenzene	ND	1	
1,2,3-Trichlorobenzene	ND	1	
Hexachlorobutadiene	ND	1	
Naphthalene	ND	1	



# STL

STL Seattle  
5755 8<sup>th</sup> Street East  
Tacoma, WA 98424

Tel: 253 922 2310  
Fax: 253 922 5047  
[www.stl-inc.com](http://www.stl-inc.com)

## DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be  $< 40\%$ .
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be  $> 40\%$ . The higher result was reported unless anomalies were noted.
- C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be  $\leq 30\%$ .
- C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be  $> 30\%$ . The presence of this analyte was not verified per WAC 246-290-010. The original analysis was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- MRL: Method Reporting Limit
- N: See analytical narrative
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be \_\_\_\_\_.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike/(matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike/(matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.



Analytica Alaska Southeast  
 5438 Shaune Dr.  
 Juneau, Ak. 99801  
 (907)780-6668 fax (907)780-6670

CHAIN OF CUSTODY/TRANSMITTAL  
 RECORD  
 page 1 of 1

PROJECT NAME: JUNEAU DOUGLAS WASTEWATER TREATMENT PLANT			ANALYSIS REQUIRED		
COMPANY NAME: City & Borough of Juneau		PHONE#: 586-5329	FAX: 463-2612		
ADDRESS: 1540 Thane Rd. Juneau, AK 99801		SAMPLED BY: ROSKY UNDERWOOD			
Date	Time	Sample #	SITE DESCRIPTION / IDENTIFIER	MATRIX	PRIORITY POLLUTANTS
8-4-05	6:10	1	J-D Final Effluent (24hr Composite)	Aqueous	<input checked="" type="checkbox"/>
		#	J-D Final Effluent (24hr Composite)	Aqueous	
		#	J-D Final Effluent (24hr Composite)	Aqueous	
		#	J-D Final Effluent (24hr Composite)	Aqueous	
TOTAL: 7 SAMPLES COLLECTED					
RELINQUISHED BY: (signature) <i>[Signature]</i>		DATE	RECEIVED BY: (signature) <i>[Signature]</i>	DATE	CUSTODY SEAL INTACT?
RELINQUISHED BY: (print) <i>ROSKY UNDERWOOD</i>		TIME	RECEIVED BY: (print) <i>ROSKY UNDERWOOD</i>	TIME	CUSTODY SEAL INTACT?
RELINQUISHED BY: (signature)		DATE	RECEIVED BY: (signature)	DATE	CUSTODY SEAL INTACT?
RELINQUISHED BY: (print)		TIME	RECEIVED BY: (print)	TIME	CUSTODY SEAL INTACT?
SPECIAL INSTRUCTIONS:					
Please e-mail reports to: catherine_carlson@ci.juneau.ak.us and copy jdtp_lab@ci.juneau.ak.us Thank you			Priority Pollutants 200.8 - Metals by ICOMS-Total/TR 5b, As, Ba, Ca, Cd, Cu, Pb, Ni, 130.2 - Hardness, Total Titrimetric, EDTA0(Hd) 5c, 5f, Tl, Zn 245.1 - Mercury by CVAA - Total Recoverable Hg SW8270C - Semivolatile Organics by GC/MS- Sid note- BNA SM4500-CNE- Cyanide, SW8260B - VOCs by GC/MS note- VOC Colorimetric Method- TRIP BLANK Total CN		
REPORT TO: Catherine Carlson P.O. NUMBER: 50508069					COMMENTS
LAB #					Report to include
WORK ID # as:					JDWWTP
Permit No: AK-002321-3					CLIENT PROJECT # as:
PRIORITY POLLUTANTS					

\*COMMENTS should include condition of samples or kit upon receipt, temperature, shipping method, etc.



# Cooler Receipt Form

Client: CBJ Juneau Douglas WWTP Client Code: 011480  
Project: Priority Pollutants

Order #: J0508069

Cooler ID: 1

**A. Preliminary Examination Phase:**

Date cooler opened: 8/4/2005  
Cooler opened by: RJ

Signature: 

- 1. Was airbill Attached? N/A
- 2. Custody Seals? No
- 3. Seals intact? N/A
- 4. Screened for radiation? N/A

Airbill #: \_\_\_\_\_  
How many? 0 Location: \_\_\_\_\_

Carrier Name: Client  
Seal Name: \_\_\_\_\_

5. COC Attached? Yes Properly Completed? Yes Signed by AEL employee? Yes

6. Project Identification from custody paper: Priority Pollutants

7. Preservative: BlueGel Temperature: 7.1

Designated person Initial here to acknowledge receipt: \_\_\_\_\_ Date: \_\_\_\_\_

**COMMENTS:**

**B. Log-In Phase:** Samples Log-in Date: 8/4/2005 Log-In By: RV 

- 1. Packing Type: Other
- 2. Were samples in separate bags? N/A
- 3. Were containers intact? Yes Labels agree with COC? Yes
- 4. Number of bottles received: 7 Number of samples received: 1
- 5. Correct containers used? Yes Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? N/A
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No Who was called? \_\_\_\_\_ By whom? \_\_\_\_\_ Date: \_\_\_\_\_

**COMMENTS:**



**APPENDIX  
PART E  
TOXICITY TESTING**

**JUNEAU-DOUGLAS WWTP  
AK-002321-3**

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-11

Title: Blue mussel (*Mytilus galloprovincialis*) bivalve larvae test using static 48-hr exposure to an effluent.

Protocol No.: NAS-XXX-CG/MG2, August 28, 1990, Revision 3 (9-8-01). This protocol complies with the U.S. EPA West Coast chronic toxicity manual (EPA/600/R-95/136), ASTM bivalve toxicity method (E 724-89), and the WDOE toxicity guidance manual (WQ-R-95-80).

## STUDY MANAGEMENT

Study Sponsor: Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.

Sponsor's Study Monitor: Mr. Scott Jeffers

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory.

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man.; G.J. Irissari, B.S., Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Toxicologist; G.H. Hayes, B.S., Sr. Tech.; W.T. Montgomery, A.A., Tech.

Study Schedule:

Test Beginning: 2-5-04, 1330 hrs.

Test Ending: 2-7-04, 1300 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Road, Newport, OR 97365.

Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Unchlorinated plant effluent, 24-hr composite. Details are as follows:

NAS Sample Number	8758F
Collection Date	2-4-04
Receipt Date	2-5-04
Temperature (°C)	3.6
Conductivity (µmhos/cm)	2880
pH	7.4
Hardness (mg/L as CaCO <sub>3</sub> )	428
Alkalinity (mg/L as CaCO <sub>3</sub> )	140
Salinity (ppt)	4.0
Dissolved oxygen (mg/L)	13.6
Chlorine (mg/L)	<0.02
Ammonia-N (mg/L)	6.9

Treatments: The sample was briefly temperature equilibrated prior to use.

Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon.

Date of Collection: 2-4-04

Water Quality: Salinity: 30.0 ppt; pH: 8.0

Pretreatment: Aerated; filtered to 0.40 µm, salinity adjusted with brine.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 2-4-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Mussel (*Mytilus galloprovincialis*)

Age: 3.2 hours post-fertilization.

Source: Carlsbad Aquafarms; Carlsbad, CA.

Conditioning: Adult mussels were received on 11-14-03 and placed in trays with flowing seawater. Holding conditions measured 2 weeks prior to testing averaged: temperature,  $8.5 \pm 1.6^\circ\text{C}$ ; dissolved oxygen,  $9.2 \pm 0.5$  mg/L; pH,  $7.8 \pm 0.1$ ; and salinity,  $29.3 \pm 1.9$  ppt.

Source of Gametes: 3 females and 3 males.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 30 ml borosilicate glass vials containing 10 ml of test solutions.

Test Concentrations: 15, 8, 3.8, 2, 1, 0% (control) and brine control.

Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Initial Concentration of Test Organisms: 16.9/ml

Volume of Subsamples Taken for Counting: NA

Water Volume Changes per 24 hr: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criteria used were: 1) failure of embryos to survive and produce completely developed shells; and 2) mortality. Data collected were: 1) the initial embryo density; 2) the number of abnormal larvae observed; and 3) the number of normal (live with completely developed shells) larvae observed.

Water Quality and Other Test Conditions: Temperature,  $15.7 \pm 0.1^\circ\text{C}$ ; dissolved oxygen,  $8.0 \pm 0.1$  mg/L; salinity,  $30.2 \pm 0.4$  ppt; and pH,  $8.0 \pm 0.0$ . Photoperiod 16:8 hr, L:D.

**DATA ANALYSIS METHODS**

The proportion of normal larvae, and the proportion of surviving larvae were calculated for each treatment replicate. The means were obtained for each treatment level and the latter were then corrected for control response using Abbott's formula.

