Wingard

Pre-Filed Testimony of Greg Wingard

Submitted on behalf of Appellant
Airport Communities Coalition

PCHB No. 01-160
ACC & CASE v. Dept. of Ecology & Port of Seattle

February 22, 2002

Smith & Lowney, p.l.l.c.
2317 East John Street
Seattle, Washington 98112
(206) 860-2883

I, Greg Wingard, declare as follows:

1. The following is based on personal knowledge to which I am competent to testify before the Board. A copy of my resume is attached to this statement as Exhibit A.

2. I have worked extensively on issues related to the SeaTac International Airport's NPDES permit since 1994 in my capacity as a consultant, at various times, to CASE, the City of Des Moines, the Airport Communities Coalition, and individual area residents, and in my capacity as the Executive Director of Waste Action Project. This work has included reviewing NPDES permit applications, working on NPDES permit appeals, reviewing of discharge monitoring reports from 1994 to present, participating in site inspections, including inspection of the airport's listed NPDES permitted outfalls, site sampling activities, and photographing of the site. I have reviewed Discharge Monitoring Reports for Sea-Tac International Airport related to permit #WA-002465-1 from 1994, to December of 2001, annual stormwater reports for the airport from 1996 to 2001, and construction related sampling data from 1998 to October of 2001. My review of documents included the Port of Seattle's 1996 Section 404 application, which was later withdrawn in 1998, as well as the existing Section 401 certification-related materials.

3. As an environmental consultant for the past 18 years and in my capacity as Executive Director of Waste Action Project since 1994, I have thoroughly reviewed well over one hundred Department of Ecology NPDES permit files and become very familiar with Ecology's administration of the NPDES program, especially including public comment processes.

4. I have filed a number of record requests under the Public Disclosure Act with Ecology that are relevant to the Airport Community Coalition's pending appeal of the 401 Certification. On June 5, I asked for all records related to monitoring of construction related

Smith & Lowney, p.l.l.c.
2317 East John Street
Seattle, Washington 98112
(206) 860-2883

outfalls at Sea-Tac International Airport, based on Ecology's representation that they had such information. On August 13, I asked for all upstream and downstream monitoring for each phase of construction at Sea-Tac, based on Ecology's claim in the NPDES Permit Modification Responsiveness Summary that such data had been collected. On September 24, I requested copies of Sea-Tac's recent Discharge Monitoring Reports for April through August 2001.

5. Ecology was unable to provide even one record related to construction outfall monitoring, or upstream downstream monitoring of phases of construction. They did provide the four months of DMRs, but failed to provide a copy of the June 14, 2001 explanation letter for the TSS violations from May. When I talked with Department of Ecology Water Quality Section Supervisor John Drabek about this, Mr. Drabek told me that Ecology does not have any of the records requested in my June and August PDA requests -- that is, records of monitoring of construction related outfalls at Sea-Tac International Airport, and records of upstream and downstream monitoring for each phase of construction at Sea-Tac. He explained that the records exist, but said I would need to contact Tom Hubbard at the Port of Seattle and get them from him.

6. I contacted Mr. Hubbard and obtained copies of the Port's construction site stormwater monitoring reports from 1998 to October 2001. The construction stormwater monitoring reports show repeated violations of the Washington State water quality criteria for turbidity, as found in WAC 173-201A-030. The water quality standard for turbidity is violated when a discharge increases the turbidity of the surface water by more than 5 NTU (when the background level is 50 NTU or less), or by more than 10% (when the background level is more than 50 NTU). WAC 173-201A-030(1)(c)(vi). The Port's construction stormwater discharges

Smith & Lowney, p.l.l.c.
2317 East John Street
Seattle, Washington 98112
(206) 860-2883

violated this water quality standard before the issuance of the 401 Certification, and have continued to do so since the issuance of the 401 Certification. This is in spite of the implementation of Best Management Practices that are supposed to prevent such violations and protect surface water quality.

7. Attached as Exhibit B to this declaration are examples of "STIA Construction Site Stormwater Monitoring" reports from June, September, October, and November 2001. These exhibits show the following violations of the water quality criteria for turbidity:

Table 1: Examples of Violations of the Water Quality Standard for Turbidity Resulting From Construction-Related Stormwater Discharges at STIA

DATE	SITE	UPSTREAM	DOWNSTREAM	DIFFERENCE	EX B PAGE
10/16/00	Tvee Pond	13.2	18.4	5.2	1
10/20/00	Air Traffic	50.6	176.2	125.6	2
10/20/00	S.T.E.P. North	31.5	61.6	30.1	3
11/8/00	S.T.E.P. North	62.0	74.0	12.0	4
11/26/00	Air Traffic	36.0	45.0	9	5
6/28/01	SR 509/S. Temp.	9	33	24	6
9/26/01	S.T.E.P.	16.4	33.6	17.2	7
9/26/01	S.T.E.P.	16.4	31	14.6	7

8. I have reviewed the Port of Seattle's Discharge Monitoring Reports to determine whether the Port has notified Ecology about the existence of this monitoring data, as required by Permit Condition S.3.F. None of the Discharge Monitoring Reports or other correspondence submitted by the Port provide any such notification to Ecology. Attached as Exhibit C is the Discharge Monitoring Reports from the most recent month for which reports are available -- December 2001. I would also note that the Port does not include any summary of this construction-related discharge monitoring data in its Annual Stormwater Monitoring Reports -- an apparent violation of Permit Condition S.2.E (*see also,* S.3.E).

Smith & Lowney, p.l.l.c.
2317 East John Street
Seattle, Washington 98112
(206) 860-2883

9. The Port's NPDES Permit plainly requires the Port to notify Ecology of any instances of noncompliance with the permit. *See,* Permit Condition S.3.G ("Noncompliance Notification"). The Port's failure to submit any such notification concerning the violations of the state water quality standard for turbidity at its construction sites indicates to me that the Port does not believe that violations of water quality standards constitute violations of its NPDES Permit. This is gravely disturbing given Ecology's reliance on the NPDES permit to safeguard water quality standards.

10. As my discussion with then-Permit Manager John Drabek indicates (*see,* Paragraph 5 above), Ecology was unaware of these violations -- and unaware of the failure of the Port's Best Management Practices to prevent violations of the water quality standards for turbidity. Further, since the construction related discharge and non-reporting violations have been going on for at least the last two or three years, this means that Ecology's certification that the Port was in compliance with its permit was mistaken. It also means that the Port was out of compliance with its NPDES Permit at the time Ecology issued the 401 Certification, and that the Port remains out of compliance with its permit today.

Water Quality Sampling During ACC Site Visits

11. I attended both of ACC's Site Visits to STIA. On Monday, January 28, 2002, I participated in water quality sampling at two stormwater outfalls -- SDS1 (003) and SDS3 (005). We obtained a total of nine grab samples -- six at outfall SDS1, and three at Outfall SDS3. At both sampling sites, we used sampling bottles that were supplied, and appropriately prepped, by Analytical Resources, Inc. -- an accredited lab. I assisted in part by recording the necessary information on the labels affixed to each individual sample bottle. I also dried the bottles, which

Smith & Lowney, p.l.l.c.
2317 East John Street
Seattle, Washington 98112
(206) 860-2883

were then stored in a cooler for the return trip to the lab. I took the cooler and samples back to the lab before 6:00 p.m. that day, and also filled out a "Chain of Custody Record & Laboratory Analysis Request."

During the second ACC Site Visit, on Thursday, January 31, 2002, I took three grab samples at Outfall SDS3. Once again, I used sample bottles that Analytical Resources, Inc. had provided and prepped. I filled out the individual labels for each sample, dried the bottles, and stored them in the cooler for the return trip to the lab. I took the cooler and samples back to the lab before 6:00 p.m. that day, and also filled out a "Chain of Custody Record & Laboratory Analysis Request." The results of the water quality samples taken on both site visits, as reported by Analytical Resources, Inc., along with the cover letters and Chain of Custody documents, are attached to this declaration as Exhibit D.

The Port of Seattle's Acceptance of Contaminated Soil from the Black River Site for Use as Fill in the Third Runway Embankment

12. I have reviewed the soil quality testing reports attached to this declaration as Exhibit E. These reports indicate even though laboratory analyses confirmed that soil from the Black River Site exceeded the acceptable screening criteria for copper, the Port accepted and used that soil for use in the Third Runway Embankment. *See,* Exh. E at Table 1 (page following page 6). The Port's apparent inability to control the turbidity levels in stormwater discharges from its construction sites, as discussed above, provides cause for concern that the contaminated soils from the Black River Site will be discharged directly to surface waters notwithstanding the Port's construction site BMPs.

Smith & Lowney, p.l.l.c.
2317 East John Street
Seattle, Washington 98112
(206) 860-2883

The Port of Seattle's NPDES Permit Renewal Application

13. I have reviewed the application to renew NPDES Permit WA-002465-1, submitted by the Port of Seattle to Ecology on December 20, 2001. A copy of the application is attached as Exhibit F to this declaration. The application confirms that the Port is proposing to use waters of the state to dilute the contaminated stormwater runoff from STIA. The application also indicates that the Port has proposed to consolidate and/or change the location of several stormwater outfalls and related monitoring stations. If implemented, these changes will result in the dilution of several waste streams and will degrade the ability of regulators to track the origin of discharge contaminates by the discharging basin.

Declared under penalty of perjury in Seattle, Washington on this 22nd day of February, 2002.

Greg Wingard

Greg Wingard

SMITH & LOWNEY, P.L.L.C.
2317 EAST JOHN STREET
SEATTLE, WASHINGTON 98112
(206) 860-2883

Pre-Filed Testimony
of
Greg Wingard

INDEX TO EXHIBITS

A. Curriculum Vitae of Greg Wingard

B. STIA Construction Site Stormwater Monitoring reports dated 10/16/00, 6/27/01, and 9/26/01

C. Sample DMR reports

D. Reports dated 2/11/02 from Analytical Resources, Inc. with results of sample analysis

E. December 12, 2001, Chemical Characterization Report from the Black River Quarry, prepared for Port by HartCrowser

F. December 20, 2001, NPDES Renewal Application

GREG WINGARD

Environmental Consultant

P.O. Box 4051
Seattle Wa. 98104-0051
(206) 322 -3061

ENVIRONMENTAL EXPERTISE

Project management, negotiation, pre-litigaiion and litigation support, document procurement and research, community relations, advisor to agencies and local government on environmental matters, policy and regulation, community and environmental activist.

EXPERIENCE SUMMARY

Mr. Wingard has been active in environmental issues for 20 years and operated his own firm for 12 years. He has performed services in site sampling, assessments, environmental research, PRP searches, CERCLA/RCRA/MTCA listed hazardous waste site research and negotiations, advised environmental groups, advisor to the Mayor of Kent, WA., and has provided services for over 30 clients. He is proficient with various Environmental Acts: Resource Conservation and Recovery Act, Superfund Law and Amendments (CERCLA/SARA/Title III), Clean Water Act, Solid Waste Disposal Act, National and State Environmental Policy Acts.

COMMITTEES/AWARDS

1984 - 97:	Kent, Wa.- Advisor to the Mayor for; Storm Water Drainage, the Kent Lagoon Project, Midway and Kent Highland Superfund Site Closures, Solid Waste, Sensitive Areas and Surface Water, SARA/Title III Emergency Planning, and Chair of the Wetland Ordinance Committee.
1986-89:	Puget Sound Air Pollution Control Agency Advisory Board.
1987-92:	South King County Ground Water Advisory Committee.
1988-90:	Department of Ecology, Ground Water Task Force.
1990:	Received Washington State Environmental Excellence Award for hazardous waste site cleanup work
1992-present:	King County Extension/Washington State University, Wetland Steward
1994-96:	Department of Ecology, Ground Water Quality Criteria Work Group
1998- 00	Department of Ecology, MTCA Policy Advisory Group

EMPLOYMENT HISTORY

1983 - Present:	Sole proprietor/environmental consultant
1990 - 94:	Manager of Environmental Division, Reliant Inc.
1994 - Present:	President(to 1998)/Executive Director of Waste Action Project

KEY PROJECTS

On Scene Coordinator and litigation consultant for NW Auto Wrecking, MTCA site. Responsible for assessing site, advising client on storm water permit, negotiating with agencies, screening contractors and litigation support. Complaint includes Tort and Model Toxics Control Act claims.

Project Manager for Red Table Mountain Environmental Assessment. Responsible for hiring and coordination of subcontractors, community relations plan, assisted lead agency (US Forest Service) in development of the Interagency Disciplinary Team, scheduling and time-line management and development of the administrative record for the client, Federal Aviation Administration/US Forest Service.

Assisted in hiring technical consultants, served as on-site representative, researched environmental laws, assisted in negotiations with EPA/Ecology, researched Potentially Responsible Parties (PRP's) and provided litigation support in action against PRPs at the Western Processing Superfund Site. The complaint pioneered the use of RICO environmental litigation.

Assisted client in negotiations with EPA and Ecology to prepare community relations plan, site closure consistent with RCRA and MTCA. Prepared client to develop a Remedial Investigation/Feasibility Study (RI/FS); performed on-site surveys, sampling and historical review, advised on legal parameters, data collection and contractor duties.

Advised/represented Association of Bainbridge Communities in negotiations with County/Ecology/EPA for Preliminary Assessment, Hazard Ranking, and Interim Remedial Measure. Reviewed technical data and reports by consultants and agencies, briefed clients on issues and impacts, assisted in developing strategies.

As President/Executive Director of Waste Action Project, has directed over thirty cases brought under federal environmental statutes. Responsibilities include hiring and directing attorneys, consultants and staff, negotiation with defendants and day to day operation of the organization. Has directed in excess of $500,000 from settlement funds to environmental projects throughout Washington State.

Advised Airport Communities Coalition, Regional Coalition on Airport Affairs, and Citizens Against Seatac Expansion on environmental issues. Tasks included site inspection, environmental regulation/policy, litigation assistance, hiring of consultants, and negotiation with government agencies.

REFERENCES

Ching-Pi Wang,
Senior Hydrogeologist
Department of Ecology
(206)649-7134

Peter Eglick, Esq.
Helsell Fetterman
(206) 292-1144

Larry Hard, Esq.
LeSourd & Patten
(206) 624-1040

STIA CONSTRUCTION SITE STORMWATER MONITORING
Date: 10/16/00
Rainfall (depth@date/time): 0.51"@10/16/00 - 1800
Samplers: JL, RS

SITE	Time	Turb	pH	Comments
Logistics Site Development				
site discharge: unnamed catch basin d/s of treatment facility	2026	182.7	9.57	
u/s: Tyee pond (south end)		13.2	7.24	
d/s: Tyee Pond outfall to Des Moines Ck		18.4	7.22	
IWS Lagoon 3 Construction				
site discharge: treatment facility** (see notes end of last page)	2045	--	--	not pumping.
				5+ ft of freeboard on holding pond
u/s: SDS3-594		--	--	
d/s: SDS-3 outfall weir		--	--	
Airfield Improvement				
site discharge: ditch west of construction staging area	2100	174.8	7.43	flow est. @ < or = 1 gps
u/s: ditch parallel to SR 509 onramp		--	--	ditch parallel to SR 509 onramp is dry
d/s: ditch parallel to SR 509 onramp		--	--	ditch parallel to SR 509 onramp is dry
site discharge: SDS-7 outfall	2115	3.2	7.72	
site discharge: SDS-6 outfall	2121	15.8	7.62	
site discharge: SDS3-594	2200	62.1	8.56	difficult to hold sampler in correct outfall
u/s: none		--	--	
d/s: Northwest Ponds outlet		--	--	failed to collect sample here.

Exh. 7

STIA CONSTRUCTION SITE STORMWATER MONITORING
Date: 10/20/00 Rainfall (depth@date/time): 0.72"@10/20/00 - 0550
Samplers: JB, RS

SITE	Time	Turb	pH	Comments
Dobbs Flight Kitchen Remodel				
site discharge: manhole SDE4-611	0810	--	--	no active construction
				no disturbed soil
for west side construction:				
u/s: SDE4-607		--	--	
d/s: SDE4-615		--	--	
for east side construction:				
u/s: SDE4-601 or SDE4-602		--	--	
d/s: SDE4-615		--	--	
Booster Pump Station				
site discharge: SDE4-911	0843	11.6	6.71	
u/s: SDE4-911		--	--	
d/s: SDE4-918		--	--	
Air Traffic Control Tower				
site discharge: SDE4-948 *(if no access, see notes end of last page)	0903	578*	10.83	*cut sample 50% w/ DI water twice.
				multiplied value by 4 to get this result.
u/s: SDE4-948 from N. outfall in vault	0913	50.6	8.40	d/s - u/s > 5 NTU
d/s: SDE4-958	0915	176.2	10.31	notified KL and DJ

STIA CONSTRUCTION SITE STORMWATER MONITORING
Date: 10/20/00 Rainfall (depth@date/time): 0.72"@10/20/00 - 0550
Samplers: JB, RS

SITE	Time	Turb	pH	Comments
Feeder 104/204 Replacement				
site discharge: catchbasin in grass ~10' fm International Blvd curb	0930	--	--	no construction activity
u/s: catchbasin at International Blvd curb due east of site discharge		--	--	
d/s: catchbasin at International Blve curb due south of u/s location		--	--	
South Terminal Expansion Project, North Ductbank				
site discharge: (A), SDE4-118		--	--	covered by heavy steel plates
site discharge: (B), outfall of culvert under sidewalk, west of Entry Drive near flag pavilion		--	--	no flow
site discharge: (C), SDE4-121		--	--	no flow
site discharge: SDE4-111	1000	49.3	7.99	
u/s: SDE4-059	1003	31.5	8.02	d/s - u/s > 5 NTU. Notified KL
d/s: SDE4-064	1017	61.6	7.58	
South Terminal Expansion Project				
site discharge: SDE4-065B	1030	--	--	no discharge
site discharge: unnamed manhole on 24th Ave north of S. 188 St.	1045	104.6	11.09	
u/s: SDE4-059	1003	31.5	8.02	u/s - d/s > 5 NTU. Notified KL
d/s: SDE4-074	1054	16.3	8.31	

STIA CONSTRUCTION SITE STORMWATER MONITORING

Date: 11/8/00 **Rainfall (depth@date - time):** 0.61" @ 11/8/00, 0600

Samplers: R. Simmons, S. Currie

Feeder 104/204 Replacement	Time	Turb	pH	Comments
site discharge: catchbasin in grass,~10' fm International Blvd curb	0945	-	-	No construction
u/s: catchbasin at International Blvd curb due east of site discharge		-	-	
d/s: catchbasin at International Blve curb due south of u/s location		-	-	
South Terminal Expansion Project, North Ductbank	**Time**	**Turb**	**pH**	**Comments**
site discharge: (A), SDE4-118	1010	1040.0	8.80	3 dilutions (8x130 NTU). Low flow, <1 gps.
site discharge: (B), outfall of culvert under sidewalk, west of Entry Drive near flag pavilion	1015	-	-	No flow. Hillside stabilized with hydro seeded grass
site discharge: (C), SDE4-121	1020	-	-	No flow into vault here
site discharge: SDE4-111	1030	44.4	6.69	
u/s: SDE4-059	1050	62.0	8.20	
d/s: SDE4-064	1040	74.0	6.80	lots of flow.
South Terminal Expansion Project	**Time**	**Turb**	**pH**	**Comments**
site discharge: SDE4-065B	1103	62.1	7.21	flow surges small dollop of water every 20 sec.
site discharge: unnamed manhole on 24th Ave north of S. 188 St.	1110	-	-	low flow, <0.1 gps
u/s: SDE4-059	1050	62.0	8.20	
d/s: SDE4-074	1120	10.8	6.29	

STIA CONSTRUCTION SITE STORMWATER MONITORING

Date: 11/26/00
Samplers: R. Simmons, S. Currie

Rainfall (depth@date - time): 0.52" @ 11/26/00, 1145
Rainfall (depth@date - time): 0.72" @ 11/26/00, 1345
Rainfall (depth@date - time): 0.84" @ 11/26/00, 1730

Dobbs Flight Kitchen Remodel	**Time**	**Turb**	**pH**	**Comments**
site discharge: manhole SDE4-611	1320	-	-	No construction @ Dobbs. Construction on east side of the HMS - Host Distribution Center.
for west side construction:				
u/s: SDE4-607		-	-	
d/s: SDE4-615		-	-	
for east side construction:				
u/s: SDE4-601 or SDE4-602		-	-	
d/s: SDE4-615		-	-	
Booster Pump Station	**Time**	**Turb**	**pH**	**Comments**
site discharge: SDE4-911	1345	22.2	5.71	
u/s: SDE4-911		-	-	
d/s: SDE4-918		-	-	
Air Traffic Control Tower	**Time**	**Turb**	**pH**	**Comments**
site discharge: SDE4-948 * (if no access, see notes end of last page)	1400	-	-	No access to site so -
u/s: SDE4-948 from N. outfall in vault	1410	36.0	6.06	sample taken at SDE4-930, (Manhole lid marked w/ "SEWER")
d/s: SDE4-958	1425	45.0	6.28	flow about 3-5 gps

STIA CONSTRUCTION SITE STORMWATER MONITORING

Samplers: K. Ludwa, J. Brandt
Date: 6/28/01

Rainfall (depth@date/time): 0.51 @ 2308, 6/27/01
Rainfall (depth@date/time): 0.52 @ 0500, 6/28/01

(18) Third Runway Enbankment Phase 4	Time	Turb	pH	Sheen? (Yes/No)	Comments
S. 160th St. Detention Ponds					
site discharge: observe where runoff fm pond construction enters Miller Ck.	0955	-	-	-	Pond not constructed yet - Discharge being collected and pumped to S. 157th PL detention pond
u/s: Miller Ck above point where runoff enters		-	-	-	
d/s: Miller Ck below point where runoff enters		-	-	-	
* THIS POND BEST DONE AFTER #(15)					
S. 157th Pl. Detention Pond					
site discharge: observe where runoff fm pond construction enters Miller Ck.	1000	-	-	-	No discharge.
u/s: Miller Ck above point where runoff enters		-	-	-	
d/s: Miller Ck below point where runoff enters		-	-	-	
(19) North Safety Fill Construction	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: diffuser pipe from settling pond	1020	-	-	-	No discharge.
u/s: Miller Ck. at culvert under road		-	-	-	
d/s: Miller Ck. at dam structure		-	-	-	
(20) Third Runway Embankment Phase 3	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: outfall in catchbasin vault on S. 156th Way near Miller Ck.	1015	-	-	-	No discharge.
u/s: Miller Ck. north of S. 156 Way		-	-	-	
d/s: Miller Ck. south of S. 156 Way		-	-	-	
(21) SR 509/S. 176th St. Temp. Interchange	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: two cell pond W. of SR509 below Walker Ck. outfall under SR509	0850	128	6.71	no	
u/s: Wetland 44a in concentrated channel above const.	0755	9	6.9	no	Same as u/s for Emb. Ph 3 const. & Stockpile
d/s: Wetland 43 100' below s/d two cell pond	0850	33	6.7	no	
site discharge: pond W. of SR509 S. of S. 168th St	0650	203	7.08	no	No discharge.
u/s: Wetland 44a in concentrated channel above const.		-	-	-	
d/s: Wetland 43 100' below s/d pond nr S. 168th St.		-	-	-	
(xx) Logistic Site (golf course)	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: golf course catchbasin	1250	-	-	no	Not enough flow to sample.
u/s: Tyee pond (south end)		-	-	-	
d/s: Tyee Pond outfall to Des Moines Ck	-	-	-	-	

Notes:

(1) if no access do s/d @ SDE4-958, u/s @ SDE4-930 (or SDE4-925), d/s @ SDE4-958

(2) if treating (or not pumping), no measurement required. If pumping w/ no treatment, measure @ spigot on ground line between settling tanks and holding pond.

(3) if treating (or not pumping), no measurement required. If pumping w/ no treatment, measure @ catchbasin in grass about 100' W. of intersection of 112th Ave S and 173 Ct.

Exh. 11

STIA CONSTRUCTION SITE STORMWATER MONITORING

Samplers: R. Simmons, S. Currie
Date: 9/26/01

Rainfall (depth@date/time): 0.50" @ 9/26/01, 1110
Rainfall (depth@date/time): 0.51" @ 9/26/01, 1254
Rainfall (depth@date/time): 0.43" @ 9/26/01, 1500

Booster Pump Station	Time	Turb	pH	Sheen? (Yes/No)	Comments
site discharge: SDE4-911	1240	-	-	-	Grass lawn and landscaping. No runoff in contact with open work area
u/s: SDE4-911		-	-	-	
d/s: SDE4-918		-	-	-	
Air Traffic Control Tower	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: SDE4-948 (if no access, see note (1) at end of the last page)	1300	65.5	6.27	no	very low flow
u/s: SDE4-948 from N. outfall in vault	1300	27.5	6.06	no	
d/s: SDE4-958	1310	28.0	6.33	no	
Roadway Lighting Upgrades	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge:	1318	-	-	-	No runoff in contact with open work area. Noted that exposed soil around man-
					hole 34 was poorly covered with straw and manhole 22 was poorly covered with
u/s:		-	-	-	windblown tarp.
d/s:		-	-	-	
Feeder 104/204 Replacement	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: catchbasin in grass ~10' fm International Blvd curb	1321	-	-	-	No exposed soil or work activity.
u/s: catchbasin at International Blvd curb due east of site discharge		-	-	-	
d/s: catchbasin at International Blve curb due south of s/d location		-	-	-	
Roads and Bridges Upgrades	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
site discharge: SDE4-282	1340	23.8	7.48	no	Low flow.
site discharge: SDE4-059	1345	16.4	7.65	no	Low flow.
u/s: SDE4-996		-	-	-	
d/s: SDE4-064		-	-	-	
South Terminal Expansion Project	**Time**	**Turb**	**pH**	**Sheen? (Yes/No)**	**Comments**
A. site discharge: SDE4-118	1335				Dry.
B. site discharge: outfall of culvert under sidewalk	1334				Dry.
C. site discharge: SDE4-121	1333				Dry.
D. site discharge: SDE4-111	1330	394	8.17	no	Very low flow. 2X dilution (98.5) x 4 = 394. Left mssg for D. Jenkins.
u/s: SDE4-059	1345	16.4	7.65	no	Low flow.
d/s: SDE4-064	1410	33.6	7.26	no	Moderate flow.
E. site discharge: SDE4-065B		-	-	-	Covered by tarp/sandbags from construction (2001 Airfield Improvement - 1?)
F. site discharge: unnamed manhole on 24th Ave	1535	172	7.76	no	Very low flow.
u/s: SDE4-059	1345	16.4	7.65	no	Low flow
d/s: SDE4-074	1548	31	7.32	no	Moderate flow.

AR 015240

Exh. 13

C

Permittee Name/Address
Include Name/Location (if different)

NAME SEA-TAC AIRPORT #681
ADDRESS PORT OF SEATTLE
P.O. BOX 68727, SEATTLE 98168
FACILITY SAME AS ABOVE
LOCATION SAME AS ABOVE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
DISCHARGE MONITORING REPORT(*DMR*)

WA-002465-1	001 (INS)
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2001	DEC	01	TO	2001	DEC	31

NOTE: Read instructions before completing this form.

Discharge Location	
Lat	47° 24' 7" N
Long	122° 20' 7" W
NO DISCHARGE	

Parameter		QUANTITY OR LOADING Average	Maximum	Units	QUALITY OR CONCENTRATION Minimum	Average	Maximum	Units	No. of Exceedances	Frequency of Analysis	Sample Type
FLOW*	Sample Measurement	*******	4500	GPM	*******	*******	*******	***	0	17/31	3xShift
	Permit Requirement	*******	4,800		*******	*******	*******			07/07	CONT.
pH	Sample Measurement	*******	*******	***	6.3	*******	6.63	STD	0	3/17	Grab
	Permit Requirement	*******	*******		6.0	*******	9.0	UNITS		01/07	GRAB
OIL AND GREASE	Sample Measurement	*******	*******	***	*******	<5	<5	mg/L	0	3/17	Grab
	Permit Requirement	*******	*******		*******	8	15			01/07	GRAB
TSS	Sample Measurement	*******	*******	***	*******	10.7	13	mg/L	0	3/17	Comp.
	Permit Requirement	*******	*******		*******	21	33			01/07	COMP.
BOD_5	Sample Measurement	*******	*******	***	*******	150	150	Mg/L	0	1/17	Comp.
	Permit Requirement	*******	*******		*******	*******	REPORT			01/30	COMP.
TOTAL GLYCOLS	Sample Measurement	*******	*******	***	*******	64.7	104.9	Mg/L	0	8/17	Comp.
	Permit Requirement	*******	*******		*******	*******	REPORT			01/30	COMP.
TPH	Sample Measurement	*******	*******	***	*******	.73/1.65	.73/1.65	Mg/L	0	1/17	Grab.
	Permit Requirement	*******	*******		*******	*******	REPORT			1/30	GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Michael D. Feldman, Director, Aviation Facilities	I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.		(206)439-7706 AREA CODE NUMBER	2002/JAN/28 YEAR MO DAY
TYPED OR PRINTED				

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
*DAILY FLOW REPORTING SHOULD BE SUBMITTED ON A SEPARATE SHEET.
According to Permit Condition S3E, the Port is notifying the Department of Ecology that this month, monitoring using methods and /or locations other than those specified in Special Condition S2 was performed.
* TPH reported as #2 Diesel and Motor Oil

RECEIVED
FEB 1 2002
DEPT OF ECOLOGY

Permittee Name/Address
Include Name/Location (if different)

NAME SEA-TAC AIRPORT #681
ADDRESS PORT OF SEATTLE
P.O. BOX 68727, SEATTLE 98168
FACILITY SAME AS ABOVE
LOCATION SAME AS ABOVE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
DISCHARGE MONITORING REPORT(DMR)

WA-002465-1	001 (INS)
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2001	DEC	01	TO	2001	DEC	31

NOTE: Read instructions before completing this form.

Discharge Location
Lat 47° 24' 7" N
Long 122° 20' 7" W
NO DISCHARGE ☐

Parameter		QUANTITY OR LOADING Average	Maximum	Units	QUALITY OR CONCENTRATION Minimum	Average	Maximum	Units	No. of Exceedances	Frequency of Analysis	Sample Type
FECAL COLIFORM	Sample Measurement	*******	*******	***	*******	6	6	#/100	0	1/17	Grab
	Permit Requirement	*******	*******		*******	*******	REPORT	mls		01/30	GRAB
PRIORITY POLLUTANT SCAN*	Sample Measurement	*******	*******	***	*******	*******	-	YES/	-	1/17	C/G
	Permit Requirement	*******	*******		*******	*******	REPORT	NO		1/YR	C/G**
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE
Michael D. Feldman Director, Aviation Facilities	I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.	Michael D. Feldman	(206) 439-7706	2002/JAN/22
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR MO DA

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
*ATTACH THE LABORATORY REPORT.
**C/G = COMPOSITE/GRAB.

AR 015243

POS SeaTac Airport IWTP Water Processing Log -- December 2001

Date	Average Flow Rate (gpm)	Volume (Gallons)
1-Dec-01	1669	2,403,000
2-Dec-01	2500	3,600,000
3-Dec-01	1500	2,160,000
4-Dec-01	1500	720,000
5-Dec-01	440	198,000
6-Dec-01	2504	3,606,000
7-Dec-01	2100	1,764,000
8-Dec-01	0	0
9-Dec-01	0	0
10-Dec-01	0	0
11-Dec-01	1207	1,086,000
12-Dec-01	1400	2,016,000
13-Dec-01	2588	3,726,000
14-Dec-01	3600	5,184,000
15-Dec-01	4200	6,048,000
16-Dec-01	3375	4,860,000
17-Dec-01	4500	6,480,000
18-Dec-01	3406	4,905,000
19-Dec-01	1500	2,160,000
20-Dec-01	3000	1,440,000
21-Dec-01	0	0
22-Dec-01	0	0
23-Dec-01	0	0
24-Dec-01	0	0
25-Dec-01	0	0
26-Dec-01	0	0
27-Dec-01	0	0
28-Dec-01	0	0
29-Dec-01	0	0
30-Dec-01	0	0
Total December 2001 Flow (Gallons)		**52,356,000**

D

X360

Analytical Resources, Incorporated
Analytical Chemists and Consultants

11, February 2002

Richard A. Poulin
Smith & Lowney, P.L.L.C.
2317 East John Street
Seattle, WA 98112

RE: Case 1

Dear Mr. Poulin:

Please find enclosed a sample custody record (COC) and a set of analytical results for the above referenced project. Analytical Resources, Inc. accepted nine water samples on 28, January 2002. Samples were received intact and there were no discrepancies between the container labels and the COC.

Analysis for the requested parameters proceeded without incident. Quality control analysis results are included for your review.

Copies of the reports and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact your project manager.

Sincerely,
ANALYICAL RESOURCES, INC.

Susan Snyder
Client Services
400 Ninth Avenue North
Seattle, WA 98109
Project Manager: Susan Snyder

cc: file EB25

AR 015246

E B25 02-1194-1202

Chain of Custody Record & Laboratory Analysis Request

Page 1 of 1

Turn Around Requested: _____

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

Report to: Greg Wingard	Proj Name: CASE 1
Company: CASE	Proj Number:
Address: PO Box 4051	Sampler: Peter Willing / Greg Wingard
Phone: 206-322-3061	Shipping Method:
Fax:	AirBill:

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Analyses Requested: TSS	CU TOTAL	ZN TOTAL	CU dissolved	ZN dissolved	hardness	glycols				Notes/Comments
001	1-28-02	11:54			X						X				
002	1-28-02	11:54			X										
003	1-28-02	11:58						X	X	X					
004	1-28-02	11:58				X	X			X					
005	1-28-02	12:02						X	X	X					
006	1-28-02	12:04				X	X			X					
007	1-28-02	1:44						X	X	X					
008	1-28-02	1:46				X	X			X					
009	1-28-02	1:46			X										

Relinquished: (Signature) Greg Wingard	Relinquished: (Signature)	Relinquished: (Signature)
Printed name: Greg Wingard	Printed name:	Printed name:
Company: CASE	Company:	Company:
Date: 1-28-02 Time: 5:10 pm	Date: Time:	Date: Time:
Received by:	Received by:	Received by:
Printed name: Deborah Johnson	Printed name:	Printed name:
Company: ARI	Company:	Company:
Date: 1/28/02 Time: 17:10	Date: Time:	Date: Time:

Special Instructions/Notes

Number of Coolers:
Cooler Temp(s):
COC Seals Intact? N/A
Bottles Intact? yes

AR 015247

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: Method Blank

Lab Sample ID: 013002MB
LIMS ID: 02-1194
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: NA
Date Received: NA

Data Release Authorized: c/r
Reported: 02/01/02 2/1/02

Date Analyzed: 01/30/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	5.0 U

Glycol Surrogate Recovery

Cyclohexanone	110%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 001

Lab Sample ID: EB25A
LIMS ID: 02-1194
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized: CH 2/1/02
Reported: 02/01/02

Date Analyzed: 01/30/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	13

Glycol Surrogate Recovery

Cyclohexanone	110%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 001
MATRIX SPIKE

Lab Sample ID: EB25A-MS
LIMS ID: 02-1194
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized: 2/1/02
Reported: 02/01/02

Date Analyzed: 01/30/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	---
57-55-6	Propylene Glycol	---

Glycol Surrogate Recovery

Cyclohexanone	110%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 001
SPIKE DUPLICATE

Lab Sample ID: EB25A-MSD
LIMS ID: 02-1194
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized: CH
Reported: 02/01/02 2/11/02

Date Analyzed: 01/30/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	---
57-55-6	Propylene Glycol	---

Glycol Surrogate Recovery

Cyclohexanone	106%

Data Qualifiers

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

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB25A
LIMS ID: 02-1194
Matrix: Water

Sample No: 001
QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Received: 01/28/02

Data Release Authorized: CH
Reported: 02/01/02 2/1/02

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Ethylene Glycol	< 5.0	50.0	50.0	100%	
Propylene Glycol	13.0	70.0	50.0	114%	
MATRIX SPIKE DUPLICATE					
Ethylene Glycol	< 5.0	68.0	50.0	136%	31%
Propylene Glycol	13.0	80.0	50.0	134%	16%

Values reported in parts per million (mg/L)

Glycol SPIKE CONTROL LIMITS
Percent Recovery 30-160%

FORM-III

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB25SB
LIMS ID: 02-1194
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Data Release Authorized: CH
Reported: 02/01/02 2/1/02

LABORATORY CONTROL SAMPLE

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
Ethylene Glycol	49.0	50.0	98.0%
Propylene Glycol	51.0	50.0	102%

GLYCOL SURROGATE RECOVERIES

Cyclohexanone	98.0%

Values reported in parts per million (mg/L)

GLYCOL SPIKE CONTROL LIMITS
Percent Recovery 30-160%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Method Blank

Lab Sample ID: EB25MB
LIMS ID: 02-1199
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
3010A	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	50 U
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	0.5	0.5 U
3010A	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	50 U
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET **Sample No: 004**
TOTAL METALS

Lab Sample ID: EB25D
LIMS ID: 02-1197
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
3010A	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	5,100
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	0.5	27.1
3010A	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	1,460
200.8	01/30/02	200.8	02/06/02	7440-66-6	Zinc	10	60

Calculated Hardness (mg-CaCO3/L): 19

U Analyte undetected at given RL

RL Reporting Limit

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB25D
LIMS ID: 02-1197
Matrix: Water

Sample No: 004
QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Duplicate ug/L	RPD	Control Limit	Q
Calcium	5100	5000	2.0%	+/- 20 %	
Copper	27.1	27.5	1.5%	+/- 20 %	
Magnesium	1460	1450	0.7%	+/- 20 %	
Zinc	60	60	0.0%	+/- 20 %	

'Q' codes: * = control limit not met
L = RPD not valid, alternate limit = detection limit

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 004
Lab Sample ID: EB25D
QC Report No: EB25-Smith & Lowney, P.L.L.C.
LIMS ID: 02-1197
Project: CASE 1
Matrix: Water
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Spike ug/L	Spike Added	% Recovery	Q
Calcium	5100	13800	10000	87.0%	
Copper	27.1	53.3	25.0	105%	
Magnesium	1460	10500	10000	90.4%	
Zinc	64	144	80	100%	

'Q' codes:
N = control limit not met
H = %R not applicable, sample concentration too high
* = RPD control limit not met
NA = Not applicable - analyte not spiked

Control Limits:
Percent Recovery: 75-125%
RPD: +/-20%

FORM-V

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 006

Lab Sample ID: EB25F
LIMS ID: 02-1199
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
3010A	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	11,900
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	0.5	8.9
3010A	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	2,900
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	4	48

Calculated Hardness (mg-CaCO3/L): 42

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 008

Lab Sample ID: EB25H
LIMS ID: 02-1201
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
3010A	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	39,900
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	2	260
3010A	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	2,810
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	20	330

Calculated Hardness (mg-CaCO3/L): 110

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

METALS ANALYSIS DATA SHEET
TOTAL METALS

Lab Sample ID: EB25LCS
LIMS ID: 02-1199
Matrix: Water

Sample No: 006
QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike Added	% Recovery	Q
Calcium	10200	10000	102%	
Copper	25.6	25.0	102%	
Magnesium	10300	10000	103%	
Zinc	79.0	80.0	98.8%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: Method Blank

Lab Sample ID: EB25MB
LIMS ID: 02-1200
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
6010B	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	50 U
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	0.5	0.5 U
6010B	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	50 U
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 003

Lab Sample ID: EB25C
LIMS ID: 02-1196
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
6010B	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	4,620
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	0.5	6.3
6010B	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	1,030
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	4	27

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB25C
LIMS ID: 02-1196
Matrix: Water

Sample No: 003
QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Duplicate ug/L	RPD	Control Limit	Q
Calcium	4620	4590	0.7%	+/- 20 %	
Copper	6.3	6.2	1.6%	+/- 20 %	
Magnesium	1030	1030	0.0%	+/- 20 %	
Zinc	27	26	3.8%	+/- 20 %	

'Q' codes: * = control limit not met
L = RPD not valid, alternate limit = detection limit

FORM-VI

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 003
Lab Sample ID: EB25C
QC Report No: EB25-Smith & Lowney, P.L.L.C.
LIMS ID: 02-1196
Project: CASE 1
Matrix: Water

Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Spike ug/L	Spike Added	% Recovery	Q
Calcium	4620	14700	10000	101%	
Copper	6.3	30.4	25.0	96.4%	
Magnesium	1030	11300	10000	103%	
Zinc	27	100	80	91.2%	

'Q' codes:
N = control limit not met
H = %R not applicable, sample concentration too high
* = RPD control limit not met
NA = Not applicable - analyte not spiked

Control Limits:
Percent Recovery: 75-125%
RPD: +/-20%

FORM-V

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 005

Lab Sample ID: EB25E
LIMS ID: 02-1198
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
6010B	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	12,000
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	0.5	5.8
6010B	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	2,830
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	4	32

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 007

Lab Sample ID: EB25G
LIMS ID: 02-1200
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
6010B	01/30/02	6010B	02/01/02	7440-70-2	Calcium	50	44,100
200.8	01/30/02	200.8	02/05/02	7440-50-8	Copper	2	223
6010B	01/30/02	6010B	02/01/02	7439-95-4	Magnesium	50	3,000
200.8	01/30/02	200.8	02/05/02	7440-66-6	Zinc	20	290

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

METALS ANALYSIS DATA SHEET
DISSOLVED METALS

Lab Sample ID: EB25LCS
LIMS ID: 02-1200
Matrix: Water

Sample No: 007
QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Received: 01/28/02

Data Release Authorized:
Reported: 02/07/02

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike Added	% Recovery	Q
Calcium	10300	10000	103%	
Copper	23.6	25.0	94.4%	
Magnesium	10200	10000	102%	
Zinc	80	80.0	100%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

FORM-VII

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Matrix: Water
Project: CASE 1

Date Received: NA

Data Release Authorized:
Reported: 02/08/02 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units		Result	
01/31/02 01312#1	Total Suspended Solids	mg/L	<	1.0	U

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 001

Lab Sample ID: EB25A
LIMS ID: 02-1194
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized: MP
Reported: 02/08/02 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Total Suspended Solids	01/31/02 01312#1	EPA 160.2	4.0	mg/L	42

RL Analytical reporting limit
U Undetected at reported detection limit

Report for EB25 received 01/28/02

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 002

Lab Sample ID: EB25B
LIMS ID: 02-1195
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/08/02 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Total Suspended Solids	01/31/02 01312#1	EPA 160.2	1.1	mg/L	10

RL Analytical reporting limit
U Undetected at reported detection limit

Report for EB25 received 01/28/02

AR 015270

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 009

Lab Sample ID: EB25I
LIMS ID: 02-1202
Matrix: Water

QC Report No: EB25-Smith & Lowney, P.L.L.C.
Project: CASE 1

Date Sampled: 01/28/02
Date Received: 01/28/02

Data Release Authorized:
Reported: 02/08/02 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Total Suspended Solids	01/31/02 01312#1	EPA 160.2	1.1	mg/L	4.6

RL Analytical reporting limit
U Undetected at reported detection limit

Report for EB25 received 01/28/02

X 361

Analytical Resources, Incorporated
Analytical Chemists and Consultants

11, February 2002

Richard A. Poulin
Smith & Lowney, P.L.L.C.
2317 East John Street
Seattle, WA 98112

RE: Case 2

Dear Mr. Poulin:

Please find enclosed a sample custody record (COC) and a set of analytical results for the above referenced project. Analytical Resources, Inc. accepted four water samples on 31, January 2002. Samples were received intact and there were no discrepancies between the container labels and the COC.