The LC50 (survival) and the EC50 (normality) were calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was determined by linear interpolation with bootstrapping. Toxic units ( $TU_c$ ) were computed as  $100/\text{NOEC}$ ,  $100/\text{EC50}$ , or  $100/\text{IC25}$ . NOEC and LOEC values for survival and normality were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was Toxcalc, v.5.0.23, Tidepool Scientific Software.

**PROTOCOL DEVIATIONS**

None.

REFERENCE TOXICANT TEST

Test No.: 999-1725

Reference Toxicant and Source: Copper as  $CuSO_4 \cdot 5H_2O$ , Argent Lot No. 0195, 1.0 mg/ml stock prepared 10-2-02.

Test Date: 2-5-05

Dilution Water Used: Yaquina Bay, OR seawater. Salinity 30.0 ppt, pH 8.0

Results: EC50, 10.3  $\mu g/L$ ; NOEC, 4  $\mu g/L$ ; IC25, 9.09  $\mu g/L$ . The EC50 result is within the laboratory's control chart warning limits (9.86 to 12.1  $\mu g/L$ ).

TEST RESULTS

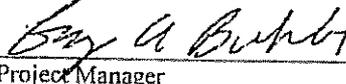
Detailed tabulations of the test results are given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50/LC50 for normality and survival are summarized below.

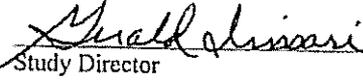
	Normal/Survived	Survival
NOEC (%)	15.0 ( $TU_c=6.67$ )	15.0 ( $TU_c=6.67$ )
LOEC (%)	>15.0 ( $TU_c<6.67$ )	>15.0 ( $TU_c<6.67$ )
EC50/LC50 (%)	>15.0 ( $TU_c<6.67$ )	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---	---
Method of Calculation	By data inspection	By data inspection
IC25 (%)	>15.0 ( $TU_c<6.67$ )	
(95% C.I.)	---	
Method of Calculation	Linear Interpolation	

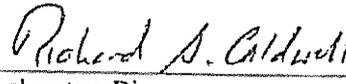
DISCUSSION/CONCLUSIONS

The NOEC in this study was 15.0% effluent and the EC50 and IC25 for normal development were both >15.0%. The brine control test indicated that the brine did not contribute to effluent toxicity.

STUDY APPROVAL

 3-17-04  
 Project Manager Date Study Director Date

 3-18-04  
 Study Director Date

 3/18/04  
 Laboratory Director Date

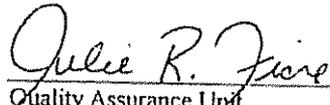
 3/17/04  
 Quality Assurance Unit Date

Table 1. Test response of mussel (*Mytilus galloprovincialis*), larvae exposed to WUD, Juneau-Douglas Plant effluent.

Test Material Concentration (%)	Repl.	Norm.	Abn.	Total	Proportion Normal*		Proportion Survived*		
					Mean	Adjust.	Mean	Adjust.	
15.0	1	176	13	189	1.000		1.000		
	2	138	7	145	0.817		0.858		
	3	182	9	191	1.000		1.000		
	4	157	5	162	0.929	0.936	1.064	0.959	0.954
8.0	1	174	8	182	1.000		1.000		
	2	187	11	198	1.000		1.000		
	3	148	10	158	0.876		0.935		
	4	175	9	184	1.000	0.969	1.101	1.000	0.984
3.8	1	121	11	132	0.716		0.781		
	2	150	11	161	0.888		0.953		
	3	154	10	164	0.911		0.970		
	4	180	10	190	1.000	0.879	0.998	1.000	0.926
2.0	1	191	11	202	1.000		1.000		
	2	148	10	158	0.876		0.935		
	3	179	12	191	1.000		1.000		
	4	159	5	164	0.941	0.954	1.084	0.970	0.976
1.0	1	155	6	161	0.917		0.953		
	2	148	5	153	0.876		0.905		
	3	180	4	184	1.000		1.000		
	4	133	9	142	0.787	0.895	1.017	0.840	0.925
Normal Control	1	131	6	137	0.775		0.811		
	2	139	10	149	0.823		0.882		
	3	156	11	167	0.923		0.988		
	4	175	9	184	1.000	0.880	1.000	1.000	0.920
Brine Control <sup>1</sup>	1	153	3	156	0.905		0.923		
	2	168	8	176	0.994		1.000		
	3	138	3	141	0.817		0.834		
	4	161	8	169	0.953	0.917	1.042	1.000	0.939

\* Based on an average initial count of 169 embryos per 10 ml sample.

\*\* Result significantly different ( $P \leq 0.05$ ) from the control.

<sup>1</sup> Milli-Q<sup>®</sup> deionized water substituted for effluent in test solution preparation so that the brine concentration is equivalent to that for the 15% effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-12Title: Echinoderm sperm-fertilization test using static exposure to effluent.Protocol No.: NAS-XXX-SP/DE2, August 10, 1990 (Revision 3, 10-24-02). Based on: Method 1008.0, Sea Urchin, *Strongylocentrotus purpuratus*, and Sand Dollar, *Dendraster excentricus*, fertilization test, pp. 389-465,In: Short term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms, EPA/600/R-95/136.

## STUDY MANAGEMENT

Study Sponsor: City of Juneau, Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.Sponsor's Study Monitor: Mr. Scott LarsonTesting Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.Test Location: Newport laboratoryLaboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man./Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Aq. Toxicol.; W.T. Montgomery, A.A., Tech.Study Schedule:

Test Beginning: 2-5-04, 1523 hrs.

Test Ending: 2-5-04, 1603 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Rd., Newport, OR 97365.Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: City of Juneau, 24 hour effluent composite sample. Details are as follows:

NAS Sample Number	8758F
Collection Date	2-4-04
Receipt Date	2-5-04
Temperature (°C)	3.6
Conductivity (µmhos/cm)	2,880
pH	7.4
Hardness (mg/L as CaCO <sub>3</sub> )	428
Alkalinity (mg/L as CaCO <sub>3</sub> )	119
Salinity (ppt)	4.0
Dissolved oxygen (mg/L)	13.6
Ammonia-N (mg/L)	6.9

Treatments: Sample was gently aerated and briefly temperature-equilibrated prior to use.Storage: Used date of receipt.

## DILUTION WATER

Source: Yaquina Bay, Oregon, seawaterDate of Collection: 2-5-04Water Quality: Salinity, 32.0; pH, 8.0Pretreatment: Filtered to 0.40 µm, aerated.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 2-4-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Purple urchin, *Strongylocentrotus purpuratus*.

Age: Sperm were used immediately after seawater activation.

Source: Marinus Scientific, Garden Grove, California.

Acclimation: Adult sand dollars were received on 12-17-03 and held outdoors in flowing seawater until used in testing. Holding conditions in the two weeks prior to testing were: temperature,  $8.3 \pm 1.2^\circ\text{C}$ ; dissolved oxygen,  $9.5 \pm 0.6$  mg/L; pH,  $7.8 \pm 0.1$ ; salinity,  $29.0 \pm 1.9$  ppt.

Source of Gametes: 1 female and 1 male.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 16 mm x 100 mm unwashed new borosilicate disposable glass test tubes containing 5 ml of test solution.

Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, and 0% (Control).

Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Eggs per Test Container: 1000

Sperm:Egg Ratio: 1000:1

Sperm Exposure Time: 20 minutes

Time for Fertilization: 20 minutes

Volume of Subsamples Taken for Counting: 1 ml

Water Volume Changes: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criterion was absence of fertilization as indicated by lack of a fertilization membrane in the preserved eggs.

Water Quality and Other Test Conditions: Temperature,  $11.8^\circ\text{C}$ ; dissolved oxygen,  $8.4 \pm 0.1$  mg/L; salinity,  $32.2 \pm 0.3$  ppt; and pH,  $7.9 \pm 0.0$ . Photoperiod: NA

**DATA ANALYSIS METHODS**

The proportion of fertilized eggs was calculated for each treatment replicate from the raw data and the means were obtained for each treatment level. The latter were then corrected for control response using Abbott's formula. The EC50 was calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was calculated by linear interpolation with bootstrapping. Toxic units (TU<sub>c</sub>) were computed as 100/NOEC, 100/EC50, or 100/IC25. NOEC and LOEC values were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was ToxCalc, v.5.0.23N, Tidepool Scientific Software.

**PROTOCOL DEVIATIONS**

None.

**REFERENCE TOXICANT TEST**

The routine reference toxicant test is a standard multi-concentration toxicity test using sodium azide to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1726

Reference Toxicant and Source: Sodium azide (Sigma Lot No. 68F-0834), 1.0 mg/mL stock prepared on 2-5-04.

Test Date: 2-5-04

Dilution Water Used: Yaquina Bay, OR, Salinity 32.0 ppt, pH 8.0.

Results: EC50, 67.8 mg/L; NOEC, <17 mg/L; and IC25, 42.2 mg/L. The EC50 result was not within the laboratory's control chart limits (EC50, 67.9 to 182 mg/L). Control limits of  $\pm 2$  SD will be exceeded 5% of the time by chance alone, and there was no evidence that these organisms were unusual in any way. Therefore we believe this was a valid test.

#### TEST RESULTS

A detailed tabulation of the test results is given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50 and IC25 for inhibition of fertilization are shown below.

NOEC (%)	15.0 ( $TU_c=6.67$ )
LOEC (%)	>15.0 ( $TU_c<6.67$ )
EC50 (%)	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---
Method of Calculation	By data inspection
IC25 (%)	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---
Method of Calculation	Linear Interpolation

#### DISCUSSION/CONCLUSIONS

The NOEC in this study was 15.0 % effluent, and the EC50 and IC25 for fertilization were both >15.0 %.

#### STUDY APPROVAL

*Joseph G. Miller* 3-10-04  
Project Manager/Study Director Date

*Julie R. Jiro* 3-10-04  
Quality Assurance Unit Date

*Richard A. Caldwell* 3/18/04  
Manager, Toxicology Date

Table 1. Fertilization response of Purple urchin, *Strongylocentrotus purpuratus*, sperm exposed to City of Juncau, 24 hour effluent composite.

Effluent Conc. (%)	Replicate	Eggs Counted		Proportion Fertilized	
		Fertilized	Unfertilized	Mean**	Adjusted**
15.0	1	98	2	0.980	
	2	100	0	1.000	
	3	100	0	1.000	
	4	100	0	1.000	0.995
8.0	1	100	0	1.000	
	2	99	1	0.990	
	3	100	0	1.000	
	4	98	2	0.980	0.993
3.8	1	95	5	0.950	
	2	100	0	1.000	
	3	98	2	0.980	
	4	99	1	0.990	0.980
2.0	1	98	2	0.980	
	2	100	0	1.000	
	3	99	1	0.990	
	4	87	13	0.870	0.960
1.0	1	92	8	0.920	
	2	100	0	1.000	
	3	96	4	0.960	
	4	99	1	0.990	0.968
Control	1	98	2	0.980	
	2	97	3	0.970	
	3	100	0	1.000	
	4	98	2	0.980	0.983

\*\* Treatment mean significantly ( $P < 0.05$ ) different from the control mean

Table 2. Response of brine controls, egg-effluent controls (no sperm), and egg-controls (no sperm).

Description	Replicate	Eggs Counted		Proportion Fertilized	
		Fertilized	Unfertilized	Mean	Adjusted
Brine control <sup>1</sup>	1	97	3	0.970	
	2	97	3	0.970	
	3	95	5	0.950	
	4	99	1	0.990	0.970
Egg-effluent control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000
Egg control	1	0	100	0.000	
	2	0	100	0.000	
	3	2	98	0.020	
	4	1	99	0.010	0.010

<sup>1</sup> The brine control is prepared by substituting deionized water for the effluent at the highest effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-13

Title: Blue mussel (*Mytilus galloprovincialis*) bivalve larvae test using static 48-hr exposure to an effluent.

Protocol No.: NAS-XXX-CG/MG2, August 28, 1990, Revision 3 (9-8-01). This protocol complies with the U.S. EPA West Coast chronic toxicity manual (EPA/600/R-95/136), ASTM bivalve toxicity method (E 724-89), and the WDOE toxicity guidance manual (WQ-R-95-80).

## STUDY MANAGEMENT

Study Sponsor: Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.

Sponsor's Study Monitor: Mr. Scott Larson

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory.

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man.; G.J. Irissarri, B.S., Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Toxicologist; G.C. Hayes, B.S., Tech.; W.T. Montgomery, A.A., Sr. Tech.

Study Schedule:

Test Beginning: 4-27-04, 1410 hrs.

Test Ending: 4-29-04, 1350 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Road, Newport, OR 97365.

Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Plant effluent, 24-hr composite. Details are as follows:

NAS Sample Number	8899F
Collection Date	4-26-04
Receipt Date	4-27-04
Temperature (°C)	4.2
Conductivity (µmhos/cm)	1,990
pH	7.1
Hardness (mg/L as CaCO <sub>3</sub> )	94
Alkalinity (mg/L as CaCO <sub>3</sub> )	40
Salinity (ppt)	<0.5
Dissolved oxygen (mg/L)	11.2
Chlorine (mg/L)	-
Ammonia-N (mg/L)	1.73

Treatments: The sample was briefly temperature equilibrated prior to use.

Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon.

Date of Collection: 4-27-04

Water Quality: Salinity, 30.0 ppt; pH, 8.0

Pretreatment: Filtered to 0.4 µm, aerated, salinity adjusted with Milli-Q water.

## BRINE USED FOR SALINITY CONTROL

Source: Filtered Yaquina Bay, OR seawater.  
Salinity: 100 ppt.  
Date of Preparation: 4-20-04  
Method of Preparation: Freezing method.

#### TEST ORGANISMS

Species: Mussel (*Mytilus galloprovincialis*).  
Age: 2.5 hours post-fertilization.  
Source: Carlsbad Aquafarm, Carlsbad, California.  
Conditioning: Adult mussels were received on 4-16-04 and placed in trays with flowing seawater. Water quality conditions in the trays during the twelve days prior to testing averaged: temperature,  $11.6 \pm 1.6$  °C; dissolved oxygen,  $8.7 \pm 0.3$  mg/L; pH,  $8.1 \pm 0.0$ ; and salinity,  $31.7 \pm 1.2$  ppt.  
Source of Gametes: 7 females and 4 males.

#### TEST PROCEDURES AND CONDITIONS

Test Chambers: 30 ml borosilicate glass vials containing 10 ml of test solutions.  
Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, 0% (control) and brine control.  
Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.  
Replicates/Treatment: 4  
Initial Concentration of Test Organisms: 19.1/ml  
Volume of Subsamples Taken for Counting: NA  
Water Volume Changes per 24 hr: None (non-renewal static test).  
Aeration: None  
Feeding: None  
Effects Criteria: The effect criteria used were: 1) failure of embryos to survive and produce completely developed shells; and 2) mortality. Data collected were: 1) the initial embryo density; 2) the number of abnormal larvae observed; and 3) the number of normal (live with completely developed shells) larvae observed.  
Water Quality and Other Test Conditions: Temperature,  $15.9 \pm 0.3$  °C; dissolved oxygen,  $8.0 \pm 0.0$  mg/L; salinity,  $30.1 \pm 0.2$  ppt; and pH,  $8.1 \pm 0.1$ . Photoperiod 16:8 hr, L:D.

#### DATA ANALYSIS METHODS

The proportion of normal larvae, and the proportion of surviving larvae were calculated for each treatment replicate. The means were obtained for each treatment level and the latter were then corrected for control response using Abbott's formula.

The LC50 (survival) and the EC50 (normality) were calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was determined by linear interpolation with bootstrapping. NOEC and LOEC values for survival and normality were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was Toxcalc, v.5.0.23, Tidepool Scientific Software. Toxic units (TU<sub>c</sub>) were computed as 100/NOEC, 100/EC50, or 100/IC25.

#### PROTOCOL DEVIATIONS

None.

**REFERENCE TOXICANT TEST**

The routine reference toxicant test is a standard multi-concentration toxicity test using copper sulfide to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1762

Reference Toxicant and Source: Copper as  $CuSO_4 \cdot 5H_2O$ , Argent Lot No. 0195. Concentrated stock prepared 3-24-04.

Test Date: 4-27-04

Dilution Water Used: Yaquina Bay, OR seawater. Salinity, 30.0 ppt; pH, 8.0.

Results: EC50, 10.3  $\mu g/L$ ; NOEC, 8  $\mu g/L$ ; IC25, 9.25  $\mu g/L$ . These results are within the laboratory's control chart warning limits (EC50, 9.54 – 12.1  $\mu g/L$ ).

**TEST RESULTS**

Detailed tabulations of the test results are given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50/LC50 for normality and survival are summarized below.

	Normal/Survived	Survival
NOEC (%)	15.0 ( $TU_c=6.67$ )	15.0 ( $TU_c=6.67$ )
LOEC (%)	>15.0 ( $TU_c<6.67$ )	>15.0 ( $TU_c<6.67$ )
EC50/LC50 (%)	>15.0 ( $TU_c<6.67$ )	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---	---
Method of Calculation	By data inspection	By data inspection
IC25 (%)	>15.0 ( $TU_c<6.67$ )	
(95% C.I.)	---	
Method of Calculation	Linear Interpolation	

**DISCUSSION/CONCLUSIONS**

The NOEC in this study was 15.0% effluent and the EC50 and IC25 for normal development were both >15.0%. The brine control test indicated that the brine did not contribute to effluent toxicity.

**STUDY APPROVAL**

*Boyd Subler* 6-12-04 *Gerald Lusiani* 6-11-04  
 Project Manager Date Study Director Date

*Richard S. Caldwell* 6/11/04 *Julie R. Frie* 6-7-04  
 Laboratory Director Date Quality Assurance Unit Date

Table 1. Test response of mussel (*Mytilus galloprovincialis*), larvae exposed to WUD, Juneau-Douglas Plant effluent.