Analysis for the requested parameters proceeded without incident for metals and conventional's. The glycol's had a continuing calibration outside the acceptable control limits. The samples were re-analyzed outside the recommended holding time. The re-analysis data confirmed the original data. Both sets of data have been reported.

Quality control analysis results are included for your review.

Copies of the reports and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact your project manager.

Sincerely,
ANALYICAL RESOURCES, INC.

Client Services
400 Ninth Avenue North
Seattle, WA 98109
Project Manager: Susan Snyder

cc: file EB44

EB44

Chain of Custody Record & Laboratory Analysis Request

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

Page ___ of ___ Turn Around Requested: _________

Report to: Greg Wingard	Proj Name:
Company: CASE	Proj Number:
Address: PO Box 4051	Sampler: Greg Wingard
Phone:	Shipping Method:
Fax:	AirBill:

Analyses Requested

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Glycol	TSS	Total metals Cu	dissolved metals Cu	Total metals Zn	dissolved metals Zn					Notes/Comments
010	1-31-02	2:58	W	1	X										
011	1-31-02	3:02	W	1				X		X					
012	1-31-02	3:04	W	1			X		X						
013	1-31-02	3:09	W	1		X									

Relinquished	Relinquished	Relinquished	Special Instructions/Notes
(Signature): Greg Wingard	(Signature)	(Signature)	
Printed name: Greg Wingard	Printed name:	Printed name:	
Company: CASE	Company:	Company:	
Date: 1-31-02 Time: 6:10	Date: Time:	Date: Time:	

Received by	Received by	Received by	
Received by: [signature]	Received by:	Received by:	
Printed name: Deborah Johnson	Printed name:	Printed name:	Number of Coolers:
Company: ARI	Company:	Company:	Cooler Temp(s):
Date: 1/31/02 Time: 18:10	Date: Time:	Date: Time:	COC Seals Intact?
			Bottles Intact?

AR 015273

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: Method Blank

Lab Sample ID: 020602MB
LIMS ID: 02-1274
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	5.0 U

Glycol Surrogate Recovery

Cyclohexanone	70.0%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 010

Lab Sample ID: EB44A
LIMS ID: 02-1274
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized: N
Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	11

Glycol Surrogate Recovery

Cyclohexanone	120%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 010
MATRIX SPIKE

Lab Sample ID: EB44A-MS
LIMS ID: 02-1274
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	---
57-55-6	Propylene Glycol	---

Glycol Surrogate Recovery

Cyclohexanone	76.0%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 010
SPIKE DUPLICATE

Lab Sample ID: EB44A-MSD
LIMS ID: 02-1274
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/06/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	---
57-55-6	Propylene Glycol	---

Glycol Surrogate Recovery

Cyclohexanone	126%

Data Qualifiers

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

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB44A
LIMS ID: 02-1274
Matrix: Water

Data Release Authorized:
Reported: 02/11/02

Sample No: 010
QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Received: 01/31/02

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Ethylene Glycol	< 5.0	46.0	50.0	92.0%	
Propylene Glycol	11.0	54.0	50.0	86.0%	
MATRIX SPIKE DUPLICATE					
Ethylene Glycol	< 5.0	66.0	50.0	132%	36%
Propylene Glycol	11.0	71.0	50.0	120%	33%

Values reported in parts per million (mg/L)

Glycol SPIKE CONTROL LIMITS
Percent Recovery 30-160%

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB44SB
LIMS ID: 02-1274
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Data Release Authorized:
Reported: 02/11/02

LABORATORY CONTROL SAMPLE

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
Ethylene Glycol	37.0	50.0	74.0%
Propylene Glycol	45.0	50.0	90.0%

GLYCOL SURROGATE RECOVERIES

Cyclohexanone	106 %

Values reported in parts per million (mg/L)

GLYCOL SPIKE CONTROL LIMITS
Percent Recovery 30-160%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: Method Blank

Lab Sample ID: 020802MB
LIMS ID: 02-1690
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/08/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	5.0 U

Glycol Surrogate Recovery

Cyclohexanone	132%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 010

Lab Sample ID: EB44A
LIMS ID: 02-1690
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/09/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	5.0 U
57-55-6	Propylene Glycol	11

Glycol Surrogate Recovery

Cyclohexanone	80.0%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 010
MATRIX SPIKE

Lab Sample ID: EB44A-MS
LIMS ID: 02-1690
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/09/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	---
57-55-6	Propylene Glycol	---

Glycol Surrogate Recovery

Cyclohexanone	90.0%

Data Qualifiers

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

Sample No: 010
SPIKE DUPLICATE

Lab Sample ID: EB44A-MSD
LIMS ID: 02-1690
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/11/02

Date Analyzed: 02/09/02

Conc/Dilution Factor: 1:1

CAS Number	Analyte	mg/L
107-21-1	Ethylene Glycol	---
57-55-6	Propylene Glycol	---

Glycol Surrogate Recovery

Cyclohexanone	90.0%

Data Qualifiers

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

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB44A
LIMS ID: 02-1690
Matrix: Water

Data Release Authorized:
Reported: 02/11/02

Sample No: 010
QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Received: 01/31/02

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
Ethylene Glycol	< 5.0	62.0	50.0	124%	
Propylene Glycol	11.0	60.0	50.0	98.0%	
MATRIX SPIKE DUPLICATE					
Ethylene Glycol	< 5.0	47.0	50.0	94.0%	28%
Propylene Glycol	11.0	55.0	50.0	88.0%	11%

Values reported in parts per million (mg/L)

Glycol SPIKE CONTROL LIMITS
Percent Recovery 30-160%

FORM-III

ORGANICS ANALYSIS DATA SHEET
GLYCOLS by GC-FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: EB44SB
LIMS ID: 02-1690
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Data Release Authorized:
Reported: 02/11/02

LABORATORY CONTROL SAMPLE

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
Ethylene Glycol	47.0	50.0	94.0%
Propylene Glycol	48.0	50.0	96.0%

GLYCOL SURROGATE RECOVERIES

Cyclohexanone	76.0%

Values reported in parts per million (mg/L)

GLYCOL SPIKE CONTROL LIMITS
Percent Recovery 30-160%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Method Blank

Lab Sample ID: EB44MB
LIMS ID: 02-1276
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
3010A	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	50 U
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	0.5 U
3010A	02/04/02	6010B	02/06/02	7439-95-4	Magnesium	50	50 U
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 012

Lab Sample ID: EB44C
LIMS ID: 02-1276
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
3010A	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	15,600
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	41.1
3010A	02/04/02	6010B	02/06/02	7439-95-4	Magnesium	50	2,000
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	36

Calculated Hardness (mg-CaCO3/L): 47

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

METALS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 012
Lab Sample ID: EB44LCS
QC Report No: EB44-Smith & Lowney, P.L.L.C.
LIMS ID: 02-1276
Project: CASE
Matrix: Water

Date Received: 01/31/02

Data Release Authorized:
Reported: 02/07/02

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike Added	% Recovery	Q
Calcium	10100	10000	101%	
Copper	26.6	25.0	106%	
Magnesium	10200	10000	102%	
Zinc	81.0	80.0	101%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

FORM-VII

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: Method Blank

Lab Sample ID: EB44MB
LIMS ID: 02-1275
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
6010B	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	50 U
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	0.5 U
6010B	02/04/02	6010B	02/06/02	7439-95-4	Magnesium	50	50 U
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 011

Lab Sample ID: EB44B
LIMS ID: 02-1275
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized:
Reported: 02/07/02

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
6010B	02/04/02	6010B	02/06/02	7440-70-2	Calcium	50	16,000
200.8	02/04/02	200.8	02/05/02	7440-50-8	Copper	0.5	35.4
6010B	02/04/02	6010B	02/06/02	7439-95-4	Magnesium	50	2,040
200.8	02/04/02	200.8	02/05/02	7440-66-6	Zinc	4	24

Calculated Dissolved Hardness (mg-CaCO3/L): 48

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

METALS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 011
QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Lab Sample ID: EB44LCS
LIMS ID: 02-1275
Matrix: Water

Date Received: 01/31/02

Data Release Authorized:
Reported: 02/07/02

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike Added	% Recovery	Q
Calcium	10300	10000	103%	
Copper	24.0	25.0	96.0%	
Magnesium	10500	10000	105%	
Zinc	80	80.0	100%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

FORM-VII

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Matrix: Water
Project: CASE

Date Received: NA

Data Release Authorized:
Reported: 02/08/02 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units		Result	
02/05/02 02052#1	Total Suspended Solids	mg/L	<	1.0	U

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 013

Lab Sample ID: EB44D
LIMS ID: 02-1277
Matrix: Water

QC Report No: EB44-Smith & Lowney, P.L.L.C.
Project: CASE

Date Sampled: 01/31/02
Date Received: 01/31/02

Data Release Authorized: MP
Reported: 02/08/02 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Total Suspended Solids	02/05/02 02052#1	EPA 160.2	1.1	mg/L	3.3

RL Analytical reporting limit
U Undetected at reported detection limit

Report for EB44 received 01/31/02

E

Third Runway Project
Off-Site Borrow Source
Baseline Chemical Characterization
Black River Quarry
Renton, Washington

HARTCROWSER
Delivering smarter solutions

Prepared for
Port of Seattle

December 12, 2001
4978-06

Third Runway Project
Off-Site Borrow Source
Baseline Chemical Characterization
Black River Quarry
Renton, Washington

Prepared for
Port of Seattle

December 12, 2001
4978-06

Prepared by
Hart Crowser, Inc.

Neil F. Morton
Project Toxicologist

Richard F. Moore
Senior Associate
Environmental Specialist

1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530

CONTENTS

THIRD RUNWAY PROJECT
OFF-SITE BORROW SOURCE BASELINE CHEMICAL CHARACTERIZATION
BLACK RIVER QUARRY, RENTON, WASHINGTON

This data package presents information compiled by Hart Crowser following the collection and chemical analysis of soil samples at the Black River Quarry for the Third Runway Project. The Black River Quarry is operated by City Transfer Incorporated (CTI) and is a source of soil borrow fill material for the Third Runway embankment that is currently being constructed at the Sea-Tac International Airport. Soils at the Black River Quarry consist of native sand and gravel derived from glacial and related alluvial deposits. Work for the project was completed pursuant to our contract with HNTB dated May 1, 1998, as amended, and the sampling and analysis strategy described in the Hart Crowser proposal dated October 5, 2001. Hart Crowser collected the samples on October 3, 2001, at the stockpile locations identified on Figure 1. All site sampling work was conducted following approval and site access authorization from CTI and the Black River Quarry personnel.

The objective of the pit sampling and analysis was to perform a baseline chemical characterization of *in situ* soils from active portions of the Black River Quarry. The soils were analyzed for total metals (priority pollutant metals plus barium) and total petroleum hydrocarbons. Additionally, Synthetic Precipitation Leaching Procedure (SPLP) analyses were conducted for any metal with a total metals concentration that exceeded fill screening criteria listed in the Port of Seattle's (Port's) Section 401 Water Quality Certification (Order #1996-4-0325, Amended -1) dated September 21, 2001.

Six representative soil samples from the Black River Quarry were submitted for laboratory analysis at North Creek Analytical, Inc. (NCA; Bothell, Washington).

This data package contains the following:

- **CHEMICAL ANALYSIS RESULTS AND CONCLUSIONS**;
- **SAMPLING METHODOLOGY AND SOILS DESCRIPTION**;
- **CHEMICAL DATA QUALITY REVIEW**; and
- **LIMITATIONS**.

Figure 1 is the Site Plan Schematic showing the stockpile that was sampled and the sample locations. Table 1 presents the total metals chemical analysis results. Table 2 presents soil sample descriptions.

Laboratory analytical documentation from NCA is presented in Appendix A.

CHEMICAL ANALYSIS RESULTS AND CONCLUSIONS

Total metals results for the Black River Quarry soil samples, presented in Table 1, were compared against the Section 401 fill criteria (Condition E.1.B). As shown in Table 1, the chromium concentrations from samples BRQ-SP-Comp2 (44.7 mg/kg) and BRQ-SP-Comp6 (46.3 mg/kg) marginally exceeded the chromium fill criterion of 42 mg/kg. Copper concentrations from the six samples (97.5 to 131 mg/kg) exceed the copper fill criterion of 36 mg/kg.

As a result of the chromium and copper exceedences, samples BRQ-SP-Comp2 and BRQ-SP-Comp5 were analyzed for chromium and the six samples were analyzed for copper via SPLP in accordance with Attachment E of the Section 401 Certification (Section 401 Certification SPLP Work Plan). Chromium and copper were not detected in any sample above the reporting limit of 0.05 milligrams per liter (mg/L) using the SPLP methodology.

Based on a comparison of the nickel concentrations in samples BRQ-SP-Comp2 (49.3 mg/kg) and BRQ-SP-Comp3 (70.5 mg/kg) and a screening level of 48 mg/kg, these two samples were analyzed for nickel via SPLP in accordance with Attachment E of the Section 401 Certification (Section 401 Certification SPLP Work Plan). However, based on the fill criteria from Condition E.1.b of Section 401 Certification, the SPLP analysis of nickel was not required (see Table 1). Nickel was not detected in either sample above the reporting limit of 0.05 milligrams per liter (mg/L) using the SPLP methodology.

As discussed below in the **CHEMICAL DATA QUALITY REVIEW** section, Black River Quarry antimony sample analysis results from NCA laboratories were initially rejected based on failure of the laboratory quality control samples. Antimony analysis results for samples collected from five other off-site borrow sources (Kent Kangley Pit, CTI Pit No. 3, Lakeland Hills Pit, Marine View Pit, and the Lincoln and Summit Stockpile) were also initially rejected, indicating a systematic laboratory condition. Soil samples from the Lakeland Hills Pit (LH Comp 5), the Kent Kangley Pit (TP-2 Comp 1) and CTI Pit No. 3 (CTI Comp 6), were then resubmitted to Columbia Analytical Services, Inc. (CAS) laboratory for reanalysis of antimony. CAS analyzed each sample using the same extraction method (EPA Method 3050B) and similar analytical method (EPA 200.8 versus EPA 6020) that NCA used. In addition, the Kent Kangley sample (TP-2 Comp 1) was extracted using an optional extraction procedure designed to improve to solubility and recovery of antimony (EPA Method 3050B; Section 7.5).

As described in the **CHEMICAL DATA QUALITY REVIEW** section of the Lakeland Hills Pit, CTI Pit No. 3, and Kent Kangley Pit baseline chemical characterization reports, the CAS antimony results were determined to be acceptable, based on the results of reanalysis. The analytical results from NCA and CAS are also well below the 401 Certification antimony fill criterion of 16 mg/kg. Because the CAS antimony results are acceptable, and are below the NCA Black River Quarry antimony reporting limits, the NCA Black River Quarry antimony results were also determined to be acceptable. Additionally, according to Shacklette and Boerngen's Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States (1984), the mean antimony concentration in the western U.S. is 0.47 mg/kg, and the observed range is less than 1 to 2.6 mg/kg.

In conclusion, the results presented in Table 1, along with the discussion in this section, show that the total metal concentrations in the soils from the Black River Quarry are less than those defined by the 401 fill criteria.

SAMPLING METHODOLOGY AND SOILS DESCRIPTION

The following sections describe the specific exploration and sample collection methods used. This description includes sample handling and transfer, and decontamination procedures.

Sample Collection and Soils Description

Hart Crowser collected six composite samples from the Black River Quarry on October 3, 2001. Six samples were collected from the Black River Quarry active stockpile, which was approximately 64 feet long, 54 feet wide, with a stockpile face of approximately 48 feet at the time of sampling (Figure 1).

Stockpile Soil Samples

The soil samples (BRQ-SP-Comp1 through BRQ-SP-Comp6) represent three-point composite samples. The approximate locations of the individual sample aliquots for each composite sample are shown on Figure 1. Each sample aliquot was collected at a minimum of about 1 foot below the surface. The Black River Quarry stockpile soils generally consisted of angular, cobbly, gravelly sand, representative of materials shipped for embankment fill for the Third Runway Project. These materials were derived from pit areas at the Black River Quarry

To form each composite sample, material at each sample aliquot location was collected using a stainless steel spoon and mixed together in a stainless steel

bowl, with each resulting composite sample was then transferred to pre-cleaned, labeled sample jars for laboratory analyses.

Sample Handling and Transfer

After compositing each sample, each sample jar was wiped clean and capped with a Teflon-lined lid, and then placed in an insulated ice chest with ice. Samples were shipped on October 4, 2001, to NCA under a chain of custody form for laboratory analyses. The samples were transported with blue ice and were received at the laboratory in good condition.

Decontamination

Sampling equipment was cleaned prior to and between each sample. The spoons, bowls, and other hand sampling equipment were brush-scrubbed using an Alconox detergent solution followed by successive rinses of tap and deionized water.

CHEMICAL DATA QUALITY REVIEW

This data quality review evaluates the data included in the NCA data groups B1J0132 and B1J0187. This data group includes data for soil samples collected at the Black River Quarry, the Lincoln and Summit Stockpile, and the Marine View Pit (Type 1B and II Soils). In total, 24 soil samples were collected for this data group on October 3 and 4, 2001, including the six samples from the Black River Quarry. These samples were analyzed for the following:

- Total Metals (silver, arsenic, barium, beryllium, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium, thallium, and zinc via EPA 6000 and 7000 series methods).

Following the above analyses, a subset of the 24 samples were further analyzed by NCA for leachable beryllium, cadmium, chromium, copper, and/or nickel using the SPLP procedure via method EPA Method 1312 metals (beryllium via EPA Method 6010B and cadmium, chromium, copper, and nickel via EPA Method 6020).

The following criteria were evaluated in the standard data quality review process:

- Holding times;

- Method blanks;
- Surrogate recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries; and
- Laboratory relative percent difference (RPD).

Total Metals. All required holding times were met. No method blank contamination was detected. Lab control sample/lab control sample duplicate (LCS/LCSD) and MS/MSD recoveries were within control limits with the following exceptions. The percent recovery for barium in the MS/MSD samples prepared on October 10, 2001, was less than the control limit (33.3/38.3 percent versus 70 to 130 percent). MVP-1B-Comp 2 (Marine View Pit) was the only sample associated with the October 10, 2001, MS/MSD sample and the barium detection of 74.6 mg/kg was flagged as estimated ("J"). In addition, the percent recoveries for antimony in the MS/MSD samples (less than 5 percent) were significantly less than the control limit (70 to 130 percent). In addition, the MS/MSD RPD for antimony was greater than the control limit. A post-digestion spike on the same source sample that was used as the MS/MSD sample had an acceptable percent recovery for antimony. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (dated February 1998) requires that non-detected results be rejected when the MS/MSD percent recoveries are less than 30 percent. Although it is not unusual for antimony recoveries to be low in many types of soil, the antimony MS/MSD recoveries are significantly below 30 percent requiring that all the antimony (non-detect) results be rejected. It should be noted, however, that antimony was not detected in any of the Black River Quarry soil samples. The soil quality data, with the exception of antimony, are acceptable for use as qualified.

SPLP Metals. All required holding times were met. No method blank contamination was detected. LCS/LCSD and MS/MSD recoveries were within control limits. The data are acceptable for use without qualification.

LIMITATIONS

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of the Port of Seattle for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Any questions regarding our work and this report, the presentation of the information, and the interpretation of the data are welcome. We trust that this report meets your needs.

F:\docs\jobs\497806\BRQPitDraftDataPkg.doc

Table 1 - Black River Quarry Sampling, Total Metals Analytical Results

	Total Metals Concentration in mg/kg													
Sample Location/	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Screening Level[a]	**16**	**20**	**NE**	**0.6**	**2**	**42/2000[b]**	**36**	**220/250[b]**	**2**	**100/110[b]**	**5**	**5**	**2**	**85**
Black River Quarry														
BRQ-SP-Comp1	0.4UJ	1.47	28.2	0.4U	0.4U	36.7	**97.5**	2.35	0.2U	41.8	0.580	0.4U	0.4U	58.8
BRQ-SP-Comp2	0.4UJ	1.17	41.3	0.4U	0.4U	**44.7**	**115**	2.21	0.2U	49.3	0.479	0.4U	0.4U	64.5
BRQ-SP-Comp3	0.4UJ	5.20	25.2	0.4U	0.4U	32.7	**107**	2.82	0.2U	70.5	0.487	0.4U	0.610	66.9
BRQ-SP-Comp4	0.5UJ	0.866	27.8	0.5U	0.5U	42.0	**131**	1.84	0.2U	42.5	0.555	0.5U	0.5U	67.3
BRQ-SP-Comp5	0.5UJ	0.839	29.1	0.5U	0.5U	18.8	**131**	2.60	0.2U	45.5	0.554	0.5U	0.5U	58.1
BRQ-SP-Comp6	0.5UJ	0.927	27.2	0.5U	0.5U	**46.3**	**111.0**	1.85	0.2U	44.4	0.639	0.5U	0.5U	57.6

Notes:

Soil samples collected by Hart Crowser on July 3, 2001.

Bolded and underlined value exceeds Section 401 fill criteria screening level.

Samples analyzed by NCA.

a Fill criteria from Condition E.1.b of Section 401 Certification.

b Criteria vary depending on where fill is placed in embankment (see Condition E.1.b of 401 Certification).

U Not detected above laboratory analytical reporting limit.

J Estimated.

NE Not established.

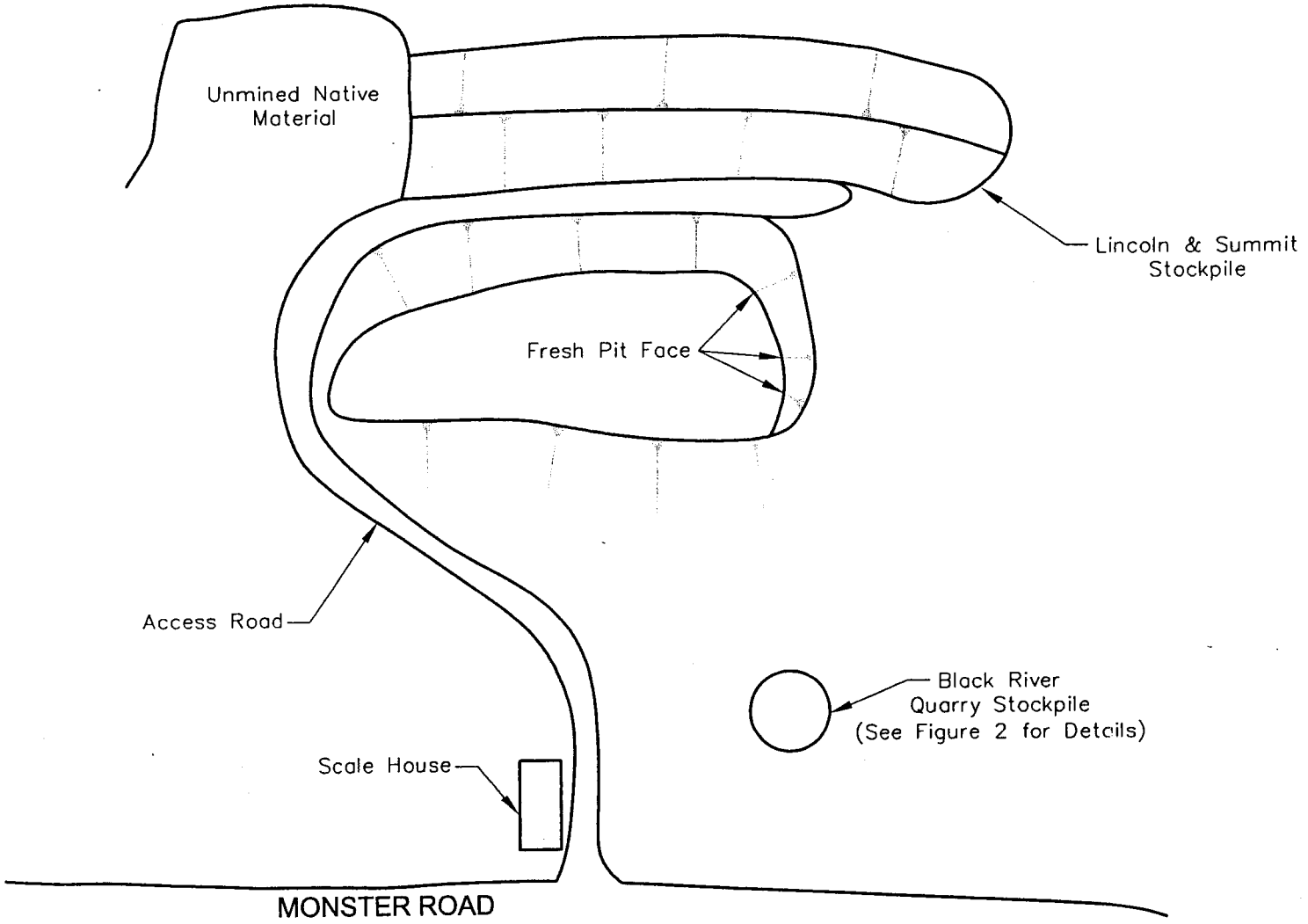
Table 2 - Black River Quarry Sampling, Soil Sample Descriptions

Sample Location	Sample Description
Black River Quarry	
BRQ-SP-Comp1	Damp, brown, angular, cobbly, gravelly SAND
BRQ-SP-Comp2	Damp, brown, angular, cobbly, gravelly SAND
BRQ-SP-Comp3	Damp, brown, angular, cobbly, gravelly SAND
BRQ-SP-Comp4	Damp, brown, angular, cobbly, gravelly SAND
BRQ-SP-Comp5	Damp, brown, angular, cobbly, gravelly SAND
BRQ-SP-Comp6	Damp, brown, angular, cobbly, gravelly SAND

DTN 12/11/01 1=100 497806111.dwg

Site Plan Schematic

Black River Quarry



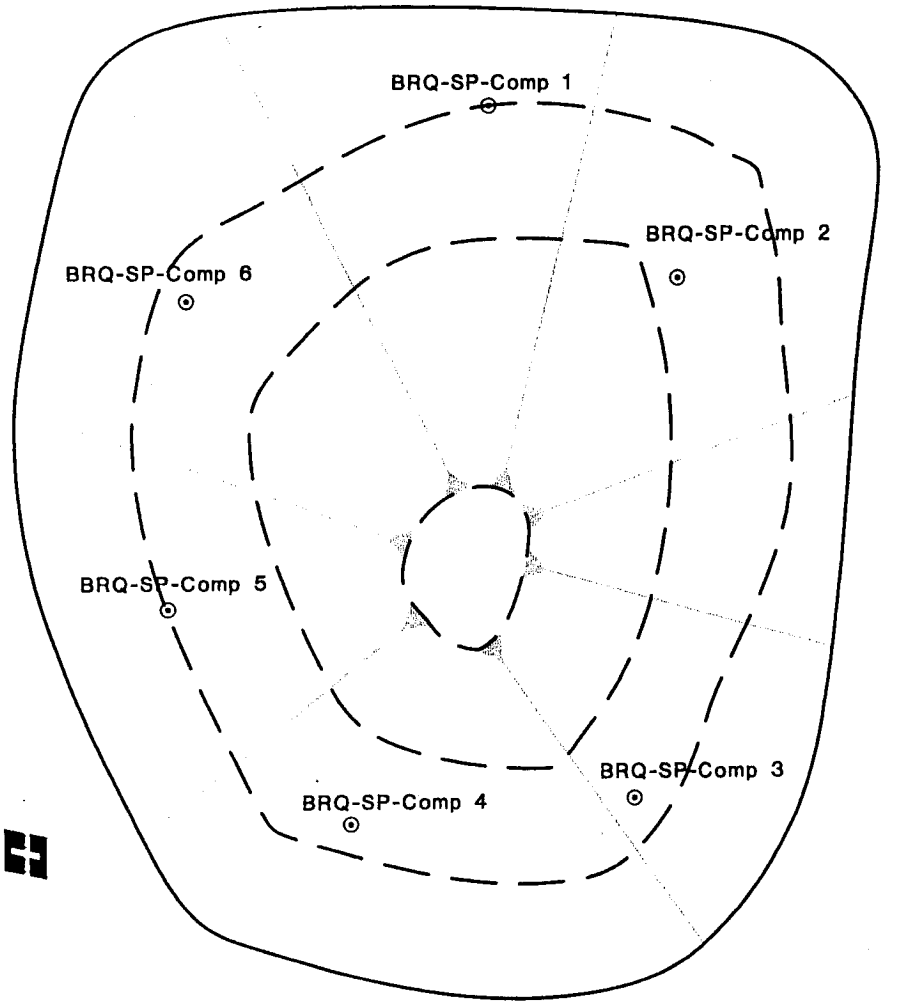
HARTCROWSER 4978-06 12/01
Figure 1

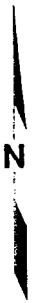
AR 015306

DTN 12/11/01 1=10 charlie-8.pc2 497806112

Stockpile Schematic and Sample Location Map

Black River Quarry





Not to Scale

⊙ **BRQ-SP-Comp 3** Composite Sample Location and Number

HARTCROWSER

4978-06 12/01

Figure 2

AR 015307

Appendix A

APPENDIX A
LABORATORY ANALYTICAL DOCUMENTATION
NORTH CREEK ANALYTICAL, INC.

30 October 2001

Rick Moore
Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle, WA 98102
RE: Third Runway/Pit Samples

Enclosed are **amended** results of analyses for samples received by the laboratory on 10/04/01 15:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman
Project Manager

Hart Crowser, Inc. - WA 1910 Fairview Ave. E. Seattle WA, 98102	Project: Third Runway/Pit Samples Project Number: 4978-19 Project Manager: Rick Moore	**Amended Report** Issued: 10/30/01 19:55

ANALYTICAL REPORT FOR SAMPLES - Ameneded

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MVP-1B- COMP 1	B1J0187-01	Soil	10/04/01 09:25	10/04/01 15:35
MVP-1B- COMP 2	B1J0187-02	Soil	10/04/01 09:35	10/04/01 15:35
MVP-1B- COMP 3	B1J0187-03	Soil	10/04/01 09:50	10/04/01 15:35
MVP-1B- COMP 4	B1J0187-04	Soil	10/04/01 10:00	10/04/01 15:35
MVP-1B- COMP 5	B1J0187-05	Soil	10/04/01 10:05	10/04/01 15:35
MVP-1B- COMP 6	B1J0187-06	Soil	10/04/01 10:15	10/04/01 15:35
BRQ-LS- COMP 1	B1J0187-07	Soil	10/04/01 14:05	10/04/01 15:35
BRQ-LS- COMP 2	B1J0187-08	Soil	10/04/01 14:10	10/04/01 15:35
BRQ-LS- COMP 3	B1J0187-09	Soil	10/04/01 14:15	10/04/01 15:35
BRQ-LS- COMP 4	B1J0187-10	Soil	10/04/01 14:25	10/04/01 15:35
BRQ-LS- COMP 5	B1J0187-11	Soil	10/04/01 14:35	10/04/01 15:35
BRQ-LS- COMP 6	B1J0187-12	Soil	10/04/01 14:45	10/04/01 15:35

North Creek Analytical - Bothell

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

S. Wo

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Silver	ND	0.385	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.59**	0.385	"	"	"	"	"	"	
Barium	**60.6**	3.85	"	"	"	"	"	"	
Beryllium	**0.392**	0.385	"	"	"	"	"	"	
Cadmium	**1.03**	0.385	"	"	"	"	"	"	
Chromium	**25.0**	0.385	"	"	"	"	"	"	
Copper	**16.8**	0.385	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**29.1**	0.385	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**3.11**	0.385	"	"	"	"	"	"	
Antimony	ND J	0.385	"	"	"	"	"	"	
Selenium	ND	0.385	"	"	"	"	"	"	
Thallium	ND	0.385	"	"	"	"	"	"	
Zinc	**39.0**	3.85	"	"	"	"	"	"	
MVP-1B- COMP 2 (B1J0187-02) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Silver	ND	0.455	mg/kg dry	1	1J09035	10/09/01	10/10/01	EPA 6020	
Arsenic	**2.94**	0.455	"	"	"	"	"	"	
Barium	**74.6** J	4.55	"	"	"	"	"	"	
Beryllium	ND	0.455	"	"	"	"	10/11/01	"	
Cadmium	ND	0.455	"	"	"	"	10/10/01	"	
Chromium	**21.2**	0.455	"	"	"	"	10/11/01	"	
Copper	**16.0**	0.455	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**24.6**	0.455	"	"	1J09035	10/09/01	10/11/01	EPA 6020	
Lead	**2.36**	0.455	"	"	"	"	10/10/01	"	
Selenium	ND	0.455	"	"	"	"	"	"	
Thallium	ND	0.455	"	"	"	"	"	"	
Zinc	**31.8**	4.55	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 2 (B1J0187-02RE1) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Antimony	ND J	0.500	mg/kg dry	1	1J11031	10/11/01	10/12/01	EPA 6020	
MVP-1B- COMP 3 (B1J0187-03) Soil Sampled: 10/04/01 09:50 Received: 10/04/01 15:35									
Silver	ND	0.379	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.88**	0.379	"	"	"	"	"	"	
Barium	**55.1**	3.79	"	"	"	"	"	"	
Beryllium	ND	0.379	"	"	"	"	"	"	
Cadmium	ND	0.379	"	"	"	"	"	"	
Chromium	**28.9**	0.379	"	"	"	"	"	"	
Copper	**12.5**	0.379	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**31.8**	0.379	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**2.19**	0.379	"	"	"	"	"	"	
Antimony	ND J	0.379	"	"	"	"	"	"	
Selenium	ND	0.379	"	"	"	"	"	"	
Thallium	ND	0.379	"	"	"	"	"	"	
Zinc	**33.7**	3.79	"	"	"	"	"	"	
MVP-1B- COMP 4 (B1J0187-04) Soil Sampled: 10/04/01 10:00 Received: 10/04/01 15:35									
Silver	ND	0.417	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.36**	0.417	"	"	"	"	"	"	
Barium	**59.6**	4.17	"	"	"	"	"	"	
Beryllium	ND	0.417	"	"	"	"	"	"	
Cadmium	**0.748**	0.417	"	"	"	"	"	"	
Chromium	**25.1**	0.417	"	"	"	"	"	"	
Copper	**13.4**	0.417	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**27.9**	0.417	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**2.20**	0.417	"	"	"	"	"	"	
Antimony	ND J	0.417	"	"	"	"	"	"	
Selenium	ND	0.417	"	"	"	"	"	"	
Thallium	ND	0.417	"	"	"	"	"	"	
Zinc	**34.9**	4.17	"	"	"	"	"	"	

NFM holder

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 5 (B1J0187-05) Soil Sampled: 10/04/01 10:05 Received: 10/04/01 15:35									
Silver	ND	0.407	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.30**	0.407	"	"	"	"	"	"	
Barium	**47.7**	4.07	"	"	"	"	"	"	
Beryllium	ND	0.407	"	"	"	"	"	"	
Cadmium	**0.783**	0.407	"	"	"	"	"	"	
Chromium	**26.0**	0.407	"	"	"	"	"	"	
Copper	**13.2**	0.407	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**27.2**	0.407	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**2.04**	0.407	"	"	"	"	"	"	
Antimony	ND J	0.407	"	"	"	"	"	"	
Selenium	ND	0.407	"	"	"	"	"	"	
Thallium	ND	0.407	"	"	"	"	"	"	
Zinc	**33.7**	4.07	"	"	"	"	"	"	
MVP-1B- COMP 6 (B1J0187-06) Soil Sampled: 10/04/01 10:15 Received: 10/04/01 15:35									
Silver	ND	0.309	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.48**	0.309	"	"	"	"	"	"	
Barium	**57.5**	3.09	"	"	"	"	"	"	
Beryllium	**0.340**	0.309	"	"	"	"	"	"	
Cadmium	**0.818**	0.309	"	"	"	"	"	"	
Chromium	**23.5**	0.309	"	"	"	"	"	"	
Copper	**19.1**	0.309	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**27.5**	0.309	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**5.00**	0.309	"	"	"	"	"	"	
Antimony	ND J	0.309	"	"	"	"	"	"	
Selenium	ND	0.309	"	"	"	"	"	"	
Thallium	ND	0.309	"	"	"	"	"	"	
Zinc	**40.0**	3.09	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 1 (B1J0187-07) Soil Sampled: 10/04/01 14:05 Received: 10/04/01 15:35									
Silver	ND	0.368	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.73**	0.368	"	"	"	"	"	"	
Barium	**74.5**	3.68	"	"	"	"	"	"	
Beryllium	ND	0.368	"	"	"	"	10/11/01	"	
Cadmium	**0.605**	0.368	"	"	"	"	10/10/01	"	
Chromium	**36.8**	0.368	"	"	"	"	10/11/01	"	
Copper	**26.4**	0.368	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**41.8**	0.368	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**3.12**	0.368	"	"	"	"	10/10/01	"	
Antimony	ND J	0.368	"	"	"	"	"	"	
Selenium	ND	0.368	"	"	"	"	"	"	
Thallium	ND	0.368	"	"	"	"	"	"	
Zinc	**42.7**	3.68	"	"	"	"	"	"	
BRQ-LS- COMP 2 (B1J0187-08) Soil Sampled: 10/04/01 14:10 Received: 10/04/01 15:35									
Silver	ND	0.379	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**3.00**	0.379	"	"	"	"	"	"	
Barium	**76.9**	3.79	"	"	"	"	"	"	
Beryllium	ND	0.379	"	"	"	"	10/11/01	"	
Cadmium	**0.525**	0.379	"	"	"	"	10/10/01	"	
Chromium	**36.0**	0.379	"	"	"	"	10/11/01	"	
Copper	**26.7**	0.379	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**41.9**	0.379	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**3.37**	0.379	"	"	"	"	10/10/01	"	
Antimony	ND J	0.379	"	"	"	"	"	"	
Selenium	ND	0.379	"	"	"	"	"	"	
Thallium	ND	0.379	"	"	"	"	"	"	
Zinc	**42.6**	3.79	"	"	"	"	"	"	

NFM 12/11/01

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 3 (B1J0187-09) Soil Sampled: 10/04/01 14:15 Received: 10/04/01 15:35									
Silver	ND	0.424	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**3.22**	0.424	"	"	"	"	"	"	
Barium	**85.1**	4.24	"	"	"	"	"	"	
Beryllium	ND	0.424	"	"	"	"	10/11/01	"	
Cadmium	**0.629**	0.424	"	"	"	"	10/10/01	"	
Chromium	**40.3**	0.424	"	"	"	"	10/11/01	"	
Copper	**22.9**	0.424	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**45.9**	0.424	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**4.12**	0.424	"	"	"	01/18/01	10/10/01	"	
Antimony	ND J	0.424	"	"	"	10/08/01	"	"	
Selenium	ND	0.424	"	"	"	"	"	"	
Thallium	ND	0.424	"	"	"	"	"	"	
Zinc	**44.6**	4.24	"	"	"	"	"	"	
BRQ-LS- COMP 4 (B1J0187-10) Soil Sampled: 10/04/01 14:25 Received: 10/04/01 15:35									
Silver	ND	0.435	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.23**	0.435	"	"	"	"	"	"	
Barium	**63.5**	4.35	"	"	"	"	"	"	
Beryllium	ND	0.435	"	"	"	"	10/11/01	"	
Cadmium	**0.451**	0.435	"	"	"	"	10/10/01	"	
Chromium	**30.4**	0.435	"	"	"	"	10/11/01	"	
Copper	**17.3**	0.435	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**38.7**	0.435	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**5.29**	0.435	"	"	"	"	10/10/01	"	
Antimony	ND J	0.435	"	"	"	"	"	"	
Selenium	ND	0.435	"	"	"	"	"	"	
Thallium	ND	0.435	"	"	"	"	"	"	
Zinc	**34.6**	4.35	"	"	"	"	"	"	

NFM 12/11/01

North Creek Analytical - Bothell

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

J. Wo

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 5 (B1J0187-11) Soil Sampled: 10/04/01 14:35 Received: 10/04/01 15:35									
Silver	ND	0.347	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.45**	0.347	"	"	"	"	"	"	
Barium	**59.9**	3.47	"	"	"	"	"	"	
Beryllium	ND	0.347	"	"	"	"	10/11/01	"	
Cadmium	**0.433**	0.347	"	"	"	"	10/10/01	"	
Chromium	**31.7**	0.347	"	"	"	"	10/11/01	"	
Copper	**15.0**	0.347	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**39.2**	0.347	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**3.55**	0.347	"	"	"	"	10/10/01	"	
Antimony	ND J	0.347	"	"	"	"	"	"	
Selenium	ND	0.347	"	"	"	"	"	"	
Thallium	ND	0.347	"	"	"	"	"	"	
Zinc	**33.6**	3.47	"	"	"	"	"	"	
BRQ-LS- COMP 6 (B1J0187-12) Soil Sampled: 10/04/01 14:45 Received: 10/04/01 15:35									
Silver	ND	0.388	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.47**	0.388	"	"	"	"	"	"	
Barium	**64.5**	3.88	"	"	"	"	"	"	
Beryllium	ND	0.388	"	"	"	"	10/11/01	"	
Cadmium	ND	0.388	"	"	"	"	10/10/01	"	
Chromium	**32.4**	0.388	"	"	"	"	10/11/01	"	
Copper	**17.6**	0.388	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**37.4**	0.388	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**4.16**	0.388	"	"	"	"	10/10/01	"	
Antimony	ND J	0.388	"	"	"	"	"	"	
Selenium	ND	0.388	"	"	"	"	"	"	
Thallium	ND	0.388	"	"	"	"	"	"	
Zinc	**37.5**	3.88	"	"	"	"	"	"	