Test Material Concentration (%)	Repl.	Norm.	Abn.	Total	Proportion Normal*		Proportion Survived*		
					Mean	Adjust.	Mean	Adjust.	
15	1	152	2	154	0.796		0.806		
	2	178	6	184	0.932		0.963		
	3	162	4	166	0.848		0.869		
	4	174	7	181	0.911	0.872	0.953	0.948	0.897 0.958
8.0	1	198	7	205	1.000		1.000		
	2	177	10	187	0.927		0.979		
	3	165	7	172	0.864		0.901		
	4	172	8	180	0.901	0.923	1.009	0.942	0.956 1.021
3.8	1	151	6	157	0.791		0.822		
	2	178	6	184	0.932		0.963		
	3	187	10	197	0.979		1.000		
	4	191	7	198	1.000	0.925	1.011	1.000	0.946 1.011
2.0	1	169	2	171	0.885		0.895		
	2	172	7	179	0.901		0.937		
	3	167	5	172	0.874		0.901		
	4	183	8	191	0.958	0.905	0.989	1.000	0.933 0.997
1.0	1	164	3	167	0.859		0.874		
	2	187	7	194	0.979		1.000		
	3	176	4	180	0.922		0.942		
	4	174	3	177	0.911	0.918	1.003	0.927	0.936 1.000
Normal Control	1	164	8	172	0.859		0.901		
	2	189	10	199	0.990		1.000		
	3	208	3	211	1.000		1.000		
	4	155	6	161	0.812	0.915	1.000	0.843	0.936 1.000
Brine Control <sup>1</sup>	1	161	9	170	0.843		0.890		
	2	171	5	176	0.895		0.922		
	3	168	10	178	0.880		0.932		
	4	164	8	172	0.859	0.869	0.950	0.901	0.911 0.973

\* Based on an average initial count of 191 embryos per 10 ml sample.

\*\* Result significantly different ( $P \leq 0.05$ ) from the control.

<sup>1</sup> Milli-Q<sup>®</sup> deionized water substituted for effluent in test solution preparation so that the brine concentration is equivalent to that for the 15% effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-14Title: Echinoderm sperm-fertilization test using static exposure to effluent.Protocol No.: NAS-XXX-SP/DE2, August 10, 1990 (Revision 3, 10-24-02). Based on: Method 1008.0, Sea Urchin, *Strongylocentrotus purpuratus*, and Sand Dollar, *Dendraster excentricus*, fertilization test, pp. 389-465,In: Short term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms, EPA/600/R-95/136.

## STUDY MANAGEMENT

Study Sponsor: City of Juneau, Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.Sponsor's Study Monitor: Mr. Scott LarsonTesting Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.Test Location: Newport laboratoryLaboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man./Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Aq. Toxicol.; W.T. Montgomery, A.A., Sr. Tech.Study Schedule:

Test Beginning: 4-27-04, 1420 hrs.

Test Ending: 4-27-04, 1500 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Rd., Newport, OR 97365.Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Plant effluent, 24-ltr composite. Details are as follows:

NAS Sample Number	8899F
Collection Date	4-26-04
Receipt Date	4-27-04
Temperature (°C)	4.2
Conductivity (µmhos/cm)	1,990
pH	7.1
Hardness (mg/L as CaCO <sub>3</sub> )	94
Alkalinity (mg/L as CaCO <sub>3</sub> )	40
Salinity (ppt)	<0.5
Dissolved oxygen (mg/L)	11.2
Ammonia-N (mg/L)	1.73

Treatments: The sample was briefly temperature equilibrated prior to use.Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon, seawaterDate of Collection: 4-27-04Water Quality: Salinity, 32.0; pH, 8.0Pretreatment: Filtered to 0.40 µm, aerated.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 4-20-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Sand Dollar, *Dendraster excentricus*

Age: Sperm were used immediately after seawater activation.

Source: Marinus, Scientific, Garden Grove, CA.

Acclimation: Adults were received on 4-16-04 and held in flowing seawater until used for testing. Water quality conditions during holding prior to testing averaged: temperature,  $11.6 \pm 1.4^\circ \text{C}$ , dissolved oxygen;  $8.8 \pm 0.2$  mg/L; salinity,  $31.6 \pm 0.9$  ppt, and pH  $8.2 \pm 0.1$ .

Source of Gametes: 2 females and 1 males.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 16 mm x 100 mm unwashed new borosilicate disposable glass test tubes containing 5 ml of test solution.

Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, and 0% (Control).

Brine Control: A brine control was run in which Milli-Q® deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Eggs per Test Container: 1000

Sperm:Egg Ratio: 500:1

Sperm Exposure Time: 20 minutes

Time for Fertilization: 20 minutes

Volume of Subsamples Taken for Counting: 1 ml

Water Volume Changes: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criterion was absence of fertilization as indicated by lack of a fertilization membrane in the preserved eggs.

Water Quality and Other Test Conditions: Temperature,  $12.4^\circ \text{C}$ ; dissolved oxygen,  $8.4 \pm 0.1$  mg/L; salinity,  $32.2 \pm 0.4$  ppt; and pH,  $8.0 \pm 0.0$ . Photoperiod: NA

**DATA ANALYSIS METHODS**

The proportion of fertilized eggs was calculated for each treatment replicate from the raw data and the means were obtained for each treatment level. The latter were then corrected for control response using Abbott's formula. The EC50 was calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was calculated by linear interpolation with bootstrapping. Toxic units (TU<sub>c</sub>) were computed as 100/NOEC, 100/EC50, or 100/IC25. NOEC and LOEC values were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was ToxCalc, v.5.0.23N, Tidepool Scientific Software.

**PROTOCOL DEVIATIONS**

None.

**REFERENCE TOXICANT TEST**

The routine reference toxicant test is a standard multi-concentration toxicity test using sodium azide to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1763

Reference Toxicant and Source: Sodium azide (Sigma Lot No. 68F-0834), 1.0 mg/mL stock prepared on 4-27-04.

Test Date: 4-27-04

Dilution Water Used: Yaquina Bay, OR, Salinity 32.0 ppt, pH 8.0.

Results: EC50, 175 mg/L; NOEC, 17 mg/L; and IC25, 135 mg/L. The EC50 result was within the laboratory's control chart limits (EC50, 61.7 to 186 mg/L).

**TEST RESULTS**

A detailed tabulation of the test results is given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50 and IC25 for inhibition of fertilization are shown below.

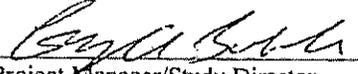
NOEC (%)	15.0 (TU <sub>c</sub> =6.67)
LOEC (%)	>15.0 (TU <sub>c</sub> <6.67)
EC50 (%)	>15.0 (TU <sub>c</sub> <6.67)
(95% C.I.)	---
Method of Calculation	By data inspection
IC25 (%)	>15.0 (TU <sub>c</sub> <6.67)
(95% C.I.)	---
Method of Calculation	Linear Interpolation

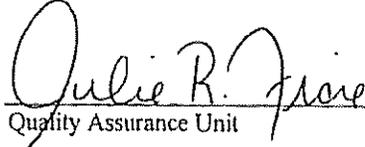
**DISCUSSION/CONCLUSIONS**

The NOEC in this study was 15.0 % effluent, and the EC50 and IC25 for fertilization were both >15.0 %.

Table 2 shows the results of the brine control, egg-effluent control, and egg-control tests. Statistical comparison of the brine control, at the level used in the highest effluent test, with the normal control showed that there was no statistical difference in response. No fertilization response was observed in both the egg-only no-sperm controls and the egg-effluent no-sperm control.

**STUDY APPROVAL**

 6-18-04  
Project Manager/Study Director Date

 6-18-04  
Quality Assurance Unit Date

 6/18/04  
Manager, Toxicology Date

Table 1. Fertilization response of Sand Dollar, *Dendraster excentricus*, sperm exposed to City of Juneau, 24 hour effluent composite.

Effluent Conc. (%)	Replicate	Eggs Counted		Proportion Fertilized		
		Fertilized	Unfertilized	Mean**	Adjusted**	
15.0	1	94	6	0.940		
	2	94	6	0.940		
	3	91	9	0.910		
	4	92	8	0.920	0.928	0.984
8.0	1	84	16	0.840		
	2	97	3	0.970		
	3	94	6	0.940		
	4	89	11	0.890	0.910	0.966
3.8	1	91	9	0.910		
	2	96	4	0.960		
	3	99	1	0.990		
	4	94	6	0.940	0.950	1.008
2.0	1	94	6	0.940		
	2	99	1	0.990		
	3	87	13	0.870		
	4	94	6	0.940	0.935	0.992
1.0	1	97	3	0.970		
	2	99	1	0.990		
	3	92	8	0.920		
	4	93	7	0.930	0.953	1.011
Control	1	90	10	0.900		
	2	99	1	0.990		
	3	96	4	0.960		
	4	92	8	0.920	0.943	1.000

\*\* Treatment mean significantly ( $P < 0.05$ ) different from the control mean

Table 2. Response of brine controls, egg-effluent controls (no sperm), and egg-controls (no sperm).

Description	Replicate	Eggs Counted		Proportion Fertilized	
		Fertilized	Unfertilized	Mean	Adjusted
Brine control <sup>1</sup>	1	94	6	0.940	
	2	91	9	0.910	
	3	90	10	0.900	
	4	94	6	0.940	0.923
Egg-effluent control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000
Egg control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000

<sup>1</sup> The brine control is prepared by substituting deionized water for the effluent at the highest effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-15

Title: Pacific oyster (*Crassostrea gigas*) bivalve larvae test using static 48-hr exposure to an effluent.

Protocol No.: NAS-XXX-CG/MG2, August 28, 1990, Revision 3 (9-8-01). This protocol complies with the U.S. EPA West Coast chronic toxicity manual (EPA/600/R-95/136), ASTM bivalve toxicity method (E 724-89), and the WDOE toxicity guidance manual (WQ-R-95-80).

## STUDY MANAGEMENT

Study Sponsor: Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.

Sponsor's Study Monitor: Ms. Kathy Carlson.

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory.

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man.; G.J. Irissarri, B.S., Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Toxicologist.

Study Schedule:

Test Beginning: 7-29-04, 2045 hrs.

Test Ending: 7-31-04, 2000 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Road, Newport, OR 97365.

Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Plant effluent, 24-hr composite. Details are as follows:

NAS Sample Number	9254F
Collection Date	7-27-04
Receipt Date	7-27-04
Temperature (°C)	2.9
Conductivity (µmhos/cm)	1,150
pH	7.4
Hardness (mg/L as CaCO <sub>3</sub> )	187
Alkalinity (mg/L as CaCO <sub>3</sub> )	80
Salinity (ppt)	1.0
Dissolved oxygen (mg/L)	13.9
Ammonia-N (mg/L)	1.4

Treatments: The sample was briefly temperature equilibrated prior to use.

Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon.

Date of Collection: 7-28-04

Water Quality: Salinity, 30.0 ppt; pH, 8.0

Pretreatment: Filtered to 0.4 µm, aerated, salinity adjusted with Milli-Q water.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 4-20-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Pacific oyster (*Crassostrea gigas*).

Age: 1.9 hours post-fertilization.

Source: Oregon Oyster Farm, Newport, OR.

Conditioning: Adult oysters were received on 7-29-04 and used upon receipt.

Source of Gametes: 2 females and 2 males.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 30 ml borosilicate glass vials containing 10 ml of test solutions.

Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, 0% (control) and brine control.

Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Initial Concentration of Test Organisms: 19.6/ml

Volume of Subsamples Taken for Counting: NA

Water Volume Changes per 24 hr: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criteria used were: 1) failure of embryos to survive and produce completely developed shells; and 2) mortality. Data collected were: 1) the initial embryo density; 2) the number of abnormal larvae observed; and 3) the number of normal (live with completely developed shells) larvae observed.

Water Quality and Other Test Conditions: Temperature, 20.2 ± 0.2°C; dissolved oxygen, 7.2 ± 0.2 mg/L; salinity, 30.0 ± 0.0 ppt; and pH, 8.0 ± 0.1. Photoperiod 16:8 hr, L:D.

**DATA ANALYSIS METHODS**

The proportion of normal larvae, and the proportion of surviving larvae were calculated for each treatment replicate. The means were obtained for each treatment level and the latter were then corrected for control response using Abbott's formula.

The LC50 (survival) and the EC50 (normality) were calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was determined by linear interpolation with bootstrapping. NOEC and LOEC values for survival and normality were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was Toxcalc, v.5.0.23, Tidepool Scientific Software. Toxic units (TU<sub>c</sub>) were computed as 100/NOEC, 100/EC50, or 100/IC25.

**PROTOCOL DEVIATIONS**

Sample was older than 36 hours from sample collection.

**REFERENCE TOXICANT TEST**

The routine reference toxicant test is a standard multi-concentration toxicity test using cadmium chloride to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1807

Reference Toxicant and Source: Cadmium as CdCl<sub>2</sub> • 2.5H<sub>2</sub>O, Mallinckrodt lot #TNZ, 1 mg/ml stock prepared 4-2-03.

Test Date: 7-29-04

Dilution Water Used: Yaquina Bay, OR seawater. Salinity, 30.0 ppt; pH, 8.0.

Results: EC50, 1.06 mg/L; NOEC, 0.5 mg/L; IC25, 0.76 mg/L. These results are within the laboratory's control chart warning limits (EC50, 0.09 – 2.04 mg/L).

**TEST RESULTS**

Detailed tabulations of the test results are given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50/LC50 for normality and survival are summarized below.

	Normal/Survived	Survival
NOEC (%)	15.0 (TU <sub>c</sub> =6.67)	15.0 (TU <sub>c</sub> =6.67)
LOEC (%)	>15.0 (TU <sub>c</sub> <6.67)	>15.0 (TU <sub>c</sub> <6.67)
EC50/LC50 (%)	>15.0 (TU <sub>c</sub> <6.67)	>15.0 (TU <sub>c</sub> <6.67)
(95% C.I.)	---	---
Method of Calculation	By data inspection	By data inspection
IC25 (%)	>15.0 (TU <sub>c</sub> <6.67)	
(95% C.I.)	---	
Method of Calculation	Linear Interpolation	

**DISCUSSION/CONCLUSIONS**

The NOEC in this study was 15.0% effluent and the EC50 and IC25 for normal development were both >15.0%. The brine control test indicated that the brine did not contribute to effluent toxicity.

**STUDY APPROVAL**

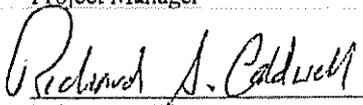
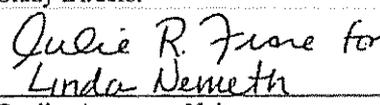
	9-9-04		9-9-04
Project Manager	Date	Study Director	Date
	9/9/04		9-9-04
Laboratory Director	Date	Quality Assurance Unit	Date

Table 1. Test response of Pacific oyster (*Crassostrea gigas*), larvae exposed to WUD, Juneau-Douglas Plant effluent.

Test Material Concentration (%)	Repl.	Norm.	Abn.	Total	Proportion Normal*		Proportion Survived*	
					Mean	Adjust.	Mean	Adjust.
15	1	140	4	144	0.714		0.735	
	2	148	6	154	0.755		0.756	
	3	147	3	150	0.750		0.765	
	4	123	6	129	0.628	0.712	0.658	0.736
8.0	1	142	6	148	0.725		0.755	
	2	126	1	127	0.643		0.648	
	3	129	8	137	0.658		0.699	
	4	140	5	145	0.714	0.685	0.740	0.711
3.8	1	123	5	128	0.628		0.653	
	2	127	0	127	0.648		0.648	
	3	144	8	152	0.735		0.776	
	4	132	4	136	0.674	0.671	0.694	0.693
2.0	1	149	8	157	0.760		0.801	
	2	142	10	152	0.725		0.776	
	3	134	5	139	0.684		0.709	
	4	137	9	146	0.699	0.717	0.745	0.758
1.0	1	129	8	137	0.658		0.699	
	2	146	7	153	0.745		0.781	
	3	141	4	145	0.719		0.740	
	4	135	6	141	0.689	0.703	0.719	0.735
Normal Control	1	135	8	143	0.689		0.730	
	2	143	6	149	0.730		0.760	
	3	138	10	148	0.704		0.755	
	4	145	8	153	0.740	0.716	0.781	0.756
Brine Control <sup>1</sup>	1	142	5	147	0.725		0.750	
	2	137	8	145	0.699		0.740	
	3	136	6	142	0.694		0.725	
	4	147	4	151	0.750	0.717	0.770	0.746

\* Based on an average initial count of 196 embryos per 10 ml sample.

\*\* Result significantly different ( $P \leq 0.05$ ) from the control.

<sup>1</sup> Milli-Q<sup>®</sup> deionized water substituted for effluent in test solution preparation so that the brine concentration is equivalent to that for the 15% effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-16

Title: Echinoderm sperm-fertilization test using static exposure to effluent.

Protocol No.: NAS-XXX-SP/DE2, August 10, 1990 (Revision 3, 10-24-02). Based on: Method 1008.0, Sea Urchin, *Strongylocentrotus purpuratus*, and Sand Dollar, *Dendraster excentricus*, fertilization test, pp. 389-465, In: Short term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms, EPA/600/R-95/136.

## STUDY MANAGEMENT

Study Sponsor: City of Juneau, Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.

Sponsor's Study Monitor: Ms. Kathy Carlson

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man./Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Aq. Toxicol.; W.T. Montgomery, A.A., Sr. Tech.