NFM 12/11/01

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

SPLP Metals by EPA 1312/6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Cadmium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil	**Sampled: 10/04/01 09:25**		**Received: 10/04/01 15:35**						
Dry Weight	**91.6**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 2 (B1J0187-02) Soil	**Sampled: 10/04/01 09:35**		**Received: 10/04/01 15:35**						
Dry Weight	**90.4**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 3 (B1J0187-03) Soil	**Sampled: 10/04/01 09:50**		**Received: 10/04/01 15:35**						
Dry Weight	**92.1**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 4 (B1J0187-04) Soil	**Sampled: 10/04/01 10:00**		**Received: 10/04/01 15:35**						
Dry Weight	**92.3**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 5 (B1J0187-05) Soil	**Sampled: 10/04/01 10:05**		**Received: 10/04/01 15:35**						
Dry Weight	**91.6**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 6 (B1J0187-06) Soil	**Sampled: 10/04/01 10:15**		**Received: 10/04/01 15:35**						
Dry Weight	**88.7**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 1 (B1J0187-07) Soil	**Sampled: 10/04/01 14:05**		**Received: 10/04/01 15:35**						
Dry Weight	**98.1**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 2 (B1J0187-08) Soil	**Sampled: 10/04/01 14:10**		**Received: 10/04/01 15:35**						
Dry Weight	**97.6**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 3 (B1J0187-09) Soil	**Sampled: 10/04/01 14:15**		**Received: 10/04/01 15:35**						
Dry Weight	**98.1**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 4 (B1J0187-10) Soil	**Sampled: 10/04/01 14:25**		**Received: 10/04/01 15:35**						
Dry Weight	**93.8**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 5 (B1J0187-11) Soil	**Sampled: 10/04/01 14:35**		**Received: 10/04/01 15:35**						
Dry Weight	**97.4**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 6 (B1J0187-12) Soil	**Sampled: 10/04/01 14:45**		**Received: 10/04/01 15:35**						
Dry Weight	**94.5**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08034: Prepared 10/08/01 Using EPA 3050B										
Blank (1J08034-BLK1)										
Antimony	ND	0.500	mg/kg							
Arsenic	ND	0.500	"							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							
LCS (1J08034-BS1)										
Antimony	40.6	0.455	mg/kg	36.4		112	80-120			
Arsenic	37.4	0.455	"	36.4		103	70-130			
Barium	39.8	4.55	"	36.4		109	80-120			
Beryllium	38.9	0.455	"	36.4		107	80-120			
Cadmium	38.5	0.455	"	36.4		106	70-130			
Chromium	39.6	0.455	"	36.4		109	80-120			
Copper	39.9	0.455	"	36.4		110	80-120			
Lead	36.8	0.455	"	36.4		101	80-120			
Nickel	39.1	0.455	"	36.4		107	80-120			
Selenium	35.3	0.455	"	36.4		97.0	70-130			
Silver	38.9	0.455	"	36.4		107	40-130			
Thallium	36.9	0.455	"	36.4		101	80-120			
Zinc	38.5	4.55	"	36.4		106	70-130			

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08034: Prepared 10/08/01 Using EPA 3050B										
LCS Dup (1J08034-BSD1)										
Antimony	40.8	0.500	mg/kg	37.0		110	80-120	0.491	20	
Arsenic	37.9	0.500	"	37.0		102	70-130	1.33	20	
Barium	40.5	5.00	"	37.0		109	80-120	1.74	20	
Beryllium	40.3	0.500	"	37.0		109	80-120	3.54	20	
Cadmium	38.6	0.500	"	37.0		104	70-130	0.259	20	
Chromium	41.0	0.500	"	37.0		111	80-120	3.47	20	
Copper	40.7	0.500	"	37.0		110	80-120	1.99	20	
Lead	37.5	0.500	"	37.0		101	80-120	1.88	20	
Nickel	39.0	0.500	"	37.0		105	80-120	0.256	20	
Selenium	36.3	0.500	"	37.0		98.1	70-130	2.79	20	
Silver	39.5	0.500	"	37.0		107	40-130	1.53	20	
Thallium	37.4	0.500	"	37.0		101	80-120	1.35	20	
Zinc	39.3	5.00	"	37.0		106	70-130	2.06	20	
Matrix Spike (1J08034-MS1)					**Source: B1J0187-01**					
Antimony	1.51	0.427	mg/kg dry	37.3	ND	4.05	70-130			Q-13
Arsenic	35.5	0.427	"	37.3	2.59	88.2	70-130			
Barium	88.9	4.27	"	37.3	60.6	75.9	70-130			
Beryllium	38.1	0.427	"	37.3	ND	101	70-130			
Cadmium	36.2	0.427	"	37.3	1.03	94.3	70-130			
Chromium	66.6	0.427	"	37.3	25.0	112	70-130			
Copper	48.1	0.427	"	37.3	16.8	83.9	70-130			
Lead	38.5	0.427	"	37.3	3.11	94.9	70-130			
Nickel	65.6	0.427	"	37.3	29.1	97.9	70-130			
Selenium	31.9	0.427	"	37.3	ND	84.9	70-130			
Silver	33.4	0.427	"	37.3	ND	89.5	40-130			
Thallium	36.4	0.427	"	37.3	ND	97.5	70-130			
Zinc	70.3	4.27	"	37.3	39.0	83.9	70-130			

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08034: Prepared 10/08/01 Using EPA 3050B										
Matrix Spike Dup (1J08034-MSD1)					**Source: B1J0187-01**					
Antimony	1.06	0.410	mg/kg dry	35.8	ND	2.96	70-130	35.0	20	Q-13
Arsenic	34.3	0.410	"	35.8	2.59	88.6	70-130	3.44	20	
Barium	87.1	4.10	"	35.8	60.6	74.0	70-130	2.05	20	
Beryllium	36.7	0.410	"	35.8	ND	101	70-130	3.74	20	
Cadmium	34.8	0.410	"	35.8	1.03	94.3	70-130	3.94	20	
Chromium	64.1	0.410	"	35.8	25.0	109	70-130	3.83	20	
Copper	49.4	0.410	"	35.8	16.8	91.1	70-130	2.67	20	
Lead	36.9	0.410	"	35.8	3.11	94.4	70-130	4.24	20	
Nickel	66.3	0.410	"	35.8	29.1	104	70-130	1.06	20	
Selenium	30.8	0.410	"	35.8	ND	85.4	70-130	3.51	20	
Silver	31.4	0.410	"	35.8	ND	87.7	40-130	6.17	50	
Thallium	34.7	0.410	"	35.8	ND	96.8	70-130	4.78	20	
Zinc	71.2	4.10	"	35.8	39.0	89.9	70-130	1.27	20	
Post Spike (1J08034-PS1)					**Source: B1J0187-01**					
Antimony	212	1.92	mg/kg dry	210	ND	101	70-130			
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B										
Blank (1J09035-BLK1)										
Arsenic	ND	0.500	mg/kg							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B										
LCS (1J09035-BS1)										
Arsenic	36.8	0.500	mg/kg	39.2		93.9	70-130			
Barium	40.8	5.00	"	39.2		104	80-120			
Beryllium	37.2	0.500	"	39.2		94.9	80-120			
Cadmium	37.8	0.500	"	39.2		96.4	70-130			
Chromium	39.8	0.500	"	39.2		102	80-120			
Copper	39.8	0.500	"	39.2		102	80-120			
Lead	38.5	0.500	"	39.2		98.2	80-120			
Nickel	38.6	0.500	"	39.2		98.5	80-120			
Selenium	34.8	0.500	"	39.2		88.8	70-130			
Silver	38.4	0.500	"	39.2		98.0	40-130			
Thallium	38.2	0.500	"	39.2		97.4	80-120			
Zinc	39.0	5.00	"	39.2		99.5	70-130			
LCS Dup (1J09035-BSD1)										
Arsenic	37.6	0.500	mg/kg	39.6		94.9	70-130	2.15	20	
Barium	41.7	5.00	"	39.6		105	80-120	2.18	20	
Beryllium	39.2	0.500	"	39.6		99.0	80-120	5.24	20	
Cadmium	38.4	0.500	"	39.6		97.0	70-130	1.57	20	
Chromium	39.8	0.500	"	39.6		101	80-120	0.00	20	
Copper	40.1	0.500	"	39.6		101	80-120	0.751	20	
Lead	37.4	0.500	"	39.6		94.4	80-120	2.90	20	
Nickel	38.6	0.500	"	39.6		97.5	80-120	0.00	20	
Selenium	36.1	0.500	"	39.6		91.2	70-130	3.67	20	
Silver	39.5	0.500	"	39.6		99.7	40-130	2.82	20	
Thallium	36.8	0.500	"	39.6		92.9	80-120	3.73	20	
Zinc	39.5	5.00	"	39.6		99.7	70-130	1.27	20	
Matrix Spike (1J09035-MS1)					**Source: B1J0187-02**					
Arsenic	39.7	0.500	mg/kg dry	41.4	2.94	88.8	70-130			
Barium	88.4	5.00	"	41.4	74.6	33.3	70-130			Q-15
Beryllium	38.2	0.500	"	41.4	ND	91.7	70-130			
Cadmium	38.5	0.500	"	41.4	ND	92.6	70-130			
Chromium	55.2	0.500	"	41.4	21.2	82.1	70-130			
Copper	54.2	0.500	"	41.4	16.0	92.3	70-130			
Lead	40.3	0.500	"	41.4	2.36	91.6	70-130			

North Creek Analytical - Bothell

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

S. Wo

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B										
Matrix Spike (1J09035-MS1)					**Source: B1J0187-02**					
Nickel	55.1	0.500	mg/kg dry	41.4	24.6	73.7	70-130			
Selenium	33.0	0.500	"	41.4	ND	79.7	70-130			
Silver	37.8	0.500	"	41.4	ND	91.3	40-130			
Thallium	36.7	0.500	"	41.4	ND	88.4	70-130			
Zinc	69.5	5.00	"	41.4	31.8	91.1	70-130			
Matrix Spike Dup (1J09035-MSD1)					**Source: B1J0187-02**					
Arsenic	38.9	0.500	mg/kg dry	41.0	2.94	87.7	70-130	2.04	20	
Barium	90.3	5.00	"	41.0	74.6	38.3	70-130	2.13	20	Q-15
Beryllium	36.5	0.500	"	41.0	ND	88.5	70-130	4.55	20	
Cadmium	37.7	0.500	"	41.0	ND	91.5	70-130	2.10	20	
Chromium	59.5	0.500	"	41.0	21.2	93.4	70-130	7.50	20	
Copper	55.9	0.500	"	41.0	16.0	97.3	70-130	3.09	20	
Lead	39.4	0.500	"	41.0	2.36	90.3	70-130	2.26	20	
Nickel	59.8	0.500	"	41.0	24.6	85.9	70-130	8.18	20	
Selenium	31.8	0.500	"	41.0	ND	77.6	70-130	3.70	20	
Silver	35.7	0.500	"	41.0	ND	87.1	40-130	5.71	50	
Thallium	37.1	0.500	"	41.0	ND	90.3	70-130	1.08	20	
Zinc	70.8	5.00	"	41.0	31.8	95.1	70-130	1.85	20	
Batch 1J10040: Prepared 10/10/01 Using EPA 7471A										
Blank (1J10040-BLK1)										
Mercury	ND	0.200	mg/kg							
LCS (1J10040-BS1)										
Mercury	0.518	0.200	mg/kg	0.489		106	80-120			

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J10040: Prepared 10/10/01 Using EPA 7471A										
LCS Dup (1J10040-BSD1)										
Mercury	0.554	0.200	mg/kg	0.495		112	80-120	6.72	20	
Matrix Spike (1J10040-MS1)					**Source: B1J0187-01**					
Mercury	0.633	0.200	mg/kg dry	0.541	ND	112	70-130			
Matrix Spike Dup (1J10040-MSD1)					**Source: B1J0187-01**					
Mercury	0.622	0.200	mg/kg dry	0.538	ND	110	70-130	1.75	30	
Batch 1J11031: Prepared 10/11/01 Using EPA 3050B										
Blank (1J11031-BLK1)										
Antimony	ND	0.500	mg/kg							
LCS (1J11031-BS1)										
Antimony	40.3	0.500	mg/kg	39.2		103	80-120			
LCS Dup (1J11031-BSD1)										
Antimony	41.0	0.500	mg/kg	40.0		102	80-120	1.72	20	
Matrix Spike (1J11031-MS1)					**Source: B1J0187-02RE1**					
Antimony	2.04	0.500	mg/kg dry	42.2	ND	4.83	70-130			Q-13
Matrix Spike Dup (1J11031-MSD1)					**Source: B1J0187-02RE1**					
Antimony	1.54	0.500	mg/kg dry	41.4	ND	3.72	70-130	27.9	20	Q-13
Post Spike (1J11031-PS1)					**Source: B1J0187-02RE1**					
Antimony	270	2.50	mg/kg dry	274	ND	98.5	70-130			

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J22032: Prepared 10/22/01 Using EPA 3020A										
Blank (1J22032-BLK1)										
Cadmium	ND	0.0500	mg/l							
LCS (1J22032-BS1)										
Cadmium	3.60	0.0500	mg/l	4.00		90.0	80-120			
LCS Dup (1J22032-BSD1)										
Cadmium	3.51	0.0500	mg/l	4.00		87.8	80-120	2.53	20	
Matrix Spike (1J22032-MS1)					**Source: B1J0132-01**					
Cadmium	3.49	0.0500	mg/l	4.00	ND	87.1	75-125			
Matrix Spike Dup (1J22032-MSD1)					**Source: B1J0132-01**					
Cadmium	3.56	0.0500	mg/l	4.00	ND	88.8	75-125	1.99	20	

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J10014: Prepared 10/10/01 Using Dry Weight										
Blank (1J10014-BLK1)										
Dry Weight	100	1.00	%							

Notes and Definitions

Q-13	Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
Q-15	Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Sample Custody Record

Samples Shipped to: ______

HARTCROWSER B1J0187

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

JOB 4978-19 LAB NUMBER ______

PROJECT NAME 3rd Runway / Pit Sampling

HART CROWSER CONTACT Neil Morton

SAMPLED BY: William Damon

REQUESTED ANALYSIS: RCRA 8 + Ni, Cu, Zn, Be, Tl, Sb

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	RCRA 8 + Ni, Cu, Zn, Be, Tl, Sb	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	MVP-1B-Comp1	8 oz. glass	10/4/01	0925	Soil	X	1	
	MVP-1B-Comp2	↓	↓	0933	↓	X	1	
	MVP-1B-Comp3	↓	↓	0950	↓	X	1	
	MVP-1B-Comp4	↓	↓	1000	↓	X	1	
	MVP-1B-Comp5	↓	↓	1003	↓	X	1	
	MVP-1B-Comp6	↓	↓	1015	↓	X	1	
	BRQ-LS-Comp1	↓	↓	1405	↓	X	1	
	BRQ-LS-Comp2	↓	↓	1410	↓	X	1	
	BRQ-LS-Comp3	↓	↓	1415	↓	X	1	
	BRQ-LS-Comp4	↓	↓	1425	↓	X	1	
	BRQ-LS-Comp5	↓	↓	1435	↓	X	1	
	BRQ-LS-Comp6	↓	↓	1445	↓	X	1	

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
SIGNATURE [signature] PRINT NAME William Damon COMPANY Hart Crowser	10/4/01 1535	SIGNATURE [signature] PRINT NAME COMPANY NCA	10-4-01 1535
SIGNATURE PRINT NAME COMPANY		SIGNATURE PRINT NAME COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS: Please bill Beth Clark (P.O.S)

Ref: Proj. # 100956

Agreement # 163

12 TOTAL NUMBER OF CONTAINERS

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. ______ for Other Contract Requirements

TURNAROUND TIME: (Billed as standard)
- ☒ 24 HOURS
- ☐ 48 HOURS
- ☐ 72 HOURS
- ☐ 1 WEEK
- ☐ STANDARD
- OTHER ______

W/O 4.7

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

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

12 November 2001

Rick Moore
Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle, WA 98102

RE: Third Runway/Pit Samples

Enclosed are **amended** results of analyses for samples received by the laboratory on 10/04/01 07:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman
Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BRQ-SP-COMP1	B1J0132-01	Soil	10/03/01 12:35	10/04/01 07:30
BRQ-SP-COMP2	B1J0132-02	Soil	10/03/01 12:40	10/04/01 07:30
BRQ-SP-COMP3	B1J0132-03	Soil	10/03/01 12:50	10/04/01 07:30
BRQ-SP-COMP4	B1J0132-04	Soil	10/03/01 13:00	10/04/01 07:30
BRQ-SP-COMP5	B1J0132-05	Soil	10/03/01 13:05	10/04/01 07:30
BRQ-SP-COMP6	B1J0132-06	Soil	10/03/01 13:15	10/04/01 07:30
MVP-COMP1	B1J0132-07	Soil	10/03/01 15:10	10/04/01 07:30
MVP-COMP2	B1J0132-08	Soil	10/03/01 15:25	10/04/01 07:30
MVP-COMP3	B1J0132-09	Soil	10/03/01 15:35	10/04/01 07:30
MVP-COMP4	B1J0132-10	Soil	10/03/01 16:05	10/04/01 07:30
MVP-COMP5	B1J0132-11	Soil	10/03/01 16:15	10/04/01 07:30
MVP-COMP6	B1J0132-12	Soil	10/03/01 16:25	10/04/01 07:30

Scott A. Woerman, Project Manager

AR 015332

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Silver	ND	0.431	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.47**	0.431	"	"	"	"	"	"	
Barium	**28.2**	4.31	"	"	"	"	"	"	
Beryllium	ND	0.431	"	"	"	"	"	"	
Cadmium	ND	0.431	"	"	"	"	"	"	
Chromium	**36.7**	0.431	"	"	"	"	"	"	
Copper	**97.5**	0.431	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**41.8**	0.431	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.35**	0.431	"	"	"	"	"	"	
Antimony	ND J	0.431	"	"	"	"	"	"	
Selenium	**0.580**	0.431	"	"	"	"	"	"	
Thallium	ND	0.431	"	"	"	"	"	"	
Zinc	**58.8**	4.31	"	"	"	"	"	"	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Silver	ND	0.420	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.17**	0.420	"	"	"	"	"	"	
Barium	**41.3**	4.20	"	"	"	"	"	"	
Beryllium	ND	0.420	"	"	"	"	"	"	
Cadmium	ND	0.420	"	"	"	"	"	"	
Chromium	**44.7**	0.420	"	"	"	"	"	"	
Copper	**115**	0.420	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**49.3**	0.420	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.21**	0.420	"	"	"	"	"	"	
Antimony	ND J	0.420	"	"	"	"	"	"	
Selenium	**0.479**	0.420	"	"	"	"	"	"	
Thallium	ND	0.420	"	"	"	"	"	"	
Zinc	**64.5**	4.20	"	"	"	"	"	"	

NFM 12/11/01

North Creek Analytical - Bothell

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

S. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30									
Silver	ND	0.382	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**5.20**	0.382	"	"	"	"	"	"	
Barium	**25.2**	3.82	"	"	"	"	"	"	
Beryllium	ND	0.382	"	"	"	"	"	"	
Cadmium	ND	0.382	"	"	"	"	"	"	
Chromium	**32.7**	0.382	"	"	"	"	"	"	
Copper	**107**	0.382	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**70.5**	0.382	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.82**	0.382	"	"	"	"	"	"	
Antimony	ND J	0.382	"	"	"	"	"	"	
Selenium	**0.487**	0.382	"	"	"	"	"	"	
Thallium	**0.610**	0.382	"	"	"	"	"	"	
Zinc	**66.9**	3.82	"	"	"	"	"	"	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**0.866**	0.500	"	"	"	"	"	"	
Barium	**27.8**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**42.0**	0.500	"	"	"	"	"	"	
Copper	**131**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**42.5**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**1.84**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	**0.555**	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**67.3**	5.00	"	"	"	"	"	"	

NPM 12/12/01

North Creek Analytical - Bothell

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

S. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP5 (B1J0132-05) Soil	**Sampled: 10/03/01 13:05**		**Received: 10/04/01 07:30**						
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**0.839**	0.500	"	"	"	"	"	"	
Barium	**29.1**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**48.8**	0.500	"	"	"	"	"	"	
Copper	**131**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**45.5**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.60**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	**0.554**	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**58.1**	5.00	"	"	"	"	"	"	
BRQ-SP-COMP6 (B1J0132-06) Soil	**Sampled: 10/03/01 13:15**		**Received: 10/04/01 07:30**						
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**0.927**	0.500	"	"	"	"	"	"	
Barium	**27.2**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**46.3**	0.500	"	"	"	"	"	"	
Copper	**111**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**44.4**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**1.85**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	**0.639**	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**57.6**	5.00	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

J. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP1 (B1J0132-07) Soil Sampled: 10/03/01 15:10 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.83**	0.500	"	"	"	"	"	"	
Barium	**92.7**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**20.9**	0.500	"	"	"	"	"	"	
Copper	**24.5**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**12.0**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**4.36**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	ND	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**36.8**	5.00	"	"	"	"	"	"	
MVP-COMP2 (B1J0132-08) Soil Sampled: 10/03/01 15:25 Received: 10/04/01 07:30									
Silver	ND	0.400	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.73**	0.400	"	"	"	"	"	"	
Barium	**128**	4.00	"	"	"	"	"	"	
Beryllium	**0.583**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.400	"	"	"	"	"	"	
Chromium	**21.7**	0.400	"	"	"	"	"	"	
Copper	**25.2**	0.400	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**12.8**	0.400	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**5.52**	0.400	"	"	"	"	"	"	
Antimony	ND J	0.400	"	"	"	"	"	"	
Selenium	ND	0.400	"	"	"	"	"	"	
Thallium	ND	0.400	"	"	"	"	"	"	
Zinc	**38.8**	4.00	"	"	"	"	"	"	

NFM
12/11/01

J. Wo

Scott A. Woerman, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Silver	ND	0.455	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.40**	0.455	"	"	"	"	"	"	
Barium	**163**	4.55	"	"	"	"	"	"	
Beryllium	**1.01**	0.455	"	"	"	"	"	"	
Cadmium	ND	0.455	"	"	"	"	"	"	
Chromium	**30.0**	0.455	"	"	"	"	"	"	
Copper	**20.1**	0.455	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**17.7**	0.455	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**6.58**	0.455	"	"	"	"	"	"	
Antimony	ND J	0.455	"	"	"	"	"	"	
Selenium	ND	0.455	"	"	"	"	"	"	
Thallium	ND	0.455	"	"	"	"	"	"	
Zinc	**27.6**	4.55	"	"	"	"	"	"	
MVP-COMP4 (B1J0132-10) Soil Sampled: 10/03/01 16:05 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.82**	0.500	"	"	"	"	"	"	
Barium	**89.5**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**21.5**	0.500	"	"	"	"	"	"	
Copper	**25.8**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**13.0**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**4.46**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	ND	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**36.2**	5.00	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

J. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Silver	ND	0.431	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.80**	0.431	"	"	"	"	"	"	
Barium	**92.4**	4.31	"	"	"	"	"	"	
Beryllium	**0.602**	0.431	"	"	"	"	"	"	
Cadmium	ND	0.431	"	"	"	"	"	"	
Chromium	**19.3**	0.431	"	"	"	"	"	"	
Copper	**27.3**	0.431	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**11.6**	0.431	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**5.10**	0.431	"	"	"	"	"	"	
Antimony	ND J	0.431	"	"	"	"	"	"	
Selenium	ND	0.431	"	"	"	"	"	"	
Thallium	ND	0.431	"	"	"	"	"	"	
Zinc	**38.3**	4.31	"	"	"	"	"	"	
MVP-COMP6 (B1J0132-12) Soil Sampled: 10/03/01 16:25 Received: 10/04/01 07:30									
Silver	ND	0.340	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.87**	0.340	"	"	"	"	"	"	
Barium	**96.8**	3.40	"	"	"	"	"	"	
Beryllium	**0.572**	0.340	"	"	"	"	"	"	
Cadmium	ND	0.340	"	"	"	"	"	"	
Chromium	**22.7**	0.340	"	"	"	"	"	"	
Copper	**24.7**	0.340	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**12.2**	0.340	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**4.98**	0.340	"	"	"	"	"	"	
Antimony	ND J	0.340	"	"	"	"	"	"	
Selenium	ND	0.340	"	"	"	"	"	"	
Thallium	ND	0.340	"	"	"	"	"	"	
Zinc	**35.9**	3.40	"	"	"	"	"	"	

NFM
12/12/01

North Creek Analytical - Bothell

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

J. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

SPLP Metals by EPA 1312/6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Chromium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Copper	ND	0.0500	"	"	"	"	"	"	
Nickel	ND	0.0500	"	"	"	"	"	"	
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Nickel	ND	0.0500	"	"	"	"	"	"	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Chromium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Copper	ND	0.0500	"	"	"	"	"	"	
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Beryllium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6010B	
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Beryllium	ND	0.0500	mg/l	50	1J30011	10/30/01	11/01/01	EPA 6010B	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Dry Weight	91.0	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Dry Weight	89.4	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30									
Dry Weight	91.1	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30									
Dry Weight	90.1	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Dry Weight	92.3	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Dry Weight	90.5	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP1 (B1J0132-07) Soil Sampled: 10/03/01 15:10 Received: 10/04/01 07:30									
Dry Weight	85.6	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP2 (B1J0132-08) Soil Sampled: 10/03/01 15:25 Received: 10/04/01 07:30									
Dry Weight	81.4	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Dry Weight	76.3	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP4 (B1J0132-10) Soil Sampled: 10/03/01 16:05 Received: 10/04/01 07:30									
Dry Weight	**85.5**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Dry Weight	**82.2**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP6 (B1J0132-12) Soil Sampled: 10/03/01 16:25 Received: 10/04/01 07:30									
Dry Weight	**79.2**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
Blank (1J04056-BLK1)										
Antimony	ND	0.500	mg/kg							
Arsenic	ND	0.500	"							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							
LCS (1J04056-BS1)										
Antimony	44.4	0.500	mg/kg	40.0		111	80-120			
Arsenic	41.8	0.500	"	40.0		104	70-130			
Barium	41.8	5.00	"	40.0		104	80-120			
Beryllium	43.4	0.500	"	40.0		108	80-120			
Cadmium	41.9	0.500	"	40.0		105	70-130			
Chromium	44.0	0.500	"	40.0		110	80-120			
Copper	41.7	0.500	"	40.0		104	80-120			
Lead	41.7	0.500	"	40.0		104	80-120			
Nickel	41.0	0.500	"	40.0		102	80-120			
Selenium	40.1	0.500	"	40.0		100	70-130			
Silver	41.7	0.500	"	40.0		104	40-130			
Thallium	41.7	0.500	"	40.0		104	80-120			
Zinc	41.5	5.00	"	40.0		104	70-130			

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
LCS Dup (1J04056-BSD1)										
Antimony	43.1	0.500	mg/kg	38.5		112	80-120	2.97	20	
Arsenic	40.4	0.500	"	38.5		105	70-130	3.41	20	
Barium	41.1	5.00	"	38.5		107	80-120	1.69	20	
Beryllium	43.3	0.500	"	38.5		112	80-120	0.231	20	
Cadmium	40.5	0.500	"	38.5		105	70-130	3.40	20	
Chromium	42.7	0.500	"	38.5		111	80-120	3.00	20	
Copper	40.3	0.500	"	38.5		105	80-120	3.41	20	
Lead	40.2	0.500	"	38.5		104	80-120	3.66	20	
Nickel	39.7	0.500	"	38.5		103	80-120	3.22	20	
Selenium	39.4	0.500	"	38.5		102	70-130	1.76	20	
Silver	40.9	0.500	"	38.5		106	40-130	1.94	20	
Thallium	40.3	0.500	"	38.5		105	80-120	3.41	20	
Zinc	40.3	5.00	"	38.5		105	70-130	2.93	20	
Matrix Spike (1J04056-MS1)					**Source: B1J0132-01**					
Antimony	1.65	0.500	mg/kg dry	41.5	ND	3.98	70-130			Q-13
Arsenic	40.7	0.500	"	41.5	1.47	94.5	70-130			
Barium	72.0	5.00	"	41.5	28.2	106	70-130			
Beryllium	42.4	0.500	"	41.5	ND	101	70-130			
Cadmium	41.0	0.500	"	41.5	ND	98.4	70-130			
Chromium	81.2	0.500	"	41.5	36.7	107	70-130			
Copper	140	0.500	"	41.5	97.5	102	70-130			
Lead	43.4	0.500	"	41.5	2.35	98.9	70-130			
Nickel	80.5	0.500	"	41.5	41.8	93.3	70-130			
Selenium	37.8	0.500	"	41.5	0.580	89.7	70-130			
Silver	37.7	0.500	"	41.5	ND	90.5	40-130			
Thallium	41.4	0.500	"	41.5	ND	99.5	70-130			
Zinc	98.6	5.00	"	41.5	58.8	95.9	70-130			

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
Matrix Spike Dup (1J04056-MSD1)					**Source: B1J0132-01**					
Antimony	0.876	0.500	mg/kg dry	40.3	ND	2.17	70-130	61.3	20	Q-13
Arsenic	39.5	0.500	"	40.3	1.47	94.4	70-130	2.99	20	
Barium	75.3	5.00	"	40.3	28.2	117	70-130	4.48	20	
Beryllium	41.6	0.500	"	40.3	ND	102	70-130	1.90	20	
Cadmium	39.9	0.500	"	40.3	ND	98.6	70-130	2.72	20	
Chromium	82.9	0.500	"	40.3	36.7	115	70-130	2.07	20	
Copper	141	0.500	"	40.3	97.5	108	70-130	0.712	20	
Lead	42.1	0.500	"	40.3	2.35	98.6	70-130	3.04	20	
Nickel	81.6	0.500	"	40.3	41.8	98.8	70-130	1.36	20	
Selenium	36.5	0.500	"	40.3	0.580	89.1	70-130	3.50	20	
Silver	37.1	0.500	"	40.3	ND	91.7	40-130	1.60	50	
Thallium	40.0	0.500	"	40.3	ND	99.0	70-130	3.44	20	
Zinc	97.9	5.00	"	40.3	58.8	97.0	70-130	0.712	20	
Post Spike (1J04056-PS1)					**Source: B1J0132-01**					
Antimony	241	2.16	mg/kg dry	237	ND	102	70-130			
Batch 1J08024: Prepared 10/08/01 Using EPA 7471A										
Blank (1J08024-BLK1)										
Mercury	ND	0.200	mg/kg							
LCS (1J08024-BS1)										
Mercury	0.548	0.200	mg/kg	0.497		110	80-120			
LCS Dup (1J08024-BSD1)										
Mercury	0.518	0.200	mg/kg	0.500		104	80-120	5.63	20	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08024: Prepared 10/08/01 Using EPA 7471A										
Matrix Spike (1J08024-MS1)					**Source: B1J0082-01**					
Mercury	0.652	0.200	mg/kg dry	0.525	ND	115	70-130			
Matrix Spike Dup (1J08024-MSD1)					**Source: B1J0082-01**					
Mercury	0.655	0.200	mg/kg dry	0.527	ND	115	70-130	0.459	30	

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J22032: Prepared 10/22/01 Using EPA 3020A										
Blank (1J22032-BLK1)										
Beryllium	ND	0.0500	mg/l							
Chromium	ND	0.0500	"							
Copper	ND	0.0500	"							
Nickel	ND	0.0500	"							
LCS (1J22032-BS1)										
Beryllium	3.74	0.0500	mg/l	4.00		93.5	80-120			
Chromium	3.90	0.0500	"	4.00		97.5	80-120			
Copper	3.78	0.0500	"	4.00		94.5	80-120			
Nickel	3.64	0.0500	"	4.00		91.0	80-120			
LCS Dup (1J22032-BSD1)										
Beryllium	3.74	0.0500	mg/l	4.00		93.5	80-120	0.00	20	
Chromium	4.01	0.0500	"	4.00		100	80-120	2.78	20	
Copper	3.70	0.0500	"	4.00		92.5	80-120	2.14	20	
Nickel	3.58	0.0500	"	4.00		89.5	80-120	1.66	20	
Matrix Spike (1J22032-MS1)					**Source: B1J0132-01**					
Beryllium	3.74	0.0500	mg/l	4.00	ND	93.3	75-125			
Chromium	3.98	0.0500	"	4.00	ND	99.2	64-128			
Copper	3.77	0.0500	"	4.00	ND	93.8	72-125			
Nickel	3.60	0.0500	"	4.00	ND	89.7	72-125			
Matrix Spike Dup (1J22032-MSD1)					**Source: B1J0132-01**					
Beryllium	3.78	0.0500	mg/l	4.00	ND	94.3	75-125	1.06	20	
Chromium	4.06	0.0500	"	4.00	ND	101	64-128	1.99	20	
Copper	3.83	0.0500	"	4.00	ND	95.3	72-125	1.58	20	
Nickel	3.65	0.0500	"	4.00	ND	90.9	72-125	1.38	20	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J30011: Prepared 10/30/01 Using EPA 3020A										
Blank (1J30011-BLK1)										
Beryllium	ND	0.0500	mg/l							
LCS (1J30011-BS1)										
Beryllium	3.89	0.0500	mg/l	4.00		97.2	80-120			
LCS Dup (1J30011-BSD1)										
Beryllium	3.78	0.0500	mg/l	4.00		94.5	80-120	2.87	20	
Matrix Spike (1J30011-MS1)					**Source: B1J0132-11**					
Beryllium	3.95	0.0500	mg/l	4.00	ND	98.6	75-125			
Matrix Spike Dup (1J30011-MSD1)					**Source: B1J0132-11**					
Beryllium	3.99	0.0500	mg/l	4.00	ND	99.6	75-125	1.01	20	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J09004: Prepared 10/09/01 Using Dry Weight										
Blank (1J09004-BLK1)										
Dry Weight	100	1.00	%							

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Notes and Definitions

A-01	SPLP Extraction Blank
Q-13	Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Sample Custody Record

Samples Shipped to:

D1 J015 2

HARTCROWSER

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

JOB 4978-19 LAB NUMBER

PROJECT NAME 3RD Runway / Pit Sampling

HART CROWSER CONTACT Neil Morton

SAMPLED BY: William Dawson

REQUESTED ANALYSIS: Rcra 8 Metals + Ni, Cu, Zn, Tl, Be, Sb

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	BRA-SP-COMP 1	8oz. Glass	10/3/01	1235	SOIL	X	1	-01
	BRA-SP-COMP 2	↓	↓	1240	↓	X	1	-02
	BRA-SP-COMP 3			1250		X	1	-03
	BRA-SP-COMP 4			1300		X	1	-04
	BRA-SP-COMP 5			1305		X	1	-05
	BRA-SP-COMP 6			1315		X	1	-06
	MVP-COMP 1			1510		X	1	-07
	MVP-COMP 2			1525		X	1	-08
	MVP-COMP 3			1535		X	1	-09
	MVP-COMP 4			1605		X	1	-10
	MVP-COMP 5			1615		X	1	-11
	MVP-COMP 6			1625		X	1	-12

TOTAL NUMBER OF CONTAINERS: 12

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: [signature]	10/4/01	SIGNATURE: Cathy Nichols	10/4/01
PRINT NAME: William Dawson	TIME: 0730	PRINT NAME: C. Nichols	TIME: 7:30
COMPANY: Hart Crowser		COMPANY:	

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

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

- Beth Clark asked for Rush test, at standard rate

(Beth Clark at Port of Seattle)

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. ______ for Other Contract Requirements

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

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

5.8° w/

SUPPLEMENT
ENVIRONMENTAL REVIEW SHEET
Airport Project Fill Material

CONTRACTOR/SUPPLIER NAME: CTI

SITE: CTI Fill Sources

SITE LOCATION: Various (see below)

COMMENTS:

Attached is supplemental information for CTI fill sources received since the September 21, 2001 issuance of the 401 Certification. These fill sources include:

- Black River Quarry (Renton)
- Marine View Pit (Tacoma)
- Lincoln and Summit Stockpile (Renton)
- Lakeland Pit (Sumner)
- CTI Pit No. 3 (Sumner)
- Stoneway/Kent Kangley Pit (Ravensdale)

This information includes test results for additional soil testing conducted in accordance with Condition E of the 401 Certification. This information is intended to supplement reports previously submitted to Ecology under the 1999 Airfield Project Soil Fill Acceptance Criteria.

REVIEWER: E Clark DATE: 12/12/01

Third Runway Project
Off-Site Borrow Source
Baseline Chemical Characterization
Lincoln and Summit Stockpile
(Black River Quarry)
Renton, Washington

HARTCROWSER
Delivering smarter solutions

Prepared for
Port of Seattle

December 12, 2001
4978-06

HARTCROWSER
Delivering smarter solutions

Third Runway Project
Off-Site Borrow Source
Baseline Chemical Characterization
Lincoln and Summit Stockpile
(Black River Quarry)
Renton, Washington

Prepared for
Port of Seattle

December 12, 2001
4978-06

Prepared by
Hart Crowser, Inc.

Neil F. Morton
Project Toxicologist

Richard F. Moore
Senior Associate
Environmental Specialist

1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530

CONTENTS

TABLES

FIGURE

APPENDIX A
LABORATORY ANALYTICAL DOCUMENTATION
NORTH CREEK ANALYTICAL, INC.

THIRD RUNWAY PROJECT
OFF-SITE BORROW SOURCE BASELINE CHEMICAL CHARACTERIZATION
LINCOLN AND SUMMIT STOCKPILE, RENTON, WASHINGTON

This data package presents information compiled by Hart Crowser following the collection and chemical analysis of soil samples at the Lincoln and Summit Stockpile for the Third Runway Project. The Lincoln and Summit Stockpile is located at the Black River Quarry and is a source of soil borrow fill material for the Third Runway embankment that is currently being constructed at the Sea-Tac International Airport. City Transfer Incorporated (CTI) imported the stockpiled soils from the Lincoln Square and Summit excavation areas located in Bellevue, Washington. CTI operates the Black River Quarry. Soils at the Lincoln and Summit Stockpile consist of native sand and gravel derived from glacial and related alluvial deposits. Work for the project was completed pursuant to our contract with HNTB dated May 1, 1998, as amended, and the sampling and analysis strategy described in the Hart Crowser proposal dated October 5, 2001. Hart Crowser collected the samples on October 4, 2001, at the stockpile locations identified on Figure 1. All site sampling work was conducted following approval and site access authorization from CTI and the Black River Quarry personnel.

The objective of the pit sampling and analysis was to perform a baseline chemical characterization of *in situ* soils from active portions of the Lincoln and Summit Stockpile. The soils were analyzed for total metals (priority pollutant metals plus barium) and total petroleum hydrocarbons. Additionally, Synthetic Precipitation Leaching Procedure (SPLP) analyses were conducted for any metal with a total metals concentration that exceeded fill screening criteria listed in the Port of Seattle's (Port's) Section 401 Water Quality Certification (Order #1996-4-0325, Amended -1) dated September 21, 2001.

Six representative soil samples from the Lincoln and Summit Stockpile were submitted for laboratory analysis at North Creek Analytical, Inc. (NCA; Bothell, Washington).

This data package contains the following:

- **CHEMICAL ANALYSIS RESULTS AND CONCLUSIONS**;
- **SAMPLING METHODOLOGY AND SOILS DESCRIPTION**;
- **CHEMICAL DATA QUALITY REVIEW**; and
- **LIMITATIONS**.

Figure 1 is the Site Plan Schematic showing the stockpile that was sampled and the sample locations. Table 1 presents the total metals chemical analysis results. Table 2 presents soil sample descriptions.

Laboratory analytical documentation from NCA is presented in Appendix A.

CHEMICAL ANALYSIS RESULTS AND CONCLUSIONS

Total metals results for the Lincoln and Summit Stockpile soil samples, presented in Table 1, were compared against the Section 401 fill criteria (Condition E.1.B). As shown in Table 1, all metals were detected at concentrations less than their respective fill criterion. Therefore, no SPLP analyses were necessary.

As discussed below in the **CHEMICAL DATA QUALITY REVIEW** section, Lincoln and Summit antimony sample analysis results from NCA laboratories were initially rejected based on failure of the laboratory quality control samples. Antimony analysis results for samples collected from five other off-site borrow sources (Kent Kangley Pit, CTI Pit No. 3, Lakeland Hills Pit, Black River Quarry, and the Marine View Pit) were also initially rejected, indicating a systematic laboratory condition. Soil samples from the Lakeland Hills Pit (LH Comp 5), the Kent Kangley Pit (TP-2 Comp 1) and CTI Pit No. 3 (CTI Comp 6), were then resubmitted to Columbia Analytical Services, Inc. (CAS) laboratory for reanalysis of antimony. CAS analyzed each sample using the same extraction method (EPA Method 3050B) and similar analytical method (EPA 200.8 versus EPA 6020) that NCA used. In addition, the Kent Kangley sample (TP-2 Comp 1) was extracted using an optional extraction procedure designed to improve to solubility and recovery of antimony (EPA Method 3050B; Section 7.5).

As described in the **CHEMICAL DATA QUALITY REVIEW** section of the Lakeland Hills Pit, CTI Pit No. 3, and Kent Kangley Pit baseline chemical characterization reports, the CAS antimony results were determined to be acceptable based on the results of reanalysis. The analytical results from NCA and CAS are also well below the 401 Certification antimony fill criterion of 16 mg/kg. Because the CAS antimony results are acceptable, and are below the NCA Lincoln and Summit Stockpile antimony reporting limits, the NCA Lincoln and Summit Stockpile antimony results were also determined to be acceptable. Additionally, according to Shacklette and Boerngen's Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States (1984), the mean antimony concentration in the western U.S. is 0.47 mg/kg, and the observed range is less than 1 to 2.6 mg/kg.

In conclusion, the results presented in Table 1, along with the discussion in this section, show that the total metal concentrations in the soils from the Lincoln and Summit Stockpile are less than those defined by the 401 fill criteria.

SAMPLING METHODOLOGY AND SOILS DESCRIPTION

The following sections describe the specific exploration and sample collection methods used. This description includes sample handling and transfer, and decontamination procedures.

Sample Collection and Soils Description

Hart Crowser collected six composite samples from the Lincoln and Summit Stockpile on October 4, 2001. Six samples were collected from the stockpile, which was approximately 400 feet long, 50 feet wide, with a stockpile face of approximately 30 feet at the time of sampling (Figure 1).

Stockpile Soil Samples

The soil samples (BRQ-LS-Comp1 through BRQ-LS-Comp6) represent three-point composite samples. The approximate locations of the individual sample aliquots for each composite sample are shown on Figure 1. Each sample aliquot was collected at a minimum of about 1 foot below the surface. The Lincoln and Summit Stockpile soils generally consisted of sandy, gravelly silt, representative of material shipped for embankment fill for the Third Runway Project.

To form each composite sample, material at each sample aliquot location was collected using a stainless steel spoon and mixed together in a stainless steel bowl. Each resulting composite sample was then transferred to pre-cleaned, labeled sample jars for laboratory analyses.

Sample Handling and Transfer

After compositing each sample, each sample jar was wiped clean and capped with a Teflon-lined lid, and then placed in an insulated ice chest with ice. Samples were shipped on October 4, 2001, to NCA under a chain of custody form for laboratory analyses. The samples were transported with blue ice and were received at the laboratory in good condition.

Decontamination

Sampling equipment was cleaned prior to and between each sample. The spoons, bowls, and other hand sampling equipment were brush-scrubbed using an Alconox detergent solution followed by successive rinses of tap and deionized water.

CHEMICAL DATA QUALITY REVIEW

This data quality review evaluates the data included in the NCA data groups B1J0132 and B1J0187. This data group includes data for soil samples collected at the Black River Quarry, the Lincoln and Summit Stockpile, and the Marine View Pit (Type 1B and II Soils). In total, 24 soil samples were collected for this data group on October 3 and 4, 2001, including the six samples from the Lincoln and Summit Stockpile. These samples were analyzed for the following:

- Total Metals (silver, arsenic, barium, beryllium, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium, thallium, and zinc via EPA 6000 and 7000 series methods).

Following the above analyses, a subset of the 24 samples were further analyzed by NCA for leachable beryllium, cadmium, chromium, copper, and/or nickel using the SPLP procedure via method EPA Method 1312 metals (beryllium via EPA Method 6010B and cadmium, chromium, copper, and nickel via EPA Method 6020).

The following criteria were evaluated in the standard data quality review process:

- Holding times;
- Method blanks;
- Surrogate recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries; and
- Laboratory relative percent difference (RPD).

Total Metals. All required holding times were met. No method blank contamination was detected. Lab control sample/lab control sample duplicate (LCS/LCSD) and MS/MSD recoveries were within control limits with the

following exceptions. The percent recovery for barium in the MS/MSD samples prepared on October 10, 2001, was less than the control limit (33.3/38.3 percent versus 70 to 130 percent). MVP-1B-Comp 2 (Marine View Pit) was the only sample associated with the October 10, 2001, MS/MSD sample and the barium detection of 74.6 mg/kg was flagged as estimated ("J"). In addition, the percent recoveries for antimony in the MS/MSD samples (less than 5 percent) were significantly less than the control limit (70 to 130 percent). In addition, the MS/MSD RPD for antimony was greater than the control limit. A post-digestion spike on the same source sample that was used as the MS/MSD sample had an acceptable percent recovery for antimony. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (dated February 1998) requires that non-detected results be rejected when the MS/MSD percent recoveries are less than 30 percent. Although it is not unusual for antimony recoveries to be low in many types of soil, the antimony MS/MSD recoveries are significantly below 30 percent requiring that all the antimony (non-detect) results be rejected. It should be noted, however, that antimony was not detected in any of the Black River Quarry soil samples. The soil quality data, with the exception of antimony, are acceptable for use as qualified.

SPLP Metals. All required holding times were met. No method blank contamination was detected. LCS/LCSD and MS/MSD recoveries were within control limits. The data are acceptable for use without qualification.

LIMITATIONS

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of the Port of Seattle for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Any questions regarding our work and this report, the presentation of the information, and the interpretation of the data are welcome. We trust that this report meets your needs.

F:\docs\jobs\497806\LSPitDraftDataPkg.doc

Table 1 - Lincoln and Summit Stockpile Sampling, Total Metals Analytical Results

	Total Metals Concentration in mg/kg													
Sample Location/	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Screening Level[a]	**16**	**20**	**NE**	**0.6**	**2**	**42/2000[b]**	**36**	**220/250[b]**	**2**	**100/110[b]**	**5**	**5**	**2**	**85**
Lincoln-Summit Stockpile														
BRQ-LS-Comp1	0.4UJ	2.73	74.5	0.4U	0.605	36.8	26.4	3.12	0.2U	41.8	0.4U	0.4U	0.4U	42.7
BRQ-LS-Comp2	0.4UJ	3.00	76.9	0.4U	0.525	36.0	26.7	3.37	0.2U	41.9	0.4U	0.4U	0.4U	42.6
BRQ-LS-Comp3	0.4UJ	3.22	85.1	0.4U	0.629	40.3	22.9	4.12	0.2U	45.9	0.4U	0.4U	0.4U	44.6
BRQ-LS-Comp4	0.4UJ	2.23	63.5	0.4U	0.451	30.4	17.3	5.29	0.2U	38.7	0.4U	0.4U	0.4U	34.6
BRQ-LS-Comp5	0.3UJ	2.45	59.9	0.3U	0.433	31.7	15.0	3.55	0.2U	39.2	0.3U	0.3U	0.3U	33.6
BRQ-LS-Comp6	0.4UJ	2.47	64.5	0.4U	0.4U	32.4	17.6	4.16	0.2U	37.4	0.4U	0.4U	0.4U	37.5

Notes:

Soil samples collected by Hart Crowser on October 4, 2001.

Bolded and underlined value exceeds Section 401 fill criteria screening level.

Samples analyzed by NCA.

a Fill criteria from Condition E.1.b of Section 401 Certification.

b Criteria vary depending on where fill is placed in embankment (see Condition E.1.b of 401 Certification).

U Not detected above laboratory analytical reporting limit.

J Estimated.

NE Not established.

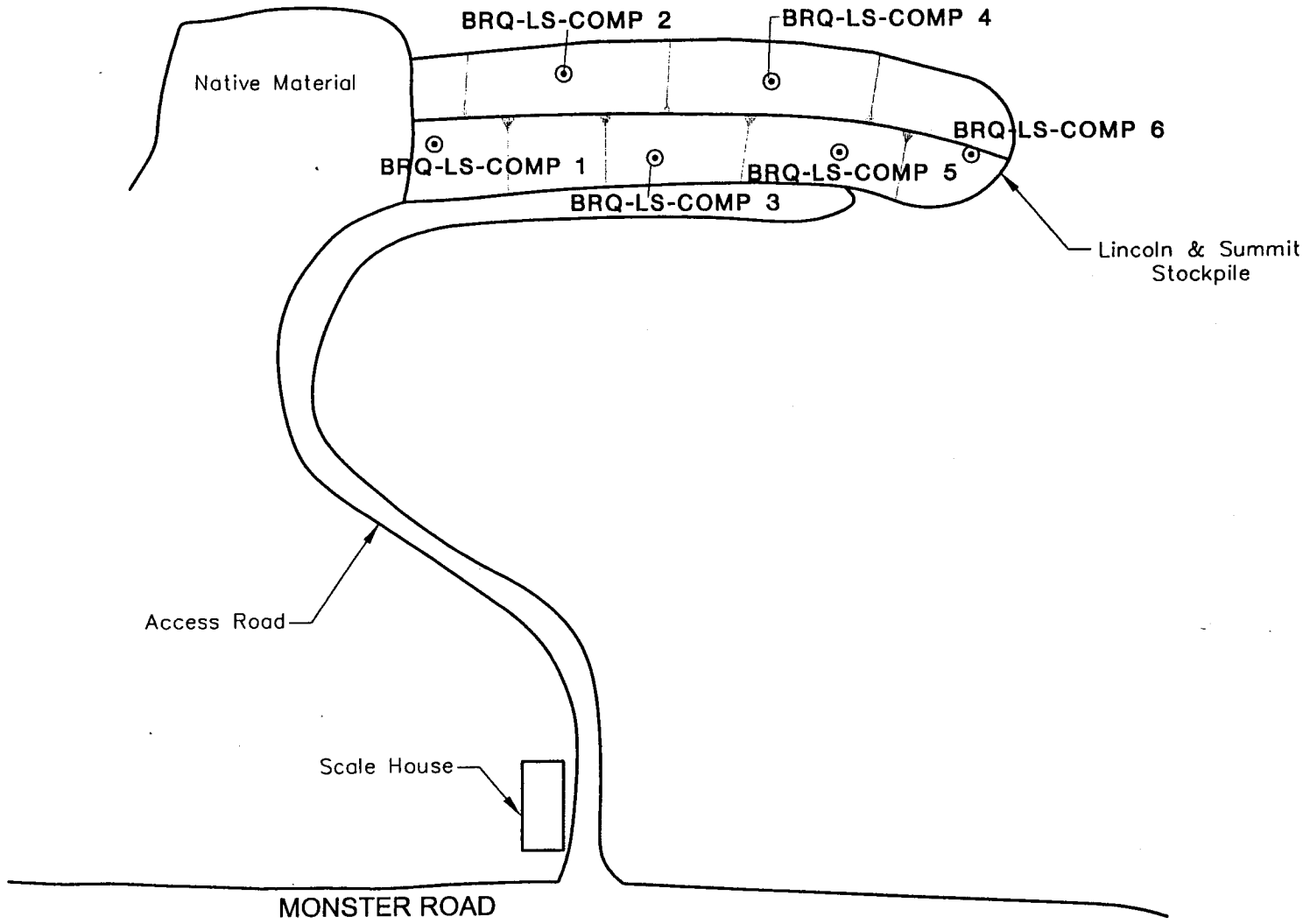
Table 2 - Lincoln and Summit Stockpile Sampling, Soil Sample Descriptions

Sample Location	Sample Description
Lincoln-Summit Stockpile	
BRQ-LS-Comp1	Dry, light gray, slightly sandy, gravelly SILT
BRQ-LS-Comp2	Dry, light gray, slightly sandy, gravelly SILT
BRQ-LS-Comp3	Dry, gray, slightly sandy, gravelly SILT
BRQ-LS-Comp4	Dry to damp, gray to brown, gravelly, sandy SILT
BRQ-LS-Comp5	Dry, gray, slightly sandy, gravelly SILT
BRQ-LS-Comp6	Dry to damp, gray to brown, gravelly, sandy SILT

DTN 12/11/01 1=100 497806110.dwg

Site Plan Schematic and Sample Location Map

Black River Quarry (Lincoln and Summit Stockpile)



HARTCROWSER 4978-06 12/01
Figure 1

AR 015363

Appendix A

APPENDIX A
LABORATORY ANALYTICAL DOCUMENTATION
NORTH CREEK ANALYTICAL, INC.

30 October 2001

Rick Moore
Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle, WA 98102

RE: Third Runway/Pit Samples

Enclosed are **amended** results of analyses for samples received by the laboratory on 10/04/01 15:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman
Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

ANALYTICAL REPORT FOR SAMPLES - Ameneded

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MVP-1B- COMP 1	B1J0187-01	Soil	10/04/01 09:25	10/04/01 15:35
MVP-1B- COMP 2	B1J0187-02	Soil	10/04/01 09:35	10/04/01 15:35
MVP-1B- COMP 3	B1J0187-03	Soil	10/04/01 09:50	10/04/01 15:35
MVP-1B- COMP 4	B1J0187-04	Soil	10/04/01 10:00	10/04/01 15:35
MVP-1B- COMP 5	B1J0187-05	Soil	10/04/01 10:05	10/04/01 15:35
MVP-1B- COMP 6	B1J0187-06	Soil	10/04/01 10:15	10/04/01 15:35
BRQ-LS- COMP 1	B1J0187-07	Soil	10/04/01 14:05	10/04/01 15:35
BRQ-LS- COMP 2	B1J0187-08	Soil	10/04/01 14:10	10/04/01 15:35
BRQ-LS- COMP 3	B1J0187-09	Soil	10/04/01 14:15	10/04/01 15:35
BRQ-LS- COMP 4	B1J0187-10	Soil	10/04/01 14:25	10/04/01 15:35
BRQ-LS- COMP 5	B1J0187-11	Soil	10/04/01 14:35	10/04/01 15:35
BRQ-LS- COMP 6	B1J0187-12	Soil	10/04/01 14:45	10/04/01 15:35

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Silver	ND	0.385	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.59**	0.385	"	"	"	"	"	"	
Barium	**60.6**	3.85	"	"	"	"	"	"	
Beryllium	**0.392**	0.385	"	"	"	"	"	"	
Cadmium	**1.03**	0.385	"	"	"	"	"	"	
Chromium	**25.0**	0.385	"	"	"	"	"	"	
Copper	**16.8**	0.385	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**29.1**	0.385	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**3.11**	0.385	"	"	"	"	"	"	
Antimony	ND J	0.385	"	"	"	"	"	"	
Selenium	ND	0.385	"	"	"	"	"	"	
Thallium	ND	0.385	"	"	"	"	"	"	
Zinc	**39.0**	3.85	"	"	"	"	"	"	
MVP-1B- COMP 2 (B1J0187-02) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Silver	ND	0.455	mg/kg dry	1	1J09035	10/09/01	10/10/01	EPA 6020	
Arsenic	**2.94**	0.455	"	"	"	"	"	"	
Barium	**74.6 J**	4.55	"	"	"	"	"	"	
Beryllium	ND	0.455	"	"	"	"	10/11/01	"	
Cadmium	ND	0.455	"	"	"	"	10/10/01	"	
Chromium	**21.2**	0.455	"	"	"	"	10/11/01	"	
Copper	**16.0**	0.455	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**24.6**	0.455	"	"	1J09035	10/09/01	10/11/01	EPA 6020	
Lead	**2.36**	0.455	"	"	"	"	10/10/01	"	
Selenium	ND	0.455	"	"	"	"	"	"	
Thallium	ND	0.455	"	"	"	"	"	"	
Zinc	**31.8**	4.55	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

J. Woerman

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 2 (B1J0187-02RE1) Soil Sampled: 10/04/01 09:35 Received: 10/04/01 15:35									
Antimony	ND J	0.500	mg/kg dry	1	1J11031	10/11/01	10/12/01	EPA 6020	
MVP-1B- COMP 3 (B1J0187-03) Soil Sampled: 10/04/01 09:50 Received: 10/04/01 15:35									
Silver	ND	0.379	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.88**	0.379	"	"	"	"	"	"	
Barium	**55.1**	3.79	"	"	"	"	"	"	
Beryllium	ND	0.379	"	"	"	"	"	"	
Cadmium	ND	0.379	"	"	"	"	"	"	
Chromium	**28.9**	0.379	"	"	"	"	"	"	
Copper	**12.5**	0.379	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**31.8**	0.379	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**2.19**	0.379	"	"	"	"	"	"	
Antimony	ND J	0.379	"	"	"	"	"	"	
Selenium	ND	0.379	"	"	"	"	"	"	
Thallium	ND	0.379	"	"	"	"	"	"	
Zinc	**33.7**	3.79	"	"	"	"	"	"	
MVP-1B- COMP 4 (B1J0187-04) Soil Sampled: 10/04/01 10:00 Received: 10/04/01 15:35									
Silver	ND	0.417	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.36**	0.417	"	"	"	"	"	"	
Barium	**59.6**	4.17	"	"	"	"	"	"	
Beryllium	ND	0.417	"	"	"	"	"	"	
Cadmium	**0.748**	0.417	"	"	"	"	"	"	
Chromium	**25.1**	0.417	"	"	"	"	"	"	
Copper	**13.4**	0.417	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**27.9**	0.417	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**2.20**	0.417	"	"	"	"	"	"	
Antimony	ND J	0.417	"	"	"	"	"	"	
Selenium	ND	0.417	"	"	"	"	"	"	
Thallium	ND	0.417	"	"	"	"	"	"	
Zinc	**34.9**	4.17	"	"	"	"	"	"	

NFR 12/11/01

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 5 (B1J0187-05) Soil Sampled: 10/04/01 10:05 Received: 10/04/01 15:35									
Silver	ND	0.407	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.30**	0.407	"	"	"	"	"	"	
Barium	**47.7**	4.07	"	"	"	"	"	"	
Beryllium	ND	0.407	"	"	"	"	"	"	
Cadmium	**0.783**	0.407	"	"	"	"	"	"	
Chromium	**26.0**	0.407	"	"	"	"	"	"	
Copper	**13.2**	0.407	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**27.2**	0.407	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**2.04**	0.407	"	"	"	"	"	"	
Antimony	ND J	0.407	"	"	"	"	"	"	
Selenium	ND	0.407	"	"	"	"	"	"	
Thallium	ND	0.407	"	"	"	"	"	"	
Zinc	**33.7**	4.07	"	"	"	"	"	"	
MVP-1B- COMP 6 (B1J0187-06) Soil Sampled: 10/04/01 10:15 Received: 10/04/01 15:35									
Silver	ND	0.309	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.48**	0.309	"	"	"	"	"	"	
Barium	**57.5**	3.09	"	"	"	"	"	"	
Beryllium	**0.340**	0.309	"	"	"	"	"	"	
Cadmium	**0.818**	0.309	"	"	"	"	"	"	
Chromium	**23.5**	0.309	"	"	"	"	"	"	
Copper	**19.1**	0.309	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**27.5**	0.309	"	"	1J08034	10/08/01	10/10/01	EPA 6020	
Lead	**5.00**	0.309	"	"	"	"	"	"	
Antimony	ND J	0.309	"	"	"	"	"	"	
Selenium	ND	0.309	"	"	"	"	"	"	
Thallium	ND	0.309	"	"	"	"	"	"	
Zinc	**40.0**	3.09	"	"	"	"	"	"	

NFM 12/11/01

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 1 (B1J0187-07) Soil Sampled: 10/04/01 14:05 Received: 10/04/01 15:35									
Silver	ND	0.368	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.73**	0.368	"	"	"	"	"	"	
Barium	**74.5**	3.68	"	"	"	"	"	"	
Beryllium	ND	0.368	"	"	"	"	10/11/01	"	
Cadmium	**0.605**	0.368	"	"	"	"	10/10/01	"	
Chromium	**36.8**	0.368	"	"	"	"	10/11/01	"	
Copper	**26.4**	0.368	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**41.8**	0.368	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**3.12**	0.368	"	"	"	"	10/10/01	"	
Antimony	ND J	0.368	"	"	"	"	"	"	
Selenium	ND	0.368	"	"	"	"	"	"	
Thallium	ND	0.368	"	"	"	"	"	"	
Zinc	**42.7**	3.68	"	"	"	"	"	"	
BRQ-LS- COMP 2 (B1J0187-08) Soil Sampled: 10/04/01 14:10 Received: 10/04/01 15:35									
Silver	ND	0.379	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**3.00**	0.379	"	"	"	"	"	"	
Barium	**76.9**	3.79	"	"	"	"	"	"	
Beryllium	ND	0.379	"	"	"	"	10/11/01	"	
Cadmium	**0.525**	0.379	"	"	"	"	10/10/01	"	
Chromium	**36.0**	0.379	"	"	"	"	10/11/01	"	
Copper	**26.7**	0.379	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**41.9**	0.379	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**3.37**	0.379	"	"	"	"	10/10/01	"	
Antimony	ND J	0.379	"	"	"	"	"	"	
Selenium	ND	0.379	"	"	"	"	"	"	
Thallium	ND	0.379	"	"	"	"	"	"	
Zinc	**42.6**	3.79	"	"	"	"	"	"	

NFM 12/11/01

North Creek Analytical - Bothell

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

J. Woerman

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 3 (B1J0187-09) Soil Sampled: 10/04/01 14:15 Received: 10/04/01 15:35									
Silver	ND	0.424	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**3.22**	0.424	"	"	"	"	"	"	
Barium	**85.1**	4.24	"	"	"	"	"	"	
Beryllium	ND	0.424	"	"	"	"	10/11/01	"	
Cadmium	**0.629**	0.424	"	"	"	"	10/10/01	"	
Chromium	**40.3**	0.424	"	"	"	"	10/11/01	"	
Copper	**22.9**	0.424	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**45.9**	0.424	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**4.12**	0.424	"	"	"	01/18/01	10/10/01	"	
Antimony	ND J	0.424	"	"	"	10/08/01	"	"	
Selenium	ND	0.424	"	"	"	"	"	"	
Thallium	ND	0.424	"	"	"	"	"	"	
Zinc	**44.6**	4.24	"	"	"	"	"	"	
BRQ-LS- COMP 4 (B1J0187-10) Soil Sampled: 10/04/01 14:25 Received: 10/04/01 15:35									
Silver	ND	0.435	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.23**	0.435	"	"	"	"	"	"	
Barium	**63.5**	4.35	"	"	"	"	"	"	
Beryllium	ND	0.435	"	"	"	"	10/11/01	"	
Cadmium	**0.451**	0.435	"	"	"	"	10/10/01	"	
Chromium	**30.4**	0.435	"	"	"	"	10/11/01	"	
Copper	**17.3**	0.435	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**38.7**	0.435	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**5.29**	0.435	"	"	"	"	10/10/01	"	
Antimony	ND J	0.435	"	"	"	"	"	"	
Selenium	ND	0.435	"	"	"	"	"	"	
Thallium	ND	0.435	"	"	"	"	"	"	
Zinc	**34.6**	4.35	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

J. Wo

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 5 (B1J0187-11) Soil Sampled: 10/04/01 14:35 Received: 10/04/01 15:35									
Silver	ND	0.347	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.45**	0.347	"	"	"	"	"	"	
Barium	**59.9**	3.47	"	"	"	"	"	"	
Beryllium	ND	0.347	"	"	"	"	10/11/01	"	
Cadmium	**0.433**	0.347	"	"	"	"	10/10/01	"	
Chromium	**31.7**	0.347	"	"	"	"	10/11/01	"	
Copper	**15.0**	0.347	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**39.2**	0.347	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**3.55**	0.347	"	"	"	"	10/10/01	"	
Antimony	ND J	0.347	"	"	"	"	"	"	
Selenium	ND	0.347	"	"	"	"	"	"	
Thallium	ND	0.347	"	"	"	"	"	"	
Zinc	**33.6**	3.47	"	"	"	"	"	"	
BRQ-LS- COMP 6 (B1J0187-12) Soil Sampled: 10/04/01 14:45 Received: 10/04/01 15:35									
Silver	ND	0.388	mg/kg dry	1	1J08034	10/08/01	10/10/01	EPA 6020	
Arsenic	**2.47**	0.388	"	"	"	"	"	"	
Barium	**64.5**	3.88	"	"	"	"	"	"	
Beryllium	ND	0.388	"	"	"	"	10/11/01	"	
Cadmium	ND	0.388	"	"	"	"	10/10/01	"	
Chromium	**32.4**	0.388	"	"	"	"	10/11/01	"	
Copper	**17.6**	0.388	"	"	"	"	10/10/01	"	
Mercury	ND	0.200	"	"	1J10040	10/10/01	10/11/01	EPA 7471A	
Nickel	**37.4**	0.388	"	"	1J08034	10/08/01	10/11/01	EPA 6020	
Lead	**4.16**	0.388	"	"	"	"	10/10/01	"	
Antimony	ND J	0.388	"	"	"	"	"	"	
Selenium	ND	0.388	"	"	"	"	"	"	
Thallium	ND	0.388	"	"	"	"	"	"	
Zinc	**37.5**	3.88	"	"	"	"	"	"	

NFM
12/11/01

North Creek Analytical - Bothell

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

J. W

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

SPLP Metals by EPA 1312/6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil Sampled: 10/04/01 09:25 Received: 10/04/01 15:35									
Cadmium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-1B- COMP 1 (B1J0187-01) Soil	**Sampled: 10/04/01 09:25**		**Received: 10/04/01 15:35**						
Dry Weight	**91.6**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 2 (B1J0187-02) Soil	**Sampled: 10/04/01 09:35**		**Received: 10/04/01 15:35**						
Dry Weight	**90.4**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 3 (B1J0187-03) Soil	**Sampled: 10/04/01 09:50**		**Received: 10/04/01 15:35**						
Dry Weight	**92.1**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 4 (B1J0187-04) Soil	**Sampled: 10/04/01 10:00**		**Received: 10/04/01 15:35**						
Dry Weight	**92.3**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 5 (B1J0187-05) Soil	**Sampled: 10/04/01 10:05**		**Received: 10/04/01 15:35**						
Dry Weight	**91.6**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
MVP-1B- COMP 6 (B1J0187-06) Soil	**Sampled: 10/04/01 10:15**		**Received: 10/04/01 15:35**						
Dry Weight	**88.7**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 1 (B1J0187-07) Soil	**Sampled: 10/04/01 14:05**		**Received: 10/04/01 15:35**						
Dry Weight	**98.1**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 2 (B1J0187-08) Soil	**Sampled: 10/04/01 14:10**		**Received: 10/04/01 15:35**						
Dry Weight	**97.6**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 3 (B1J0187-09) Soil	**Sampled: 10/04/01 14:15**		**Received: 10/04/01 15:35**						
Dry Weight	**98.1**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-LS- COMP 4 (B1J0187-10) Soil	**Sampled: 10/04/01 14:25**		**Received: 10/04/01 15:35**						
Dry Weight	**93.8**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 5 (B1J0187-11) Soil	**Sampled: 10/04/01 14:35**		**Received: 10/04/01 15:35**						
Dry Weight	**97.4**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	
BRQ-LS- COMP 6 (B1J0187-12) Soil	**Sampled: 10/04/01 14:45**		**Received: 10/04/01 15:35**						
Dry Weight	**94.5**	1.00	%	1	1J10014	10/10/01	10/11/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08034: Prepared 10/08/01 Using EPA 3050B										
Blank (1J08034-BLK1)										
Antimony	ND	0.500	mg/kg							
Arsenic	ND	0.500	"							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							
LCS (1J08034-BS1)										
Antimony	40.6	0.455	mg/kg	36.4		112	80-120			
Arsenic	37.4	0.455	"	36.4		103	70-130			
Barium	39.8	4.55	"	36.4		109	80-120			
Beryllium	38.9	0.455	"	36.4		107	80-120			
Cadmium	38.5	0.455	"	36.4		106	70-130			
Chromium	39.6	0.455	"	36.4		109	80-120			
Copper	39.9	0.455	"	36.4		110	80-120			
Lead	36.8	0.455	"	36.4		101	80-120			
Nickel	39.1	0.455	"	36.4		107	80-120			
Selenium	35.3	0.455	"	36.4		97.0	70-130			
Silver	38.9	0.455	"	36.4		107	40-130			
Thallium	36.9	0.455	"	36.4		101	80-120			
Zinc	38.5	4.55	"	36.4		106	70-130			

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08034: Prepared 10/08/01 Using EPA 3050B										
LCS Dup (1J08034-BSD1)										
Antimony	40.8	0.500	mg/kg	37.0		110	80-120	0.491	20	
Arsenic	37.9	0.500	"	37.0		102	70-130	1.33	20	
Barium	40.5	5.00	"	37.0		109	80-120	1.74	20	
Beryllium	40.3	0.500	"	37.0		109	80-120	3.54	20	
Cadmium	38.6	0.500	"	37.0		104	70-130	0.259	20	
Chromium	41.0	0.500	"	37.0		111	80-120	3.47	20	
Copper	40.7	0.500	"	37.0		110	80-120	1.99	20	
Lead	37.5	0.500	"	37.0		101	80-120	1.88	20	
Nickel	39.0	0.500	"	37.0		105	80-120	0.256	20	
Selenium	36.3	0.500	"	37.0		98.1	70-130	2.79	20	
Silver	39.5	0.500	"	37.0		107	40-130	1.53	20	
Thallium	37.4	0.500	"	37.0		101	80-120	1.35	20	
Zinc	39.3	5.00	"	37.0		106	70-130	2.06	20	
Matrix Spike (1J08034-MS1)					**Source: B1J0187-01**					
Antimony	1.51	0.427	mg/kg dry	37.3	ND	4.05	70-130			Q-13
Arsenic	35.5	0.427	"	37.3	2.59	88.2	70-130			
Barium	88.9	4.27	"	37.3	60.6	75.9	70-130			
Beryllium	38.1	0.427	"	37.3	ND	101	70-130			
Cadmium	36.2	0.427	"	37.3	1.03	94.3	70-130			
Chromium	66.6	0.427	"	37.3	25.0	112	70-130			
Copper	48.1	0.427	"	37.3	16.8	83.9	70-130			
Lead	38.5	0.427	"	37.3	3.11	94.9	70-130			
Nickel	65.6	0.427	"	37.3	29.1	97.9	70-130			
Selenium	31.9	0.427	"	37.3	ND	84.9	70-130			
Silver	33.4	0.427	"	37.3	ND	89.5	40-130			
Thallium	36.4	0.427	"	37.3	ND	97.5	70-130			
Zinc	70.3	4.27	"	37.3	39.0	83.9	70-130			

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08034: Prepared 10/08/01 Using EPA 3050B										
Matrix Spike Dup (1J08034-MSD1)					**Source: B1J0187-01**					
Antimony	1.06	0.410	mg/kg dry	35.8	ND	2.96	70-130	35.0	20	Q-13
Arsenic	34.3	0.410	"	35.8	2.59	88.6	70-130	3.44	20	
Barium	87.1	4.10	"	35.8	60.6	74.0	70-130	2.05	20	
Beryllium	36.7	0.410	"	35.8	ND	101	70-130	3.74	20	
Cadmium	34.8	0.410	"	35.8	1.03	94.3	70-130	3.94	20	
Chromium	64.1	0.410	"	35.8	25.0	109	70-130	3.83	20	
Copper	49.4	0.410	"	35.8	16.8	91.1	70-130	2.67	20	
Lead	36.9	0.410	"	35.8	3.11	94.4	70-130	4.24	20	
Nickel	66.3	0.410	"	35.8	29.1	104	70-130	1.06	20	
Selenium	30.8	0.410	"	35.8	ND	85.4	70-130	3.51	20	
Silver	31.4	0.410	"	35.8	ND	87.7	40-130	6.17	50	
Thallium	34.7	0.410	"	35.8	ND	96.8	70-130	4.78	20	
Zinc	71.2	4.10	"	35.8	39.0	89.9	70-130	1.27	20	
Post Spike (1J08034-PS1)					**Source: B1J0187-01**					
Antimony	212	1.92	mg/kg dry	210	ND	101	70-130			
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B										
Blank (1J09035-BLK1)										
Arsenic	ND	0.500	mg/kg							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B										
LCS (1J09035-BS1)										
Arsenic	36.8	0.500	mg/kg	39.2		93.9	70-130			
Barium	40.8	5.00	"	39.2		104	80-120			
Beryllium	37.2	0.500	"	39.2		94.9	80-120			
Cadmium	37.8	0.500	"	39.2		96.4	70-130			
Chromium	39.8	0.500	"	39.2		102	80-120			
Copper	39.8	0.500	"	39.2		102	80-120			
Lead	38.5	0.500	"	39.2		98.2	80-120			
Nickel	38.6	0.500	"	39.2		98.5	80-120			
Selenium	34.8	0.500	"	39.2		88.8	70-130			
Silver	38.4	0.500	"	39.2		98.0	40-130			
Thallium	38.2	0.500	"	39.2		97.4	80-120			
Zinc	39.0	5.00	"	39.2		99.5	70-130			
LCS Dup (1J09035-BSD1)										
Arsenic	37.6	0.500	mg/kg	39.6		94.9	70-130	2.15	20	
Barium	41.7	5.00	"	39.6		105	80-120	2.18	20	
Beryllium	39.2	0.500	"	39.6		99.0	80-120	5.24	20	
Cadmium	38.4	0.500	"	39.6		97.0	70-130	1.57	20	
Chromium	39.8	0.500	"	39.6		101	80-120	0.00	20	
Copper	40.1	0.500	"	39.6		101	80-120	0.751	20	
Lead	37.4	0.500	"	39.6		94.4	80-120	2.90	20	
Nickel	38.6	0.500	"	39.6		97.5	80-120	0.00	20	
Selenium	36.1	0.500	"	39.6		91.2	70-130	3.67	20	
Silver	39.5	0.500	"	39.6		99.7	40-130	2.82	20	
Thallium	36.8	0.500	"	39.6		92.9	80-120	3.73	20	
Zinc	39.5	5.00	"	39.6		99.7	70-130	1.27	20	
Matrix Spike (1J09035-MS1)					**Source: B1J0187-02**					
Arsenic	39.7	0.500	mg/kg dry	41.4	2.94	88.8	70-130			
Barium	88.4	5.00	"	41.4	74.6	33.3	70-130			Q-15
Beryllium	38.2	0.500	"	41.4	ND	91.7	70-130			
Cadmium	38.5	0.500	"	41.4	ND	92.6	70-130			
Chromium	55.2	0.500	"	41.4	21.2	82.1	70-130			
Copper	54.2	0.500	"	41.4	16.0	92.3	70-130			
Lead	40.3	0.500	"	41.4	2.36	91.6	70-130			

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J09035: Prepared 10/09/01 Using EPA 3050B										
Matrix Spike (1J09035-MS1)					**Source: B1J0187-02**					
Nickel	55.1	0.500	mg/kg dry	41.4	24.6	73.7	70-130			
Selenium	33.0	0.500	"	41.4	ND	79.7	70-130			
Silver	37.8	0.500	"	41.4	ND	91.3	40-130			
Thallium	36.7	0.500	"	41.4	ND	88.4	70-130			
Zinc	69.5	5.00	"	41.4	31.8	91.1	70-130			
Matrix Spike Dup (1J09035-MSD1)					**Source: B1J0187-02**					
Arsenic	38.9	0.500	mg/kg dry	41.0	2.94	87.7	70-130	2.04	20	
Barium	90.3	5.00	"	41.0	74.6	38.3	70-130	2.13	20	Q-15
Beryllium	36.5	0.500	"	41.0	ND	88.5	70-130	4.55	20	
Cadmium	37.7	0.500	"	41.0	ND	91.5	70-130	2.10	20	
Chromium	59.5	0.500	"	41.0	21.2	93.4	70-130	7.50	20	
Copper	55.9	0.500	"	41.0	16.0	97.3	70-130	3.09	20	
Lead	39.4	0.500	"	41.0	2.36	90.3	70-130	2.26	20	
Nickel	59.8	0.500	"	41.0	24.6	85.9	70-130	8.18	20	
Selenium	31.8	0.500	"	41.0	ND	77.6	70-130	3.70	20	
Silver	35.7	0.500	"	41.0	ND	87.1	40-130	5.71	50	
Thallium	37.1	0.500	"	41.0	ND	90.3	70-130	1.08	20	
Zinc	70.8	5.00	"	41.0	31.8	95.1	70-130	1.85	20	
Batch 1J10040: Prepared 10/10/01 Using EPA 7471A										
Blank (1J10040-BLK1)										
Mercury	ND	0.200	mg/kg							
LCS (1J10040-BS1)										
Mercury	0.518	0.200	mg/kg	0.489		106	80-120			

North Creek Analytical - Bothell

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J10040: Prepared 10/10/01 Using EPA 7471A										
LCS Dup (1J10040-BSD1)										
Mercury	0.554	0.200	mg/kg	0.495		112	80-120	6.72	20	
Matrix Spike (1J10040-MS1)					**Source: B1J0187-01**					
Mercury	0.633	0.200	mg/kg dry	0.541	ND	112	70-130			
Matrix Spike Dup (1J10040-MSD1)					**Source: B1J0187-01**					
Mercury	0.622	0.200	mg/kg dry	0.538	ND	110	70-130	1.75	30	
Batch 1J11031: Prepared 10/11/01 Using EPA 3050B										
Blank (1J11031-BLK1)										
Antimony	ND	0.500	mg/kg							
LCS (1J11031-BS1)										
Antimony	40.3	0.500	mg/kg	39.2		103	80-120			
LCS Dup (1J11031-BSD1)										
Antimony	41.0	0.500	mg/kg	40.0		102	80-120	1.72	20	
Matrix Spike (1J11031-MS1)					**Source: B1J0187-02RE1**					
Antimony	2.04	0.500	mg/kg dry	42.2	ND	4.83	70-130			Q-13
Matrix Spike Dup (1J11031-MSD1)					**Source: B1J0187-02RE1**					
Antimony	1.54	0.500	mg/kg dry	41.4	ND	3.72	70-130	27.9	20	Q-13
Post Spike (1J11031-PS1)					**Source: B1J0187-02RE1**					
Antimony	270	2.50	mg/kg dry	274	ND	98.5	70-130			

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J22032: Prepared 10/22/01 Using EPA 3020A										
Blank (1J22032-BLK1)										
Cadmium	ND	0.0500	mg/l							
LCS (1J22032-BS1)										
Cadmium	3.60	0.0500	mg/l	4.00		90.0	80-120			
LCS Dup (1J22032-BSD1)										
Cadmium	3.51	0.0500	mg/l	4.00		87.8	80-120	2.53	20	
Matrix Spike (1J22032-MS1)					**Source: B1J0132-01**					
Cadmium	3.49	0.0500	mg/l	4.00	ND	87.1	75-125			
Matrix Spike Dup (1J22032-MSD1)					**Source: B1J0132-01**					
Cadmium	3.56	0.0500	mg/l	4.00	ND	88.8	75-125	1.99	20	

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

Scott A. Woerman, Project Manager

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 10/30/01 19:55

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J10014: Prepared 10/10/01 Using Dry Weight										
Blank (1J10014-BLK1)										
Dry Weight	100	1.00	%							

Notes and Definitions

Q-13	Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
Q-15	Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Sample Custody Record

Samples Shipped to: ____________

B1J0187

HARTCROWSER

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

JOB 4978-19 LAB NUMBER ____________

PROJECT NAME 3rd Runway / Pit Sampling

HART CROWSER CONTACT Neil Morton

SAMPLED BY: William Damon

REQUESTED ANALYSIS: RCRA + Ni, Cu, Zn, '8' + Be, Tl, Sb

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	MVP-SB-Comp1	8 oz. Glass	10/4/01	0925	Soil	X	1	
	MVP-SB-Comp2	↓	↓	0935	↓	X	1	
	MVP-SB-Comp3			0950		X	1	
	MVP-SB-Comp4			1000		X	1	
	MVP-SB-Comp5			1003		X	1	
	MVP-SB-Comp6			1015		X	1	
	BRQ-LS-Comp1			1405		X	1	
	BRQ-LS-Comp2			1410		X	1	
	BRQ-LS-Comp3			1415		X	1	
	BRQ-LS-Comp4			1425		X	1	
	BRQ-LS-Comp5			1435		X	1	
	BRQ-LS-Comp6			1445		X	1	

TOTAL NUMBER OF CONTAINERS: 12

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: [signature]	10/4/01	SIGNATURE: [signature]	10·4·01
PRINT NAME: William Damon	TIME	PRINT NAME:	TIME
COMPANY: Hart Crowser	1535	COMPANY: NCA	1535

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

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS: Please bill Beth Clark (P.O.S)
Ref: Proj. # 100956
Agreement # 163

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. ____________ for Other Contract Requirements

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

Billed as Standard

W/O 4.7

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

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

12 November 2001

Rick Moore
Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle, WA 98102

RE: Third Runway/Pit Samples

Enclosed are **amended** results of analyses for samples received by the laboratory on 10/04/01 07:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman
Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BRQ-SP-COMP1	B1J0132-01	Soil	10/03/01 12:35	10/04/01 07:30
BRQ-SP-COMP2	B1J0132-02	Soil	10/03/01 12:40	10/04/01 07:30
BRQ-SP-COMP3	B1J0132-03	Soil	10/03/01 12:50	10/04/01 07:30
BRQ-SP-COMP4	B1J0132-04	Soil	10/03/01 13:00	10/04/01 07:30
BRQ-SP-COMP5	B1J0132-05	Soil	10/03/01 13:05	10/04/01 07:30
BRQ-SP-COMP6	B1J0132-06	Soil	10/03/01 13:15	10/04/01 07:30
MVP-COMP1	B1J0132-07	Soil	10/03/01 15:10	10/04/01 07:30
MVP-COMP2	B1J0132-08	Soil	10/03/01 15:25	10/04/01 07:30
MVP-COMP3	B1J0132-09	Soil	10/03/01 15:35	10/04/01 07:30
MVP-COMP4	B1J0132-10	Soil	10/03/01 16:05	10/04/01 07:30
MVP-COMP5	B1J0132-11	Soil	10/03/01 16:15	10/04/01 07:30
MVP-COMP6	B1J0132-12	Soil	10/03/01 16:25	10/04/01 07:30

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Silver	ND	0.431	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.47**	0.431	"	"	"	"	"	"	
Barium	**28.2**	4.31	"	"	"	"	"	"	
Beryllium	ND	0.431	"	"	"	"	"	"	
Cadmium	ND	0.431	"	"	"	"	"	"	
Chromium	**36.7**	0.431	"	"	"	"	"	"	
Copper	**97.5**	0.431	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**41.8**	0.431	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.35**	0.431	"	"	"	"	"	"	
Antimony	ND J	0.431	"	"	"	"	"	"	
Selenium	**0.580**	0.431	"	"	"	"	"	"	
Thallium	ND	0.431	"	"	"	"	"	"	
Zinc	**58.8**	4.31	"	"	"	"	"	"	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Silver	ND	0.420	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.17**	0.420	"	"	"	"	"	"	
Barium	**41.3**	4.20	"	"	"	"	"	"	
Beryllium	ND	0.420	"	"	"	"	"	"	
Cadmium	ND	0.420	"	"	"	"	"	"	
Chromium	**44.7**	0.420	"	"	"	"	"	"	
Copper	**115**	0.420	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**49.3**	0.420	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.21**	0.420	"	"	"	"	"	"	
Antimony	ND J	0.420	"	"	"	"	"	"	
Selenium	**0.479**	0.420	"	"	"	"	"	"	
Thallium	ND	0.420	"	"	"	"	"	"	
Zinc	**64.5**	4.20	"	"	"	"	"	"	