Study Schedule:

Test Beginning: 7-28-04, 1520 hrs.

Test Ending: 7-28-04, 1600 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Rd., Newport, OR 97365.

Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Plant effluent, 24-hr composite. Details are as follows:

NAS Sample Number	9254F
Collection Date	7-27-04
Receipt Date	7-27-04
Temperature (°C)	2.9
Conductivity (µmhos/cm)	1,150
pH	7.4
Hardness (mg/L as CaCO <sub>3</sub> )	187
Alkalinity (mg/L as CaCO <sub>3</sub> )	80
Salinity (ppt)	1.0
Dissolved oxygen (mg/L)	13.9
Ammonia-N (mg/L)	1.4

Treatments: The sample was briefly temperature equilibrated prior to use.

Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon, seawater

Date of Collection: 7-28-04

Water Quality: Salinity, 32.0; pH, 7.9

Pretreatment: Filtered to 0.40 µm, aerated.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 4-20-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Sand Dollar, *Dendraster excentricus*

Age: Sperm were used immediately after seawater activation.

Source: Marinus, Scientific, Garden Grove, CA.

Acclimation: Adults were received on 7-23-04 and held in flowing seawater until used for testing. Water quality conditions during holding prior to testing averaged: temperature, 18.0 °C, dissolved oxygen; 7.1 mg/L; salinity, 32.3 ppt, and pH 7.8.

Source of Gametes: 3 females and 2 males.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 16 mm x 100 mm unwashed new borosilicate disposable glass test tubes containing 5 ml of test solution.

Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, and 0% (Control).

Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Eggs per Test Container: 1000

Sperm:Egg Ratio: 500:1

Sperm Exposure Time: 20 minutes

Time for Fertilization: 20 minutes

Volume of Subsamples Taken for Counting: 1 ml

Water Volume Changes: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criterion was absence of fertilization as indicated by lack of a fertilization membrane in the preserved eggs.

Water Quality and Other Test Conditions: Temperature, 12.8 °C; dissolved oxygen, 8.6 ± 0.1 mg/L; salinity, 32.2 ± 0.4 ppt; and pH, 7.8 ± 0.0. Photoperiod: NA

**DATA ANALYSIS METHODS**

The proportion of fertilized eggs was calculated for each treatment replicate from the raw data and the means were obtained for each treatment level. The latter were then corrected for control response using Abbott's formula. The EC50 was calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was calculated by linear interpolation with bootstrapping. Toxic units (TU<sub>c</sub>) were computed as 100/NOEC, 100/EC50, or 100/IC25. NOEC and LOEC values were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was ToxCalc, v.5.0.23N, Tidepool Scientific Software.

**PROTOCOL DEVIATIONS**

None.

## REFERENCE TOXICANT TEST

The routine reference toxicant test is a standard multi-concentration toxicity test using sodium azide to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1811

Reference Toxicant and Source: Sodium azide (Sigma Lot No. 68F-0834), 1.0 mg/mL stock prepared on 4-28-04.

Test Date: 7-28-04

Dilution Water Used: Yaquina Bay, OR, Salinity 32.0 ppt, pH 7.9.

Results: EC50, 132 mg/L; NOEC, 47 mg/L; and IC25, 102 mg/L. The EC50 result was within the laboratory's control chart limits (EC50, 59.6 to 203 mg/L).

## TEST RESULTS

A detailed tabulation of the test results is given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50 and IC25 for inhibition of fertilization are shown below.

NOEC (%)	15.0 ( $TU_c=6.67$ )
LOEC (%)	>15.0 ( $TU_c<6.67$ )
EC50 (%)	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---
Method of Calculation	By data inspection
IC25 (%)	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---
Method of Calculation	Linear Interpolation

## DISCUSSION/CONCLUSIONS

The NOEC in this study was 15.0 % effluent, and the EC50 and IC25 for fertilization were both >15.0 %.

Table 2 shows the results of the brine control, egg-effluent control, and egg-control tests. Statistical comparison of the brine control, at the level used in the highest effluent test, with the normal control showed that there was no statistical difference in response. No fertilization response was observed in both the egg-only no-sperm control and the egg-effluent no-sperm control.

## STUDY APPROVAL

Bryon B. Butler 9-9-04  
Project Manager/Study Director Date

Julie R. Fure for  
Linda Nemeth 9-9-04  
Quality Assurance Unit Date

Richard A. Howell 9/9/04  
Laboratory Director Date

Table 1. Fertilization response of Sand Dollar, *Dendraster excentricus*, sperm exposed to City of Juneau, 24 hour effluent composite.

Effluent Conc. (%)	Replicate	Eggs Counted		Proportion Fertilized		
		Fertilized	Unfertilized	Mean**	Adjusted**	
15.0	1	97	3	0.970	0.973	1.029
	2	98	2	0.980		
	3	97	3	0.970		
	4	97	3	0.970		
8.0	1	94	6	0.940	0.948	1.003
	2	94	6	0.940		
	3	98	2	0.980		
	4	93	7	0.930		
3.8	1	97	3	0.970	0.980	1.037
	2	100	0	1.000		
	3	99	1	0.990		
	4	96	4	0.960		
2.0	1	96	4	0.960	0.955	1.011
	2	99	1	0.990		
	3	98	2	0.980		
	4	89	11	0.890		
1.0	1	99	1	0.990	0.970	1.027
	2	98	2	0.980		
	3	94	6	0.940		
	4	97	3	0.970		
Control	1	96	4	0.960	0.945	1.000
	2	96	4	0.960		
	3	94	6	0.940		
	4	92	8	0.920		

\*\* Treatment mean significantly ( $P < 0.05$ ) different from the control mean

Table 2. Response of brine controls, egg-effluent controls (no sperm), and egg-controls (no sperm).

Description	Replicate	Eggs Counted		Proportion Fertilized	
		Fertilized	Unfertilized	Mean	Adjusted
Brine control <sup>1</sup>	1	98	2	0.980	
	2	93	7	0.930	
	3	97	3	0.970	
	4	95	5	0.950	0.958
					1.013
Egg-effluent control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000
					---
Egg control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000
					---

<sup>1</sup> The brine control is prepared by substituting deionized water for the effluent at the highest effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-17

Title: Blue mussel (*Mytilus galloprovincialis*) bivalve larvae test using static 48-hr exposure to an effluent.

Protocol No.: NAS-XXX-CG/MG2, August 28, 1990, Revision 3 (9-8-01). This protocol complies with the U.S. EPA West Coast chronic toxicity manual (EPA/600/R-95/136), ASTM bivalve toxicity method (E 724-89), and the WDOE toxicity guidance manual (WQ-R-95-80).

## STUDY MANAGEMENT

Study Sponsor: Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.

Sponsor's Study Monitor: Ms. Cathy Carlson.

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory.

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man.; G.J. Irissarri, B.S., Study Dir.; L.K. Nemeth, B.A., M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Toxicologist; S.J. Gage, B.A., Tech.

Study Schedule:

Test Beginning: 11-11-04, 1545 hrs.

Test Ending: 11-13-04, 1510 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Road, Newport, OR 97365.

Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Plant effluent, 24-hr composite. Details are as follows:

NAS Sample Number	9659F
Collection Date	11-10-04
Receipt Date	11-11-04
Temperature (°C)	10.0
Conductivity (µmhos/cm)	2380
pH	7.0
Hardness (mg/L as CaCO <sub>3</sub> )	257
Alkalinity (mg/L as CaCO <sub>3</sub> )	110
Salinity (ppt)	2.0
Dissolved oxygen (mg/L)	9.5
Ammonia-N (mg/L)	10.5

Treatments: The sample was briefly temperature equilibrated prior to use.

Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon.

Date of Collection: 11-10-04

Water Quality: Salinity, 29.5 ppt; pH, 8.0

Pretreatment: Filtered to 0.4 µm, aerated, salinity adjusted with Milli-Q® water.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 8-30-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Blue mussel (*Mytilus galloprovincialis*).

Age: 3.5 hours post-fertilization.

Source: Carlsbad Aquafarm, Carlsbad, CA.

Conditioning: Adult mussels were received on 11-4-04 and placed in trays with flowing seawater. Water quality conditions in the trays during the week prior to testing averaged: temperature,  $11.0 \pm 1.1^\circ\text{C}$ ; dissolved oxygen,  $9.1 \pm 0.9$  mg/L; pH,  $8.0 \pm 0.2$ ; and salinity,  $30.8 \pm 0.3$  ‰.

Source of Gametes: 3 females and 3 males.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 30 ml borosilicate glass vials containing 10 ml of test solutions.

Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, 0% (control) and brine control.

Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Initial Concentration of Test Organisms: 21.8/ml

Volume of Subsamples Taken for Counting: NA

Water Volume Changes per 24 hr: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criteria used were: 1) failure of embryos to survive and produce completely developed shells; and 2) mortality. Data collected were: 1) the initial embryo density; 2) the number of abnormal larvae observed; and 3) the number of normal (live with completely developed shells) larvae observed.