NFM 12/11/01

S. Wo

Scott A. Woerman, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP3 (B1J0132-03) Soil	**Sampled: 10/03/01 12:50**		**Received: 10/04/01 07:30**						
Silver	ND	0.382	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**5.20**	0.382	"	"	"	"	"	"	
Barium	**25.2**	3.82	"	"	"	"	"	"	
Beryllium	ND	0.382	"	"	"	"	"	"	
Cadmium	ND	0.382	"	"	"	"	"	"	
Chromium	**32.7**	0.382	"	"	"	"	"	"	
Copper	**107**	0.382	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**70.5**	0.382	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.82**	0.382	"	"	"	"	"	"	
Antimony	ND J	0.382	"	"	"	"	"	"	
Selenium	**0.487**	0.382	"	"	"	"	"	"	
Thallium	**0.610**	0.382	"	"	"	"	"	"	
Zinc	**66.9**	3.82	"	"	"	"	"	"	
BRQ-SP-COMP4 (B1J0132-04) Soil	**Sampled: 10/03/01 13:00**		**Received: 10/04/01 07:30**						
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**0.866**	0.500	"	"	"	"	"	"	
Barium	**27.8**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**42.0**	0.500	"	"	"	"	"	"	
Copper	**131**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**42.5**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**1.84**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	**0.555**	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**67.3**	5.00	"	"	"	"	"	"	

NFM
12/11/01

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**0.839**	0.500	"	"	"	"	"	"	
Barium	**29.1**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**48.8**	0.500	"	"	"	"	"	"	
Copper	**131**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**45.5**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**2.60**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	**0.554**	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**58.1**	5.00	"	"	"	"	"	"	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**0.927**	0.500	"	"	"	"	"	"	
Barium	**27.2**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**46.3**	0.500	"	"	"	"	"	"	
Copper	**111**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**44.4**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**1.85**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	**0.639**	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**57.6**	5.00	"	"	"	"	"	"	

NFM
12/11/01

J. Woerman

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP1 (B1J0132-07) Soil Sampled: 10/03/01 15:10 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.83**	0.500	"	"	"	"	"	"	
Barium	**92.7**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**20.9**	0.500	"	"	"	"	"	"	
Copper	**24.5**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**12.0**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**4.36**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	ND	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**36.8**	5.00	"	"	"	"	"	"	
MVP-COMP2 (B1J0132-08) Soil Sampled: 10/03/01 15:25 Received: 10/04/01 07:30									
Silver	ND	0.400	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.73**	0.400	"	"	"	"	"	"	
Barium	**128**	4.00	"	"	"	"	"	"	
Beryllium	**0.583**	0.400	"	"	"	"	"	"	
Cadmium	ND	0.400	"	"	"	"	"	"	
Chromium	**21.7**	0.400	"	"	"	"	"	"	
Copper	**25.2**	0.400	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**12.8**	0.400	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**5.52**	0.400	"	"	"	"	"	"	
Antimony	ND J	0.400	"	"	"	"	"	"	
Selenium	ND	0.400	"	"	"	"	"	"	
Thallium	ND	0.400	"	"	"	"	"	"	
Zinc	**38.8**	4.00	"	"	"	"	"	"	

NFM
12/11/01

J. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Silver	ND	0.455	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.40**	0.455	"	"	"	"	"	"	
Barium	**163**	4.55	"	"	"	"	"	"	
Beryllium	**1.01**	0.455	"	"	"	"	"	"	
Cadmium	ND	0.455	"	"	"	"	"	"	
Chromium	**30.0**	0.455	"	"	"	"	"	"	
Copper	**20.1**	0.455	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**17.7**	0.455	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**6.58**	0.455	"	"	"	"	"	"	
Antimony	ND J	0.455	"	"	"	"	"	"	
Selenium	ND	0.455	"	"	"	"	"	"	
Thallium	ND	0.455	"	"	"	"	"	"	
Zinc	**27.6**	4.55	"	"	"	"	"	"	
MVP-COMP4 (B1J0132-10) Soil Sampled: 10/03/01 16:05 Received: 10/04/01 07:30									
Silver	ND	0.500	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.82**	0.500	"	"	"	"	"	"	
Barium	**89.5**	5.00	"	"	"	"	"	"	
Beryllium	ND	0.500	"	"	"	"	"	"	
Cadmium	ND	0.500	"	"	"	"	"	"	
Chromium	**21.5**	0.500	"	"	"	"	"	"	
Copper	**25.8**	0.500	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**13.0**	0.500	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**4.46**	0.500	"	"	"	"	"	"	
Antimony	ND J	0.500	"	"	"	"	"	"	
Selenium	ND	0.500	"	"	"	"	"	"	
Thallium	ND	0.500	"	"	"	"	"	"	
Zinc	**36.2**	5.00	"	"	"	"	"	"	

NFM
12/11/01

J. Wo

Scott A. Woerman, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Silver	ND	0.431	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.80**	0.431	"	"	"	"	"	"	
Barium	**92.4**	4.31	"	"	"	"	"	"	
Beryllium	**0.602**	0.431	"	"	"	"	"	"	
Cadmium	ND	0.431	"	"	"	"	"	"	
Chromium	**19.3**	0.431	"	"	"	"	"	"	
Copper	**27.3**	0.431	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**11.6**	0.431	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**5.10**	0.431	"	"	"	"	"	"	
Antimony	ND J	0.431	"	"	"	"	"	"	
Selenium	ND	0.431	"	"	"	"	"	"	
Thallium	ND	0.431	"	"	"	"	"	"	
Zinc	**38.3**	4.31	"	"	"	"	"	"	
MVP-COMP6 (B1J0132-12) Soil Sampled: 10/03/01 16:25 Received: 10/04/01 07:30									
Silver	ND	0.340	mg/kg dry	1	1J04056	10/08/01	10/10/01	EPA 6020	
Arsenic	**1.87**	0.340	"	"	"	"	"	"	
Barium	**96.8**	3.40	"	"	"	"	"	"	
Beryllium	**0.572**	0.340	"	"	"	"	"	"	
Cadmium	ND	0.340	"	"	"	"	"	"	
Chromium	**22.7**	0.340	"	"	"	"	"	"	
Copper	**24.7**	0.340	"	"	"	"	"	"	
Mercury	ND	0.200	"	"	1J08024	10/08/01	10/09/01	EPA 7471A	
Nickel	**12.2**	0.340	"	"	1J04056	10/08/01	10/10/01	EPA 6020	
Lead	**4.98**	0.340	"	"	"	"	"	"	
Antimony	ND J	0.340	"	"	"	"	"	"	
Selenium	ND	0.340	"	"	"	"	"	"	
Thallium	ND	0.340	"	"	"	"	"	"	
Zinc	**35.9**	3.40	"	"	"	"	"	"	

NFM
12/11/01

J. Wo

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

SPLP Metals by EPA 1312/6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Chromium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Copper	ND	0.0500	"	"	"	"	"	"	
Nickel	ND	0.0500	"	"	"	"	"	"	
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Nickel	ND	0.0500	"	"	"	"	"	"	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Copper	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Chromium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6020	
Copper	ND	0.0500	"	"	"	"	"	"	
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Beryllium	ND	0.0500	mg/l	50	1J22032	10/22/01	10/23/01	EPA 6010B	
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Beryllium	ND	0.0500	mg/l	50	1J30011	10/30/01	11/01/01	EPA 6010B	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BRQ-SP-COMP1 (B1J0132-01) Soil Sampled: 10/03/01 12:35 Received: 10/04/01 07:30									
Dry Weight	**91.0**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP2 (B1J0132-02) Soil Sampled: 10/03/01 12:40 Received: 10/04/01 07:30									
Dry Weight	**89.4**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP3 (B1J0132-03) Soil Sampled: 10/03/01 12:50 Received: 10/04/01 07:30									
Dry Weight	**91.1**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP4 (B1J0132-04) Soil Sampled: 10/03/01 13:00 Received: 10/04/01 07:30									
Dry Weight	**90.1**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP5 (B1J0132-05) Soil Sampled: 10/03/01 13:05 Received: 10/04/01 07:30									
Dry Weight	**92.3**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
BRQ-SP-COMP6 (B1J0132-06) Soil Sampled: 10/03/01 13:15 Received: 10/04/01 07:30									
Dry Weight	**90.5**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP1 (B1J0132-07) Soil Sampled: 10/03/01 15:10 Received: 10/04/01 07:30									
Dry Weight	**85.6**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP2 (B1J0132-08) Soil Sampled: 10/03/01 15:25 Received: 10/04/01 07:30									
Dry Weight	**81.4**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP3 (B1J0132-09) Soil Sampled: 10/03/01 15:35 Received: 10/04/01 07:30									
Dry Weight	**76.3**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Physical Parameters by APHA/ASTM/EPA Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MVP-COMP4 (B1J0132-10) Soil Sampled: 10/03/01 16:05 Received: 10/04/01 07:30									
Dry Weight	**85.5**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP5 (B1J0132-11) Soil Sampled: 10/03/01 16:15 Received: 10/04/01 07:30									
Dry Weight	**82.2**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	
MVP-COMP6 (B1J0132-12) Soil Sampled: 10/03/01 16:25 Received: 10/04/01 07:30									
Dry Weight	**79.2**	1.00	%	1	1J09004	10/09/01	10/10/01	BSOPSPL003R07	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
Blank (1J04056-BLK1)										
Antimony	ND	0.500	mg/kg							
Arsenic	ND	0.500	"							
Barium	ND	5.00	"							
Beryllium	ND	0.500	"							
Cadmium	ND	0.500	"							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
Lead	ND	0.500	"							
Nickel	ND	0.500	"							
Selenium	ND	0.500	"							
Silver	ND	0.500	"							
Thallium	ND	0.500	"							
Zinc	ND	5.00	"							
LCS (1J04056-BS1)										
Antimony	44.4	0.500	mg/kg	40.0		111	80-120			
Arsenic	41.8	0.500	"	40.0		104	70-130			
Barium	41.8	5.00	"	40.0		104	80-120			
Beryllium	43.4	0.500	"	40.0		108	80-120			
Cadmium	41.9	0.500	"	40.0		105	70-130			
Chromium	44.0	0.500	"	40.0		110	80-120			
Copper	41.7	0.500	"	40.0		104	80-120			
Lead	41.7	0.500	"	40.0		104	80-120			
Nickel	41.0	0.500	"	40.0		102	80-120			
Selenium	40.1	0.500	"	40.0		100	70-130			
Silver	41.7	0.500	"	40.0		104	40-130			
Thallium	41.7	0.500	"	40.0		104	80-120			
Zinc	41.5	5.00	"	40.0		104	70-130			

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
LCS Dup (1J04056-BSD1)										
Antimony	43.1	0.500	mg/kg	38.5		112	80-120	2.97	20	
Arsenic	40.4	0.500	"	38.5		105	70-130	3.41	20	
Barium	41.1	5.00	"	38.5		107	80-120	1.69	20	
Beryllium	43.3	0.500	"	38.5		112	80-120	0.231	20	
Cadmium	40.5	0.500	"	38.5		105	70-130	3.40	20	
Chromium	42.7	0.500	"	38.5		111	80-120	3.00	20	
Copper	40.3	0.500	"	38.5		105	80-120	3.41	20	
Lead	40.2	0.500	"	38.5		104	80-120	3.66	20	
Nickel	39.7	0.500	"	38.5		103	80-120	3.22	20	
Selenium	39.4	0.500	"	38.5		102	70-130	1.76	20	
Silver	40.9	0.500	"	38.5		106	40-130	1.94	20	
Thallium	40.3	0.500	"	38.5		105	80-120	3.41	20	
Zinc	40.3	5.00	"	38.5		105	70-130	2.93	20	
Matrix Spike (1J04056-MS1)					**Source: B1J0132-01**					
Antimony	1.65	0.500	mg/kg dry	41.5	ND	3.98	70-130			Q-13
Arsenic	40.7	0.500	"	41.5	1.47	94.5	70-130			
Barium	72.0	5.00	"	41.5	28.2	106	70-130			
Beryllium	42.4	0.500	"	41.5	ND	101	70-130			
Cadmium	41.0	0.500	"	41.5	ND	98.4	70-130			
Chromium	81.2	0.500	"	41.5	36.7	107	70-130			
Copper	140	0.500	"	41.5	97.5	102	70-130			
Lead	43.4	0.500	"	41.5	2.35	98.9	70-130			
Nickel	80.5	0.500	"	41.5	41.8	93.3	70-130			
Selenium	37.8	0.500	"	41.5	0.580	89.7	70-130			
Silver	37.7	0.500	"	41.5	ND	90.5	40-130			
Thallium	41.4	0.500	"	41.5	ND	99.5	70-130			
Zinc	98.6	5.00	"	41.5	58.8	95.9	70-130			

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J04056: Prepared 10/04/01 Using EPA 3050B										
Matrix Spike Dup (1J04056-MSD1)					**Source: B1J0132-01**					
Antimony	0.876	0.500	mg/kg dry	40.3	ND	2.17	70-130	61.3	20	Q-13
Arsenic	39.5	0.500	"	40.3	1.47	94.4	70-130	2.99	20	
Barium	75.3	5.00	"	40.3	28.2	117	70-130	4.48	20	
Beryllium	41.6	0.500	"	40.3	ND	102	70-130	1.90	20	
Cadmium	39.9	0.500	"	40.3	ND	98.6	70-130	2.72	20	
Chromium	82.9	0.500	"	40.3	36.7	115	70-130	2.07	20	
Copper	141	0.500	"	40.3	97.5	108	70-130	0.712	20	
Lead	42.1	0.500	"	40.3	2.35	98.6	70-130	3.04	20	
Nickel	81.6	0.500	"	40.3	41.8	98.8	70-130	1.36	20	
Selenium	36.5	0.500	"	40.3	0.580	89.1	70-130	3.50	20	
Silver	37.1	0.500	"	40.3	ND	91.7	40-130	1.60	50	
Thallium	40.0	0.500	"	40.3	ND	99.0	70-130	3.44	20	
Zinc	97.9	5.00	"	40.3	58.8	97.0	70-130	0.712	20	
Post Spike (1J04056-PS1)					**Source: B1J0132-01**					
Antimony	241	2.16	mg/kg dry	237	ND	102	70-130			
Batch 1J08024: Prepared 10/08/01 Using EPA 7471A										
Blank (1J08024-BLK1)										
Mercury	ND	0.200	mg/kg							
LCS (1J08024-BS1)										
Mercury	0.548	0.200	mg/kg	0.497		110	80-120			
LCS Dup (1J08024-BSD1)										
Mercury	0.518	0.200	mg/kg	0.500		104	80-120	5.63	20	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J08024: Prepared 10/08/01 Using EPA 7471A										
Matrix Spike (1J08024-MS1)					**Source: B1J0082-01**					
Mercury	0.652	0.200	mg/kg dry	0.525	ND	115	70-130			
Matrix Spike Dup (1J08024-MSD1)					**Source: B1J0082-01**					
Mercury	0.655	0.200	mg/kg dry	0.527	ND	115	70-130	0.459	30	

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

Scott A. Woerman, Project Manager

AR 015401

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA
1910 Fairview Ave. E.
Seattle WA, 98102

Project: Third Runway/Pit Samples
Project Number: 4978-19
Project Manager: Rick Moore

Amended Report
Issued: 11/12/01 21:16

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J22032: Prepared 10/22/01 Using EPA 3020A										
Blank (1J22032-BLK1)										
Beryllium	ND	0.0500	mg/l							
Chromium	ND	0.0500	"							
Copper	ND	0.0500	"							
Nickel	ND	0.0500	"							
LCS (1J22032-BS1)										
Beryllium	3.74	0.0500	mg/l	4.00		93.5	80-120			
Chromium	3.90	0.0500	"	4.00		97.5	80-120			
Copper	3.78	0.0500	"	4.00		94.5	80-120			
Nickel	3.64	0.0500	"	4.00		91.0	80-120			
LCS Dup (1J22032-BSD1)										
Beryllium	3.74	0.0500	mg/l	4.00		93.5	80-120	0.00	20	
Chromium	4.01	0.0500	"	4.00		100	80-120	2.78	20	
Copper	3.70	0.0500	"	4.00		92.5	80-120	2.14	20	
Nickel	3.58	0.0500	"	4.00		89.5	80-120	1.66	20	
Matrix Spike (1J22032-MS1)					**Source: B1J0132-01**					
Beryllium	3.74	0.0500	mg/l	4.00	ND	93.3	75-125			
Chromium	3.98	0.0500	"	4.00	ND	99.2	64-128			
Copper	3.77	0.0500	"	4.00	ND	93.8	72-125			
Nickel	3.60	0.0500	"	4.00	ND	89.7	72-125			
Matrix Spike Dup (1J22032-MSD1)					**Source: B1J0132-01**					
Beryllium	3.78	0.0500	mg/l	4.00	ND	94.3	75-125	1.06	20	
Chromium	4.06	0.0500	"	4.00	ND	101	64-128	1.99	20	
Copper	3.83	0.0500	"	4.00	ND	95.3	72-125	1.58	20	
Nickel	3.65	0.0500	"	4.00	ND	90.9	72-125	1.38	20	

Scott A. Woerman, Project Manager

AR 015402

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

SPLP Metals by EPA 1312/6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J30011: Prepared 10/30/01 Using EPA 3020A										
Blank (1J30011-BLK1)										
Beryllium	ND	0.0500	mg/l							
LCS (1J30011-BS1)										
Beryllium	3.89	0.0500	mg/l	4.00		97.2	80-120			
LCS Dup (1J30011-BSD1)										
Beryllium	3.78	0.0500	mg/l	4.00		94.5	80-120	2.87	20	
Matrix Spike (1J30011-MS1)					**Source: B1J0132-11**					
Beryllium	3.95	0.0500	mg/l	4.00	ND	98.6	75-125			
Matrix Spike Dup (1J30011-MSD1)					**Source: B1J0132-11**					
Beryllium	3.99	0.0500	mg/l	4.00	ND	99.6	75-125	1.01	20	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1J09004: Prepared 10/09/01 Using Dry Weight										
Blank (1J09004-BLK1)										
Dry Weight	100	1.00	%							

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Hart Crowser, Inc. - WA	Project: Third Runway/Pit Samples	
1910 Fairview Ave. E.	Project Number: 4978-19	**Amended Report**
Seattle WA, 98102	Project Manager: Rick Moore	Issued: 11/12/01 21:16

Notes and Definitions

A-01	SPLP Extraction Blank
Q-13	Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Sample Custody Record

Samples Shipped to: ______

HARTCROWSER

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

D1J0132

JOB 4978-19 LAB NUMBER ______

PROJECT NAME 3RD Runway/AT Sampling

HART CROWSER CONTACT Neil Morton

SAMPLED BY: William Dawson

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: RCRA 8 Metals + [illegible]	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	BRA-SP-COMP1	8oz. Glass	10/3/01	1235	SOIL	X	1	-01
	BRA-SP-COMP2	↓	↓	1240	↓	X	1	-02
	BRA-SP-COMP3	↓	↓	1250	↓	X	1	-03
	BRA-SP-COMP4	↓	↓	1300	↓	X	1	-04
	BRA-SP-COMP5	↓	↓	1305	↓	X	1	-05
	BRA-SP-COMP6	↓	↓	1315	↓	X	1	-06
	MVP-COMP1	↓	↓	1510	↓	X	1	-07
	MVP-COMP2	↓	↓	1525	↓	X	1	-08
	MVP-COMP3	↓	↓	1535	↓	X	1	-09
	MVP-COMP4	↓	↓	1605	↓	X	1	-10
	MVP-COMP5	↓	↓	1615	↓	X	1	-11
	MVP-COMP6	↓	↓	1625	↓	X	1	-12

TOTAL NUMBER OF CONTAINERS: 12

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: [signature]	10/4/01	SIGNATURE: Cathy Nichols	10/4/01
PRINT NAME: William Dawson	TIME	PRINT NAME: C. Nichols	TIME
COMPANY: Hart Crowser	0730	COMPANY:	7:30

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

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

- Bath Clark asked for Rush TAT, at standard rate (Bath Clark at Port of Seattle)

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. ______ for Other Contract Requirements

TURNAROUND TIME:

- ☐ 24 HOURS
- ☐ 48 HOURS
- ☐ 72 HOURS
- ☐ 1 WEEK
- ☐ STANDARD
- OTHER ______

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

5.8° w/o

AR 015406

F

Port of Seattle

RECEIVED
DEC 21 2001
DEPT OF ECOLOGY

December 20, 2001

Mr. Ed Abbasi, P.E.
Washington Department of Ecology
Northwest Regional Office
3190 160th Ave SE
Bellevue, Washington 98008

RE: Application for Renewal of NPDES Permit
Seattle-Tacoma International Airport (NPDES Permit WA-002465-1)

Dear Mr. Abbasi:

Enclosed you will find EPA Forms 1, 2C, 2F and Ecology Form 177 for the renewal of the NPDES permit for the Port of Seattle, Seattle-Tacoma International Airport as required by General Condition G7 of NPDES Permit WA-002465-1. The updated Stormwater Pollution Prevention Plan (SWPPP) for Airport Operations required by Special Condition S12.B.1 will be sent under separate cover.

Form 2C for the Industrial Waste Treatment Plant and Form 177 for discharges to the Midway Sewer District are very similar to the forms submitted in 1998. The flows for Midway discharges reflect full build-out of the Central Terminal Expansion, the South Terminal Expansion, and the North End Development. The first two projects are under construction; the third is still being studied.

There are three substantial changes to Form 2F. First, the Port is proposing consolidation of monitoring locations at both the north and south ends of the airport. The current monitoring locations were selected so that the Port's data would not be "tainted" with non-Port runoff from the City of SeaTac and Highway SR 518 that co-mingles with Port runoff before it reaches the stormwater treatment facilities at Lake Reba or the Northwest Ponds. However, we have come to realize that this approach does not allow the Port to monitor its runoff downstream of all of the existing and proposed best management practices and treatment facilities designed to treat the

Seattle-Tacoma
International Airport
P.O. Box 68727
Seattle, WA 98168 U.S.A.
TELEX 703488
FAX (206) 431-5912

Port's stormwater. With this change, the Port's monitoring data will better reflect what is actually discharged to the receiving environment where it might impact aquatic resources. This will allow both the Port and Ecology to get a better handle on whether our BMPs and treatment facilities are working or not. Second, Form 2F also includes the proposed new outfalls for projects that will be constructed in the next 5 years including the proposed Third Runway. Third, due to land use changes and re-routing of drainage at Sea-Tac, several outfalls listed in the current permit do not have industrial activities and therefore, the application lists only those outfalls that receive runoff from industrial activities.

If you have questions regarding the application for renewal, please call Tom Hubbard of my staff at 206/248-7135.

Sincerely,

Michael Feldman
Director, Aviation Facilities

Enclosure

xc: Tom Hubbard, POS/AV/ENV
Julie Oiye, Burien Public Library

APPLICATION FOR A WASTEWATER DISCHARGE PERMIT FOR DISCHARGE OF INDUSTRIAL WASTEWATER TO A POTW

FOR OFFICE USE ONLY	Check One	New/Renewal	Modification
Date Application Received	Date Fee Paid	Application Permit No.	Date Application Accepted

This application is for a wastewater discharge permit for a discharge of industrial wastewater to a publicly owned treatment works (POTW) as required in accordance with provisions of Chapter 90.48 RCW and Chapter 173-216 WAC. Permit applications provide the Department with information on pollutants in the waste stream, materials which may enter the waste stream, and the flow characteristics of the discharge.

The Department may request additional information at a later date to clarify the conditions of this discharge. Information previously submitted to the Department and which is applicable to this application should be referenced in the appropriate section.

SECTION A. GENERAL INFORMATION

1. Applicant Name: Port of Seattle

2. Facility Name: (if different from Applicant) Seattle-Tacoma International Airport

3. Applicant Address: P.O. Box 68727
Street
Seattle, WA 98168
City/State Zip

4. Facility Address: 17891 Pacific Highway S.
Street
Seattle, WA 98158
City/State Zip

5. Latitude/longitude of the facility:

47 ° 26 ' 37 " N 122 ° 18 ' 04 " W

6. Facility contact who is familiar with the information contained in this application:

Thomas P. Hubbard
Name

Surface Water Manager
Title

206-248-7135
Telephone Number

206-431-4980
Fax Number

7. Check One:

☑ **Permit Renewal** (including renewal of temporary permits authorized by RCW 90.48.200)

Does this application request a greater amount of wastewater discharge, a greater amount of pollutant discharge, or a discharge of different pollutants than specified in the last permit application for this facility? Yes

For permit renewals, the current permit is an attachment, by reference, to this application.

☐ **Permit Modification**

☐ **Existing Unpermitted Discharge**

☑ **Proposed Discharge**

Anticipated date of discharge: Rental Car Wash (early 2002)

Proposed Equipment: Wash Rack

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

Michael D. Feldman 12/19/01 Director, Aviation Facilities

Signature* Date Title

Michael D. Feldman

Printed Name

*Applications must be signed as follows: Corporations, by a principal executive officer of at least the level of vice-president; partnership, by a general partner; sole proprietorship, by the proprietor. If these titles do not apply to your organization, the application is to be signed by the person who makes budget decisions for this facility.

The Department of Ecology is an equal opportunity agency and does not discriminate on the basis of race, creed, color, disability, age, religion, national origin, sex, marital status, disabled veteran's status, Vietnam Era veteran's status or sexual orientation.

If you have special accommodation needs or require this document in alternative format, please contact Ecology at (360) 407-6401 (voice). Ecology's telecommunications devise for the deaf (TDD) is (360) 407-6006.

SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Classification (SIC) Code(s) for each activity (see *Standard Industrial Classification Manual*, 1987 ed.).

Boiler Blow Down SIC Code 4851 (Airport Terminal Services)

Average flow is 500 gallons per day based on full build out of South and Central Terminal Expansions.

Blow down includes surface blow down discharged via need valve at surface of boiler and bottom blow down via manual valve. Duration of blow down is based on field analyses.

Boiler additives are injected to control corrosion and scale and to disperse precipitates.

Boiler drainage for maintenance: annual 1800 gal./ 8 hr. and emergency drainage 1800 gal. / 8 hr.

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
Fresh Make Up Water		400 - 800 gal./day
Iron Passivator/ Silica Solubilizer 1156		150 gal./mo.
Oxygen Scavenger 1152		150 gal./ mo.
Corrosion Control Agent 485		50 gal./ mo.

Type	PRODUCTS	Quantity

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1. that generates wastewater, list the process, assign the waste stream a name and an ID # and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch or Continuous Process
Boiler	Surface Blow Down	STIA - B1	continuous
Boiler	Bottom Blow Down	STIA-B2	batch
			batch
			batch
			batch
			batch
			batch

2. On a separate sheet, produce a schematic drawing showing production processes, water flow through the facility, wastewater treatment devices and waste streams as named above. The drawing should indicate the source of intake water and show the operations contributing wastewater to the effluent. The treatment units should be labeled. Construct a water balance by showing average flows between intakes, operations, treatment units, and points of discharge to the POTW. (*See the example on the last page of this application form.)*

3. What is the maximum daily discharge flow: 2,000 gallons/day

   What is the maximum average monthly discharge flow (daily flows averaged over a month): 500 gallons/day

4. Describe any planned wastewater treatment improvements or changes in wastewater disposal methods and the schedule for the improvements. *(Use additional sheets, if necessary and label as attachment C4.)*

   Existing facilities may expand in the future. Flows may increase, but processes will not change.

SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Classification (SIC) Code(s) for each activity (see *Standard Industrial Classification Manual*, 1987 ed.).

Cooling Tower Blow Down SIC Code 4851 (Airport Terminal Services)

Waste stream is batch blow down from cooling tower which provides air conditioning to the Terminal.

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
Fresh Make Up Water		16,800 - 25,000 gal./day
Microbiocide Formula 3338		70 gal./mo. (9 mo.) 140 gal./mo. (3 mo.)
Microbiocide Formual 315		70 gal./mo. (9 mo.) 140 gal./mo. (3 mo.)
Scale/ Corrosion Control Formula 2930L		70 gal./mo. (9 mo.) 140 gal./mo. (3 mo.)

Type	PRODUCTS	Quantity

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1. that generates wastewater, list the process, assign the waste stream a name and an ID # and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch or Continuous Process
Cooling Tower	Blow Down	STIA-CT1	batch
			batch
			batch
			batch
			batch
			batch
			batch

2. On a separate sheet, produce a schematic drawing showing production processes, water flow through the facility, wastewater treatment devices and waste streams as named above. The drawing should indicate the source of intake water and show the operations contributing wastewater to the effluent. The treatment units should be labeled. Construct a water balance by showing average flows between intakes, operations, treatment units, and points of discharge to the POTW. *(See the example on the last page of this application form.)*

3. What is the maximum daily discharge flow: 25,000 gallons/day

   What is the maximum average monthly discharge flow (daily flows averaged over a month): 16,000 gallons/day

4. Describe any planned wastewater treatment improvements or changes in wastewater disposal methods and the schedule for the improvements. *(Use additional sheets, if necessary and label as attachment C4.)*

   Existing facilities may be expanded in the future. Flows may increase, but processes will not change.

SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Classification (SIC) Code(s) for each activity (see *Standard Industrial Classification Manual*, 1987 ed.).

Rental Cart Wash Facility Blow Down SIC Codes 7514 (Passenger Car Rental) and 7542 (Automotive Service- Car Wash)

System is recycling ~10% of volume is replaced each cycle. Car wash flow is scheduled to be routed to the Midway Sewer District sewers in early 2002.

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
Fresh Make Up Water		2,000 - 20,000 gal./ day
Various Soaps		7,000 gal./ yr.

Type	PRODUCTS	Quantity

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1. that generates wastewater, list the process, assign the waste stream a name and an ID # and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch or Continuous Process
Rental Car Wash	Blow Down	STIA-RC1	continuous
			batch
			batch
			batch
			batch
			batch
			batch

2. On a separate sheet, produce a schematic drawing showing production processes, water flow through the facility, wastewater treatment devices and waste streams as named above. The drawing should indicate the source of intake water and show the operations contributing wastewater to the effluent. The treatment units should be labeled. Construct a water balance by showing average flows between intakes, operations, treatment units, and points of discharge to the POTW. (*See the example on the last page of this application form.)*

3. What is the maximum daily discharge flow: 20,000 gallons/day

   What is the maximum average monthly discharge flow (daily flows averaged over a month): 20,000 gallons/day

4. Describe any planned wastewater treatment improvements or changes in wastewater disposal methods and the schedule for the improvements. *(Use additional sheets, if necessary and label as attachment C4.)*

   Existing facilities may be expanded in the future. Flows may increase, but processes will not change.

SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Classification (SIC) Code(s) for each activity (see *Standard Industrial Classification Manual*, 1987 ed.).

Future Equipment Wash Rack SIC Code 7542 (Automotive Services - Car Wash) and 4582 (Airport Terminal Services)

Waste stream will be batch blow down from automatic and batch equipment wash facility.

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
Fresh Make Up Water		1,000 - 2,000 gal./ day
Various Soaps		1,000 gal./yr.

Type	PRODUCTS	Quantity

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1. that generates wastewater, list the process, assign the waste stream a name and an ID # and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch or Continuous Process
Equipment Wash Rack	Blow Down	STIA - WR1	continuous
			batch
			batch
			batch
			batch
			batch
			batch

2. On a separate sheet, produce a schematic drawing showing production processes, water flow through the facility, wastewater treatment devices and waste streams as named above. The drawing should indicate the source of intake water and show the operations contributing wastewater to the effluent. The treatment units should be labeled. Construct a water balance by showing average flows between intakes, operations, treatment units, and points of discharge to the POTW. *(See the example on the last page of this application form.)*

3. What is the maximum daily discharge flow: 1,000 gallons/day

   What is the maximum average monthly discharge flow (daily flows averaged over a month): 1,000 gallons/day

4. Describe any planned wastewater treatment improvements or changes in wastewater disposal methods and the schedule for the improvements. *(Use additional sheets, if necessary and label as attachment C4.)*

   System will include oil water separation and vaults/ chambers to settle solids. System will be recycling.

5. If production processes are subject to seasonal variations, provide the following information. List discharge for each waste stream in gallons per day (GPD). The combined value for each month should equal the estimated total monthly flow.

Waste Stream ID#	MONTHS											
	J	F	M	A	M	J	J	A	S	O	N	D
STIA B1	800	800	800	600	400	400	400	400	600	800	800	800
STIA B2	2000	2000	2000	1500	1000	1000	1000	1000	1500	2000	2000	2000
STIA CT1	16000	16000	16000	20000	20000	25000	25000	25000	25000	20000	16000	16000
STIA RC1	4800	6400	5600	6000	6000	8400	9600	10200	9800	15000	14200	12040
STIA WR1 (proposed)	2400	3200	2800	3000	3000	4200	4900	4900	6600	7500	7100	6000
Estimated Total Monthly Flow (GPD)	26000	28400	27200	31100	30400	39000	40800	41100	46900	45300	40100	36840

6. How many hours a day does this facility typically operate? 24
   How many days a week does this facility typically operate? 7
   How many weeks per year does this facility typically operate? 52

7. List all incidental materials like oil, paint, grease, solvents, and cleaners that are used or stored on site (*List only those with quantities greater than 10 gallons for liquids and 50 pound quantities for solids).* For solvents and solvent-based cleaners include a copy of the material safety data sheet for each material and estimate the quantity used. (*Use additional sheets, if necessary and label as attachment C.7.)* Materials/Quantity Stored:

   The Port of Seattle's Stormwater Pollution Prevention Plan, a condition of NPDES permit WA 002465-1 requires secondary containment of liquids. Oil, paint, grease solvents and cleaners are stored in areas isolated from the boilers, cooling tower, rental car wash facility and the proposed equipment wash rack. All solids are stored under cover. The boiler and cooling towers are closed systems.

8. Some types of facilities are required to have spill or waste control plans. Does this facility have:

   a. A Spill Prevention, Control, and Countermeasure Plan (40 CFR 112)? Yes
   b. An Emergency Response Plan (per WAC 173-303-350)? No
   c. A Runoff, spillage, or leak control plan (per WAC 173-216-110(f))? No
   d. Any spill or pollution prevention plan required by local, State or Federal authorities? Yes
      If yes specify: SPCC and SWPPP required by NPDES permi WA 002465-1
   e. A Solid Waste Management Plan? No
   f. Slug Discharge Control Plan (40 CFR 403.8(f)(2)(v))? No

SECTION D. WATER CONSUMPTION AND WATER LOSS

1. Water source(s):

☑ Public System (Specify) City of Seattle (Seattle Public Utilities)

☐ Private Well ☐ Surface Water

a. Water Right Permit Number: _____

b. Legal Description of Water Source:

_____ ¼S, _____ ¼S, _____ Section, _____ TWN, _____ R

2. Water use

a. Indicate total water use:

Gallons per day (average) 360,000*

Gallons per day (maximum) 645,000*

b. Is water metered?

Yes

* This includes water used in toilets, sinks, fire protection, food preparation, and routine maintenance.

SECTION E. WASTEWATER INFORMATION

1. How are the water intake and effluent flows measured?

Intake: metered

Effluent: metered

2. Provide measurements or range of measurements for treated wastewater prior to discharge to the POTW for the parameters with a check (X) in the left column. Use the analytical methods given in the table unless an alternate method is approved by Ecology. All analyses, except pH, must be conducted by a laboratory registered or accredited by the Department of Ecology (WAC 173-216-125). If this is an application for permit renewal provide data for the last year for those parameters that are routinely measured. For parameters measured only for this application place the values under maximum.

X	Parameter	Concentrations Measured Minimum	Maximum	Average	Analytical Method Std. Methods 19th edition	Detection Limit
	BOD (5 day)				5210	2 mg/l
	COD				5220 B, C, or D	5 mg/l
	Total Suspended Solids				2540D	1 mg/l
	Total Dissolved Solids				2540 C	
	Conductivity				2510 B	
	Ammonia-N				4500-NH_3 C	20 µg/l
	pH		N/A		4500-H	0.1 units
	Total Residual Chlorine				4500-Cl E	1 mg/l
	Fecal Coliform				9222 D	
	Total Coliform				9221 B or 9222 B	
	Dissolved Oxygen				4500-O C or 4500-O G	
	Nitrate + Nitrite-N				4500-NO_3 E	0.5 mg/l
	Total Kjeldahl N				4500-N_{org}	20 µg/l
	Ortho-phosphate-P				4500-P E or 4500-P F	1 µg/l

Existing NPDES Permit WA 002465-1 requires monitoring of flow only.

X	Parameter	Concentrations Measured Minimum	Maximum	Average	Analytical Method Std. Methods 19th edition	Detection Limit
	Total-phosphate-P				4500-P B.4.	1 µg/l
	Total Oil & Grease				5520 C	0.2 mg/l
	Total Petroleum Hydrocarbon				5520 D, F	
	Calcium				3500-Ca B	3 µg/l
	Chloride				4500-Cl C	0.15 µg/l
	Fluoride				4500-F D	0.1 mg/l
	Magnesium				3500-Mg B	0.5 µg/l
	Potassium				3500-K B	5 µg/l
	Sodium				3500-Na B	2 µg/l
	Sulfate				4500-SO_4 E	1 mg/l
	Arsenic (total)				3114 B	2 µg/l
	Barium (total)				3500-Ba B	30 µg/l
	Cadmium (total)				3500-Cd B	5 µg/l
	Chromium (total)				3500-Cr B	50 µg/l
	Copper (total)				3500-Cu B	20 µg/l
	Lead (total)				3500-Pb B	100 µg/l
	Mercury				3500-Hg B	0.2 µg/l
	Molybdenum (total)				3500-Mo	1 µg/l
	Nickel (total)				3500-Ni	20 µg/l
	Selenium (total)				3500-Se C	2 µg/l
	Silver (total)				3500-Ag B	10 µg/l
	Zinc (total)				3500-Zn B	5 µg/l

N/A

3. Describe the collection method for the samples which were analyzed above (i.e.,. grab, 24 hour composite).

NA

4. Has the effluent been analyzed for any other parameters than those identified in question E.1.? If yes, attach results and label as attachment E.4. This data must clearly show the date, method and location of sampling. *(Note: Ecology may require additional effluent testing based on information submitted in this application.)* No

5. Does this facility use any of the following chemicals as raw materials in production, produce them as part of the manufacturing process, or are they present in the wastewater? (*The number following the chemical name is the Chemical Abstract Service (CAS) reference number to aid in identifying the compound.*) No

If yes, specify how the chemical is used and the quantity used or produced:

The selection and application of chemicals is dictated by the Port's SWPPP. The boiler and cooling towers are isolated from areas where these chemicals might be stored or used. All chemicals at the rental car facility and the proposed equipment wash rack will be stored in secondary containment.

VOLATILE COMPOUNDS

Acrolein (107-02-8)
Acrylonitrile (107-13-1)
Benzene (71-43-2)
Bis (*chloromethyl)* Ether (542-88-1)
Bromoform (75-25-2)
Carbon Tetrachloride (108-90-7)
Chlorobenzene (108-90-7)
Chlorodibromomethane (124-48-1)
Chloroethane (75-00-3)
2-Chloroethylvinyl Ether (110-75-8)
Chloroform (67-66-3)
Dichlorobromomethane (75-27-4)
Dichlorodifluromethane (75-71-8)
1,1-Dichloroethane (75-34-3)
1,2-Dichloroethane (107-06-2)
Vinyl Chloride (75-01-4)
1,1-Dichloroethylene (75-35-4)
1,2-Dichloropropane (78-87-5)
1,3-Dichloropropene (542-75-6)
Ethylbenzene (100-41-4)
Methyl Bromide (74-83-9)
Methyl Chloride (74-87-3)
Methylene Chloride (75-09-2)
1,1,2,2-Tetrachloroethane (79-34-5)
Tetrachloroethylene (127-18-4)
Toulene (108-88-3)
1,2-Trans-Dichloroethylene (156-60-5)
2. 1,1,1-Trichloroethane (71-55-6)
2. 1,1,2-Trichloroethane (79-00-5)
2. Trichloroethylene (79-01-6)
Trichlorofluromethane (75-69-4)

ACID COMPOUNDS

2-Chlorophenol 95-57-8
2,4-Dichlorophenol 120-83-2
2,4-Dimethylphenol 105-67-9
4,6-Dinitro-o-cresol 534-52-1
2,4-Dinitrophenol 51-28-5
2-Nitrophenol 88-75-5
4-Nitrophenol 100-02-7
p-Chloro-m-cresol 59-50-7
Pentachlorophenol 87-86-5
Phenol 108-95-2
2,4,6-Trichlorophenol 88-06-2

METALS

Antimony 7440-36-0
Arsenic 7440-38-2
Beryllium 7440-41-7
Cadmium 7440-43-9
Chromium 7440-47-3
Copper 7440-50-8
Lead 7439-92-1
Mercury 7439-97-6
Nickel 7440-02-0
Selenium 7782-49-2
Silver 7440-22-4
Thallium 7440-28-0
Zinc 7440-66-6
Cyanide 57-12-5

PESTICIDES

Aldrin 309-00-2
alpha-BHC 319-84-6
beta-BHC 319-85-7
gamma-BHC 58-89-9
delta-BHC 319-86-8
Chlordane 57-74-9
4,4'-DDD 72-54-8
4,4'-DDE 72-55-9
4,4'-DDT 50-29-3
Dieldrin 60-57-1
Endosulfan I 115-29-7
Endosulfan II 115-29-7
Endosulfan Sulfate 1031-07-8
Endrin 72-20-8
Endrin Aldehyde 7421-93-4
Heptachlor 76-44-8
Heptachlor Epoxide 1024-57-3
PCB (7 Aroclors)
Toxaphene 8001-35-2

BASE/NEUTRAL COMPOUNDS

Acenaphthene 83-32-9
Acenapthylene 208-96-8
Anthracene 120-12-7
Benzidine 92-87-5
Benzo(a)anthracene 56-55-3
Benzo(a)pyrene 50-32-8
3,4 Benzofluoranthene 205-99-2
Benzo(ghi)Perylene 191-24-2
Benzo(k)fluoranthene 207-08-9
Bis(2-chloroethoxy) Methane 111-91-1
Bis(2-chloroethyl) Ether 111-44-4
Bis(2-chloroisopropyl) Ether 102-60-1
Bis(2-ethylhexyl) Phthalate 117-81-7
4-Bromophenyl Phenyl Ether 101-55-3
Butyl Benzyl Phthalate 85-68-7
2-Chloronaphthalene 91-58-7
4-Chlorophenyl Phenyl Ether 7005-72-3
Chrysene 218-01-9
Dibenzo(a,h)anthracene 53-70-3
1,2-Dichlorobenzene 95-50-1
1,3-Dichlorobenzene 541-73-1
1,4-Dichlorobenzene 106-46-7
3,3' Dichlorobenzidine 91-94-1
Diethyl Phthalate 84-66-2
Dimethyl Phthalate 131-11-3
Di-n-butyl Phthalate 84-74-2
2,4-Dinitrotoluene 121-14-2
2,6-Dinitrotoluene 606-20-2
Di-n-octyl Phthalate 117-84-0
1,2-Diphenylhydrazine 122-66-7
Fluoranthene 206-44-0
Fluorene 86-73-7
Hexachlorobenzene 118-74-1
Hexachlorobutadiene 87-68-3
Hexachlorocyclopentadiene 77-47-4
Hexachloroethane 67-72-1
Indeno(1,2,3-cd)pyrene 193-39-5
Isophorone 78-59-1
Naphthalene 91-20-3
Nitrobenzene 98-95-3
N-nitrosodimethylamine 62-75-9
N-nitrosodi-n-propylamine 621-64-7
N-nitrosodiphenylamine 86-30-6
Phenanthrene 85-01-8
Pyrene 129-00-0
1,2,4-Trichlorobenzene 120-82-1

GO TO NEXT PAGE

6. Are any other pesticides, herbicides or fungicides used at this facility? Yes
If yes, specify the material and quantity used.