Water Quality and Other Test Conditions: Temperature,  $15.3 \pm 0.2^\circ\text{C}$ ; dissolved oxygen,  $8.3 \pm 0.1$  mg/L; salinity,  $29.9 \pm 0.3$  ppt; and pH,  $8.0 \pm 0.1$ . Photoperiod 16:8 hr, L:D.

**DATA ANALYSIS METHODS**

The proportion of normal larvae, and the proportion of surviving larvae were calculated for each treatment replicate. The means were obtained for each treatment level and the latter were then corrected for control response using Abbott's formula.

The LC50 (survival) and the EC50 (normality) were calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was determined by linear interpolation with bootstrapping. NOEC and LOEC values for survival and normality were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was Toxcalc, v.5.0.23, Tidepool Scientific Software. Toxic units ( $TU_c$ ) were computed as  $100/\text{NOEC}$ ,  $100/\text{EC50}$ , or  $100/\text{IC25}$ .

**PROTOCOL DEVIATIONS**

None

**REFERENCE TOXICANT TEST**

The routine reference toxicant test is a standard multi-concentration toxicity test using copper sulfate to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1871

Reference Toxicant and Source: Copper as  $CuSO_4 \cdot 5H_2O$ , Argent Lot No. 0195, 1.0 mg/ml stock prepared 3-24-04.

Test Date: 11-11-04

Dilution Water Used: Yaquina Bay, OR seawater. Salinity, 29.5 ppt; pH, 8.0.

Results: EC50, 10.1 mg/L; NOEC, 4.0 mg/L; IC25, 9.29 mg/L. These results are within the laboratory's control chart warning limits (EC50, 8.60 – 12.5 mg/L).

**TEST RESULTS**

Detailed tabulations of the test results are given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50/LC50 for normality and survival are summarized below.

	Normal/Survived	Survival
NOEC (%)	15.0 ( $TU_c=6.67$ )	15.0 ( $TU_c=6.67$ )
LOEC (%)	>15.0 ( $TU_c<6.67$ )	>15.0 ( $TU_c<6.67$ )
EC50/LC50 (%)	>15.0 ( $TU_c<6.67$ )	>15.0 ( $TU_c<6.67$ )
(95% C.I.)	---	---
Method of Calculation	By data inspection	By data inspection
IC25 (%)	>15.0 ( $TU_c<6.67$ )	
(95% C.I.)	---	
Method of Calculation	Linear Interpolation	

**DISCUSSION/CONCLUSIONS**

The NOEC in this study was 15.0% effluent and the EC50 and IC25 for normal development were both >15.0%. The brine control test indicated that the brine did not contribute to effluent toxicity.

**STUDY APPROVAL**

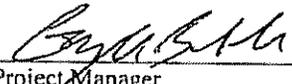
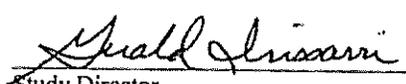
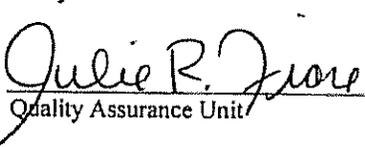
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 Laboratory Director Date Quality Assurance Unit Date  
 12-20-04

Table 1. Test response of Blue mussel (*Mytilus galloprovincialis*), larvae exposed to WUD, Juneau-Douglas Plant effluent.

Test Material Concentration (%)	Repl.	Norm.	Abn.	Total	Proportion Normal*		Proportion Survived*		
					Mean	Adjust.	Mean	Adjust.	
15	1	193	8	201	0.885		0.922		
	2	192	10	202	0.881		0.927		
	3	189	9	198	0.867		0.908		
	4	190	12	202	0.872	0.876	0.999	0.927	1.004
8.0	1	206	13	219	0.945		1.000		
	2	191	12	203	0.876		0.931		
	3	218	7	225	1.000		1.000		
	4	196	15	211	0.899	0.930	1.060	0.968	1.063
3.8	1	212	13	225	0.973		1.000		
	2	193	13	206	0.885		0.945		
	3	213	4	217	0.977		0.995		
	4	184	12	196	0.844	0.920	1.048	0.899	1.046
2.0	1	189	8	197	0.867		0.904		
	2	202	6	208	0.927		0.954		
	3	182	11	193	0.835		0.885		
	4	197	6	203	0.904	0.883	1.007	0.931	1.001
1.0	1	181	7	188	0.830		0.862		
	2	182	9	191	0.835		0.876		
	3	208	5	213	0.954		0.977		
	4	217	11	228	0.995	0.904	1.030	1.000	1.013
Normal Control	1	170	9	179	0.780		0.821		
	2	212	12	224	0.973		1.000		
	3	179	13	192	0.821		0.881		
	4	204	7	211	0.936	0.877	1.000	0.968	1.000
Brine Control <sup>1</sup>	1	201	11	212	0.922		0.973		
	2	205	8	213	0.940		0.977		
	3	189	14	203	0.867		0.931		
	4	215	13	228	0.986	0.929	1.059	1.000	1.058

\* Based on an average initial count of 218 embryos per 10 ml sample.

\*\* Result significantly different ( $P \leq 0.05$ ) from the control.

<sup>1</sup> Milli-Q<sup>®</sup> deionized water substituted for effluent in test solution preparation so that the brine concentration is equivalent to that for the 15% effluent concentration.

## TOXICITY TEST REPORT

## TEST IDENTIFICATION

Test No.: 564-18

Title: Echinoderm sperm-fertilization test using static exposure to effluent.

Protocol No.: NAS-XXX-SP/DE2, August 10, 1990 (Revision 3, 10-24-02). Based on: Method 1008.0, Sea Urchin, *Strongylocentrotus purpuratus*, and Sand Dollar, *Dendraster excentricus*, fertilization test, pp. 389-465.

In: Short term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms, EPA/600/R-95/136.

## STUDY MANAGEMENT

Study Sponsor: City of Juneau, Wastewater Utilities Div., Juneau-Douglas Plant, 1540 Thane Rd., Juneau, AK 99801.

Sponsor's Study Monitor: Ms. Cathy Carlson

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Man./Study Dir.; L.K. Nemeth, M.B.A., QA Officer; R.S. Caldwell, PhD, Sr. Aq. Toxicol.; W.T. Montgomery, A.A., Sr. Tech.

Study Schedule:

Test Beginning: 11-11-04, 1435 hrs.

Test Ending: 11-11-04, 1505 hrs.

Disposition of Study Records: All specimens, raw data, reports and other study records are stored according to Good Laboratory Practice regulations at Northwestern Aquatic Sciences, 3814 Yaquina Bay Rd., Newport, OR 97365.

Good Laboratory Practices: The test was conducted following the principles of Good Laboratory Practices (GLP) as defined in the EPA/TSCA Good Laboratory Practice regulations revised August 17, 1989 (40 CFR Part 792).

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

## TEST MATERIAL

Description: Plant effluent, 24-hr composite. Details are as follows:

NAS Sample Number	9659F
Collection Date	11-10-04
Receipt Date	11-11-04
Temperature (°C)	10.0
Conductivity (µmhos/cm)	2,380
pH	7.0
Hardness (mg/L as CaCO <sub>3</sub> )	257
Alkalinity (mg/L as CaCO <sub>3</sub> )	110
Salinity (ppt)	2.0
Dissolved oxygen (mg/L)	9.5
Ammonia-N (mg/L)	10.5

Treatments: The sample was briefly temperature equilibrated prior to use.

Storage: Stored at 4°C in the dark until used.

## DILUTION WATER

Source: Yaquina Bay, Oregon, seawater

Date of Collection: 11-11-04

Water Quality: Salinity, 32.0; pH, 7.9

Pretreatment: Filtered to 0.40 µm, aerated.

**BRINE USED FOR SALINITY CONTROL**

Source: Filtered Yaquina Bay, OR seawater.

Salinity: 100 ppt.

Date of Preparation: 8-30-04

Method of Preparation: Freezing method.

**TEST ORGANISMS**

Species: Sand Dollar, *Dendraster excentricus*

Age: Sperm were used immediately after seawater activation.

Source: Marinus Scientific, Garden Grove, CA.

Acclimation: Adults were received on 11-3-04 and held in flowing seawater until used for testing. Water quality conditions during holding prior to testing averaged: temperature,  $12.3 \pm 2.9^{\circ}\text{C}$ , dissolved oxygen;  $8.9 \pm 1.5$  mg/L; salinity,  $30.7 \pm 0.3$  ppt, and pH  $8.1 \pm 0.2$ .

Source of Gametes: 2 females and 1 males.

**TEST PROCEDURES AND CONDITIONS**

Test Chambers: 16 mm x 100 mm unwashed new borosilicate disposable glass test tubes containing 5 ml of test solution.

Test Concentrations: 15, 8.0, 3.8, 2.0, 1.0, and 0% (Control).