Landscaping chemicals are rarely used at Sea-Tac airport. The selection and application of chemicals is dictated by the Port's SWPPP. The boiler and cooling towers, the rental car facility and the proposed equipment wash rack are isolated from areas where these chemicals might be stored or used. They are isolated from areas where fueling, de-icing or aircraft/ vehicle maintenance occurs.

7. Are there other pollutants that you know of or believe to be present? Yes
If yes, specify the pollutants and their concentration if known (attach laboratory analyses if available).

Glycols and runway de-icing chemicals. Both are stored and used in areas isolated from the boiler, cooling towers, rental car facility and the proposed equipment wash rack.

8. Does the wastewater being discharged, or proposed for discharge to the POTW designate as a dangerous waste according to the procedures in Chapter 173-303 WAC ? No

9. If the answer to question 8 above is yes, how did the waste designate as a dangerous waste? For Listed and TCLP Characteristic Wastes only, also provide the Dangerous Waste Number(s).

Listed Waste _____ Dangerous Waste Number(s) _____

Characteristic Wastes
Ignitable _____
Reactive _____
Corrosive _____
TCLP _____ Dangerous Waste Number(s) _____

State Only Dangerous Wastes
Toxicity _____
Persistent _____

For Questions about waste designation under the *Dangerous Waste Regulations*, Chapter 173-303 WAC, contact Ecology's Hazardous Waste and Toxics Program at:

Northwest Regional Office - Bellevue	(425) 649-7000
Southwest Regional Office - Lacey	(360) 407-6300
Central Regional Office - Yakima	(509) 575-2490
Eastern Regional Office - Spokane	(509) 456-2926

SECTION F. SEWER INFORMATION

1. Is an inspection and sampling manhole or similar structure available on-site? Yes
If yes, attach a map or hand drawing of the facility which shows the location of these structures (this may be combined with map in H8, if H8 is applicable to your facility.)

SECTION G. OTHER PERMITS

1. List all environmental control permits or approvals needed for this facility; for example, air emission permits.

   Synthetic Minor Air Emissions Cap, Order of Approval # 7777 (Puget Sound Clean Air Agency)

   EPA Dangerous Waste ID # WAD 980 980 106

SECTION H. STORMWATER

1. Do you have a Washington State Stormwater Baseline General Permit? If yes, please list the permit number here. _____ — No
2. Have you applied for a Washington State Stormwater Baseline General Permit? — No
3. Do you have any stormwater quality or quantity data? — Yes

Note: If you answered "no" to questions 1 or 2 above, complete questions 4 through 8.

4. Describe the size of the stormwater collection area.

   a. Unpaved Area _____ sq.ft.
   b. Paved Area _____ sq.ft.
   c. Other Collection Areas (Roofs) _____ sq.ft.

5. Does your facility's stormwater discharge to: *(Check all that apply)*

   - [✔] Storm sewer system; name of storm sewer system *(operator)*: City of SeaTac
   - [✔] Directly to surface waters of Washington State *(e.g., river, lake, creek, estuary, ocean)*. Specify waterbody name Miller, Walker, and Des Moines Creeks
   - [ ] Indirectly to surface waters of Washington State *(i.e., flows over adjacent properties first)*.
   - [ ] Directly to ground waters of Washington State: Dry Well
   - [ ] Sanitary Sewer

   All areas where aircraft/vehicle maintenance, aircraft/vehicle fueling and aircraft de-icing occur, drain to the Port of Seattle's Industrial Waste System. Industrial Waste Water is treated and discharged to Puget Sound per the requirements of NPDES permit WA 002465-1.

   NPDES Permit covers storm water discharges.

   All Discharges to the POTW are closed systems. Stormwater will not be discharged to the POTW.

6. Areas with industrial activities at facility: *(check all that apply)*

- [ ] Manufacturing Building
- [x] Material Handling
- [x] Material Storage
- [ ] Hazardous Waste Treatment, Storage, or Disposal *(Refers to RCRA, Subtitle C Facilities Only)*
- [x] Waste Treatment, Storage, or Disposal
- [x] Application or Disposal of Wastewaters
- [x] Storage and Maintenance of Material Handling Equipment
- [x] Vehicle Maintenance
- [ ] Areas Where Significant Materials Remain
- [x] Access Roads and Rail Lines for Shipping and Receiving
- [ ] Other Airport

7. Material handling/management practices

a. Types of materials handled and/or stored outdoors: *(check all that apply)*

- [ ] Solvents
- [ ] Scrap Metal
- [x] Petroleum or Petrochemical Products
- [ ] Plating Products
- [ ] Pesticides
- [ ] Hazardous Wastes
- [ ] Acids or Alkalies
- [ ] Paints/Coatings
- [ ] Woodtreating Products
- [x] Other *(please list)*: glycols, runway/ roadway anti- and de-icing chemicals

POTW water streams are closed systems.

Stormwater will not be discharged to the POTW.

b. Identify existing management practices employed to reduce pollutants in industrial storm water discharges: *(check all that apply)*

- [x] Oil Water Separator
- [x] Containment
- [x] Spill Prevention
- [ ] Surface Leachate Collection
- [x] Overhead Coverage
- [x] Detention Facilities
- [x] Infiltration Basins
- [x] Operational BMPs
- [x] Vegetation Management
- [x] Other *(please list)*: The boiler, cooling tower , rental car facility and the proposed equipment wash rack are regulated by SWPPP.

8. Attach a facility site map showing stormwater drainage/collection areas, disposal areas and discharge points. This may be a hand drawn map if no other site map is available *(See example on the last page of this application)*. Label this as attachment H.8.

See note on page 12 for a description of the Port of Seattle's Industrial Waste System.

SECTION I. OTHER INFORMATION

1. Describe liquid wastes or sludges being generated that are not disposed of in the waste stream(s) and how they are being disposed. For each type of waste, provide type of waste, name, address, and phone number of hauler.

   Aircraft sanitary waste discharged to King County STP by Emerald Services, 7343 E. Marginal Way S., Seattle, WA 98108 206-832-3000
   Industrial waste sludge from Baker Tanks is hauled to TPS, 2800 104th St. S., Tacoma, WA 94444 (253-584-8430) by Emerald Services, 7343 E. Marginal Way S., Seattle, WA 98108 206-832-3000. Industrial waste sludge is also discharged to Philip Services: 1100 Oakesdale SW, Renton, WA 98055, (425)-204-7181.

2. Describe storage areas for raw materials, products, and wastes.

   Raw material, product, and waste storage is regulated by SWPPP.

3. Have you designated the wastes described above according to the applicable procedures of Dangerous Waste Regulations, Chapter 173-303 WAC? Yes

Rental car wash sludge is hauled & treated by: Aqua Clean Jet 'n' Vac, 18912 SE 133rd Pl., Renton WA, 98059, (425)-271-5459.

SECTION J. CERTIFICATIONS

1. Approval by POTW [required by WAC 173-216-070(4)(b)]

I approve of the discharge as described in this application. The applicant is:

(Please select the one that applies:) A Significant Industrial User

Name and location of sewer system to which this project will be tributary:

Midway Sewer District
Treatment Works Owner

3030 S. 240 St.
Street

Kent, WA — 98032
City/State — Zip

Ken J Kase — 12/15/21 — Manager
Signature — Date — Title

Ken Kase
Printed Name

2. Application review by Intermediate Sewer Owner at point of discharge (if applicable)

I hereby acknowledge that I have reviewed the application for discharge to this sewer system.

Name and location of sewer system to which this project will be tributary:

NA

Sewer System Owner

Street

City/State — Zip

Signature — Date — Title

Printed Name

Summary of Attachments That May be Required for This Application:
(Please check those attachments which are included)

- [x] C.1. Production schematic flow diagram and water balance
- [ ] C.4. Wastewater treatment improvements
- [ ] C.7. Additional incidental materials
- [ ] E.5. Additional results of effluent testing
- [x] F.1. Facility site map
- [x] H.8. Stormwater drainage map

DEFINITIONS

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

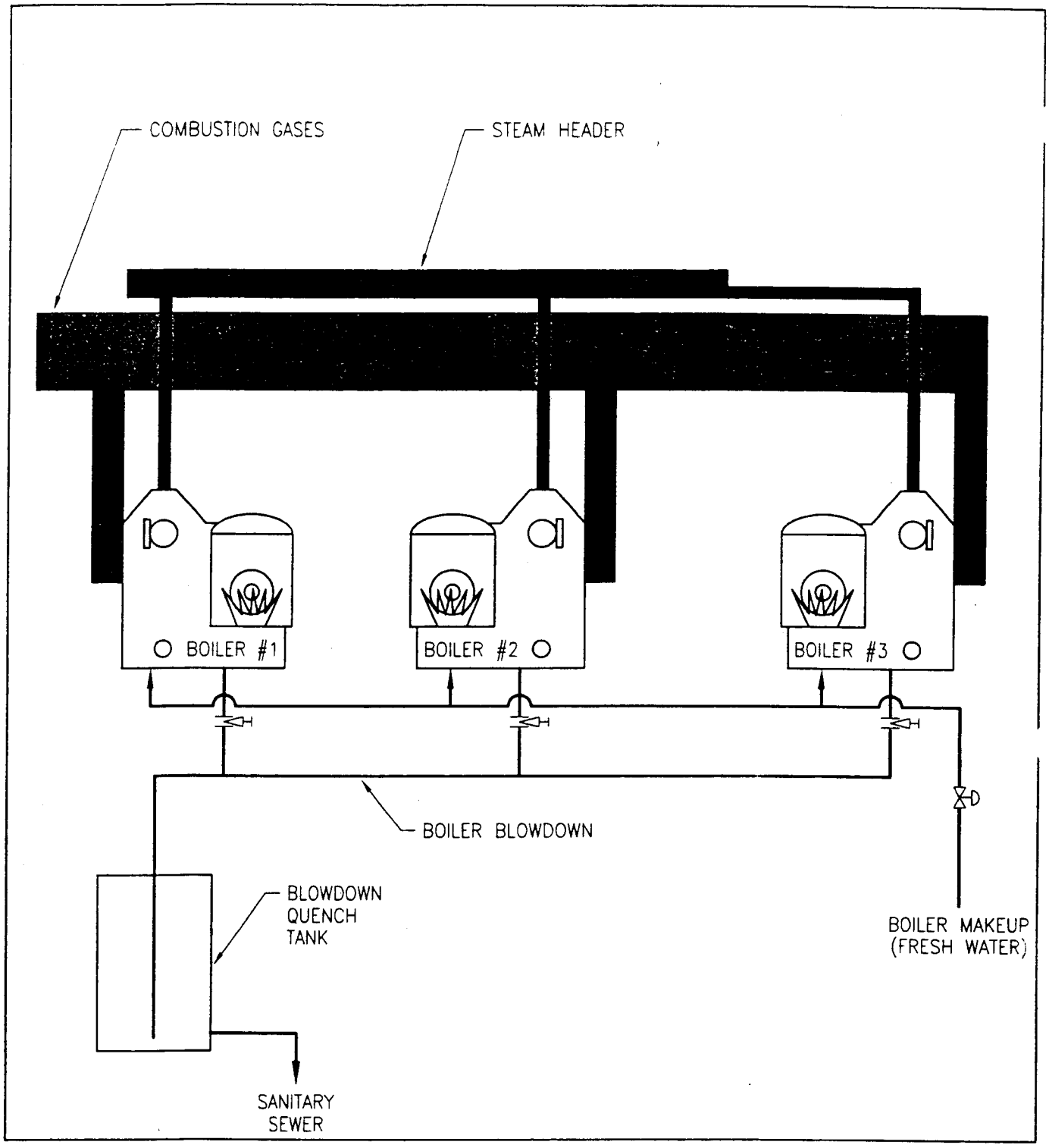
2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

Control Authority - means the Washington State Department of Ecology in the case of non-delegated POTWs or means the POTW in the case of delegated POTWs.

Categoric Industrial User (CIU): An industrial user subject to National categorical pretreatment standards promolgated by EPA (40 CFR 403.6 and40 CFR parts 405-471).

Last Page



LEGEND

NEEDLE VALVE

Kennedy/Jenks Consultants

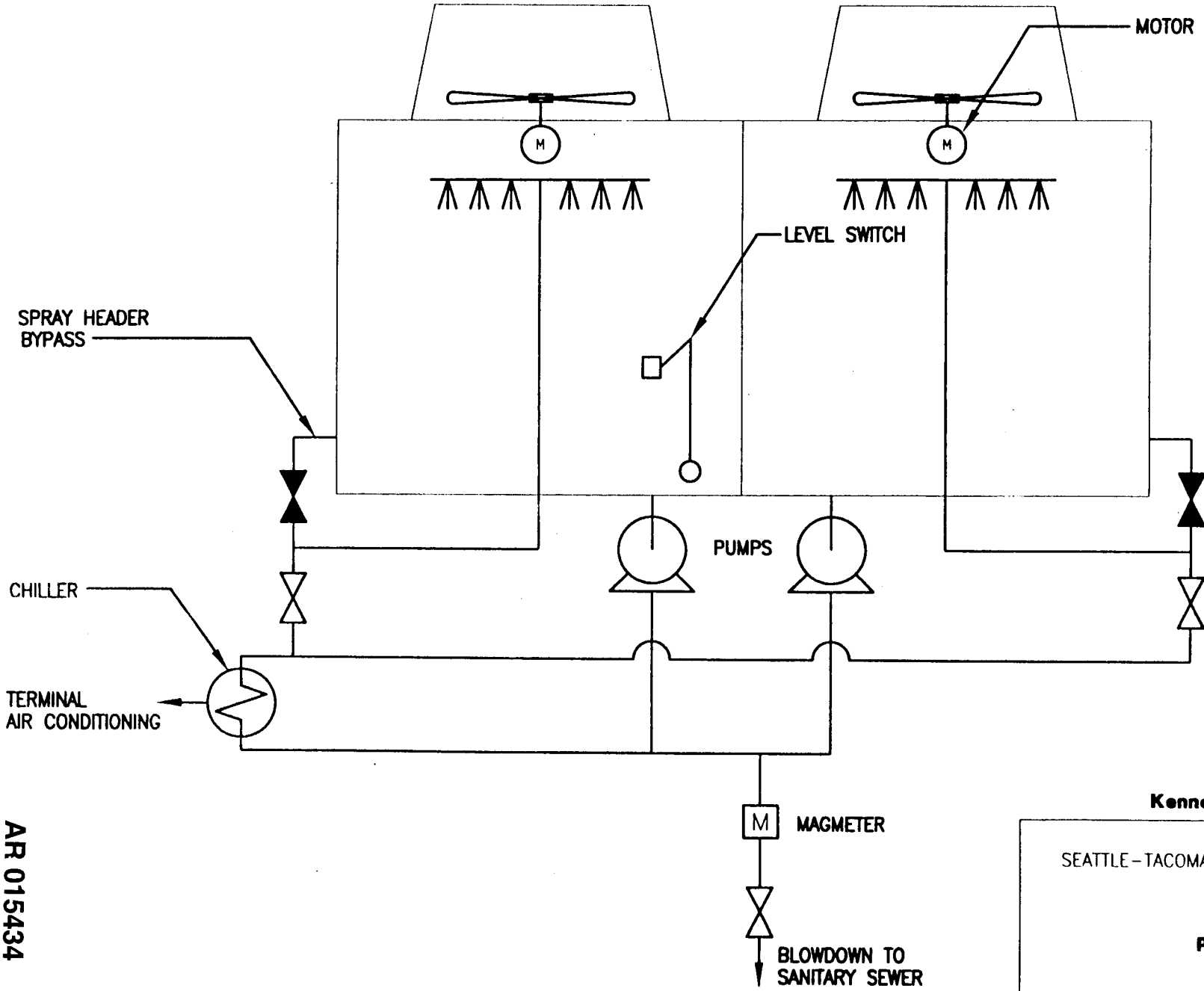
PORT OF SEATTLE
SEATTLE-TACOMA INTERNATIONAL AIRPORT

BOILER BLOWDOWN
PROCESS FLOW DIAGRAM

006099.04.00/POSK001

FIGURE 1

AR 015433



COOLING TOWER
(TWO CELLS)

AR 015434

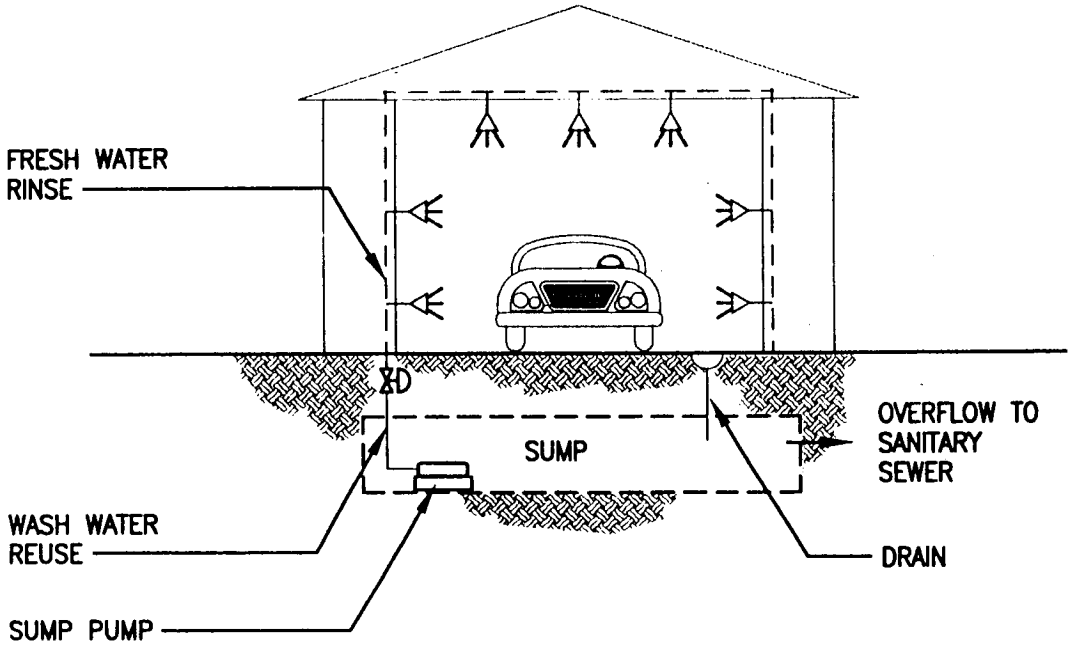
Kennedy/Jenks Consultants

PORT OF SEATTLE
SEATTLE-TACOMA INTERNATIONAL AIRPORT

COOLING TOWER
PROCESS FLOW DIAGRAM

006099.04/POSK002

FIGURE 2



SECTION
N.T.S.

NOTE:

EXISTING RENTAL CAR WASH HAS 10 WASH BAYS. WASH WATER IS RECYCLED FROM SUMP. FRESH WATER USED FOR RINSE RENTAL CAR WASH DRAIN IS CURRENTLY CONNECTED TO INDUSTRIAL WASTE SYSTEM. CONNECTION TO SANITARY SEWER IS SCHEDULED FOR 2002. METHOD OF CONNECTION (GRAVITY FLOW OR FORCE MAIN) TO BE DETERMINED.

Kennedy/Jenks Consultants

PORT OF SEATTLE
SEATTLE-TACOMA INTERNATIONAL AIRPORT

RENTAL CAR WASH

006099.04/P0SK003

FIGURE 3

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

For Approved. OMB No. 2040-0086. Approval expires 5-31-92

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

S		T/A	C
F	WAD98098016		D
1	2 — 13	14	15

LABEL ITEMS

- I. EPA I.D. NUMBER
- III. FACILITY NAME
- V. FACILITY MAILING LIST
- VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been proved. Refer to the instructions for detailed item descriptions and for the legal authorization under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental from listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	MARK "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.?** (FORM 2A)	☐ 16	☒ 17	☐ 18	B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.?** (FORM 2B)	☐ 19	☒ 20	☐ 21
C. Is this facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	☐ 22	☐ 23	☒ 24	D. Is this proposal facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.?** (FORM 2D)	☐ 25	☒ * 26	☐ 27
E. Does or will this facility treat, store, or dispose of **hazardous wastes?** (FORM 3)	☐ 28	☒ 29	☐ 30	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	☐ 31	☒ 32	☐ 33
G. Do you or will you inject at this facility any produced water other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	☐ 34	☒ 35	☐ 36	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfer by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	☐ 37	☒ 38	☐ 39
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area?** (FORM 5)	☐ 40	☒ 41	☐ 42	J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment are?** (FORM 5)	☐ 43	☒ 44	☐ 45

III. NAME OF FACILITY

C 1 | SKIP (15, 16-29, 30) | *Seatte-Tacoma International Airport* (69)

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*		
C 2 — *Michael D. Feldman, Director Aviation Facilities* (15, 16, 45)	*206* (46 48)	*439* (49 51)	*7706* (52 55)

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

C 3 — *P.O. Box 68727* (15, 16, 45)

* THIS IS MARKED "NO" BECAUSE THIS IS A PERMIT RENEWAL OF AN EXISTING FACILITY. DURING THE 5 YEARS OF THIS PERMIT, THERE MAY BE NEW STORMWATER DISCHARGES — SEE FORM 2F (ATTACHED)

B. CITY OR TOWN	C. STATE	D. ZIP CODE
C 4 — *Seattle,* (15, 16, 40)	*WA* (41 42)	*98168* (47 51)

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

C 5 — *17801 Pacific Highway S.,* (15, 16, 45)

AR 015436

B. COUNTY NAME

King (46, 70)

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE
C 6 — *Seattle* (15, 16, 40)	*WA* (41 42)	*98158* (47 51)	(52 54)

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST		B. SECOND	
4851	(specify) Airifield	5171	(specify) Petroleum Bulk Storage
C. THIRD		**D. FOURTH**	
4852	(specify) Transportation by Air, scheduled	7514	(specify) Car Rental

VIII. OPERATOR INFORMATION

A. NAME	B. Is the name listed in Item VIII-A also the owner?
Port of Seattle	☒ YES ☐ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other," specify.)			D. PHONE (area code & no.)
F = FEDERAL S = STATE P = PRIVATE	M = PUBLIC (other than federal or state) O = OTHER (specify)	M (specify) Port Authority	A 206 433 5388

E. STREET OR PO BOX
P.O. Box 68727

F. CITY OR TOWN	G. STATE	H. ZIP CODE	IX. INDIAN LAND
Seattle	WA	98168	Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)	
N WA-002465-1	P	
B. UIC (Underground Injection of Fluids	**E. OTHER (specify)**	**(Specify)**
U		
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**	**(Specify)**
R		

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Operate airfield for private business tenants who provides passenger and air cargo services to the public.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Michael D. Feldman, Director, Aviaition Facilities	Michael D. Feldman	12/19/01

COMMENTS FOR OFFICIAL USE ONLY

C

Please type or print in the unshaded areas only

EPA ID Number (Copy from Item 1 of Form 1): WAD980980106

Form Approved
OMB No. 2040-0086
Approval expires 7-31-88

Form 2C NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY

APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS

Consolidated Permits Program

I. Outfall Location

For this outfall, list the latitude and longitude, and name of the receiving water(s)

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
001	47	24	07N	122	20	07W	Puget Sound

II. Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

B. For each outfall, provide a description of (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

1. Outfall Number	2. Operations Contributing Flow		3. Treatment		
	a. OPERATION (list)	b. AVERAGE FLOW	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001	Industrial waste water from airfield operations and maintenance, pressure testing water lines, well and pipe flushing, construction dewatering, aircraft and airfield deicing and anti-icing, and chemicals used in fighting fires that may occur at the airport.	Not applicable. Data are not available for average flow from each specific airfield or maintenance operation. The average annual flow from the Industrial Waste Treatment Plant for the past 3 years was 321 MG with an average daily flow of 1.8 MG. Outfall 001 has a capacity of 7.1 MGD.	Coagulation Flocculation Air Flotation Ocean Discharge through Outfall Gravity Thickening	2-D 1-G 1-H 4-B 5-L	

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?
☒ YES (complete the following table) ☐ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(s) CONTRIBUTING FLOW (list)	3. FREQUENCY a. DAYS PER WEEK (specify average)	3. FREQUENCY b. MONTHS PER YEAR (specify average)	4. FLOW a. FLOW RATE (in mgd) 1. LONG TERM AVERAGE	4. FLOW a. FLOW RATE (in mgd) 2. MAXIMUM DAILY	4. FLOW b. TOTAL VOLUME (specify with units) 1. LONG TERM AVERAGE	4. FLOW b. TOTAL VOLUME (specify with units) 2. MAXIMUM DAILY	c. DURATION (in days)
001	All airport operations that drain to the industrial waste system	Seasonal	12	1.32	4.32	1.32	4.32	184

Flow data are for the past year (October 2000 through September 2001).

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?
☐ YES (complete Item III-B) ☒ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?
☐ YES (complete Item III-C) ☒ NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	2. AFFECTED OUTFALLS (list outfall numbers)
----	----	Not Applicable	----

IV. IMPROVEMENTS

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.
☒ YES (complete the following table) ☐ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS a. No.	2. AFFECTED OUTFALLS b. SOURCE OF DISCHARGE	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE a. REQUIRED	4. FINAL COMPLIANCE DATE b. PROJECTED
NPDES Permit Special Condition S4	001	Industrial Waste Treatment Plan	Implementation of AKART alternative for management of glycol-containing wastestream	June 30, 2004	
CWA 401/404 Permit Conditions (Water Quality Certification for US Army Corps of Engineers Public Notice 1996-4-02325 Condition J)	001	Industrial wastewater from airport operations	Implementation of the Comprehensive Stormwater Management Plan (Sections 4.2, 5.2.2 and 7.5)	See Table A-3 of CSMP	

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.
☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAM IS ATTACHED

CONTINUED FROM PAGE 2

EPA ID Number *(Copy from Item 1 of Form 1)*
WAD980980106

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets number V-1 through V-9.

D: Use the space below t list any of the pollutants listed in Tables 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
Acrolein	*Unknown. Detected only once (2000) in 5 analyses performed since 1994.*	*Ethylbenzene*	*Fuel spills*
Phenol	*Fuel spills.*	*Toluene*	*Fuel spills*
Benzene	*Fuel Spills*	*Naphthalene*	*Moth balls/ insecticides?*
Chlorobenzene	*Unknown. Detected only once (2000) in 7 analyses performed since 1994. Detected at concentration below laboratory practical quantitation limit.*	*Endosulfan*	*Unknown. Detected only once (1999) in 8 analyses since 1994.*
Chloroform	*Unknown. Detected only twice in 7 analyses since 1994.*		

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES *(list all such pollutants below)* ☒ NO *(go to Item V-B)*

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES *(identify the test(s) and describe their purpose below)* ☒ NO *(go to Section VIII)*

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* ☐ NO *(go to Section IX)*

A. NAME	B. ADDRESS	C. TELEPHONE *(area code & no.)*	D. POLLUTANTS ANALYZED *(list)*
STL (Sound Analytical)	*5755 – 8th St. E. Tacoma, WA 98424*	*(253) 922-2310*	*Oil and grease, pH, ammonia, TSS, phenols, BOD, coliforms, BTEX, priority pollutants*
Analytical Resources, Inc.	*333 Ninth Ave. N. Seattle, WA 98109*	*(206) 621-6490*	*glycols*
Aquatic Research, Inc.	*3927 Aurora Ave. N. Seattle, WA 98103*	*(206) 632-2715*	*glycols*

IX. 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 submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE *(type or print)*	B. PHONE NO. *(area code & no.)*
Michael D. Feldman *Director/Aviation Facilities*	*(206) 439-7706*
C. SIGNATURE *Michael D. Feldman*	D. DATE SIGNED *12/19/01*

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*
WAD980980106

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSIS	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS (specify if blank) b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE (optional) b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*	*1100*				*123.4*		*32*	*mg/L*				
b. Chemical Oxygen Demand *(COD)*	*NA*									NA = Not available.		
c. Total Organic Carbon *(TOC)*	*NA*									ND = parameter not detected		
d. Total Suspended Solids *(TSS)*	*46*				*12*		*115*	*mg/L*				
e. Ammonia *(as N)*	*0.27*				*0.04*		*33*	*mg/L*				
f. Flow	Value *6.5*		Value *85*		Value *1.8*		*184*	*MG*		Value		
g. Temperature *(winter)*	Value *Ambient*		Value		Value			°C		Value		
h. Temperature *(summer)*	Value *Ambient*		Value		Value			°C		Value		
i. pH	Minimum *6.09*	Maximum *7.67*	Minimum	Maximum			*115*	STANDARD UNTIS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly or indirectly but expressly in an effluent limitation guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2-a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	2. MARK 'X' b. BELIEVED ABSENT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSIS	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS (specify if blank) b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE (optional) b. NO. OF ANALYSES
a. Bromide (24959-67-9)	☐	☐	*NA*											
b. Chlorine, Total Residual	☐	☐	*NA*									NA = No analysis.		
c. Color	☐	☐	*NA*									ND = Parameter not detected.		
d. Fecal Coliform	☒	☐	*3300*		*3300*		*358*		*34*	*cfu/100 mL*				
e. Fluoride (16984-48-8)	☐	☐	*NA*											
f. Nitrate-Nitrite *(as N)*	☐	☐	*NA*											

AR 015441

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X'		2. EFFLUENT							3. UNITS *(specify if blank)*		4. INTAKE *(optional)*		
	a. Believed Present	b. Believed Absent	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) concentration	(2) MASS	
g. Nitrogen, Total Organic *(as N)*	☐	☐	*NA*									NA = No analysis.		
h. Oil and Grease	☒	☐	*14*		*14*		*3.84*		*78*	*mg/L*		ND = Parameter not detected.		
i. Phosphorus *(as P)*, Total (7723-14-0)	☐	☐	*NA*											
j. Radioactivity														
(1) Alpha, Total	☐	☐	*NA*											
(2) Beta, Total	☐	☐	*NA*											
(3) Radium, Total	☐	☐	*NA*											
(4) Radium 226, Total	☐	☐	*NA*											
k. Sulfate *(as SO_4)* *(14808-79-8)*	☐	☐	*NA*											
l. Sulfide (as S)	☐	☐	*NA*											
m. Sulfite *(as SO_3)(* *14265-45-3)*	☐	☐	*NA*											
n. Surfactants	☒	☐	*NA*											
o. Aluminum, Total (7429-90-5)	☐	☐	*NA*											
p. Barium, Total (7440-39-3)	☐	☐	*NA*											
q. Boron, Total (7440-42-8)	☐	☐	*NA*											
r. Cobalt, Total (7440-48-4)	☐	☐	*NA*											
s. Iron, Total (7439-89-4)	☐	☐	*NA*											
t. Magnesium, Total (7439-95-4)	☐	☐	*NA*											
u. Molybdenum, Total (7439-98-7)	☐	☐	*NA*											
v. Manganese, Total (7439-96-5)	☐	☐	*NA*											
w. Tin, Total (7440-31-5)	☐	☐	*NA*											
x. Titanium, Total (7440-32-6)	☐	☐	*NA*											

AR 015442

CONTINUED FROM PAGE 3 OF FORM 2-C

EPA I.D. NUMBER *(copy from item 1 of Form 1)*: WAD980980106

OUTFALL NUMBER: 001

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X" a. TESTING REQUIRED	2. MARK "X" b. BELIEVED PRESENT	2. MARK "X" c. BELIEVED ABSENT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1m. Antimony, Total (7440-36-0)	☐	☒	☐	0.1				0.33		3	mg/L	See note.			
2M. Arsenic, Total (7440-38-2)	☐	☐	☒	ND						3					
3M. Beryllium, Total (7440-41-7)	☐	☐	☒	ND						3					
4M. Cadmium, Total (7440-43-9)	☐	☐	☒	ND						3					
5M Chromium, Total (7440-47-3)	☐	☐	☒	ND						3					
6M Copper, Total (7440-50-8)	☒	☒	☐	0.022				0.014		3	mg/L	Note: One-half detection limit used for calculation of average concentration for those parameters for which analyses revealed at least one nondetect during this reporting period. Where long term average concentration is greater than maximum, 1998 Priority Pollutant analyses were performed with detection limits much higher than analyses for 1999 and 2000. NA = No analysis. ND = Nondetect for this parameter.			
7M lead, Total (7439-92-1)	☒	☒	☐	0.027				0.035		3	mg/L				
8M Mercury, Total (7439-97-6)	☐	☐	☒	ND						3					
9M Nickel, Total (7440-02-0)	☐	☐	☒	ND						3					
10M Selenium, Total (7782-49-2)	☐	☒	☐	0.049				0.150		3	mg/L				
11M Silver, Total (7440-22-4)	☐	☐	☒	ND						3					
12M Thallium, Total (7440-28-0)	☐	☐	☒	ND						3					
13M Zinc, Total (7440-66-6)	☒	☒	☐	0.1				0.091		3	mg/L				
14M Cyanide, Total (57-12-5)	☒	☐	☒	ND						3					
15M Phenols, Total	☒	☒	☐	0.14				0.04		38	mg/L				
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☐	DESCRIBE RESULTS											

AR 015443

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (If available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) Concentration	(2) Mass	b. NO. OF ANALYSES
GC/MS - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☒	☒	☐	25.8				25.8		1	ug/L				
2V Acrylonitrile (107-13-1)	☒	☐	☐	ND						1					
3V Benzene (71-43-2)	☒	☒	☐	3.0				1.4		14	ug/L				
4V Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☐	NA											
5V Bromoform (75-25-2)	☒	☐	☒	ND						3					
6V Carbon Tetrachloride (56-23-5)	☒	☐	☒	ND						3					
7V Chlorobenzene (108-90-7)	☒	☐	☒	0.049				1.8		3	ug/L				
8V Chlorodibromomethane (124-48-1)	☒	☐	☒	ND						3					
9V Chloroethane (75-00-3)	☒	☐	☒	ND						3					
10V 2-Chloroethylvinyl Ether (110-75-8)	☒	☐	☒	ND						2					
11V Chloroform (67-66-3)	☒	☒	☐	0.66				1.93		3	ug/L				
12V Dichlorobromoethane (75-71-8)	☐	☐	☐	NA											
13V Dichlorodifluoromethane (75-71-8)	☐	☐	☐	ND						1					
14V 1,1-Dichloroethane (75-34-3)	☒	☐	☒	ND						3					
15V 1,2-Dichloroethane (107-06-2)	☒	☐	☒	ND						3					
16V 1,1-Dichloroethylene (75335-4)	☒	☐	☒	ND						3					
17V 1,2-Dichloropropane (78-87-5)	☒	☐	☒	ND						3					
18V 1,3-Dichloropropylene (542-76-6)	☒	☐	☒	ND						3					
19V Ethylbenzene (100-41-4)	☒	☒	☐	13				4.75		14	ug/L				
20V Methyl Bromide (74-83-9)	☒	☐	☒	ND						3					
21V Methyl Chloride (74-87-3)	☒	☐	☒	ND						3					

See note re: average. Chlorobenzene detected at concentration below laboratory practical quantitation limit.

Note: One-half detection limit used for calculation of average concentration for those parameters for which analyses revealed at least one nondetect during this reporting period. Where long term average concentration is greater than maximum, 1998 Priority Pollutant analyses were performed with detection limits much higher than analyses for 1999 and 2000.
NA = No analysis.
ND = Nondetect for this parameter.

AR 015444

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: WAD980980106

OUTFALL NUMBER: 001

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS - VOLATILE COMPOUNDS *(continued)*															
22 V Methylene Chloride (75-09-2)	☒	☒	☐	*0.19*				*1.80*		*3*	*ug/L*				
23V 1,1,2,2-Tetrachloroethane (79-34-5)	☒	☐	☒	*ND*						*3*					
24V Tetrachloroethylene (127-18-4)	☒	☐	☒	*ND*						*3*					
25V Toluene (108-88-3)	☒	☒	☐	*37*				*13*		*14*	*ug/L*				
26V 1,2-Trans-Dichloroethylene (156-60-5)	☒	☐	☒	*ND*						*3*					
27V 1,1,1-Trichloroethane (71-55-6)	☒	☐	☒	*ND*						*3*					
28V 1,1,2-Trichloroethane (79-00-5)	☒	☐	☒	*ND*						*3*					
29V Trichloroethylene (79-01-6)	☒	☐	☒	*ND*						*3*					
30V Trichlorofluoromethane (75-69-4)	☒	☐	☒	*ND*						*3*					
31V Vinyl Chloride (75-01-4)	☒	☐	☒	*ND*						*3*					
GC/MS FRACTION - ACID COMPOUNDS															
1A 2-Chlorophenol (95-57-8)	☒	☐	☒	*ND*						*3*					
2A 2,4-Dichlorophenol (120-83-2)	☒	☐	☒	*ND*						*3*					
3A 2,4-Dimethylphenol (105-67-9)	☒	☒	☐	*1.7*				*0.82*		*3*	*ug/L*				
4A 4,6-Dinitro-O-cresol (534-52-1)	☒	☐	☒	*ND*						*3*					
5A 2,4-Dinitrophenol (51-28-5)	☒	☐	☒	*ND*						*3*					
6A 2-Nitrophenol (88-75-5)	☒	☐	☒	*ND*						*3*					
7A 4-Nitrophenol (100-02-7)	☒	☐	☒	*ND*						*3*					
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☒	*ND*						*3*					
9A Pentachlorophenol (87-86-5)	☒	☐	☒	*ND*						*3*					
10A Phenol (108-95-2)	☒	☒	☐	*0.14*				*0.04*		*38*	*mg/L*				
11A 2,4,6-Trichlorophenol (88-06-2)	☒	☐	☒	*ND*						*3*					

Note: One-half detection limit used for calculation of average concentration for those parameters for which analyses revealed at least one nondetect during this reporting period. Where long term average concentration is greater than maximum, 1998 Priority Pollutant analyses were performed with detection limits much higher than analyses for 1999 and 2000.
NA = No analysis.
ND = Nondetect for this parameter.

AR 015445

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B Acenaphthene (83-32-9)	☒	☒	☐	0.5				0.20		3	ug/L				
2B Acenaphylene (208-96-8)	☒	☐	☒	ND						3					
3B Anthracene (120-12-7)	☒	☐	☒	ND						3					
4B Benzidine (92-87-5)	☒	☐	☐	NA											
5B Benzo (a) Anthracene (56-55-3)	☒	☐	☒	ND						3					
6B Benzo (a) Pyrene (50-32-8)	☒	☐	☒	ND						3					
7B 3,4-Benzo-fluoranthene (205-99-2)	☒	☐	☒	ND						3					
8B Benzo (ghi) Perylene (191-24-2)	☒	☐	☒	ND						3					
9B Benzo (k) Fluoranthene (207-08-9)	☒	☐	☒	ND						3					
10B Bis(2-Chloroethoxy) Methane (111-91-1)	☒	☐	☒	ND						3					
11B Bis (2-Chloroethyl) Ether (111-44-4)	☒	☐	☒	ND						3					
12B Bis (2-Chloroisopropyl) Ether (102-60-1	☒	☐	☒	ND						3					
13B Bis(2-Ethyl-hexyl) Phthalate (117-81-7)	☒	☒	☐	4.9				2.54		3	ug/L				
14 B 4-Bromo-phenyl Phenyl Ether (101-55-3)	☒	☐	☒	ND						3					
15B Butyl Benzyl Phthalate (85-68-7)	☒	☒	☐	0.4				1.02		3	ug/L				
16B 2-Chloro-naphthalene (91-58-7)	☒	☐	☒	ND						3					
17B 4-Chloro-phenyl Phenyl Ether (7005-72-3)	☒	☐	☒	ND						3					
18B Chrysene (218-01-9)	☒	☒	☐	0.17				0.09		3	ug/L				
19B Dibenzo (a,h) Anthracene (53-70-3)	☒	☐	☒	ND						3					
20B 1,2-Dichloro-benzene (95-50-1)	☒	☐	☒	ND						3					
21B 1,3-Dichloro-benzene (541-73-1)	☒	☐	☒	ND						3					

Note: Where long term average concentration is greater than maximum, 1998 Priority Pollutant analyses were performed with detection limits much higher than analyses for 1999 and 2000. One-half detection limit used for calculation of average concentration for those parameters for which analyses revealed at least one nondetect during this reporting period.
NA = No analysis.
ND = Parameter not detected.

CONTINUE ON PAGE V-7

EPA I.D. NUMBER *WAD980980106* | OUTFALL No. *001*

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. TEST-ING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	2 EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS BASE/NEUTRAL COMPOUNDS (continued)															
22B 1,4-Dichlorobenzene (106-46-7)	☒	☐	☒	ND						3					
23B 3,3'-Dichlorobenzidine (91-94-1)	☒	☐	☒	ND						3					
24B Diethyl Phthalate (84-66-2)	☒	☒	☐	0.76				0.45		3	ug/L				
25B Dimethyl Phthalate (131-11-3)	☒	☒	☐	7.1				2.58		3	ug/L				
26B Di-N-Butyl Phthalate (131-11-3)	☒	☒	☐	0.66				1.18		3	ug/L				
27B 2,4-Dinitrotoluene (121-14-2)	☒	☒	☐	0.24				0.25		3	ug/L				
28B 2,6-Dinitrotoluene (606-20-2)	☒	☐	☒	ND						3					
29B Di-N-Octyl Phthalate (117-84-0)	☒	☒	☐	1.1				0.69		3	ug/L				
30B 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	☒	☐	☒	ND											
31B Fluoranthene (206-44-0)	☒	☒	☐	0.21				0.10		3	ug/L				
32B Fluorene (86-73-7)	☒	☒	☐	1.9				1.13		3	ug/L				
33B Hexachlorobenzene (118-74-1)	☒	☐	☒	ND						3					
34B Hexachlorobutadiene (87-68-3)	☒	☐	☒	ND						3					
35B Hexachlorocyclopentadiene (77-47-4)	☒	☐	☒	ND						3					
36B Hexachloroethane (67-72-1)	☒	☐	☒	ND						3					
37B Indeno (1,2,3-cd) Pyrene (193-39-5)	☒	☐	☒	ND						3					
38B Isophorone (78-59-1)	☒	☐	☒	ND						3					
39B Naphthalene (91-20-3)	☒	☒	☐	12				12		1	ug/L				
40B Nitrobenzene (98-95-3)	☒	☐	☒	ND						3					
41B N-Nitrosodimethylamine (62-75-9)	☒	☐	☒	ND											
42B N-Nitrosodi-N-Propylamine (621-64-7)	☒	☐	☒	ND						3					

Notes: NA = No analysis.

ND = Parameter not detected.

Phthalates and dinitrotoluene were detected in sample blanks or at concentrations below the practical quantitation limit. Results are as reported without correction for sample blank contamination.

Note: Where long term average concentration is greater than maximum, 1998 Priority Pollutant analyses were performed with detection limits much higher than analyses for 1999 and 2000. One-half detection limit used for calculation of average concentration for those parameters for which analyses revealed at least one nondetect during this reporting period.

AR 015447

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B N-Nitrosodiphenylamine (86-30-6)	☒	☐	☒	ND						3			NA = No analysis.		
44B Phenanthrene (85-01-8)	☒	☒	☐	0.5				0.41		3	ug/L		ND = Parameter not detected.		
45B Pyrene (129-00-0)	☒	☒	☐	0.21				0.10		3	ug/L				
46B 1,2,4-Trichlorobenzene (120-82-1)	☒	☐	☒	ND						3					
GC/MS FRACTION - PESTICIDES															
1P Aldrin (309-00-2)	☒	☐	☒	ND						3					
2P β-Bhc (319-85-7)	☒	☐	☒	ND						3					
4P γ-BHC (58-89-9)	☒	☐	☒	ND						3					
5P δ-BHC (319-86-8)	☒	☐	☒	ND						3					
6P Chlordane (57-74-9)	☒	☐	☒	ND						3					
7P 4,4'-DDT (50-29-3)	☒	☐	☒	ND						3					
8P 4,4'-DDE (72-55-9)	☒	☐	☒	ND						3					
9P 4,4'-DDD (72-54-8)	☒	☐	☒	ND						3					
10P Dieldrin (60-57-1)	☒	☐	☒	ND						3					
11P α-Endosulfan (115-29-7)	☒	☒	☐	0.014				0.008		3	ug/L				
12P β-Endosulfan (115-29-7	☒	☐	☒	ND						3					
13P Endosulfan Sulfate (1031-07-8)	☒	☐	☒	ND						3					
14P Endrin (72-20-8)	☒	☐	☒	ND						3					
15P Endrin Aldehyde (7421-93-4)	☒	☐	☒	ND						3					
16P Heptachlor (76-44-8)	☒	☐	☒	ND						3					

AR 015448

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-6

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
WAD980980106	001

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS - PESTICIDES (continued)															
17P Heptachlor Expxide (1024-57-3)	☒	☐	☒	ND						3					
18P PCB-1242 (53469-21-9)	☒	☐	☒	ND						3					
19P PCB-1254 (11097-69-1)	☒	☐	☒	ND						3					
20P PCB-1221 (11104-28-2)	☒	☐	☒	ND						3					
21P PCB-1232 (11141-16-5)	☒	☐	☒	ND						3					
22P PCB-1248 (12672-29-6)	☒	☐	☒	ND						3					
23P PCB-1260 (11096-82-5)	☒	☐	☒	ND						3					
24P PCB-1016 (12674-11-2)	☒	☐	☒	ND						3					
25P Toxaphene (8001-35-2)	☒	☐	☒	ND						3					

NA = No analysis.

ND = Parameter not detected.

AR 015449

Please print or type in the unshaded areas	EPA ID Number *(copy from item I of Form 1)* **WAD98098016**	Form Approved. OMB No. 2040-0086 Approval expires 5-31-92

Form **2F** NPDES

United States Environmental Protection Agency
Washington, DC 20460

Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water

A. Outfall Number *(list)*	B. Latitude			C. Longitude			D. Receiving Water *(name)*
002 (SDE4)	*47*	*26*	*30*	*122*	*17*	*45*	*Des Moines Creek(east branch)*
NW Pond outlet[1]	*47*	*25*	*45*	*122*	*18*	*45*	*Des Moines Creek (west branch)*
Lake Reba outlet[2]	*47*	*28*	*00*	*122*	*19*	*00*	*Miller Creek*
009 (SDS4)	*47*	*25*	*30*	*122*	*18*	*30*	*Des Moines Creek (west branch)*
SDW1-A[3]	*47*	*27*	*30*	*122*	*19*	*15*	*Miller Creek*
SDW1-B[3]	*47*	*27*	*15*	*122*	*19*	*15*	*Miller Creek*
SDW2[3]	*47*	*27*	*00*	*122*	*19*	*15*	*Walker Creek*
SDN3-A[4]	*47*	*27*	*45*	*122*	*19*	*15*	*Miller Creek*

Table notes

1. consolidates current outfalls 004 (SDS2), 005 (SDS3), 010 (SDS7), 014 (SDS6), 015 (SDS5), the future 019 (SDW3) and non-Port drainage at Northwest Ponds outlet

2. consolidates current outfalls 006 (SDN1), 007 (SDN2), 008 (SDN3), 011 (SDN4), other non-industrial Port drainage and non-Port drainage at Lake Reba outlet

3. future outfall

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
401/ 404 permit conditions	***all***	***Airport operations, roadways, pervious and impervious surfaces***	***Monitoring of construction and mitigation projects, Implementation of Comprehensive Stormwater Management Plan (CSMP)***		***See Table A-3 of CSMP***

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage or disposal of significant materials, each existing structure control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each are not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which receive storm water discharges from the facility ***See attached maps for existing and future drainage***

 Continued on Page 2

Continued from the Front

IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall

Outfall Number	Area of Impervious Surface (acres)	Total Area Drained (acres)	Outfall Number	Area of Impervious Surface (acres)	Total Area Drained (acres)
002 (SDE4)	*97(current)[2] 126 (future)*	*149 (current)[2] 166 (future)*	*SDW1-B*	*27 (future)*	*97 (future)*
003 (SDS1)	*14(current)[2] 16 (future)*	*16 (current)[2] 18 (future)*	*SDW1-A*	*15 (future)*	*53 (future)*
NW Ponds	*237[1](current)[2] 279[1] (future)*	*573[1](current)[2] 563[3]future)*	*SDW2*	*10 (future)*	*45 (future)*
Lake Reba	*50[1](current)[2] 62[1] (future)*	*119[1](current)[2] 181[1] (future)*	*SDN3-A*	*8 (future)*	*30 (future)*
009 (SDS4)	*21(current)[2] 32 (future)*	*63 (current)[2] 65 (future)*			

Table notes

1. does not include Port non-industrial areas and non-Port drainage areas tributary to the outfall

2. acreage from 2001 Port of Seattle Annual Stormwater Monitoring Report

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

Significant materials are not treated, stored or disposed at Sea-Tac Airport where they could contaminate stormwater runoff. All areas with industrial activities such as aircraft fueling, aircraft de-icing, and vehicle maintenance drain to the Industrial Waste System (see Form 2C). There is some stormwater exposed to construction activities. Construction projects have site-specific Stormwater Pollution Prevention Plans (SWPPPs), which include erosion/ sediment control, spill prevention, hazardous materials handling and monitoring plans (Special Condition S13 of NPDES permit WA002465-1).

Application of pesticides, herbicides, soil conditioners and fertilizers is addressed in the Port's Stormwater Pollution Prevention Plan (SWPPP) for Airport Operations (Special Condition S12).

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff, and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge

Outfall Number	Treatment	List Codes from Table 2F-1
All	*Treatment consists of the BMPs listed in the Port's Stormwater Pollution Prevention Plan (SWPPP) including detention of stormwater in stormwater detention facilities. Much of the stormwater generated by the airfield is treated by filter strips and bioswales, prior to discharge. The SWPPP addresses aircraft servicing, ground de-icing/ anti-icing, snow storage, spills, construction sites, erosion in non-construction areas, vehicle washing and maintenance, landscape, airfield maintenance, inappropriate connections and discharges, temporary storage of surplus materials, and tenant activities on Port property.*	*1-U*
	As a BMP, stormwater runoff from drainage areas that could receive discharges of fresh and used engine fluids; aviation and ground service vehicle fuels; aircraft and vehicle wash water; aircraft lavatory wastwater, hangar floor wash water; aircraft, runway, and roadway de-icing and anti-icing chemicals; pipe testing and flushing water; groundwater de-watering; and some construction runoff is routed to the Industrial Waste Treatment Plant (IWTP) where it is treated by dissolved air flotation units prior to dischare to Puget Sound. Snow storage areas are designed to drain to the IWTP.	*1-G, 1-H, 4-B*
	Other BMPs include secondary containment, covering, sweeping, catch basin cleaning, proper labeling and disposal, and employee education. Port and all airport tenants with exterior operations develop Water Pollution Control Plans, which include BMPs, spill control plans, and hazardous waste management plans. Port and tenant construction sites which are part of the Port's Master Plan Update or disturb more than 5 acres develop construction Stormwater Pollution Prevention Plans, which include monitoring plans, erosion and sediment control, spill response, and hazardous material management.	
	The stormwater generated by many Port construction sites is chemically treated with alum or polymers to reduce total suspended solids and turbidity prior to discharge.	*1-G*
	The Port has developed and is responsible for implementing a Spill Control, Containment and Countermeasure Plan (SPCCC).	
	Several Port of Seattle storm drain outfalls receive runoff from non-Port property such as state highway 518 and local streets.	

V. Non Stormwater Discharges

A. I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of non-stormwater discharges, and that all non-stormwater discharges from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

Name of Official Title *(type or print)*	Signature	Date Signed
Michael D. Feldman, Director, Aviaition Facilities	*Michael D. Feldman*	*12/19/01*

B. provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

Dry and wet weather inspections of SDS outfalls per the SWPPP, routine NPDES monitoring, remote TV inspections, and special studies such as bacteriologic and chemical source tracing monitoring of non-storm flows. Much of this work has focused on drainage within the landside subbasins SDE4 (002), SDN1 (006) and SDS1 (003) in the past 5 years and has resulted in the elimination of all known inappropriate connections with the storm drainage system.

Continued on Page 3

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released

The Port's Industrial Waste System is designed to contain and treat industrial wastewater that could be contaminated by spills and leaks of fuel and other materials. (see Form 2C)

Over the past three years, there was one minor spill of jet fuel, which occurred on April 28, 1999 from a 747 aircraft fuel tank expansion relief valve on a wing tip emergency relief valve . Most of the spilled fuel was contained on the airfield and recovered before reaching the drainage system. It was estimated that less than 5 gallons of fuel reached Des Moines Creek.

Continued on Page 3

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

VII. Discharge Information

A,B,C, & D See instruction before proceeding Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Tables VII-A, VII-B, and VII-C are included on separate sheets numbered VII-1 and VII-2.

E. Potential discharges not covered by analysis - is any toxic pollutant listed in table 2F-2, 2F-3, or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes *(list all such pollutants below)* X No *(go to Section IX)*

VIII. Biological Toxicity Testing Data

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ Yes *(list all such pollutants below)* ☐ No *(go to Section IX)*

Whole effluent toxicity (WET) characterization testing was performed on stormwater discharge samples from 4 outfalls as required by the current NPDES permit. This testing was performed in 1998 and 1999. Runoff was collected from 2 to 5 storms for each outfall (SDE4 (002), SDS3 (005), SDN1 (006) and SDN4 (011)). Three outfalls (SDE4, SDS3, and SDN4 passed Washington State acute performance standards (D. pulex (daphnia) and P. promelas (fathead minnow)). Acute toxicity to both organisms found in outfall SDN1. Subsequent WET testing demonstrated that stormwater associated with uncoated galvanized roofing material was the source of the toxicity. The Port has been investigating management alternatives for the roof runoff. These test results have been reported to the Washington Department of Ecology in individual reports (Nov 1998-July 1999) and a final WET testing summary report (May 2000).

As part of this permit application, the runoff from all four outfalls was re-sampled and analyzed for WET toxicity in November/ December 2001.

IX. Contact analysis Information

Were any of the analysis reported in item VII performed by a contact laboratory or consulting firm?

☒ Yes *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* ☐ No *(go to Section X)*

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
Aquatic Research, Incorporated	*3927 Aurora Avenue North, Seattle, WA 98103*	*206-632-2715*	*pH, fecal coliform, TPH, TSS, turbidity, BOD5, glycols, metals, fluoride, surfactants, phosphorus*

X. 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 submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title *(type or print)*	B. Area Code and Phone No.
Michael D. Feldman, Director, Aviation Facilities	*206-439-7706*
C. Signature *Michael D. Feldman*	D. Date Signed *12/19/01*

OUTFALL SDE4 (002)

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*8.7*	*N/A*	*2.1*	*No data[2]*	*28*	***passenger, service, construction and maintenance vehicle traffic, aircraft taxiing***
Biological Oxygen Demand (BOD5, mg/l)	*No data[2]*	*335*	*No data[2]*	*19*	*26*	***ground surface de-icing***
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Suspended Solids (TSS, mg/l)	*No data[2]*	*250*	*No data[2]*	*57*	*26*	***Roadway aggregate wear, ground surface deicing abrasives (sand) atmospheric deposition and construction***
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
PH (std units)	**Minimum 6.3**	**Maximum 10.7**	**Minimum**	**Maximum**	*28*	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDE4 (002) Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*>1600*	*No data*[4]	*158*[5]	*No data*[4]	*28*	*small wild animals and birds*
Fluoride[2] (mg/l)	*0.62*	*No data*[4]	*0.19*	*No data*[4]	*15*	*domestic water*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*8.7*	*No data*[4]	*2.1*	*No data*[4]	*28*	*passenger, service, construction and maintenance vehicle traffic, aircraft taxiing*
Surfactants[2] (MBAS, mg/l)	*0.89*	*No data*[4]	*0.26*	*No data*[4]	*16*	*See footnote 2*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*0.032*	*No data*[4]	*0.016*	*26*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*0.031*	*No data*[4]	*0.009*	*26*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*0.197*	*No data*[4]	*0.101*	*26*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Port of Seattle's Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL SDS1 (003)

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*1.6*	*N/A*	*0.9*	*No data[2]*	*4*	*passenger, service, construction and maintenance vehicle traffic, vehicles on non-Port public roads*
Biological Oxygen Demand (mg/l BOD5)	*No data[2]*	*7.7*	*No data[2]*	*7.0*	*2*	*ground surface de-icing (source of aircraft glycols removed Sept 2000)*
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Suspended Solids (mg/l TSS)	*No data[2]*	*93*	*No data[2]*	*47*	*4*	*Roadway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction*
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
PH (std units)	**Minimum 6.7**	**Maximum 7.8**	**Minimum**	**Maximum**	*5*	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2 C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall

OUTFALL SDS1 (003) Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[5] (MPN/100ml)	*>1600*	*No data*[4]	*35*[5]	*No data*[4]	*4*	*small wild animals and birds*
Fluoride[2] (mg/l)	*0.09*	*No data*[4]	*0.08*	*No data*[4]	*4*	*domestic water*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*1.6*	*No data*[4]	*0.9*	*No data*[4]	*4*	*passenger, service, construction and maintenance vehicle traffic, vehicles on non-Port public roads*
Surfactants[2] (MBAS, mg/l)	*3.9*	*No data*[4]	*0.9*	*No data*[4]	*6*	*(source of aircraft and service vehicle washwater removed Sept 2000)*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*0.366*	*No data*[4]	*0.110*	*4*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*0.009*	*No data*[4]	*0.005*	*4*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*0.206*	*No data*[4]	*0.138*	*4*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B)

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Port of Seattle's Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL SDS2 (004)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*0.31*	*N/A*	*0.17*	*No data*[2]	*3*	***passenger, service, construction and maintenance vehicle traffic, vehicles on non-Port public roads***
Biological Oxygen Demand mg/l, (BOD5)	*No data*[2]	*5.8*	*No data*[2]	*3.9*	*2*	***no known Port sources***
Chemical Oxygen Demand (COD)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	***N/A***
Total Suspended Solids (mg/l, TSS)	*No data*[2]	*65*	*No data*[2]	*35*	*3*	***Roadway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	***N/A***
Total Phosphorus	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	***N/A***
PH (std units)	Minimum 7.4	Maximum 7.9	Minimum	Maximum	*2*	***N/A***

Table notes: 1. total petroleum hydroçarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3 This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet. which consolidates multiple discharges.

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility s NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial WasteTreatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See Vii A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3 and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDS2 (004)[5] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	***900***	***No data[4]***	***119[5]***	***No data[4]***	***3***	***small wild animals and birds***
Fluoride[2] (mg/l)	***No data[4]***	***No data[4]***	***No data[4]***	***No data[4]***	***N/A***	***Domestic water***
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	***0.31***	***No data[4]***	***0.17***	***No data[4]***	***3***	***passenger, service, construction and maintenance vehicle traffic, vehicles on non-Port public roads***
Surfactants[2] (MBAS, mg/l)	***No data[4]***	***No data[4]***	***No data[4]***	***No data[4]***	***N/A***	***N/A***
Copper, total recoverable[1] (mg/l)	***No data[4]***	***0.010***	***No data[4]***	***0.009***	***3***	***See TPH above***
Lead, total recoverable[1] (mg/l)	***No data[4]***	***0.006***	***No data[4]***	***0.003***	***3***	***See TPH above***
Zinc, total recoverable[1] (mg/l)	***No data[4]***	***0.213***	***No data[4]***	***0.094***	***3***	***See TPH above***
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Port of Seattle's Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by Manning equation in round pipe with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL SDS3 (005)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*2.7*	*N/A*	*0.21*	*No data[2]*	*30*	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*646*	*No data[2]*	*68*	*29*	***ground surface deicing***
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Suspended Solids (mg/l, TSS)	*No data[2]*	*310*	*No data[2]*	*26*	*27*	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
PH (std units)	**Minimum 7.0**	**Maximum 7.7**	**Minimum**	**Maximum**	*30*	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDS3 (005)[6] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*>1600*	*No data[4]*	*7[5]*	*No data[4]*	*29*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data[4]*	*0.15*	*No data[4]*	*N/A*	*1*	*Domestic water*
~~FOG~~[3] TPH (mg/l NWTPH-Dx)	*2.75*	*No data[4]*	*0.21*	*No data[4]*	*30*	*service, construction and maintenance vehicle traffic, aircraft taxiing and landing*
Surfactants[2] (MBAS, mg/l)	*0.08*	*0.08*	*0.08*	*0.08*	*2*	*No known Port sources*
Copper, total recoverable[1] (mg/l)	*No data[4]*	*0.111*	*No data[4]*	*0.030*	*28*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data[4]*	*0.043*	*No data[4]*	*0.003*	*28*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data[4]*	*0.189*	*No data[4]*	*0.045*	*28*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*
Maximum data listed for each parameter occurred in samples from multiple storm events. The Port of Seattle's Annual Stormwater Reports (1999, 2000, and 2001) list rainfall and flow estimates for events sampled.				

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by stage-discharge equation for primary structure with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL SDS5 (015)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table Complete one table for each outfall See instructions for additional details

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*0.08*	*N/A*	*0.08*	*No data[2]*	*5*	*service, construction and maintenance vehicle traffic*
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*<4*	*No data[2]*	*N/A*	*1*	*ground surface deicing*
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Suspended Solids (mg/l, TSS)	*No data[2]*	*58*	*No data[2]*	*25*	*5*	*Roadway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction*
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
PH (std units)	**Minimum 6.3**	**Maximum 7.7**	**Minimum**	**Maximum**	*4*	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C.	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDS5 (015)[6] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	*>1600*	*No data*[4]	*70*[5]	*No data*[4]	*4*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*0.08*	*No data*[4]	*0.08*	*No data*[4]	*5*	*service, construction and maintenance vehicle traffic*
Surfactants[2] (MBAS, mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*0.014*	*No data*[4]	*0.010*	*5*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*0.003*	*No data*[4]	*<0.002*	*5*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*0.129*	*No data*[4]	*0.037*	*5*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Port of Seattle's Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL SDS6 (014)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***0.19***	***N/A***	***0.14***	***No data[2]***	***4***	***service, construction and maintenance vehicle traffic***
Biological Oxygen Demand (mg/l, BOD5)	***No data[2]***	***<4***	***No data[2]***	***N/A***	***1***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data[2]***	***29***	***No data[2]***	***15***	***3***	***Roadway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Phosphorus	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
PH (std units)	**Minimum 6.6**	**Maximum 7.4**	**Minimum**	**Maximum**	***3***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII A above. See Form 2C.	***See VII A (above)***	***See VII A (above)***	***See VII A (above)***	***See VII A (above)***	***See VII A***	***See VII A (above)***

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall

OUTFALL SDS6 (014)[8] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*>1600*	*No data*[4]	*361*[5]	*No data*[4]	*4*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*0.19*	*No data*[4]	*0.14*	*No data*[4]	*4*	*service, construction and maintenance vehicle traffic*
Surfactants[2] (MBAS, mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*0.013*	*No data*[4]	*0.008*	*3*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*0.007*	*No data*[4]	*0.003*	*3*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*0.124*	*No data*[4]	*0.053*	*3*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by Manning equation in round pipe with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL SDS7 (010)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*3.8*	*N/A*	*0.64*	*No data[2]*	*7*	***service, construction and maintenance vehicle traffic***
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***ground surface deicing***
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Suspended Solids (mg/l, TSS)	*No data[2]*	*12*	*No data[2]*	*7*	*4*	***Roadway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N//A***
PH (std units)	Minimum 7.7	Maximum 7.9	Minimum	Maximum	*3*	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDS7 (010)[6] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*500*	*No data[4]*	*5[5]*	*No data[4]*	*7*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data[4]*	*No data[4]*	*No data[4]*	*No data[4]*	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l. NWTPH-Dx)	*3.8*	*No data[4]*	*0.64*	*No data[4]*	*7*	*service, construction and maintenance vehicle traffic*
Surfactants[2] (MBAS. mg/l)	*No data[4]*	*No data[4]*	*No data[4]*	*No data[4]*	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data[4]*	*0.028*	*No data[4]*	*0.010*	*4*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data[4]*	*<0.002*	*No data[4]*	*<0.002*	*4*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data[4]*	*0.010*	*No data[4]*	*0.007*	*4*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to Northwest Ponds and will be represented at the Northwest Pond outlet which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by Manning equation in round pipe with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL SDN1 (006)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*4.9*	*N/A*	*1.7*	*No data[2]*	*32*	***Passenger, service, construction and maintenance vehicle traffic, vehicles on non-Port public roads***
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*116*	*No data[2]*	*9.8*	*25*	***Ground surface deicing***
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Suspended Solids (mg/l, TSS)	*No data[2]*	366	*No data[2]*	77	26	***Public roadway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
PH (std units)	Minimum 5.1	Maximum 8.4	Minimum	Maximum	32	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial WasteTreatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDN1 (006)[5] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*>1600*	*No data[4]*	*38[5]*	*No data[4]*	*31*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data[4]*	*<0.05*	*No data[4]*	*N/A*	*1*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*4.9*	*No data[4]*	*1.7*	*No data[4]*	*32*	*Passenger, service, construction and maintenance vehicle traffic, vehicles on non-Port public roads*
Surfactants[2] (MBAS, mg/l)	*No data[4]*	*0.25*	*No data[4]*	*0.16*	*3*	*See Footnote 2*
Copper, total recoverable[1] (mg/l)	*No data[4]*	*0.042*	*No data[4]*	*0.021*	*26*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data[4]*	*0.048*	*No data[4]*	*0.010*	*26*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data[4]*	*0.613*	*No data[4]*	*0.201*	*26*	*See TPH above, galvanized metal roofing material*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000, 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL SDN2 (007)[3,4]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*1.1*	*N/A*	*0.28*	*No data*[2]	*8*	*service, construction and maintenance vehicle traffic, aircraft taxiing and landing*
Biological Oxygen Demand (mg/l, BOD5)	*<4*	*No data*[2]	*<4*	*No data*[2]	*2*	*ground surface deicing*
Chemical Oxygen Demand (COD)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
Total Suspended Solids (mg/l, TSS)	*No data*[2]	46	*No data*[2]	36	4	*Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction*
Total Organic Nitrogen	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
Total Phosphorus	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
PH (std units)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	N/A	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. The drainage to this outfall is pumped to the IWS via two pump stations. Discharges to this storm drain outfall only occur if rainfall rates cause peak flows to exceed the pump design capacities (6-month, 24-hr event). Data listed are for samples from these rare bypass events. 4. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDN2 (007)[8,9] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Fluoride[2] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*1.1*	*No data*[4]	*0.28*	*No data*[4]	*8*	*service, construction and maintenance vehicle traffic, aircraft taxiing and landing*
Surfactants[2] (MBAS, mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. The drainage to this outfall is pumped to the IWS via two pump stations. Discharges to this storm drain outfall only occur if rainfall rates cause peak flows to exceed the pump design capacities (6-month, 24-hr event). Data listed are for samples from these rare bypass events.
9. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL SDN3 (008)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table Complete one table for each outfall See instructions for additional details

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*0.20*	*N/A*	*0.10*	*No data[2]*	7	*construction and maintenance vehicle traffic, aircraft taxiing and landing*
Biological Oxygen Demand (mg/l, BOD5)	*222*	*No data[2]*	*81*	*No data[2]*	*3*	*ground surface deicing,*
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Suspended Solids (mg/l, TSS)	*No data[2]*	12	*No data[2]*	6.3	4	*Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction*
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
PH (std units)	*Minimum 6.5*	*Maximum 7.7*	*Minimum*	*Maximum*	6	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall

OUTFALL SDN3 (008)[6] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	***240***	***No data[4]***	***6[5]***	***No data[4]***	***7***	***small wild animals and birds***
Fluoride[2] (mg/l)	***No data[4]***	***No data[4]***	***No data[4]***	***No data[4]***	***N/A***	***N/A***
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	***1.1***	***No data[4]***	***0.28***	***No data[4]***	***8***	***construction and maintenance vehicle traffic, aircraft taxiing and landing***
Surfactants[2] (MBAS, mg/l)	***No data[4]***	***No data[4]***	***No data[4]***	***No data[4]***	***N/A***	***N/A***
Copper, total recoverable[1] (mg/l)	***No data[4]***	***0.020***	***No data[4]***	***0.012***	***5***	***See TPH above***
Lead, total recoverable[1] (mg/l)	***No data[4]***	***0.010***	***No data[4]***	***0.003***	***5***	***See TPH above***
Zinc, total recoverable[1] (mg/l)	***No data[4]***	***0.089***	***No data[4]***	***0.047***	***5***	***See TPH above***
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 20001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL SDN4 (011)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*1.6*	*N/A*	*0.17*	*No data[2]*	*31*	*construction and maintenance vehicle traffic, aircraft taxiing and landing*
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*168*	*No data[2]*	*13*	*27*	*ground surface deicing,*
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Suspended Solids (mg/l, TSS)	*No data[2]*	188	*No data[2]*	13.2	26	*Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction*
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
PH (std units)	*Minimum 6.7*	*Maximum 9.3*	*Minimum*	*Maximum*	30	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDN4 (011)[8] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*>1600*	*No data[4]*	*8[5]*	*No data[4]*	*29*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data[4]*	*No data[4]*	*No data[4]*	*No data[4]*	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*1.6*	*No data[4]*	*0.17*	*No data[4]*	*31*	*construction and maintenance vehicle traffic, aircraft taxiing and landing*
Surfactants[2] (MBAS, mg/l)	*No data[4]*	*0.19*	*No data[4]*	*No data[4]*	*1*	*See Footnote 2*
Copper, total recoverable[1] (mg/l)	*No data[4]*	*0.052*	*No data[4]*	*0.028*	*27*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data[4]*	*0.006*	*No data[4]*	*<0.002*	*27*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data[4]*	*0.127*	*No data[4]*	*0.027*	*27*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to the Lake Reba detention facility and will be represented at the Lake Reba outlet (006) which consolidates multiple discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by Manning equation in round pipe with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL SDS4 (009)

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*0.17*	*N/A*	*0.11*	*No data[2]*	*4*	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*10.5*	*No data[2]*	*6.3*	*2*	***ground surface deicing***
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Suspended Solids (mg/l, TSS)	*No data[2]*	*36*	*No data[2]*	*15*	*3*	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	***N/A***
PH (std units)	**Minimum 6.8**	**Maximum 7.5**	**Minimum**	**Maximum**	*4*	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall

OUTFALL SDS4 (009) Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*900*	*No data*[4]	*59*[5]	*No data*[4]	*4*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*0.17*	*No data*[4]	*0.11*	*No data*[4]	*4*	*service, construction and maintenance vehicle traffic, aircraft taxiing and landing*
Surfactants[2] (MBAS, mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*0.029*	*No data*[4]	*0.020*	*4*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*<0.002*	*No data*[4]	*<0.002*	*4*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*0.036*	*No data*[4]	*0.018*	*4*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*
Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.				

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by ISCO 4150 area-velocity Doppler flowmeter.

OUTFALL EY (012)

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*1.8*	*N/A*	*1.2*	*No data*[2]	*6*	*Passenger, construction and maintenance vehicle traffic, and parking*
Biological Oxygen Demand (mg/l, BOD5)	*No data*[2]	*24*	*No data*[2]	*N/A*	*1*	*ground surface deicing*
Chemical Oxygen Demand (COD)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
Total Suspended Solids (mg/l, TSS)	*No data*[2]	128	*No data*[2]	71	6	*Roadway and parking area aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction*
Total Organic Nitrogen	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
Total Phosphorus	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
PH (std units)	*Minimum 7.7*	*Maximum 7.7*	*Minimum*	*Maximum*	1	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL EY (012) Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Fluoride[2] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*1.8*	*No data*[4]	*1.2*	*No data*[4]	*6*	*Passenger, construction and maintenance vehicle traffic, and parking*
Surfactants[2] (MBAS, mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*0.020*	*No data*[4]	*N/A*	*1*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*0.026*	*No data*[4]	*N/A*	*1*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*0.179*	*No data*[4]	*N/A*	*1*	*See TPH above*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1).
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by Manning equation in round pipe with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL TY (013)[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table Complete one table for each outfall See instructions for additional details

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	*8.3*	*N/A*	*2.7*	*No data[2]*	*8*	*Passenger, construction and maintenance vehicle traffic, and parking*
Biological Oxygen Demand (mg/l, BOD5)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Chemical Oxygen Demand (COD)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Suspended Solids (mg/l, TSS)	*No data[2]*	660	*No data[2]*	132	6	*Roadway and parking area aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, Construction*
Total Organic Nitrogen	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
Total Phosphorus	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	*N/A*	*N/A*
PH (std units)	*No data[2]*	*No data[2]*	*No data[2]*	*No data[2]*	N/A	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1). 3. This current NPDES outfall discharges to the Port's SDE1 system and will be represented at the final subbasin outlet (013) which consolidates subbasin SDE1 discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A (above)*	*See VII A*	*See VII A (above)*

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL TY (013)[5] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform[1] (MPN/100ml)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Fluoride[2] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*8.3*	*No data*[4]	*2.7*	*No data*[4]	*8*	*Passenger, construction and maintenance vehicle traffic, and parking*
Surfactants[2] (MBAS, mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Lead, total recoverable[1] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Zinc, total recoverable[1] (mg/l)	*No data*[4]	*No data*[4]	*No data*[4]	*No data*[4]	*N/A*	*N/A*
Table notes						

1. routine stormwater monitoring parameter required for this outfall by NPDES permit (WA-002465-1)
2. fluoride and surfactants are not required stormwater monitoring parameters in the current NPDES permit (WA-002465-1). These parameters have been analyzed for special source-tracing studies on an as-needed basis at certain outfalls.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.
4. parameter/sample type not required for stormwater monitoring in current NPDES permit (WA-002465-1)
5. geometric mean
6. data for other parameters have been previously submitted to the Washington Department Ecology in Discharge Monitoring Reports (DMRs) and Annual Stormwater Monitoring Reports according to the NPDES permit requirements (WA-002465-1)
7. data listed are for storm runoff event samples in the period 10/15/98 through 10/15/01 that met the reporting criteria of the NPDES permit (WA-002465-1) and the Port of Seattle's Procedure Manual for Stormwater Monitoring (NPDES permit Special Condition S2.B).
8. This current NPDES outfall discharges to the Port's SDE1 system and will be represented at the final subbasin outlet (013) which consolidates subbasin SDE1 discharges

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

Maximum data listed for each parameter occurred in samples from multiple storm events. The Annual Stormwater Reports (1999, 2000 and 2001) list rainfall and flow estimates for events sampled.

7. Provide a description of the method of flow measurement or estimate.

Flow measurements are by Manning equation in round pipe with level measured by ISCO 4230 (bubbler) flowmeter.

OUTFALL SDW 1A

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Phosphorus	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
PH (std units)	**Minimum**	**Maximum**	**Minimum**	**Maximum**	***N/A***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste treatment plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***

Table notes: 1. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDW1A [1] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***small wild animals and birds***
Fluoride [2] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***domestic water***
~~FOG~~ [3] TPH (mg/l, NWTPH-Dx)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Surfactants [2] (MBAS, mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***N/A***
Copper, total recoverable [1] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***See TPH above***
Lead, total recoverable [1] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***See TPH above***
Zinc, total recoverable [1] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***See TPH above***
Table notes						

1. future outfall
2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

N/A but data are expected to be similar to those for outfall 005 (SDS3).

7. Provide a description of the method of flow measurement or estimate

N/A but method used to measure flow from outfall 005 (SDS3) will be used.

OUTFALL SDW 1B

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Phosphorus	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
PH (std units)	**Minimum**	**Maximum**	**Minimum**	**Maximum**	***N/A***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial WasteTreatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***

Table notes: 1. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDW1B[1] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***small wild animals and birds***
Fluoride[2] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***domestic water***
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Surfactants[2] (MBAS, mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Copper, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Lead, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Zinc, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Table notes						

1. future outfall
2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

N/A but data are expected to be similar to those for outfall 005 (SDS3).

7. Provide a description of the method of flow measurement or estimate.

N/A but method used to measure flow from outfall 005 (SDS3) will be used.

OUTFALL SDW2

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Phosphorus	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
PH (std units)	**Minimum No Data[2]**	**Maximum**	**Minimum**	**Maximum**	***N/A***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***

Table notes: 1Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall

OUTFALL SDW2[1] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***small wild animals and birds***
Fluoride[2] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***domestic water***
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Surfactants[2] (MBAS, mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Copper, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Lead, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Zinc, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Table notes						

1. future outfall
2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*
N/A but data are expected to be similar to those for outfall 005 (SDS3).				

7. Provide a description of the method of flow measurement or estimate.

N/A but method used to measure flow from outfall 005 (SDS3) will be used.

OUTFALL SDW3[3]

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved OMB No 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Phosphorus	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
PH (std units)	**Minimum**	**Maximum**	**Minimum**	**Maximum**	***N/A***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. Future discharge will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar. 3. This future discharge will drain to the NW Ponds and will be represented at the Northwest Ponds outlet which consolidates multiple discharges

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***

Table notes: 1. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3). therefore pollutant concentrations will be similar.

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDW3[1] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***small wild animals and birds***
Fluoride[2] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***domestic water***
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Surfactants[2] (MBAS, mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Copper, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Lead, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Zinc, total recoverable[1] (mg/l)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***See TPH above***
Table notes						

1. future discharge!
2. Future discharge will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

N/A but data are expected to be similar to those for outfall 005 (SDS3).

7. Provide a description of the method of flow measurement or estimate.

N/A but method used to measure flow from outfall 005 (SDS3) will be used.

OUTFALL SASA POND

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***No data[2]***	***No Data[2]***	***No data[2]***	***No data[2]***	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
Total Phosphorus	***No data[2]***	***No data[2]***	***No data[2]***	***No data[2]***	***N/A***	***N/A***
PH (std units)	**Minimum**	**Maximum**	**Minimum**	**Maximum**	***N/A***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. Future outfall will have land uses (roadways, parking lots and rooftops) similar to 002 (SDE4), therefore pollutant concentrations will be similar.

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***	***No data[1]***

Table notes: 1. Future outfall will have land uses (runways and taxiways) identical to 002 (SDE4), therefore pollutant concentrations will be similar.

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SASA Pond [1] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data***	***N/A***	***small wild animals and birds***
Fluoride [2] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***domestic water***
~~FOG~~ [3] TPH (mg/l, NWTPH-Dx)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Surfactants [2] (MBAS, mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***N/A***
Copper, total recoverable [1] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***See TPH above***
Lead, total recoverable [1] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***See TPH above***
Zinc, total recoverable [1] (mg/l)	***No data*** [2]	***No data*** [2]	***No data*** [2]	***No data*** [2]	***N/A***	***See TPH above***
Table notes						

1. future outfall
2. Future outfall will have land uses (roadways, parking lots and roof tops) similar to 002 (SDE4), therefore pollutant concentrations will be similar.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

N/A but data are expected to be similar to those for outfall 002 (SDE4).

7. Provide a description of the method of flow measurement or estimate.

N/A but method used to measure flow from outfall 002 (SDE4) will be used.

OUTFALL SDN 3A

EPA ID Number *(copy from Item I of Form 1)*
WAD98098016

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

VII. Discharge Information *(Continued from page 3 of Form 2F)*

Part A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
~~Oil & Grease~~ TPH[1] (mg/l, NWTPH-Dx)	***No data***[2]	**N/A**	***No data***[2]	***No data***[2]	***N/A***	***service, construction and maintenance vehicle traffic, aircraft taxiing and landing***
Biological Oxygen Demand (mg/l, BOD5)	***No data***[2]	***No data***[2]	***No data***[2]	***No data***[2]	***N/A***	***ground surface deicing***
Chemical Oxygen Demand (COD)	***No data***[2]	***No data***[2]	***No data***[2]	***No data***[2]	***N/A***	***N/A***
Total Suspended Solids (mg/l, TSS)	***No data***[2]	***No data***[2]	***No data***[2]	***No data***[2]	***N/A***	***Runway/taxiway aggregate wear, ground surface deicing abrasives (sand), atmospheric deposition, construction***
Total Organic Nitrogen	***No data***[2]	***No data***[2]	***No data***[2]	***No data***[2]	***N/A***	***N/A***
Total Phosphorus	***No data***[2]	***No data***[2]	***No data***[2]	***No data***[2]	***N/A***	***N/A***
PH (std units)	**Minimum**	**Maximum**	**Minimum**	**Maximum**	***N/A***	

Table notes: 1. total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998. 2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
All of the pollutants with effluent limitations for the Industrial Waste Treatment Plant's discharge (outfall 001) in the current NPDES permit for Sea-Tac International Airport are listed in Part VII. A above. See Form 2C	***No data***[1]	***No data***[1]	***No data***[1]	***No data***[1]	***No data***[1]	***No data***[1]

Table notes: 1. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.

Continued from the Front

Part C - List each pollutant shown in Tables 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

OUTFALL SDN3A[1] Pollutant And CAS Number *(if available)*	Maximum Values *(include units)*		Average Values *(include units)*		Number Of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Fecal coliform (MPN/100ml)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*small wild animals and birds*
Fluoride[2] (mg/l)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*domestic water*
~~FOG~~[3] TPH (mg/l, NWTPH-Dx)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*service, construction and maintenance vehicle traffic, aircraft taxiing and landing*
Surfactants[2] (MBAS, mg/l)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*N/A*
Copper, total recoverable[1] (mg/l)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*See TPH above*
Lead, total recoverable[1] (mg/l)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*See TPH above*
Zinc, total recoverable[1] (mg/l)	*No data*[2]	*No data*[2]	*No data*[2]	*No data*[2]	*N/A*	*See TPH above*
Table notes						

1. future outfall
2. Future outfall will have land uses (runways and taxiways) identical to 005 (SDS3), therefore pollutant concentrations will be similar.
3. the total petroleum hydrocarbons (TPH) parameter replaced oil and grease (FOG) when the current NPDES permit was renewed in 1998.

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event *(in minutes)*	3. Total rainfall during storm event *(in inches)*	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Total flow from rain event *(gallons or specify units)*

N/A but data are expected to be similar to those for outfall 005 (SDS3).

7. Provide a description of the method of flow measurement or estimate

N/A but method used to measure flow from outfall 005 (SDS3) will be used.

AR 015494

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East Tacoma, WA 98424
(253) 922-2310 FAX (253) 922-5047
e-mail: info@saslab.com

TRANSMITTAL MEMORANDUM

DATE: December 13, 2001

TO: Al Audette
Port of Seattle – Maintenance Dept.
P.O. Box 68727
Seattle, WA 98168

PROJECT: DMR

REPORT NUMBER: 95023

Enclosed are the revised test results for one sample received at Sound Analytical Services on December 27, 2000. Please replace the pages from the originally submitted report with the enclosed pages.

The onginally submitted results for 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene were reported incorrectly. Due to an undetected retention time shift that occurred during the initial calibration associated with your sample analyses, 1,2,4-trimethylbenzene was reported as 1,3,5-trimethylbenzene and 1,3,5-trimethylbenzene was reported as isopropylbenzene Unfortunately, this error was not discovered until October 2001. All affected data are in the process of being reviewed, and revised results are being submitted as they become available. Results for other reported analytes are not affected.

Please accept our sincerest apologies for this oversight. At STL Seattle, high quality data and impeccable customer service are our top priorities. I can assure you that this was an isolated incident, and in order to ensure that this type of error does not happen again, we have implemented new data review procedures.