Brine Control: A brine control was run in which Milli-Q<sup>®</sup> deionized water was substituted for effluent in the preparation of the test solution. As a result the amount of brine in the brine control was the same as used in the 15% effluent test.

Replicates/Treatment: 4

Eggs per Test Container: 1000

Sperm:Egg Ratio: 1000:1

Sperm Exposure Time: 20 minutes

Time for Fertilization: 20 minutes

Volume of Subsamples Taken for Counting: 1 ml

Water Volume Changes: None (non-renewal static test).

Aeration: None

Feeding: None

Effects Criteria: The effect criterion was absence of fertilization as indicated by lack of a fertilization membrane in the preserved eggs.

Water Quality and Other Test Conditions: Temperature,  $12.4^{\circ}\text{C}$ ; dissolved oxygen,  $8.4 \pm 0.1$  mg/L; salinity,  $32.2 \pm 0.4$  ppt; and pH,  $7.8 \pm 0.1$ . Photoperiod: NA

**DATA ANALYSIS METHODS**

The proportion of fertilized eggs was calculated for each treatment replicate from the raw data and the means were obtained for each treatment level. The latter were then corrected for control response using Abbott's formula. The EC50 was calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Kärber methods. An IC25 was calculated by linear interpolation with bootstrapping. Toxic units (TU<sub>c</sub>) were computed as 100/NOEC, 100/EC50, or 100/IC25. NOEC and LOEC values were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was ToxCalc, v.5.0.23N, Tidepool Scientific Software.

**PROTOCOL DEVIATIONS**

None.

**REFERENCE TOXICANT TEST**

The routine reference toxicant test is a standard multi-concentration toxicity test using sodium azide to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-1872

Reference Toxicant and Source: Sodium azide (Sigma Lot No. 68F-0834), 1.0 mg/mL stock prepared on 11-11-04.

Test Date: 11-11-04

Dilution Water Used: Yaquina Bay, OR, Salinity 32.0 ppt, pH 7.9.

Results: EC50, 93.5 mg/L; NOEC, 28 mg/L; and IC25, 62.6 mg/L. The EC50 result was within the laboratory's control chart limits (EC50, 56.8 to 201 mg/L).

**TEST RESULTS**

A detailed tabulation of the test results is given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50 and IC25 for inhibition of fertilization are shown below.

NOEC (%)	15.0 (TU <sub>c</sub> =6.67)
LOEC (%)	>15.0 (TU <sub>c</sub> <6.67)
EC50 (%)	>15.0 (TU <sub>c</sub> <6.67)
(95% C.I.)	---
Method of Calculation	By data inspection
IC25 (%)	>15.0 (TU <sub>c</sub> <6.67)
(95% C.I.)	---
Method of Calculation	Linear Interpolation

**DISCUSSION/CONCLUSIONS**

The NOEC in this study was 15.0 % effluent, and the EC50 and IC25 for fertilization were both >15.0 %.

Table 2 shows the results of the brine control, egg-effluent control, and egg-control tests. Statistical comparison of the brine control, at the level used in the highest effluent test, with the normal control showed that there was no statistical difference in response. No fertilization response was observed in both the egg-only no-sperm control and the egg-effluent no-sperm control.

**STUDY APPROVAL**

*Carol A. Gubler* 12-20-04  
Project Manager/Study Director Date

*Julie R. Fjord* 12-20-04  
Quality Assurance Unit Date

*Richard D. Caldwell* 12/20/04  
Laboratory Director Date

Table 1. Fertilization response of Sand Dollar, *Dendraster excentricus*, sperm exposed to City of Juneau, 24 hour effluent composite.

Effluent Conc. (%)	Replicate	Eggs Counted		Proportion Fertilized	
		Fertilized	Unfertilized	Mean**	Adjusted**
15.0	1	91	9	0.910	
	2	88	12	0.880	
	3	93	7	0.930	
	4	96	4	0.960	0.920
8.0	1	88	12	0.880	
	2	89	11	0.890	
	3	90	10	0.900	
	4	94	6	0.940	0.903
3.8	1	90	10	0.900	
	2	89	11	0.890	
	3	85	15	0.850	
	4	94	6	0.940	0.895
2.0	1	96	4	0.960	
	2	91	9	0.910	
	3	87	13	0.870	
	4	89	11	0.890	0.908
1.0	1	89	11	0.890	
	2	84	16	0.840	
	3	92	8	0.920	
	4	95	5	0.950	0.900
Control	1	85	15	0.850	
	2	88	12	0.880	
	3	92	8	0.920	
	4	87	13	0.870	0.880

\*\* Treatment mean significantly ( $P < 0.05$ ) different from the control mean

Table 2. Response of brine controls, egg-effluent controls (no sperm), and egg-controls (no sperm).

Description	Replicate	Eggs Counted		Proportion Fertilized	
		Fertilized	Unfertilized	Mean	Adjusted
Brine control <sup>1</sup>	1	89	11	0.890	
	2	84	16	0.840	
	3	90	10	0.900	
	4	93	7	0.930	0.890 1.011
Egg-effluent control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000 ---
Egg control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000 ---

<sup>1</sup>The brine control is prepared by substituting deionized water for the effluent at the highest effluent concentration.

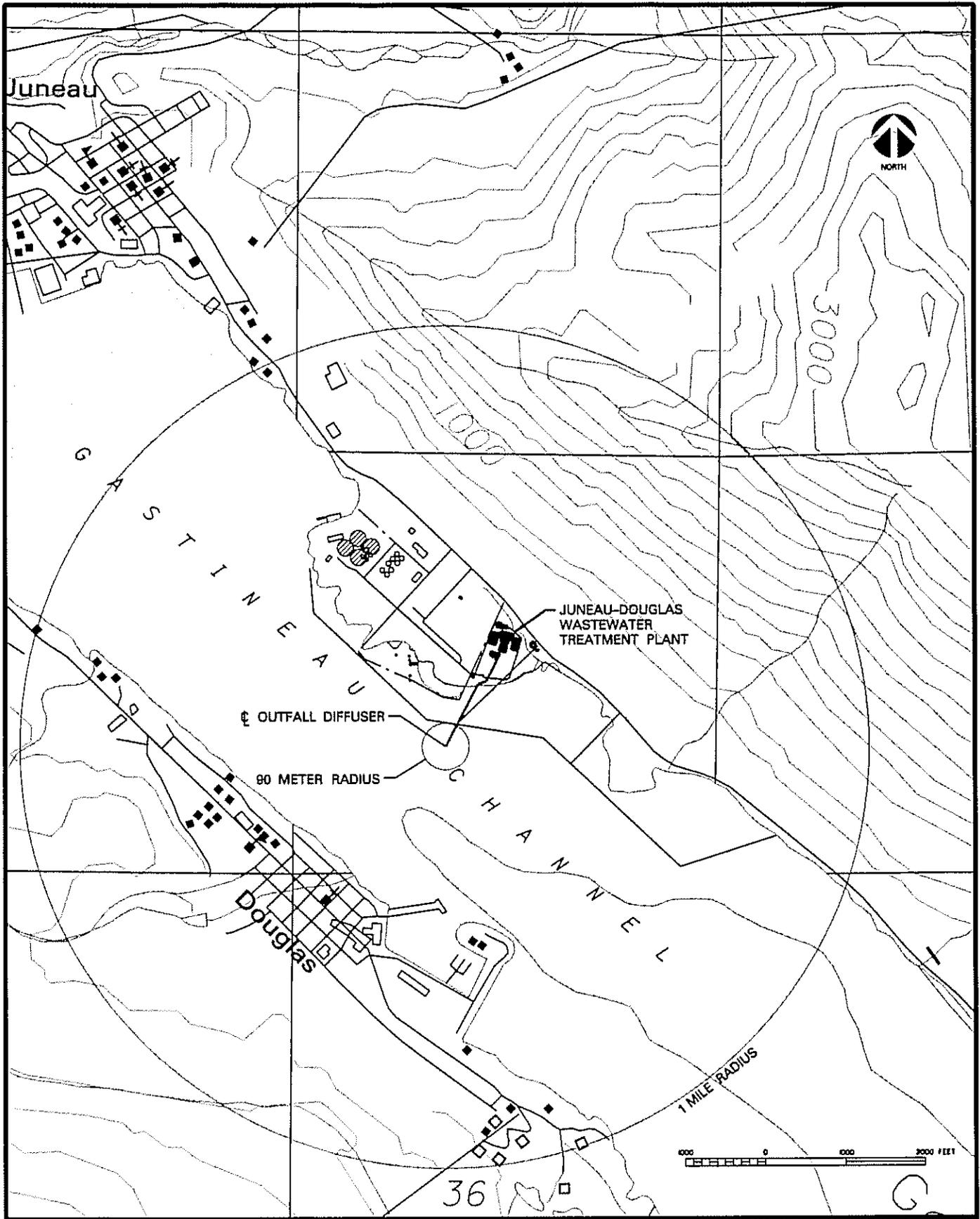


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