I apologize for any inconvenience this reporting error may have caused. Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Terri Howard
Project Manager

STL Seattle

Client Name	Port of Seattle - Maintenance Dept.
Client ID:	DEC-300-EFF
Lab ID:	95023-01
Date Received:	12/27/00
Date Prepared:	12/28/00
Date Analyzed:	12/28/00
% Solids	-
Dilution Factor	1

Volatile Organics by USEPA Method 8260

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Dibromofluoromethane	104		84	115
Fluorobenzene	103		82	108
Toluene-D8	101		95	106
Ethylbenzene-d10	91.4		90	111
Bromofluorobenzene	92		81	113

Analyte	Result (ug/L)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	0.4	0.0227	
Chloromethane	ND	0.4	0.0312	
Vinyl chloride	ND	0.4	0.0193	
Bromomethane	ND	0.4	0.0503	
Chloroethane	ND	0.4	0.122	
Trichlorofluoromethane	ND	0.4	0.0225	
1,1-Dichloroethene	ND	0.4	0.0824	
Acrolein	25.8	2	0.052	
Methylene chloride	0.192	0.4	0.0492	J
trans-1,2-Dichloroethene	ND	0.4	0.0518	
Acrylonitrile	ND	2	0.107	
1,1-Dichloroethane	ND	0.4	0.0358	
2,2-Dichloropropane	ND	0.4	0.075	
cis-1,2-Dichloroethene	ND	0.4	0.0553	
Bromochloromethane	ND	0.4	0.0444	
Chloroform	0.663	0.4	0.0516	
1,1,1-Trichloroethane	ND	0.4	0.0759	
Carbon Tetrachloride	ND	0.4	0.0527	
1,1-Dichloropropene	ND	0.4	0.0499	
Benzene	1.99	0.4	0.0319	
1,2-Dichloroethane	ND	0.4	0.0319	
Trichloroethene	ND	0.4	0.0597	
1,2-Dichloropropane	ND	0.4	0.0498	
Dibromomethane	ND	0.4	0.024	
Bromodichloromethane	ND	0.4	0.0324	
cis-1,3-Dichloropropene	ND	0.4	0.0373	

STL Seattle

Volatile Organics by USEPA Method 8260 data for 95023-01 continued...

Analyte	Result (ug/L)	PQL	MDL	
Toluene	23.8	0.4	0.0357	
trans-1,3-Dichloropropene	ND	0.4	0.0307	
1,1,2-Trichloroethane	ND	0.4	0.0479	
Tetrachloroethene	ND	0.4	0.0549	
1,3-Dichloropropane	ND	0.4	0.0276	
Dibromochloromethane	ND	0.4	0.0479	
1,2-Dibromoethane	ND	0.4	0.0743	
Chlorobenzene	0.0489	0.4	0.0475	J
Ethylbenzene	7.83	0.4	0.0318	
1,1,1,2-Tetrachloroethane	ND	0.4	0.0401	
m,p-Xylene	34.4	0.8	0.087	
o-Xylene	18.4	0.4	0.0432	
Styrene	ND	0.4	0.0372	
Bromoform	ND	0.4	0.0455	
Isopropylbenzene	0.814	0.4	0.0473	
Bromobenzene	ND	0.4	0.0449	
n-Propylbenzene	2.34	0.4	0.0668	
1,1,2,2-Tetrachloroethane	ND	0.4	0.0705	
1,2,3-Trichloropropane	ND	0.4	0.0787	
2-Chlorotoluene	ND	0.4	0.0544	
1,3,5-Trimethylbenzene	8.66	0.4	0.0473	
4-Chlorotoluene	ND	0.4	0.0635	
t-Butylbenzene	ND	0.4	0.0766	
1,2,4-Trimethylbenzene	27.5	0.4	0.0523	
sec-Butylbenzene	0.667	0.4	0.0632	
1,3-Dichlorobenzene	ND	0.4	0.0569	
4-Isopropyltoluene	0.938	0.4	0.0478	
1,4-Dichlorobenzene	ND	0.4	0.0546	
n-Butylbenzene	ND	0.4	0.053	
1,2-Dichlorobenzene	ND	0.4	0.0436	
1,2-Dibromo-3-chloropropane	ND	0.4	0.129	
1,2,4-Trichlorobenzene	ND	0.4	0.0852	
Hexachlorobutadiene	ND	0.4	0.115	
Naphthalene	12	0.4	0.0914	
1,2,3-Trichlorobenzene	ND	0.4	0.0962	

STL Seattle

Client Name	Port of Seattle - Maintenance Dept.
Client ID:	DEC-300-EFF
Lab ID:	95023-01
Date Received:	12/27/00
Date Prepared:	12/28/00
Date Analyzed:	12/28/00
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Nitrobenzene - d5	96.1		48	150
2 - Fluorobiphenyl	93.6		59	126
p - Terphenyl - d14	106		48	137
Phenol - d5	29.6		11	67
2 - Fluorophenol	45.3		17	113
2,4,6 - Tribromophenol	99.1		54	151

Analyte	Result (ug/L)	PQL	MDL	Flags
Phenol	5.38	0.952	0.305	
bis(2-Chloroethyl)ether	ND	0.952	0.181	
2-Chlorophenol	ND	0.952	0.162	
1,3-Dichlorobenzene	ND	0.952	0.162	
1,4-Dichlorobenzene	ND	0.952	0.143	
Benzyl Alcohol	1.17	0.952	0.305	
1,2-Dichlorobenzene	ND	0.952	0.152	
2-Methylphenol	0.581	0.952	0.229	J
bis(2-Chloroisopropyl)ether	ND	0.952	0.2	
3- & 4-Methylphenol	3.46	0.952	0.219	
N-nitroso-di-n-propylamine	ND	0.952	0.2	
Hexachloroethane	ND	0.952	0.381	
Nitrobenzene	ND	0.952	0.429	
Isophorone	ND	0.952	0.171	
2-Nitrophenol	ND	0.952	0.21	
2,4-Dimethylphenol	ND	0.952	0.143	
Benzoic Acid	ND	4.76	0.19	
bis(2-Chloroethoxy)methane	ND	0.952	0.171	
2,4-Dichlorophenol	ND	0.952	0.143	
1,2,4-Trichlorobenzene	ND	0.952	0.152	
Naphthalene	10.8	0.0952	0.0208	
4-Chloroaniline	ND	0.952	0.371	
Hexachlorobutadiene	ND	0.952	0.276	
4-Chloro-3-methylphenol	ND	0.952	0.514	
2-Methylnaphthalene	16.4	0.0952	0.0145	
Hexachlorocyclopentadiene	ND	0.476	0.248	

STL Seattle

Semivolatile Organics by USEPA Method 8270 data for 95023-01 continued...

Analyte	Result (ug/L)	PQL	MDL	
2,4,6-Trichlorophenol	ND	0.952	0.114	
2,4,5-Trichlorophenol	ND	0.952	0.105	
2-Chloronaphthalene	ND	0.0952	0.013	
2-Nitroaniline	ND	0.952	0.171	
Dimethylphthalate	7.09	0.952	0.152	
Acenaphthylene	ND	0.0952	0.0145	
2,6-Dinitrotoluene	ND	0.952	0.19	
3-Nitroaniline	ND	0.952	0.314	
Acenaphthene	ND	0.0952	0.015	
2,4-Dinitrophenol	ND	2.38	0.286	
4-Nitrophenol	ND	2.38	0.276	
Dibenzofuran	0.448	0.952	0.133	J
2,4-Dinitrotoluene	0.238	0.952	0.124	J
Diethylphthalate	0.762	2.38	0.552	J
4-Chlorophenylphenylether	ND	0.952	0.143	
Fluorene	0.752	0.0952	0.013	
4-Nitroaniline	ND	0.952	0.295	
4,6-Dinitro-2-methylphenol	ND	2.38	0.21	
N-Nitrosodiphenylamine	ND	0.952	0.0952	
4-Bromophenylphenylether	ND	0.952	0.114	
Hexachlorobenzene	ND	0.952	0.19	
Pentachlorophenol	ND	0.952	0.162	
Phenanthrene	0.505	0.0952	0.0212	
Anthracene	ND	0.0952	0.0145	
Di-n-butylphthalate	ND	4.76	2.2	
Fluoranthene	ND	0.0952	0.0179	
Pyrene	ND	0.0952	0.013	
Butylbenzylphthalate	ND	4.76	1.78	
3,3'-Dichlorobenzidine	ND	0.952	0.343	
Benzo(a)anthracene	ND	0.0952	0.0417	
Chrysene	ND	0.0952	0.0234	
bis(2-Ethylhexyl)phthalate	0.933	0.952	0.619	J
Di-n-octylphthalate	ND	0.952	0.324	
Benzofluoranthenes	ND	0.19	0.0362	
Benzo(b)fluoranthene	ND	0.0952	0.0276	
Benzo(k)fluoranthene	ND	0.0952	0.0365	
Benzo(a)pyrene	ND	0.0952	0.0447	
Indeno(1,2,3-cd)pyrene	ND	0.0952	0.029	
Dibenz(a,h)anthracene	ND	0.0952	0.0256	
Benzo(g,h,i)perylene	ND	0.0952	0.0326	
N-nitrosodimethylamine	ND	2.38	0.314	
Benzidine	ND	2.38	0.229	
1,2-Diphenylhydrazine	ND	0.952	0.267	

STL Seattle

Lab ID:	Method Blank - HP0033
Date Received:	-
Date Prepared:	12/28/00
Date Analyzed:	12/28/00
% Solids	-
Dilution Factor	1

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Dibromofluoromethane	105		84	115
Fluorobenzene	105		82	108
Toluene-D8	98.7		95	106
Ethylbenzene-d10	90.7		90	111
Bromofluorobenzene	91.8		81	113

Analyte	Result (ug/L)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	0.4	0.0227	
Chloromethane	ND	0.4	0.0312	
Vinyl chloride	ND	0.4	0.0193	
Bromomethane	ND	0.4	0.0503	
Chloroethane	ND	0.4	0.122	
Trichlorofluoromethane	ND	0.4	0.0225	
1,1-Dichloroethene	ND	0.4	0.0824	
Acrolein	ND	2	0.052	
Methylene chloride	ND	0.4	0.0492	
trans-1,2-Dichloroethene	ND	0.4	0.0518	
Acrylonitrile	ND	2	0.107	
1,1-Dichloroethane	ND	0.4	0.0358	
2,2-Dichloropropane	ND	0.4	0.075	
cis-1,2-Dichloroethene	ND	0.4	0.0553	
Bromochloromethane	ND	0.4	0.0444	
Chloroform	ND	0.4	0.0516	
1,1,1-Trichloroethane	ND	0.4	0.0759	
Carbon Tetrachloride	ND	0.4	0.0527	
1,1-Dichloropropene	ND	0.4	0.0499	
Benzene	ND	0.4	0.0319	
1,2-Dichloroethane	ND	0.4	0.0319	
Trichloroethene	ND	0.4	0.0597	
1,2-Dichloropropane	ND	0.4	0.0498	
Dibromomethane	ND	0.4	0.024	
Bromodichloromethane	ND	0.4	0.0324	
cis-1,3-Dichloropropene	ND	0.4	0.0373	

STL Seattle

Volatile Organics by USEPA Method 5030/8260B Modified data for HP0033 continued...

Analyte	Result (ug/L)	PQL	MDL
Toluene	ND	0.4	0.0357
trans-1,3-Dichloropropene	ND	0.4	0.0307
1,1,2-Trichloroethane	ND	0.4	0.0479
Tetrachloroethene	ND	0.4	0.0549
1,3-Dichloropropane	ND	0.4	0.0276
Dibromochloromethane	ND	0.4	0.0479
1,2-Dibromoethane	ND	0.4	0.0743
Chlorobenzene	ND	0.4	0.0475
Ethylbenzene	ND	0.4	0.0318
1,1,1,2-Tetrachloroethane	ND	0.4	0.0401
m,p-Xylene	ND	0.8	0.087
o-Xylene	ND	0.4	0.0432
Styrene	ND	0.4	0.0372
Bromoform	ND	0.4	0.0455
Isopropylbenzene	ND	0.4	0.0473
Bromobenzene	ND	0.4	0.0449
n-Propylbenzene	ND	0.4	0.0668
1,1,2,2-Tetrachloroethane	ND	0.4	0.0705
1,2,3-Trichloropropane	ND	0.4	0.0787
2-Chlorotoluene	ND	0.4	0.0544
1,3,5-Trimethylbenzene	ND	0.4	0.0473
4-Chlorotoluene	ND	0.4	0.0635
t-Butylbenzene	ND	0.4	0.0766
1,2,4-Trimethylbenzene	ND	0.4	0.0523
sec-Butylbenzene	ND	0.4	0.0632
1,3-Dichlorobenzene	ND	0.4	0.0569
4-Isopropyltoluene	ND	0.4	0.0478
1,4-Dichlorobenzene	ND	0.4	0.0546
n-Butylbenzene	ND	0.4	0.053
1,2-Dichlorobenzene	ND	0.4	0.0436
1,2-Dibromo-3-chloropropane	ND	0.4	0.129
1,2,4-Trichlorobenzene	ND	0.4	0.0852
Hexachlorobutadiene	ND	0.4	0.115
Naphthalene	ND	0.4	0.0814
1,2,3-Trichlorobenzene	ND	0.4	0.0962

STL Seattle

Lab ID:	Method Blank - SV3280
Date Received:	-
Date Prepared:	12/28/00
Date Analyzed:	12/28/00
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

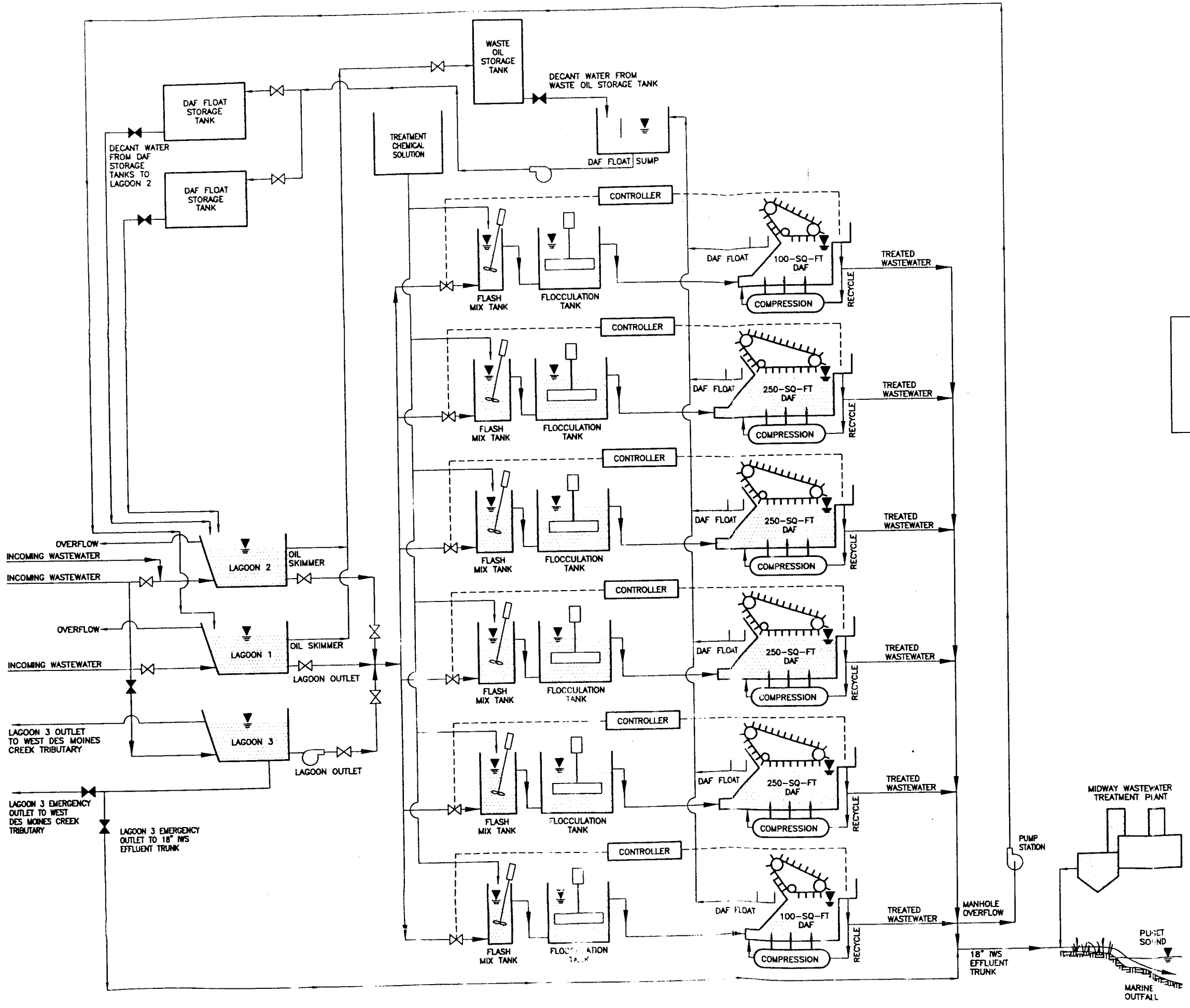
Surrogate	% Recovery	Flags	Recovery Limits Low	High
Nitrobenzene - d5	93.3		48	150
2 - Fluorobiphenyl	97.1		59	126
p - Terphenyl - d14	93.4		48	137
Phenol - d5	32.9		11	67
2 - Fluorophenol	55		17	113
2,4,6 - Tribromophenol	115		54	151

Analyte	Result (ug/L)	PQL	MDL	Flags
Phenol	ND	1	0.32	
bis(2-Chloroethyl)ether	ND	1	0.19	
2-Chlorophenol	ND	1	0.17	
1,3-Dichlorobenzene	ND	1	0.17	
1,4-Dichlorobenzene	ND	1	0.15	
Benzyl Alcohol	ND	1	0.32	
1,2-Dichlorobenzene	ND	1	0.16	
2-Methylphenol	ND	1	0.24	
bis(2-Chloroisopropyl)ether	ND	1	0.21	
3- & 4-Methylphenol	ND	1	0.23	
N-nitroso-di-n-propylamine	ND	1	0.21	
Hexachloroethane	ND	1	0.4	
Nitrobenzene	ND	1	0.45	
Isophorone	ND	1	0.18	
2-Nitrophenol	ND	1	0.22	
2,4-Dimethylphenol	ND	1	0.15	
Benzoic Acid	ND	5	0.2	
bis(2-Chloroethoxy)methane	ND	1	0.18	
2,4-Dichlorophenol	ND	1	0.15	
1,2,4-Trichlorobenzene	ND	1	0.16	
Naphthalene	ND	0.1	0.0219	
4-Chloroaniline	ND	1	0.39	
Hexachlorobutadiene	ND	1	0.29	
4-Chloro-3-methylphenol	ND	1	0.54	
2-Methylnaphthalene	ND	0.1	0.0152	
Hexachlorocyclopentadiene	ND	0.5	0.26	

STL Seattle

Semivolatile Organics by USEPA Method 8270 data for SV3280 continued...

Analyte	Result (ug/L)	PQL	MDL
2,4,6-Trichlorophenol	ND	1	0.12
2,4,5-Trichlorophenol	ND	1	0.11
2-Chloronaphthalene	ND	0.1	0.0136
2-Nitroaniline	ND	1	0.18
Dimethylphthalate	ND	1	0.16
Acenaphthylene	ND	0.1	0.0152
2,6-Dinitrotoluene	ND	1	0.2
3-Nitroaniline	ND	1	0.33
Acenaphthene	ND	0.1	0.0157
2,4-Dinitrophenol	ND	2.5	0.3
4-Nitrophenol	ND	2.5	0.29
Dibenzofuran	ND	1	0.14
2,4-Dinitrotoluene	ND	1	0.13
Diethylphthalate	ND	2.5	0.58
4-Chlorophenylphenylether	ND	1	0.15
Fluorene	ND	0.1	0.0136
4-Nitroaniline	ND	1	0.31
4,6-Dinitro-2-methylphenol	ND	2.5	0.22
N-Nitrosodiphenylamine	ND	1	0.1
4-Bromophenylphenylether	ND	1	0.12
Hexachlorobenzene	ND	1	0.2
Pentachlorophenol	ND	1	0.17
Phenanthrene	ND	0.1	0.0222
Anthracene	ND	0.1	0.0152
Di-n-butylphthalate	ND	5	2.31
Fluoranthene	ND	0.1	0.0188
Pyrene	ND	0.1	0.0136
Butylbenzylphthalate	ND	5	1.87
3,3'-Dichlorobenzidine	ND	1	0.36
Benzo(a)anthracene	ND	0.1	0.0438
Chrysene	ND	0.1	0.0245
bis(2-Ethylhexyl)phthalate	ND	1	0.65
Di-n-octylphthalate	ND	1	0.34
Benzofluoranthenes	ND	0.2	0.038
Benzo(b)fluoranthene	ND	0.1	0.029
Benzo(k)fluoranthene	ND	0.1	0.0383
Benzo(a)pyrene	ND	0.1	0.047
Indeno(1,2,3-cd)pyrene	ND	0.1	0.0304
Dibenz(a,h)anthracene	ND	0.1	0.0269
Benzo(g,h,i)perylene	ND	0.1	0.0343
N-nitrosodimethylamine	ND	2.5	0.33
Benzidine	ND	2.5	0.24
1,2-Diphenylhydrazine	ND	1	0.28



LEGEND

- LIQUID PROCESS FLOW
- NORMALLY OPEN VALVE
- NORMALLY CLOSED VALVE
- AUTOMATIC CONTROLLED VALVE

Kennedy/Jenks Consultants

SEA-TAC INTERNATIONAL AIRPORT
EXISTING INDUSTRIAL WASTEWATER TREATMENT SYSTEM

WASTEWATER TREATMENT PLANT BLOCK DIAGRAM

006099.04/P01SK001

FIGURE 1

AR 015504

LEGEND

- MANHOLE
- CATCH BASIN
- CLEANOUT
- CLEANOUT
- STORM WATER CONVEYANCE
- DIRECTION OF FLOW
- PERFORATED PIPE
- STORM WATER SYSTEM STRUCTURE IDENTIFICATION
- PROPERTY BOUNDARY
- PORT PROPERTY ACQUISITION BOUNDARY

0 300 600 1200 1800 2400
SCALE IN FEET

PORT PROPERTY ACQUISITION BOUNDARY

OUTFALL 010
SDW-3

OUTFALL 014
SUBBASIN B

OUTFALL 015
SUBBASIN D

OUTFALL 004
SDS-2

OUTFALL 008
SDS-3

OUTFALL 009
SDS-4

OUTFALL 003
SDS-1

OUTFALL 002
SDE-4

OUTFALL 008
SDN-3

OUTFALL 011
SDN-4

OUTFALL 007
SDN-2

OUTFALL 006
SDN-1

ENGINEERING YARD OUTFALL 012

TAXI YARD
OUTFALL 013

LAKE REBA

DES MOINES CREEK EAST TRIBUTARY

TYEE POND

NORTHWEST PONDS

AR 015505

STORMWATER DRAINAGE BASIN COLOR CODES:

N1 SDN1	S1 SDS1	W3 SDW3	IWS
N2 SDN2	S3 SDS3	S3 B	
N3 SDN3	S4 SDS4	S3 D	
N4 SDN4	E4 SDE4	S2 SDS2	

OUTFALL LOCATION

NON-INDUSTRIAL ACTIVITY

REVISIONS

NO	DATE	BY	DESCRIPTION	APP'D

PORT OF SEATTLE

SEA-TAC INTERNATIONAL AIRPORT
COMPREHENSIVE STORM DRAINAGE SYSTEM PLAN AND DESIGN
DRAINAGE BASINS

CONSULTANT'S NO 965048.20
FIGURE 2

SECTION G
SECTION T
SECTION B
SECTION N
DISCIPLINES
DWG

TUB LAKE
CITY OF BURIEN
LAKE REBA
LORA LAKE
SR 518
SDN-2 OUTFALL (007)
NORTH SNOWMELT AREA AND PUMP STATION
SDN-4 OUTFALL (011)
SDN-1
SDN-3 OUTFALL (008)
SDN-1 OUTFALL (006)
MILLER CREEK
MILLER CREEK DETENTION FACILITY
SDN-4
IWS (SDN-2)
NORTH CARGO PUMP STATION
SDN-3
IWS (SDN-2)
IWS
TO GILLIAM CREEK
TY OUTFALL (013)
EY OUTFALL (012)
DUWAMISH RIVER WATERSHED
DES MOINES CREEK WATERSHED
IWS
SDE-4
NORTH SATELLITE PUMP STATION
WALKER CREEK
SR 509
SDS-3
IWS
CENTRAL SNOWMELT AREA AND PUMP STATION
IWS
IWS
SDE-4
MILLER CREEK WATERSHED
SDS-6
IWS
CITY OF SEATAC
BOW LAKE
SDS-7
DES MOINES CREEK WATERSHED
SDS-7 OUTFALL (010)
SDS-6 OUTFALL (014)
SDE-4 OUTFALL (002)
SDS-1
SDS-5 OUTFALL (015)
S 188TH ST
INDUSTRIAL WASTEWATER SYSTEM (IWS) LAGOONS
IWS
SDS-3 OUTFALL (005)
SDS-1 OUTFALL (003)
SDS-2
SDS-2 OUTFALL (004)
SDS-4
EAST BRANCH
SOUTH SNOWMELT PUMP STATION
SOUTH SNOWMELT AREA
POND 2
POND 1
POND 3
TYEE DETENTION POND
NORTHWEST PONDS
WEST BRANCH
SDS-4 OUTFALL (009)
DES MOINES CREEK
S 200TH ST

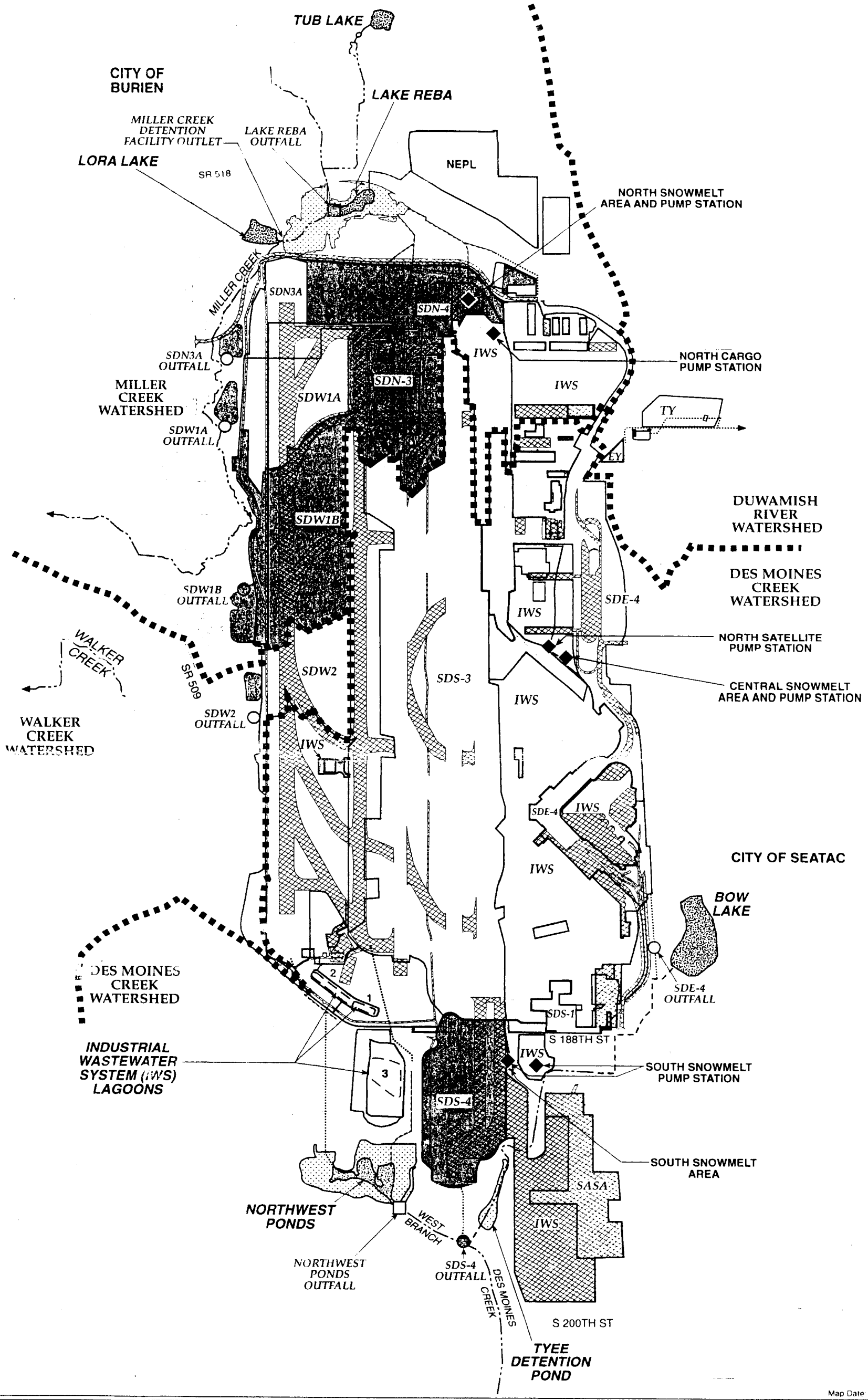
Map Date: Dec 2001

Sea-Tac Airport/Stormwater Management Plan/556-2912-001/01(61A) 12/01 (K)

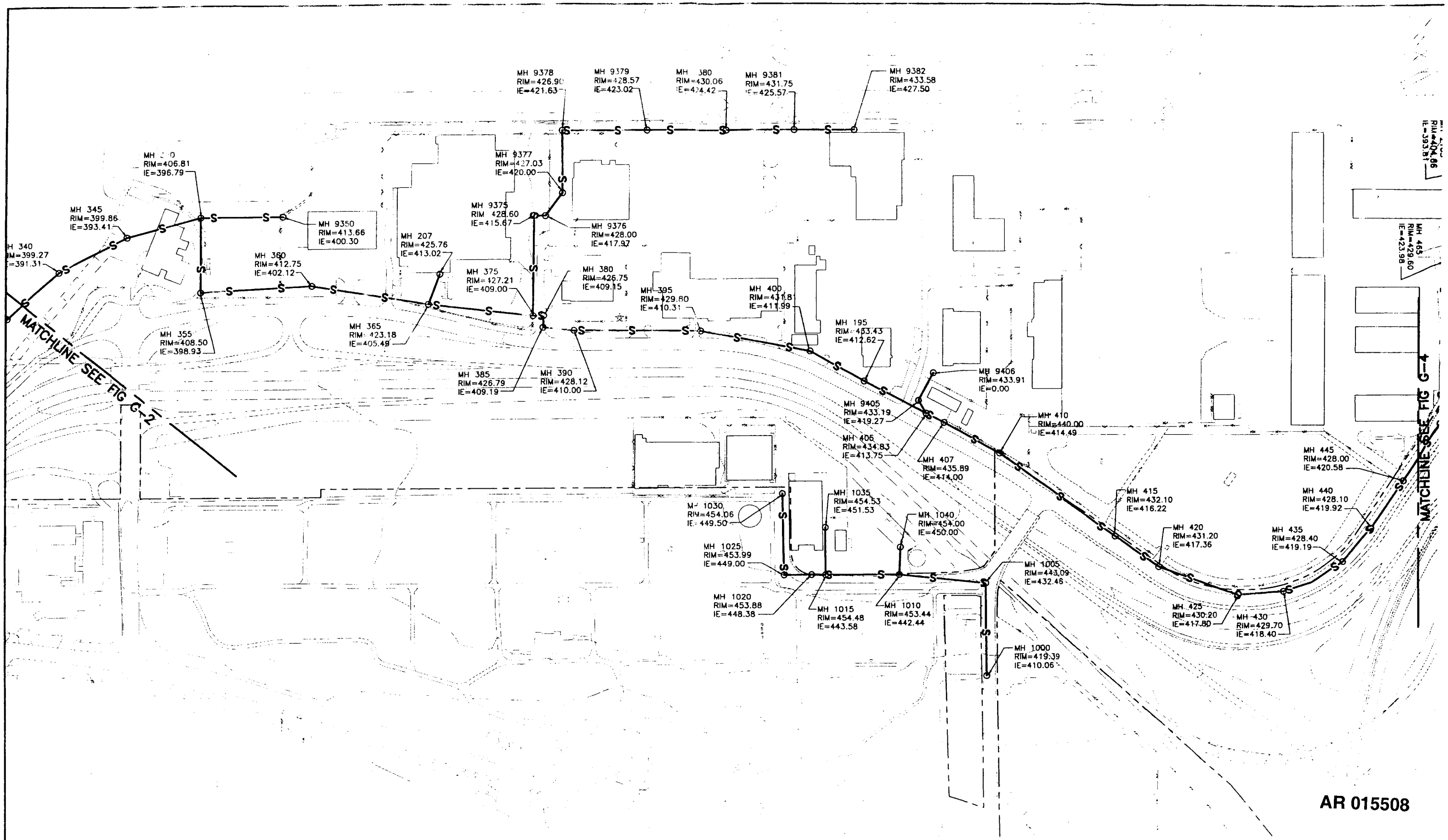
SCALE IN FEET
0 750 1,500
N

- Sea-Tac Airport Drainage Basin Boundary
- SDS-3 SeaTac Airport Drainage Basin Name
- Stream
- Piped Stream
- Pipe (only connections between subabsins and outfalls shown)
- Permanent Water Features
- Live Storage Pool Area
- Watershed Divide
- Drainage Channel
- Snowmelt Pump Station
- Monitoring Location

Existing NPDES Drainage Subbasins, Snowmelt Areas and Pump Stations, and Permit[illegible] Outfalls


TUB LAKE
CITY OF BURIEN
LAKE REBA
MILLER CREEK DETENTION FACILITY OUTLET
LAKE REBA OUTFALL
LORA LAKE
SR 518
NEPL
NORTH SNOWMELT AREA AND PUMP STATION
MILLER CREEK
SDN3A
SDN-4
SDN3A OUTFALL
IWS
NORTH CARGO PUMP STATION
MILLER CREEK WATERSHED
SDN-3
SDW1A
IWS
TY
SDW1A OUTFALL
EY
SDW1B
DUWAMISH RIVER WATERSHED
SDW1B OUTFALL
DES MOINES CREEK WATERSHED
SDE-4
IWS
NORTH SATELLITE PUMP STATION
WALKER CREEK
SR 509
SDW2
SDS-3
CENTRAL SNOWMELT AREA AND PUMP STATION
IWS
SDW2 OUTFALL
WALKER CREEK WATERSHED
IWS
SDE-4
IWS
CITY OF SEATAC
IWS
BOW LAKE
DES MOINES CREEK WATERSHED
SDE-4 OUTFALL
SDS-1
S 188TH ST
INDUSTRIAL WASTEWATER SYSTEM (IWS) LAGOONS
IWS
SOUTH SNOWMELT PUMP STATION
SDS-4
SOUTH SNOWMELT AREA
SASA
IWS
NORTHWEST PONDS
WEST BRANCH
NORTHWEST PONDS OUTFALL
SDS-4 OUTFALL
DES MOINES CREEK
S 200TH ST
TYEE DETENTION POND
Map Date: Dec 2001
Sea-Tac Airport Stormwater Management Plan/556-2912-001/01(61A) 12/01 (K)
N
SCALE IN FEET
0
1,500
Sea-Tac Airport Drainage Basin Boundary
SDS-3 SeaTac Airport Drainage Basin Name
Stream
Piped Stream
Pipe (only connections between subabsins and outfalls shown)
Proposed Stormwater Facilities
Permanent Water Features
Live Storage Pool Area
Watershed Divide
Drainage Channel
New Impervious Surfaces
Snowmelt Pump Station
Consolidated Outfall
Monitoring Location
Proposed NPDES Drainage Subbasins, Snowmelt Areas and Pump Stations, and Permitted Outfalls

AR 015507



AR 015508

HDR Engineering Inc

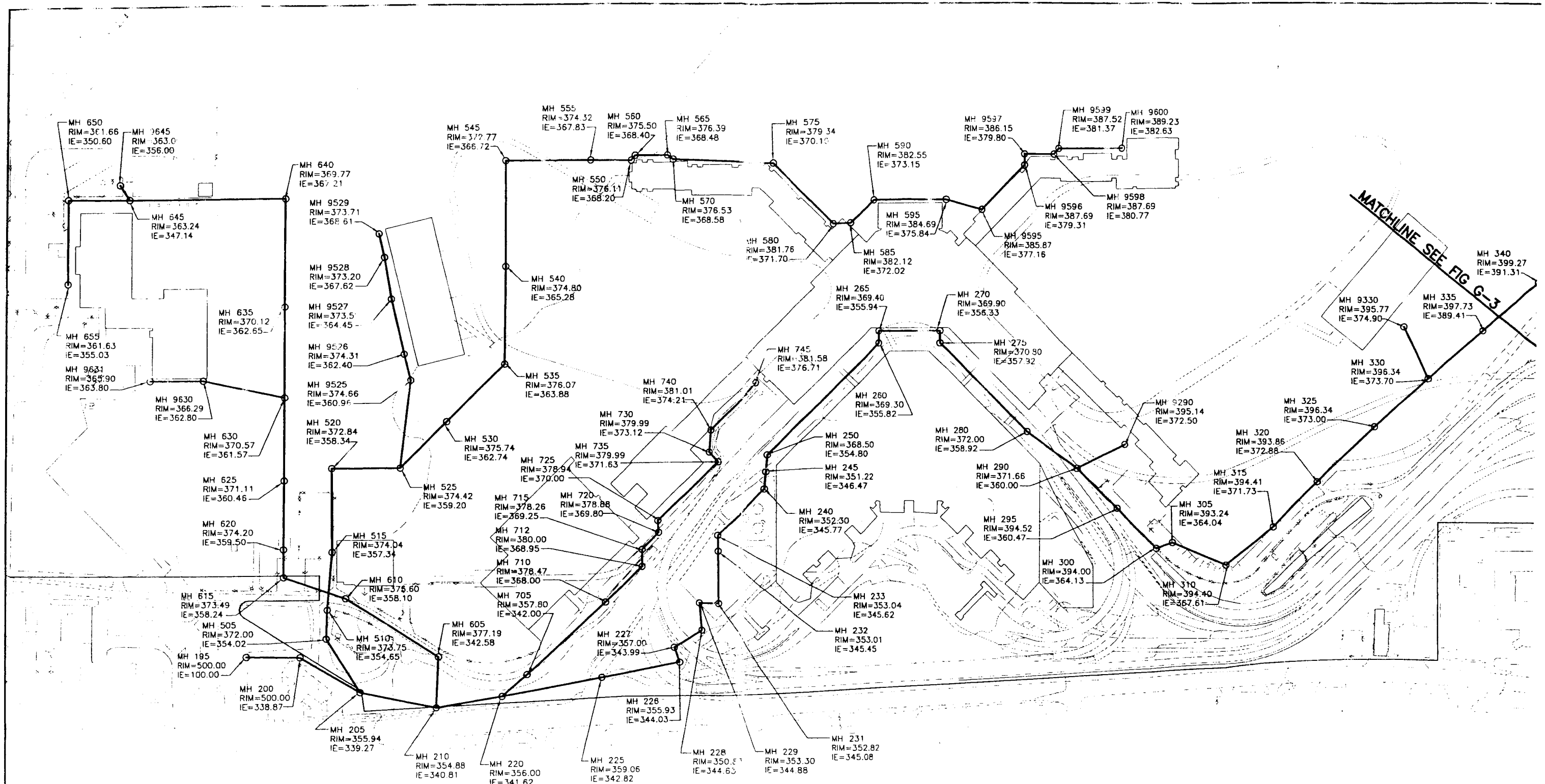
Port of Seattle

Port of Seattle Seattle-Tacoma International Airport
WATER AND SEWER SYSTEM PLANS

SEWER SYSTEM PLAN DETAIL 2

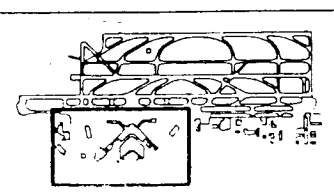
Date
JULY 200

Drawing
G-



AR 015509

KEY MAP



HDR

Port of Seattle

Port of Seattle Seattle–Tacoma International Airport
WATER AND SEWER SYSTEM PLANS

SEWER SYSTEM PLAN DETAIL 1

Date
JULY 200

G-2

MH 2000
RIM=272.31
IE=258.01

MH 2005
RIM=276.78
IE=266.33

MH 2010
RIM=284.04
IE=275.58

MH 2015
RIM=291.48
IE=283.36

MH 2020
RIM=292.72
IE=285.47

MH 2025
RIM=294.08
IE=286.78

MH 2030
RIM=303.00
IE=292.03

MH 2035
RIM=317.12
IE=301.87

MH 2040
RIM=322.55
IE=303.33

MH 2045
RIM=315.53
IE=304.22

MH 2050
RIM=315.98
IE=304.88

MH 2055
RIM=317.55
IE=306.05

MH 2060
RIM=31[illegible]
IE=307.5[illegible]

MH 2065
RIM=337.75
IE=332.07

MH 2070
RIM=352.19
IE=341.89

MH 2075
RIM=356.43
IE=342.46

MH 2080
RIM=384.99
IE=3[illegible]8.97

MH 2085
RIM=391.17
IE=383.92

MH 2090
RIM=394.53
IE=387.08

MH 2095
RIM=399.39
IE=388.34

MH 2100
RIM=403.26
IE=391.91

MH 2105
RIM=404.66
IE=393.81

MH 460
RIM=427.10
IE=422.65

MH 455
RIM=427.10
IE=422.02

MH 450
RIM=423.60
IE=421.39

MH 465
RIM=429.60
IE=423.98

MATCHLINE SEE FIG G-3

MH 445
RIM=428.00
IE=420.58

MH 440
RIM=428.10
IE=419.92

MH 435
RIM=428.40
IE=419.19

MH 420
IE=431.20
IE=417.36

AR 015510

HDR
HDR Engineering, Inc.

1"=350'

KEY MAP

Port of Seattle

Port of Seattle Seattle-Tacoma International Airport
WATER AND SEWER SYSTEM PLANS

SEWER SYSTEM PLAN DETAIL 3

Date
JULY 200

Drawing
G-